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TREASURY MANAGEMENT CONSULTING SUPPORT TO MICRO-DEPOSIT TAKING INSTITUTIONS

FINAL REPORT

April, 2006

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Rural SPEED

Rural Savings Promotion & Enhancement of Enterprise Development

TREASURY MANAGEMENT CONSULTING SUPPORT TO MICRO-DEPOSIT TAKING INSTITUTIONS

FINAL REPORT

Rural SPEED
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TABLE OF CONTENTS

EXECUTIVE SUMMARY

The first four micro deposit taking institutions (MDIs) have been licensed by the Bank of Uganda and have successfully begun mobilizing voluntary savings from the general public. Carrying a significant proportion of demand liabilities has required the MDIs to transform from microcredit NGOs into true financial intermediaries who face all the classic management issues of banking. Liquidity and vault cash planning, capital adequacy and interest rate risk have come into sharp focus and have put the spotlight on the treasury management skills of the emerging MDIs.

Rural SPEED retained Bankakademie International to take stock of the state of treasury management practice at the MDIs and provide expert mentoring in key areas of treasury that have a direct impact on prudential viability, efficiency and sustainable rural service delivery.

The core of the assignment consists of a two-week consulting program carried out on site in Kampala by Dr. Joachim Bald from March 27th to April 9th, 2006. The program included a one-day plenary workshop attended by financial managers and treasury staff from all four licensed MDIs, nine days of on-site consulting at FINCA Uganda, Uganda Microfinance Limited and Uganda Finance Trust, as well as a feedback workshop with the MDIs, international financial sector donors, the Bank of Uganda and other stakeholders.

The assignment confirmed that all three participating MDIs (U-Trust, FINCA, and UML) enjoy the benefit of a competent, amply qualified financial management staff and head office treasury function. Each institution has largely appropriate policies and a sufficient organizational framework for treasury management in place. Challenges remain in fully living the treasury policies, in securing the "buy-in" from the branches and in communicating treasury issues to other business units and the Board. The three most pressing themes in treasury management raised by the MDIs were surprisingly similar:

1. how to rationalize the bank account network with a view to economies on settlement liquidity and transaction charges;

2. what refinements can be made to the vault cash planning process to more accurately predict vault flows at the branch level;

3. how can the internal treasury risk reporting become more meaningful for senior management: which risks should the MDI focus on, what are the most appropriate measurements and reporting formats, against which benchmarks might one assess the individual risk position?

As next steps, the three MDIs are to implement the specific enhancements recommended in regard to account management, vault cash planning, and treasury risk reporting. The necessary adaptations to the Treasury or ALM policies have been drafted and are awaiting Board approval.

After treasury management, the next major topics in MDI financial management are performance measurement and management accounting. Here, the objective is to develop profitability measures for business units, products and possibly even individual clients. Associated topics are profit centers, product costing, funds transfer debits/credits, margining and customer pricing. From the limited observations during this assignment, management accounting is deemed a largely new frontier, which will require substantial process changes and systems investment, but promises a significant return on investment from better product pricing, a more refined customer segmentation and improved resource utilization.

SECTION I

BACKGROUND

Introduction

Over the last 10 years, Uganda has made impressive progress towards a viable, dynamic financial services sector. Financial services play an important role in poverty alleviation as an engine for economic development and as sponsor of entrepreneurial activity. Fifteen commercial banks, seven commercial credit institutions, four licensed micro-deposit taking institutions (MDIs), and numerous smaller microcredit and cooperative organizations are now active in the country. Nonetheless, effective outreach to the rural areas of Uganda remains a challenge. Only 10 percent of the rural population have access to basic financial services and the formal and informal financial sectors still require some structural changes in order to provide the range of services that individuals and businesses require.

The USAID/Uganda strategy for 2002-2008 calls for expanded sustainable economic growth in the rural sector, promoting a connection between productive strategies by the private sector and the expansion of rural financial services. The Rural Savings Promotion & Enhancement of Enterprise Development (Rural SPEED) program was designed to address this challenge and to deepen and strengthen financial services delivery in Uganda's rural areas.

Over the past 16 months, the first four micro deposit taking institutions (MDIs) have been licensed by the Bank of Uganda and have successfully begun mobilizing voluntary savings from the general public. Already, savings deposits amount to roughly one third of total MDI assets and thus provide an important impulse to the business expansion in the sector.

Carrying a significant proportion of demand liabilities adds a challenging new dimension to the business model of the MDIs. They have had to transform from conventional NGO-style providers of microcredit into true financial intermediaries, who face all the classic management issues of banking. Liquidity and vault cash planning, capital adequacy and interest rate risk have come into sharp focus and have put the spotlight on the treasury management skills of the newly licensed MDIs.

The MDIs have previously received valuable training in treasury management that helped address the readiness requirements of the MDI licensing process. Now that MDIs are a year into large scale deposit mobilization, Rural SPEED saw a clear need to take stock of the state of treasury management practice and provide expert mentoring in key areas of treasury that have a direct impact on prudential viability, efficiency and sustainable rural service delivery.

Objective of the Assignment

Rural SPEED retained Bankakademie International for this short-term technical assistance mission in treasury management benefiting the MDIs FINCA Uganda, Uganda Microfinance Limited (UML), Uganda Finance Trust (U-Trust) and PRIDE Microfinance Ltd (PRIDE). The objective of the consultancy was to provide a general review of key concepts of treasury management, specifically for MDIs, conduct a gap analysis of each MDI comparing current staff skill-sets, systems and processes against best practice, and the development of a capacity building program in conjunction with the institution to address any shortcomings identified in the gap analysis.

Methodology

Bankakademie advises a broad perspective on treasury that encompasses the management of the entire intermediation function of a microfinance organization. Treasury therefore encompasses what is often called asset-liability management (ALM). Depending on its interpretation, ALM is often largely

synonymous with treasury, but one also still finds ALM definitions that are very narrowly focused on just interest rate management.

The common denominator of all treasury activities in the broad sense that we advocate is risk: measuring it, controlling it, diversifying it, hedging it. In its essence, treasury management is risk management.

Our treasury methodology is structured along a conventional taxonomy of financial banking risks as set out in Figure 1. All of the classical financial banking risks in Figure 1 also apply to micro- deposit taking institutions. The only exception is equity price risk, as MDIs would rarely hold traded equity shares as investments and certainly do not actively trade in equities as a part of their business model.

Figure 1: Classification of Financial Banking Risks

The conceptual framework for assessing the treasury management capacity of the participating MDIs simply falls back on the risk landscape facing these institutions. The question becomes whether the MDI has appropriate policies and procedures in place to reliably detect risk exposures, to measure and systematically report them to senior management, to facilitate conscious decisions by management about acceptable risk/return trade-offs and to implement risk mitigation strategies that bring the actual risk position into compliance with the limits set by the Board as well as with all applicable laws and prudential regulations.

SECTION II

ACTIVITY SUMMARY

The core of this treasury assignment consists of a two-week consulting program carried out on site in Kampala by Bankakademie International consultant Dr. Joachim Bald from March 27th to April 9th, 2006. The program was opened by a one-day plenary workshop attended by financial managers and treasury staff from all four licensed MDIs in Uganda. The workshop served to set out the conceptual framework, highlight typical issues in microfinance treasury and to take stock of concerns raised by the financial managers that cut across all four institutions.

The consultant and Eldard Ssebbale of Rural SPEED then spent three times three days working with the financial managers and treasury teams at each institution except for PRIDE, who had opted to participate only in the plenary sessions. The on-site days were deployed in a mix of one-on-one coaching sessions with the treasury manager and small working meetings with the larger financial management team. The Heads of Credit and some branch managers joined the workshops as appropriate to address topics that directly interface with the responsibilities of the operating divisions. The consultant also had the opportunity to visit a U-trust and a UML branch in Kampala and get a sense of how the branch managers perceive the effectiveness of treasury policies, in particular with regard to vault cash management.

The consulting mission ended with a stakeholder workshop on the final Friday afternoon that was attended by all four MDIs, by representatives from the main international donors active in the Ugandan financial sector and by the Bank of Uganda manager in charge of MDI supervision, Mr. Aomu Mackey. The closing workshop provided a valuable platform for sharing initial observations and recommendations regarding the state of treasury management at the MDIs and the prudential and reporting framework governing their operations.

SECTION III

CONCLUSIONS AND RECOMMENDATIONS

From the on-site work sessions we can attest that all three participating MDIs (U-Trust, FINCA, and UML) enjoy the benefit of a competent, amply qualified financial management staff and head office treasury function. All three institutions have largely appropriate policies and a sufficient organizational framework for treasury management in place: an Asset-Liability Management Committee (ALCO) has been nominated and meets regularly, an adequately staffed treasury unit has been installed, and regular reporting lines to the Board are in effect.

Challenges remain in fully living the treasury management policies, in securing the "buy-in" from the branches and in communicating treasury issues to other business units and the Board. The most pressing themes in treasury management raised separately by all three MDIs were surprisingly similar:

1. how to rationalize the account network with commercial bank correspondents with a view to economies on settlement liquidity and transaction charges,

2. What refinements can be made to the vault cash planning process that would more accurately predict vault flows at the branch level and could possibly lead to a reduction in average vault holdings?

3. how can the internal treasury risk reporting become more meaningful as an actionable information resource for senior management: which risks should the particular MDI focus on, what are the most appropriate measurements and reporting formats, against which benchmarks might the MDI assess its individual risk position?

We responded to these three topics with a series of detailed recommendations that we developed jointly with the treasury staff in the course of the on-site workshops. Although fundamentally similar across all three MDIs, we tried to work our recommendations into the specific institutional context, the existing policy framework and organization and to convey the concepts within the terminology and planning formats already adopted at the particular MDI. These MDI-specific versions of our advice and the resulting action plans are captured in the individual minutes provided in the Appendix. The policy-level changes have already been implemented into the existing Treasury or ALM Policies as attached and are ready for adoption by the MDI Boards.

In the following, we outline the common elements of our advice to the MDIs in response to each of the three main themes above.

Rationalizing the Correspondent Account Network

All MDIs in Uganda have made the strategic decision to leverage off the commercial banking infrastructure in transacting book balance transfers and procuring vault cash to their branches. Rather than sending an armored car with a relatively modest amount of cash from Kampala head office to an upcountry branch, the MDI would draw or deposit cash via an account with the nearest commercial bank branch in the area.

Particularly in the more distant rural areas, commercial bank branches have only very recently been fully integrated into the banks' on-line transaction and communication networks. Without on-line links, however, MDIs were compelled to open separate current accounts for each of their branches at various decentralized commercial bank offices. This has led to a proliferation of bank accounts, such that the MDIs easily maintain a total of 40-50 separate correspondent accounts each. All of these accounts must be provisioned with liquidity for occasional vault cash draws and checks, must be tightly reconciled and audited and the signature authorities must be kept up to date.

Now that commercial bank branches have been fully integrated into the head office network, it has become possible to draw and deposit vault cash via a rural commercial bank branch to the debit or credit of a central settlement account maintained at the bank's head office.

We therefore recommend that the MDIs proceed as follows with regard to the rationalization of their correspondent network:

- MDIs should consider the centralization of all *outgoing* payments in a single clearing account with one of the major banks. Such outgoing payments consist of vault cash draws by the branches, loans disbursed via check, as well as all operating expenses except for minor petty cash payments covered in vault cash.
- Using a primary settlement account also requires that the MDI introduce a central payment queue for operating expenses and other accounts payable. Operating payables originating at the branch level must be noticed to head office accounting for payment, where they are pre-captured on the financial accounting system, are diarized for payment and thus become visible in the short-term cash flow forecasts.
- The consolidation of settlement accounts will reduce the total clearing balances required for payments compared to provisioning multiple accounts with liquidity. It also improves the negotiating power with that correspondent to lower per-transactions fees on the consolidated volumes.
- For the convenience of receiving client payments on loans or savings accounts, the MDIs may still require additional payment and cash acceptance points outside of their own branches. For this purpose, "collection accounts" with most major banks, sometimes at multiple branches, are still necessary, but they do not need to be provisioned with liquidity because they will not be used for outgoing payments. Instead, it is recommended that the MDI will have standing orders to sweep any receipts daily or weekly into the designated primary clearing account.
- In a further step, the MDIs should strive to reduce the number of the decentralized collection accounts to ideally just one per major commercial bank, most likely maintained at that bank's head office. It is recognized that some bank branches might not be keen on regularly processing payments for MDI clients via accounts not held by that branch, as the bank's profit center accounting may not give credit for these transactions. Where the service quality might suffer otherwise, the MDI should be prepared to maintain some additional decentralized accounts with local bank branches.
- The envisaged thinning out of bank accounts will also greatly simplify maintenance and internal control of authorized signatory registers with the banks. The remaining decentralized "collection-only" accounts do not require signature authorities at the MDI branch level and can be restricted to just a few head office treasury officers.
- Branch level signatory powers to the central clearing account are only necessary to the extent required by the banks to disburse vault cash to branch staff (and branch agents) on pay-against-identification instructions issued by head office.

Vault Cash Planning

Once the MDI introduces a central payables queue for operating expenses and other book balance transfers, liquidity planning at the branch level is simplified to capturing the effects of vault cash transactions only. These include loan disbursements and installment receipts, savings deposits and withdrawals as well as MoneyGram or Western Union remittance receipts and disbursements.

While liquidity planning overall should cover a forward time horizon of at least six months, vault cash planning can be restricted to a pure short-term perspective of one to two weeks, because other liquid assets can quickly and at relatively modest expense be converted to vault cash and vice versa.

All three MDIs face a similar underlying conflict with branch management over vault cash planning. While head office treasury is acutely aware of the cost of idle vault cash, branch managers have a natural interest in maintaining the absolute maximum insured amount in their vaults. As long as the vault cash holding cost is not made visible at the branch level, maintaining maximum balances appears attractive, because it removes the need for careful planning and eliminates the risk of stock-outs or labor-intensive urgent shipments.

As collaboration from the branches in regard to vault cash planning was lacking at all three MDIs, our recommendations for improvement in the vault cash area were again quite similar:

- The need for more accurate vault cash forecasts should be motivated to the branches by demonstrating the opportunity cost of holding vault balances while simultaneously drawing on overdraft borrowing facilities priced at 19% p.a. and above. The costs may even be higher than the overdraft rate suggests, if the overdraft facility is secured by partial cash collateral, as is typical for the MDIs. The collateral earns significantly less interest than the overdraft rate paid, thus creating an additional cost that should be factored into the effective borrowing rate on the net proceeds of the overdraft facility. Assume an MDI borrows at the margin by drawing on a prime plus 3% = 22% overdraft with a 25% parallel cash collateral requirement. If one adds the negative interest spread earned by the MDI on the collateral (say 22%-8% = 14%) to the funding cost on the net usable liquidity of 75% of each shilling borrowed, the effective annual cost of overdrafts amounts to (0.22+0.14*0.25)/0.75 = 34% p.a. At average vault holdings across the branch network of a typical MDI of UGS 800 Mio, a 25% reduction of average vault balances could therefore save UGS 68 Mio per year in interest cost alone.
- It is recommended that the MDIs plan vault cash flows per branch on a daily basis for at least a rolling full week. Using a standard daily cash planning format all branches should be asked to compile a thorough forecast of cash disbursements and collections from lending and savings by every Thursday or Friday for the coming week.
- We recommend a daily vault cash planning format as set out below in Figure 2 that incorporates an anticipatory vault cash approach. This process defines minimum and maximum vault holding limits and derives target vault levels and shipments based on the forecasted vault cash flows:

DAILY VAULT CASH PLANNER — **Sample Branch X**

Date	4/22/2006	Monday	Tuesday	Wednesday	Thursday	Friday	Total for Week
Week No.	14						
Last Closing Vault Balance (Friday)		30,000,000					
Net Post-Close Transactions		500,000					
Pending Cash Shipments (in transit)		-					
Opening Cash Balance		30,500,000	34,850,000	31,750,000	32,750,000	29,850,000	30,500,000
Add:	Loan Collections	8,000,000	7,000,000	8,000,000	7,000,000	15,000,000	45,000,000
	Savings Deposits	1,000,000	500,000	200,000	1,000,000	2,000,000	4,700,000
	Western Union Receipts						
	Other cash receipts	-	100,000	-	100,000	100,000	300,000
	Total Receipts	**9,000,000**	**7,600,000**	**8,200,000**	**8,100,000**	**17,100,000**	**50,000,000**
Less:	Disbursements - Loan Product 1	4,000,000	3,000,000	7,000,000	3,000,000	4,000,000	21,000,000
	Disbursements - Loan Product 2	3,000,000	2,000,000	2,000,000	2,000,000	2,000,000	11,000,000
	Disbursements - Loan Product 3	4,000,000	5,000,000	5,000,000	5,000,000	3,000,000	22,000,000
	Savings Withdrawals	500,000	600,000	700,000	800,000	1,000,000	3,600,000
	Western Union Disbursements						
	Payroll Disbursement Service						
	Other cash expenses	650,000	100,000	-	200,000	100,000	1,050,000
	Total Disbursements	**12,150,000**	**10,700,000**	**14,700,000**	**11,000,000**	**10,100,000**	**58,650,000**
Daily Net Vault Cash Flow		- 3,150,000	- 3,100,000	- 6,500,000	- 2,900,000	7,000,000	- 8,650,000
Forecasted Closing Balance		27,350,000	31,750,000	25,250,000	29,850,000	36,850,000	21,850,000
Maximum Vault Limit		50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000
Minimum Vault Limit		20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000
Target Vault Level		27,500,000	27,500,000	27,500,000	20,000,000	27,500,000	27,500,000
Cash Delivery / Deposit Triggered		7,500,000	-	7,500,000	-	-	15,000,000
Closing Balance after Shipments		34,850,000	31,750,000	32,750,000	29,850,000	36,850,000	36,850,000

Figure 2: Daily Vault Cash Planning Format

- The following steps are necessary in order to introduce the vault planning system:

1. Head Office Treasury must workshop the suggested planning format with branch managers over the next few weeks to introduce them to the vault planning framework and request their input into finalizing the format and process.
2. Head Office Treasury derives estimates of the cycle time and the fixed per shipment cost of a vault cash delivery for each branch.
3. Based on typical past vault cash flows, cycle time, shipment cost and the vault cash holding costs (interest, insurance), treasury will work with the branch managers to establish new minimum and maximum vault limits per branch.
4. As the branches adopt the vault cash planning framework, they will track the accuracy of their forecasts against the realized actual flows on a weekly basis.
5. Head Office Treasury will review the performance of the forecasts at least quarterly and will in due course establish target ranges for the forecast accuracy, similar to the format set out in Figure 3 below.

FORECAST PERFORMANCE **Sample Branch X**

Date	4/22/2006	Forecast Week 14	Actual Week 14	Actual / Forecast	Target Range
Opening Cash Balance		**30,500,000**	**30,500,000**	**100.00%**	**100.00%**
Add:	Loan Collections	45,000,000	43,000,000	95.56%	
	Savings Deposits	4,700,000	5,200,000	110.64%	
	Western Union Receipts	500,000	300,000	60.00%	
	Other cash receipts	300,000	500,000	166.67%	
	Total Receipts	**50,500,000**	**49,000,000**	**97.03%**	**80% - 125%**
Less:	Disbursements - Loan Product 1	21,000,000	20,578,000	97.99%	
	Disbursements - Loan Product 2	11,000,000	10,500,000	95.45%	
	Disbursements - Loan Product 3	22,000,000	15,500,000	70.45%	
	Savings Withdrawals	3,600,000	3,200,000	88.89%	
	Western Union Disbursements	1,000,000	1,200,000	120.00%	
	Payroll Disbursement Service	4,000,000	4,000,000	100.00%	
	Other cash expenses	1,050,000	1,080,000	102.86%	
	Total Disbursements	**63,650,000**	**56,058,000**	**88.07%**	**85% - 118%**
Net Vault Cash Flow		**- 13,150,000**	**- 7,058,000**		

Figure 3: Vault Actual vs. Forecast Performance Tracking

Honing the Internal Treasury Risk Reporting

A consistent theme in the work sessions with the treasury staff at all three MDIs was the search for compact risk indicators that could be used as operating parameters guiding the daily treasury operations, particularly in respect to liquidity risk.

There was a good measure of uncertainty among the MDIs what may constitute such appropriate risk indicators and benchmarks beyond the prudential ratios postulated by the Bank of Uganda. Clearly, the prudential indicators (capital adequacy, reserve ratio and loan-to-deposit ratio) monitored by the Bank of Uganda are in line with international regulatory practice, but they are not enough to guide day-to-day liquidity management. In fact, the Bank of Uganda reserve limits (15% of voluntary deposits) are far from binding when deposit volumes are still small, while the loan-to-deposit ratio threshold at 85%, even after the comprehensive adjustments allowed for MDIs may not be a realistic index of liquidity risk.

A set of common balance sheet ratio measures of liquidity is defined below:

Figure 4: Common Liquidity Ratios

Figure 5 provides a comparative snapshot of the liquidity ratio values for all four licensed MDIs in

Ratio Name	Definition
Cash Position Indicator	$\frac{\text{Cash and deposits due from banks}}{\text{Total assets}}$
Capacity Ratio	$\frac{\text{Net loans}}{\text{Total assets}}$
Purchased Funds Ratio	$\frac{\text{Short-term borrowings and purchased funds}}{\text{Total assets}}$
Loan-to-Deposit Ratio	$\frac{\text{Net loans}}{\text{Total deposits}}$
Reserve Ratio	$\frac{\text{Cash assets}}{\text{Customer deposits}}$

Uganda as per the 31-Dec-2005 quarterly financial statements.

Ratio	U-Trust	FINCA	UML	PRIDE
Cash Position Indicator	16.64%	4.36%	11.42%	3.53%
Other Liquid Assets / Total Assets	9.61%	13.03%	7.31%	31.63%
Total Liquid Assets / Total Assets	26.25%	17.39%	18.73%	35.16%
Capacity Ratio	56.58%	65.82%	67.33%	55.95%
Total Deposits / Total Assets	35.74%	30.82%	23.22%	29.77%
Purchased Funds Ratio	8.34%	5.83%	17.13%	25.65%
Loan-to-Deposit Ratio (unadjusted)	158.29%	213.56%	298.97%	187.97%
Total Reserve Ratio (Liquid Assets / Total Deposits)	73.43%	56.44%	80.69%	118.10%

Figure 5: MDI Liquidity Ratios as of December 2005

The ratio overview immediately shows that a reserve ratio of 15% liquid assets to deposits is not a binding constraint on the MDIs. It is clearly dominated by other motives for holding liquid assets, such as expected loan portfolio growth and operating expense coverage. The capacity ratio and the liquid assets to total assets ratio, for example, provide a much more direct measure of the ability to accommodate earning assets growth and to fund near-term operating expenses and capital expenditure.

The recommendation to the Ugandan MDIs at the current stage of their development is to track and set policy limits in terms of asset liquidity (liquid assets / total assets), available short-term borrowing capacity, and degree of purchased funds utilization.

A reasonable benchmark for liquid assets to total assets among MDIs could be set around the 15%-20% threshold. The specific value fixed at the individual MDI could, for example, be derived from a 3-6 months net flow coverage in respect to portfolio growth and operating expenses.

Short-term borrowing ability, particularly on an unsecured basis, is an essential resource in liquidity management. Treasury should be given specific targets for growing the size of unsecured committed borrowing lines with commercial bank counterparties. The actual utilization of these lines would also need to be tracked and in normal operations should not exceed a limit of say 50%.

The proportion of volatile, wholesale short-term funding as measured by the Purchased Funds Ratio should under normal business conditions remain below a benchmark in the order of 20% of total assets. However, higher proportions of purchased funds can be acceptable, if these resources are mainly funding liquid short-term assets rather than flowing into the loan portfolio. PRIDE who display a relatively high Purchased Funds Ratio also maintain the highest proportion of liquid assets and therefore could make a case for tracking a net non-core funding dependence rather than just the absolute purchased funds proportion (see discussion of the Regulatory Loan-to-Deposit Ratio below).

Regulatory Loan-to-Deposit Ratio

The conventional rationale of a Loan-to-Deposit ratio as a liquidity measure is that (core) deposits represent “good”, stable, long-term and inexpensive funding. The more of the illiquid loan portfolio is funded by this stable source, the lower the liquidity risk.

This perspective carries an implicit assumption about alternative funding sources: if not by deposits, then loans at least at the margin will be funded by volatile short-term purchased funds. In the case of MDIs, however, this is not necessarily true. Most carry ample equity and long-term concessionary debt and only very modest short-term commercial borrowings.

If the liquidity risk concern behind tracking the Loan-to-Deposit ratio is indeed the reliance on volatile short-term wholesale borrowing, then a more direct measure of volatile funding might be more appropriate for MDIs, e.g. the Purchased Funds Ratio.

The most obvious motivation for a loan-to-deposit benchmark of 85% is the marginal perspective on the utilization of additional deposits raised from the general public. Of every 100 shilling in new deposits, 15 should be held in liquid assets (reserve ratio) and 85 may be placed in loans. However, as MDIs begin to mobilize deposits, the Loan–to-Deposit Ratio converges towards 85% from above, not from below, which can be clearly seen in Figure 5. For this reason, the Bank of Uganda has devised a number of adjustment calculations to the conventional Loan-to-Deposit Ratio for MDIs that make the 85% benchmark more realistic: The basic idea of the adjustments is to deem fixed assets and long-term investments financed by equity and long-term debt and to then look at the overhang of the loan portfolio over all other sources of funding, which is assumed financed by deposits. This overhang may not exceed 85% of deposits.

The specific calculation goes as follows, see Figure 6:

Computation of Loans Financed by Deposits

Equity		3,000,000
less:		
Net Fixed assets	2,000,000	
Other assets	1,500,000	
(Encumbered) Balances with Fin.Institutions	1,000,000	4,500,000
Residual Capital		(1,500,000)
Total Loan Portfolio		11,000,000
Less		
Residual Capital	(1,500,000)	
Subordinated debt	2,500,000	
Longterm Debt	3,000,000	
Shortterm Borrowings	1,500,000	
Other Current Liabilities	1,800,000	7,300,000
Net Loan Balance Financed by Deposits		**3,700,000**
Voluntary Deposits		**4,500,000**
Loan-to-Deposit Ratio (Net Loan Balance / Voluntary Deposits)		**82.22%**

Figure 6: Computation of Adjusted Loan-to-Deposit Ratio for MDIs

The adjustments to the Loan-to-Deposit Ratio represented in Figure 6 do generally achieve the objective of bringing the reported ratio below the 85% mark, but unfortunately compromise the value of the ratio as a liquidity risk indicator. Moreover, the ratio at times sets a binding restraint that forces the MDI into unproductive accommodating actions, such as unnecessarily drawing on overdraft lines in order to bring up short-term borrowing, which counts as a deduction from the net loan balance deemed funded by deposits. This is counterintuitive because it implies that volatile short-term borrowing is a "better" funding source in terms of liquidity risk than customer deposits.

On closer inspection, the adjusted loan-to-deposit calculation imposes an indirect restriction on unencumbered liquid assets to total assets, thus prompting additional short-term borrowing, but without giving proper credit for compulsory deposits on the funding side. This becomes clearer when one looks at the balance sheet in Figure 7 that corresponds to the sample calculation in Figure 6:

Assets		**Liabilities & Equity**	
Net Fixed Assets	2,000,000	Equity	3,000,000
Other Current Assets	1,500,000	Subordinated Debt	2,500,000
Loan Portfolio	11,000,000	Long-Term Debt	3,000,000
Encumbered Liquid Assets	1,000,000	Other Current Liabilities	1,800,000
Unencumbered Liquid Assets	1,300,000	Compulsory Deposits	500,000
		Voluntary Deposits	4,500,000
		Purchased Funds	1,500,000
Total	**16,800,000**	**Total**	**16,800,000**

Figure 7: Sample MDI Balance Sheet

By simply changing the proportion of compulsory deposits to voluntary deposits to 2 Mio compulsory and 3 Mio voluntary instead of the split in Figure 7, the adjusted Loan-to-Deposit ratio now becomes 3.7 Mio divided by 3 Mio = 123.33% indicating a drastically increased liquidity risk. However, by relying more on compulsory deposits than an voluntary demand balances, the liquidity risk can in reality only have decreased.

Our recommendation to the Bank of Uganda is to de-emphasize the Loan-to-Deposit Ratio even after the above adjustments and to rather attach benchmarks directly to the overall asset liquidity. If one

wants to calculate a form of net dependence on liquidity-risky funding sources, which is the direction the adjusted Loan-to-Deposit Ratio is already leaning towards, we recommend to apply a more conventional net non-core funding dependence measure:

(Other Current Liabilities + Purchased Funds - Other Current Receivables - Unencumbered Liquid Assets) / Net Loans.

In the above balance sheet example, we calculate net non-core funding of 500,000, which amounts to 4.5% of net loans. This would typically be regarded as a rather un-critical non-core funding dependence and indicate low liquidity risk.

At this point, a further issue with the regulatory liquidity benchmarks should be addressed. The MDIs question the rationale for requiring a 100% liquid asset reserve against the Loan Insurance Fund, which represents the compulsory deposits required from borrowers under some micro-lending products. Compulsory deposits represent no net liquidity risk because they are only redeemable after settling the parallel loan. From a prudential perspective, there is no risk to the general public because depositors could simply off-set compulsory deposits against their loans in the event of an MDI insolvency.

Finally on the subject of balance sheet ratios and benchmarks, the MDIs would see it as an important benefit, if the Bank of Uganda could publish the aggregate financial returns of the licensed MDIs. This would assist the MDIs in benchmarking their own liquidity position against the industry totals.

Flow Measures of Liquidity Risk

All MDIs already compile cash flow forecasts as a liquidity planning tool under a normal (non-crisis) business assumption. However, the presentation of these reports should be restructured to better distinguish between the “exogenous” net funding requirements and the explicit accommodating actions initiated by treasury, i.e. short-term borrowing and investing. Such a presentation gives better early visibility of unsustainable structural liquidity short-falls that must be addressed strategically by raising long-term funding or adjusting the business growth path. One should not implicitly assume that all net-funding requirements are back-filled to the last cent by the limited short-term instruments at the disposal of treasury.
Only one of the three MDIs regularly examines a liquidity crisis scenario. This is a shortcoming that can easily be addressed based on a contractual maturity gap report that is already compiled by all three MDIs.

See **Figure 8 for a generic example from a Turkish bank:**

Current Period	Demand	Up to 1 Month	1-3 Months	3-6 Months	6-12 Months	1 Year and Over	Undistributed (*)	Total
Assets								
Cash (cash in vault, foreign currency cash, money in transit, cheques purchased, precious materials) and Balances with the Central Bank of Turkey	85,080	612,420	-	-	-	-	-	697,500
Due from banks and other financial institutions	108,990	138,598	5,000	9,000	7,000	-	-	268,588
Trading securities	-	681	367	635	17,120	32,531	-	51,334
Money market placements	-	142,000	-	-	-	-	-	142,000
Securities available-for-sale	9	-	-	-	71,720	333,934	-	405,663
Loans	-	806,812	259,896	336,154	261,895	276,747	-	1,941,504
Securities held-to-maturity	-	-	898	-	65,449	-	-	66,347
Other assets	-	44,552	4,222	3,185	8,383	10,953	203,737	275,032
Total Assets	**194,079**	**1,745,063**	**270,383**	**348,974**	**431,567**	**654,165**	**203,737**	**3,847,968**
Liabilities								
Bank deposits	9,683	57,555	10,146	-	1,000	-	-	78,384
Other deposits	586,042	1,488,763	163,322	26,332	35,605	116	-	2,300,180
Money market borrowings	-	310,835	8	-	-	-	-	310,843
Funds provided from other financial institutions	-	28,178	32,066	61,953	297,628	155,015	-	574,840
Marketable securities issued	-	-	-	-	-	-	-	-
Miscellaneous payables	41,982	-	-	-	-	-	-	41,982
Other liabilities	-	71,145	31,682	1,683	4,022	9,675	423,532	541,739
Total Liabilities	**637,707**	**1,956,476**	**237,224**	**89,968**	**338,255**	**164,806**	**423,532**	**3,847,968**
Net Liquidity Gap	**(443,628)**	**(211,413)**	**33,159**	**259,006**	**93,312**	**489,359**	**(219,795)**	-

Figure 8: Contractual Maturity Liquidity Gap Report

A contractual maturity liquidity gap report classifies all assets and liabilities as per their earliest contractual maturity. In its pure form, such a report is actually very rarely used and only of limited information value for management. The net liquidity gap in Figure 8 indicates that there are 443,628 units more demand liabilities than demand assets, which could lead to the conclusion that the institution has a severe gap between immediately payable claims and liquid means of payment. This would, of course, negate the basic tenet of banking, namely that demand deposits have quite a long average experiential life and indeed represent the bedrock of long-term stable funding.

A liquidity gap report also does not account for any future new business activity and departs from a static liquidation perspective. The report only produces useful management information, if the short-term liability side is refined with run-off assumptions for relevant short intervals under a crisis scenario. For example, one could examine a potential crisis of confidence in the MDI sector where one might assume that 30% of demand and time deposit would run off over a time horizon of 15 business days. An even more drastic run-off might be assumed for wholesale borrowings and larger time deposits. Overdraft lines would be cancelled and become immediately payable. Under such a specific scenario, a contractual maturity table would help to determine the liquid asset coverage compared to the run-off balances. Such a run-off scenario and liquid assert coverage ratio should become part of the regular ALCO reporting package.

Interest Rate Risk Measures

We define interest rate risk as the possibility of an adverse impact on net income and on the value of assets and liabilities in response to changes in the prevailing interest rate levels.

In working with the three MDIs, we found that the practical understanding of interest rate risk and how it might affect the MDI business was not yet as fully developed as on the liquidity risk side. In our assessment, the awareness for interest rate risk focuses too narrowly on just the absolute rate level risk. This is the possibility of loss resulting from market interest rates in Ugandan Shilling or a foreign currency to which the institution has substantial exposures going up or down during a given period. This view of rate level risk implies the assumption that the rate change would affect all interest bearing assets and liabilities uniformly and at the next re-pricing opportunity.

Such narrowly defined rate level risk is conventionally reported in the format of an interest rate risk re-pricing gap, similar to the sample format set out in Figure 9. As the MDIs make primarily short-term working capital loans and generally pay variable rates on their domestic and international debt funding, this type of rate level risk exposure is typically very small. Hence the perception that interest rate risk is not a significant concern for MDIs. However, this perception neglects the very important basis risk dimension of interest rate risk.

Basis risk arises from imperfect correlation between changes in a reference market rate and product specific rates that apply to individual asset and liability line items in the balance sheet. Substantial basis risk exposure must be expected in the MDI business model and must be closely tracked by Management ALCO. Specifically, one can expect that yields on the microlending portfolio and the savings interest paid on retail deposits will display only a weak and asymmetrical link to rate level changes in the wholesale money market.

We therefore recommend that ALCO at all MDIs regularly review the impact of potential changes in market driver rates (Uganda Prime Overdraft rate, LIBOR, EURIBOR) on their net income forecast in a simulation with detailed basis effect assumptions. A template for such a net income simulation is shown in Figure 10.

Interest Rate Sensitivity UGS '000	Re-Pricing or Maturing					
	Within 6 months	6 months to 1 year	1 to 3 years	3 to 5 years	After 5 years	Total
Loans	25,000	3,000	6,000	3,000	10,000	47,000
Investment Securities	2,500	2,000	9,000	2,000	8,000	23,500
Money Market Deposits	4,500					4,500
Other Earning Assets		2,000				2,000
Total Earning Assets	32,000	7,000	15,000	5,000	18,000	77,000
Interest-Bearing Deposits	20,000	5,000	5,000	2,000	10,000	42,000
Short-Term Borrowings	20,000					20,000
Long-Term Debt	4,000	1,000	2,000	5,000	5,000	17,000
Other Liabilities			1,000		9,000	10,000
Total Liabilities	44,000	6,000	8,000	7,000	24,000	89,000
Gap	-12,000	1,000	7,000	-2,000	-6,000	-12,000
Cumulative Gap	-12,000	-11,000	-4,000	-6,000	-12,000	
Cum. Gap % of Total Assets (UGS 100,000)	-12.0%	-11.0%	-4.0%	-6.0%	-12.0%	

FIGURE 9: INTEREST RATE RISK RE-PRICING GAP

Driver Rates	Basis Effect Assumptions			Net Income Effect	Q1	Q2	Q3	Q4
Uganda Prime Overdraft Rate Up-Move								
+200 Basis Points	Assets							
	Treasury Bill Yield	+100 bps	immediate					
	Term Deposit Yield	+ 75 bps	immediate	Budgeted Net Income	xx	xx	xx	xx
	Portfolio Yield	+100 bps	in six months	Scenario Net Income	xx	xx	xx	xx
				Net Income Impact	xx	xx	xx	xx
	Liabilities			**Cumulative Net Income Impact**	**xx**	**xx**	**xx**	**xx**
	UGS Floating Rate Borrowings	+200 bps	immediate					
	UGS Overdrafts and Purchased Funds	+200 bps	immediate					
	Savings Deposits	unchanged						
Uganda Prime Overdraft Rate Down-Move								
- 200 Basis Points	Assets							
	Treasury Bill Yield	-75 bps	immediate					
	Term Deposit Yield	-100 bps	immediate	Budgeted Net Income	xx	xx	xx	xx
	Portfolio Yield	unchanged		Scenario Net Income	xx	xx	xx	xx
				Net Income Impact	xx	xx	xx	xx
	Liabilities			**Cumulative Net Income Impact**	**xx**	**xx**	**xx**	**xx**
	UGS Floating Rate Borrowings	-200 bps	immediate					
	UGS Overdrafts and Purchased Funds	-100 bps	in three months					
	Savings Deposits	unchanged						

Figure 10: Net Income Scenario Analysis based on Market Driver Rates

The calculations for the income simulation are can very simply be integrated into existing MS Excel financial statement models. All three MDIs already have linked Income Statement / Balance Sheet / Cash Flow Statement models that reflect the operational budget and business forecasts for the business year and are regularly updated with the monthly actuals. The simulation now simply consists of changing the interest rate assumptions that were multiplied with the forecasted balance sheet

volumes in that model as per the scenario and then tracking the net income change over the coming quarters resulting from such a rate shock. This net income simulation produces a very compact and easily understood measure of the exposure to market interest rate changes in local and relevant international driver rates.

Foreign Exchange Rate Risk Measures

Foreign exchange (forex) rate risk arises from unexpected movements in the level of exchange rates that may lead to losses in the home or reporting currency of the entity.

Although MDIs are not permitted and are not engaging in forex-denominated transactions with their clients, forex exposures may arise through EUR- or USD- denominated liabilities provided by international donors and investors. MDIs address this risk by maintaining matching forex assets against their forex liabilities, generally by arranging a "poor man's" currency swap with a local commercial bank. Under this "swap" arrangement, the MDI holds the countervalue of the international funding in a term deposit in that same currency and borrows against this cash collateral in local currency. Depending on the size of the facility and the perceived opportunity loss on the forex deposit rates paid by the commercial banks, MDIs sometimes opt not to fully hedge their forex liabilities.

So far, none of the MDIs have a systematic reporting on the extent of a possible open forex position (also called forex mismatch or forex gap) and no limits on such positions have been established. We recommend that the MDIs urgently start tracking their forex exposure and adopt narrow limits on any open positions. The recommended framework for forex risk reporting can be quite simple and should follow the logic of the Forex Exposure Gap Report below.

Figure 11: Forex Exposure Gap Report Template

A small cumulative open position or forex gap can be tolerated, but it should be monitored against a firm policy limit that best relates to a measure of equity capital. We recommend that the MDIs limit the cumulative forex gap to at most 10% of core capital, if the gap is a net liability. If the gap is a net forex asset, one may argue for a higher tolerance of up to 20% given the clear bias towards a long-term depreciation of the Ugandan Shilling as a soft currency against USD, GBP or EUR.

Forex Exposure Gap Report

USD Forex Assets and Associated Major Flows	Maturity								
	Demand - 1 Month	1 - 3 Months	3 - 12 Months	1 - 2 Years	2 - 3 Years	3 - 5 Years	5 - 10 Years	Over 10 Years	Total
USD Term Deposit - Nile Bank			2,000,000						2,000,000
USD Off Shore Fixed Income Investments					1,800,000				1,800,000
Total USD Assets	**0**	**0**	**2,000,000**	**0**	**1,800,000**	**0**	**0**	**0**	**3,800,000**
USD Forex Liabilities and Associated Major Flows	**Maturity**								
	Demand to 1 month	**1 - 3 Months**	**3 - 12 Months**	**1 - 2 Years**	**2 - 3 Years**	**3 - 5 Years**	**5 - 10 Years**	**Over 10 Years**	**Total**
Concessionary USD Loan - Principal Installment Schedule				400,000	800,000	800,000	2,000,000		4,000,000
Total USD Liabilities	**0**	**0**	**0**	**400,000**	**800,000**	**800,000**	**2,000,000**	**0**	**4,000,000**
USD Period Gap	**0**	**0**	**2,000,000**	**-400,000**	**1,000,000**	**-800,000**	**-2,000,000**	**0**	**-200,000**
Cumulative USD Gap	**0**	**0**	**2,000,000**	**1,600,000**	**2,600,000**	**1,800,000**	**-200,000**	**-200,000**	**-200,000**
USD Equivalent of Core Capital									**2,500,000**
Total Cumulative Gap to Core Capital									**-8.00%**

Credit Portfolio Risk Measures

Although the definition of treasury generally does not include direct operational responsibility for individual lending transactions, the Alco must nonetheless maintain a keen perspective on aggregate portfolio credit risk. in an MDI, the loan portfolio is the primary source of income and the most important risky asset. as in all banks, deterioration in the performance of the MDI loan portfolio is the most likely root cause of potential liquidity issues.

The portfolio monitoring tools and reports at all three MDIs are generally well developed and effective. Nonetheless, we recommend that the MDIs add one further reporting tool to the portfolio management arsenal: a vintage analysis that tracks the cumulative bad debt rates on each month's loan originations as a separate sub-portfolio. Vintage reports are an exceptionally powerful and easily understood visualization of portfolio performance trends. Vintage graphs provide effective early warning signals long before aggregate portfolio statistics would be able to pick up a change in bad debt rates. A sample vintage report is shown in Figure 12.

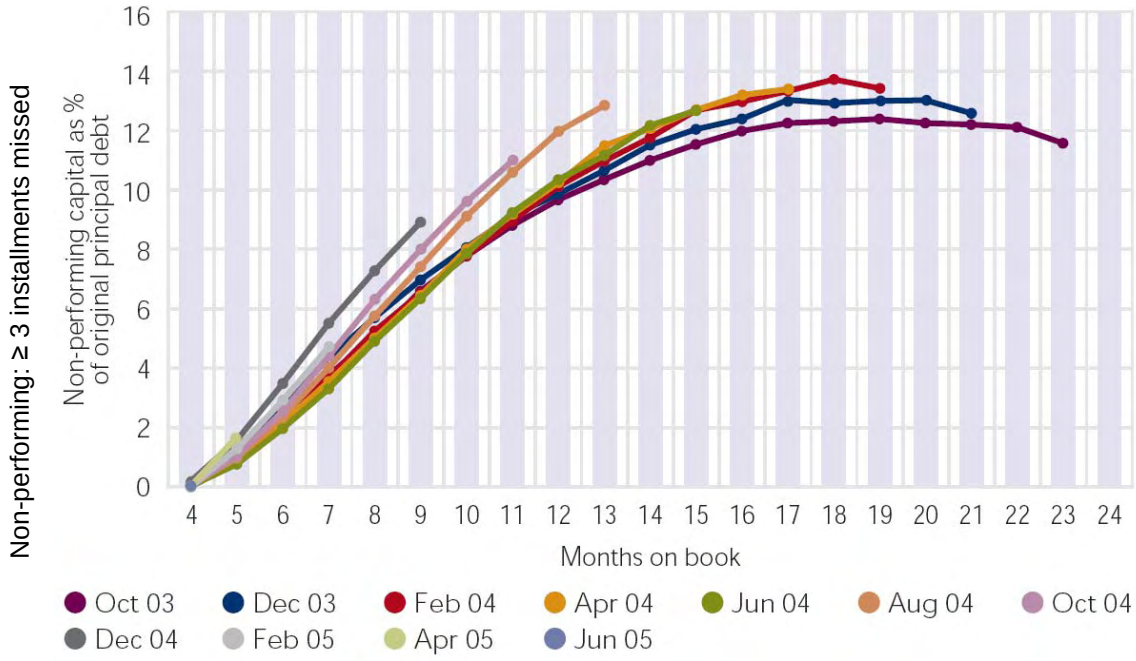


Figure 12: Vintage Report

The different colored lines in the vintage chart represent each month's new loan origination as a separate portfolio. The maximum contractual life of loans in this example is 24 months. The loans written more recently are represented by shorter lines as a function of their lesser time on the book. Narrowly clustered converging vintage curves like in this example indicate highly sophisticated underwriting standards, most likely underpinned by statistically validated application scoring models that accurately predict a certain average bad debt level.

Vintage reports are often further broken down to per-product and per-period sub-portfolios. At that granularity, vintage reports are ideal for tracking pilot tests regarding changes to credit policies or product definitions and their subsequent impact on portfolio performance. In Figure 12, the more recent loans seem to display a controlled increase in delinquency rates. Such a pattern would be consistent with an explicit change in application criteria that consciously introduced a higher risk onto the book and most likely was also accompanied by an upwards adjustment to loan pricing.

ACTION PLANNING AND NEXT STEPS

From our impressions during the three days of intensive coaching with each of the three participating MDIs, formal training and capacity building at Head Office Treasury level does not stand out as a particularly pressing requirement. The financial managers and treasurers at all three institutions are highly educated in business management and have an excellent grasp of the necessary financial concepts and their application to treasury operations.

The challenging task at hand for the three MDIs is pushing the existing treasury framework and the enhancements proposed above out into the organization. This involves educating the branch staff on their essential contribution towards liquidity risk management and the efficient use of cash assets. It also requires educating the Board and senior management outside of the financial function about the interpretation of the risk and performance measures presented in the ALCO. Treasury and ALCO reporting is only effective, if it delivers a concise and accessible representation of the financial risk landscape and enables well-informed decisions about the risk-return positioning of the MDI at Board level.

The obvious next steps for the three MDIs are to implement the suggested enhancements in account management, vault cash planning, and treasury risk reporting. The necessary adaptations to the institutional treasury or ALM policies have already been drafted and are included as an Appendix to this report. The MDIs are expected to review the suggested policy changes and have their Board adopt the updated document at the earliest opportunity.

The minutes of the individual work sessions with the MDIs outline in more detail the specific actions planned towards implementing the recommended changes within the particular institution. These minutes can be found in the Appendix to this report. Although similar in essence, our recommendations differ in emphasis and implementation approach, so as to best fit them into the institutional framework, the existing document formats and the organization-specific terminology.

Rural SPEED has offered to provide continued consulting support in adopting the improved processes and in rooting them in the organization. This may likely take the form of follow-up interventions with senior management by Rural SPEED consultant Eldard Ssebbale or may require supporting treasury staff in engaging branch managers on treasury topics. Bankakademie International consultant Dr. Joachim Bald will be available as a long-distance resource on issues of methodology and policy and could well be brought out again for on-site follow-up workshops in a few months time.

Once the changes proposed in this assignment have taken hold, the next major topic to tackle in financial management at the MDIs is the performance measurement and management accounting area. The objective is to develop profitability measures on business units, products and possibly even individual clients. Associated key words are profit centers, product costing, funds transfer pricing, margining and customer pricing. From our limited observations during the three days on site, we deem management accounting largely a new frontier, which will require substantial process changes and systems investment, but could yield a significant return on investment from better product pricing, more refined customer segmentation and improved resource utilization.

Appendix 1 U-Trust Minutes and Suggested Policy Updates

Working Notes

Bank Account and Vault Cash Management

- Concentration and centralization are critical success factors in regard to managing the correspondent bank network. The ideal state would be to have a single clearing account with a single bank for disbursements, invoices, and vault cash settlement that can serve head office and the entire branch network. If there is no close enough match between your own branches and the commercial bank ser vice points (for vault cash provisioning of the branches), then you may need to compromise and bring in a second or third bank with a complementary branch network.

- For the convenience of client payments, you want to offer a maximum number of payment and cash acceptance points. For this purpose, you will need "collection accounts" with all major banks that do not need to be provisioned with liquidity, but simply have standing orders to sweep any receipts daily or weekly into your designated primary clearing account.

- If you have an opportunity to negotiate overdraft facilities or money market lines of credit with other banks, take it, but maintain that account as a central treasury resource only and transact any draws and repayments on this additional bank account "en bloc" via your primary clearing account.

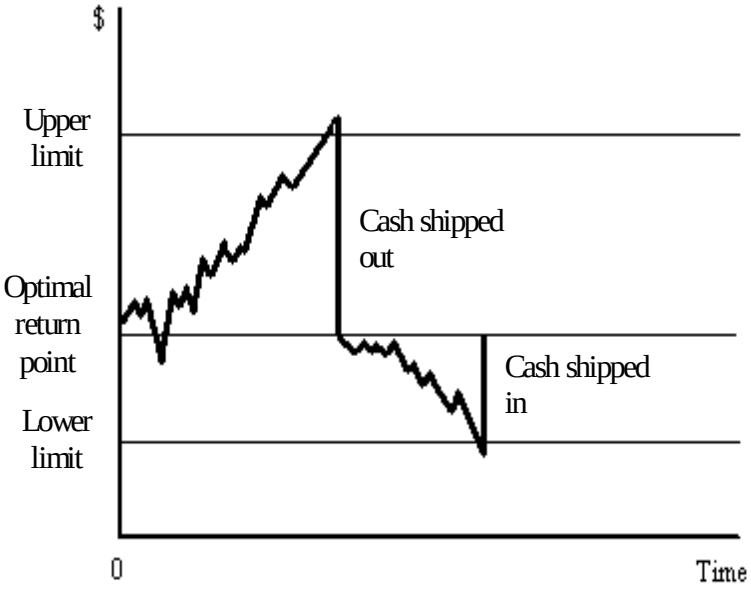
- The mandatory weekly cash forecast by the branches should distinguish between vault cash and book balance transactions. Ideally, the branches should not maintain separate correspondent bank accounts but transact book balances via the central settlement account held at head office treasury. Branches should request occasional book balance transfers (typically not time-critical) via a central payment queue using an e-mail request or standard fax, or by passing the actual invoices payable on to head office for accounting capture and payment. The actual (on-line) interface to the bank's payment system is managed by head office. Vault cash draws by branches can be handled as payment instructions against ID or using a checkbook held at the branch.

- As we suspect that vault balances are unnecessarily large throughout the branch network, we discussed the following approach to managing vault cash levels more tightly:

    - Motivate the need for lower average vault holdings to the branch staff by demonstrating the opportunity cost based on using 50% of vault holdings to pay down the most expensive overdraft facility.

    - Together with the branch managers, analyze the maximum weekly / daily net vault outflows per branch over the last year vis-à-vis the fixed transaction costs and average time required to carry out a vault cash shipment.

    - This analysis could be used to develop an optimal return point, as well as the upper and lower vault cash trigger limits, similar to the passive vault cash planning methods described in the Tuesday workshop materials:



- The upper vault limits do not necessarily need to correspond to the current insurance limits and might well be set lower.

- As a further refinement, we recommend that UFT use the weekly vault cash flow forecasts produced by the branches to plan vault cash shipments proactively based on a combination of minimum vault limits and anticipated flows:

Target Balance in t_i

= Minimum reserve + expected vault cash outflow in t_{i+1}, if cash change in t_{i+1} is negative

= Minimum reserve otherwise.

Shipment in t_i

= Target balance in t_i -Final vault balance in t_i before shipments.

Vault Cash Management based on Cash Flow Projections

End of Month	Δ Vault Cash	Final Vault Cash Before Shipments	Target, End of Month	Order
Dec.		48.35	48.35	
Jan.	-28.35	20.00	20.00	0.00
Feb.	106.14	126.14	20.00	-106.14
March	76.38	96.38	20.00	-76.38
April	46.08	66.08	157.93	91.85
May	-137.93	20.00	169.87	149.87
June	-149.87	20.00	150.58	130.58
July	-130.58	20.00	20.00	0.00
Aug.	62.72	82.72	20.00	-62.72
Sept.	76.40	96.40	20.00	-76.40
Oct.	121.89	141.89	20.00	-121.89
Nov.	58.08	78.08	110.93	32.85
Dec.	-90.93	20.00	50.00	30.00

This example uses a minimum vault cash reserve of 20,000 that should be observed at all times. The target balance at the end of period one is equal to the minimum reserve plus the expected outflow during period two. If a net inflow is expected for period two, the target balance at the end of the previous period is simply equal to the minimum reserve etc.

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Rural SPEED Rural Savings Promotion & Enhancement of Enterprise Development 59

Weekly Liquidity Management Meeting (formerly Treasury Meeting)

The weekly Liquidity Management Meeting looks at the cash position and the need for short-term investing and borrowing for the coming week. Basis for the liquidity management meeting are the "liquidity summary report", "Consolidated Cash Flows" and "Annual Cash Flow" spreadsheets.

- Replace the "Quick Liquidity Test" in the summary report with the adjusted stress tests 1 & 2 from the ALCO pack, which can actually be reduced to two ratios:
  Test 1: available liquid assets against a maximum one-week run-off:
  (0.9 * vault cash + 0.975 * liquid investments + bank balances) / (0.25 * Voluntary Deposits + 0.5 purchased funds) ≥ 1
  Test 2: available liquid assets against a maximum one-month run-off:
  (0.9 * vault cash + 0.975 * liquid investments + bank balances) / (0.5 * Voluntary Deposits + purchased funds) ≥ 1

- Expand the "Month Treasury Actuals" worksheet in the "Annual Cash Flow" Spreadsheet into the consolidated UFT-wide presentation of the cash flow forecast or net funding requirements. Rearrange the line items so as to separately show the net funding requirements from operations and the resulting accommodating actions by treasury, short-term investing and borrowing. Show at least six month of actual flows and six months of cash flow forecasts. Alongside the actuals display the prior forecasted values as a way to control the accuracy of the forecasts.

- The contractual maturity liquidity gap presentation can be dropped. It is superseded by the liquidity tests 1 & 2, which also look at the short-term maturity gap but refine the presentation with run-off behavior assumptions regarding demand deposits and purchased funds.

ALCO Meeting Materials

- The ALCO pack should include a Balance Sheet and Income Statement with monthly actuals progress and variance analysis against Budget in side-by-side format. The monthly plan values are derived from the strategic/operational plan by linear inter-polation between the year-end values.

- Include the Net Funding Requirement analysis as per the Liquidity Management Meeting

- Include balance volatility statistic for product or size stratification of voluntary deposits: STDV(ln $Balance_{t+1}$ / $Balance_{t}$)

- Add a short-term borrowing counterparty overview with confirmed lines, current utilization, and applicable interest rates. Limit the max. aggregate utilization to say 50%, rotate draws among counterparties to keep the lines open.

- Include credit portfolio statistics: arrears aging, PAR, collection rates, monthly "crop analysis".
- add capital adequacy calculation in a monthly time series
- Liability covenants compliance report: time series of monthly actuals against strictest, most binding covenant thresholds across all liabilities.

- Interest rate risk: apply a simulation approach for income statement effect. Use local money market rates and international money market rates as drivers with a particular +/-rate shock scenario: say +/- 100 bp Libor change +/- 200 bp UGS Prime rate change. Use specific plausible basis risk effect assumptions for investment yields, portfolio yield, purchased funds rates paid, ordinary and term savings deposits and variable rate long-term liabilities. Simulation is best done directly in the assumptions to the UFT budget financial model (BS, Income Statement) maintained by UFT Finance.

- ALCO should also look at profitability management, margins, and product pricing. More effort should be spent on developing required margins for operating expenses based on unit cost studies done with Microsave and developing opportunity-cost based transfer charges. The total margin (i.e. average portfolio yield – WACC) is not enough do justify individual product pricing. See separate write up on transfer pricing.

Organizational Aspects and Training

- UFT recognizes that as part of the MDI transformation process, there is a need to realign branch staff motivation and incentives with the new organizational priorities and the operational decisions developed at head office. One manifestation of this underlying issue is the difficulty to obtain punctual weekly cash transaction forecasts from all branches for head office treasury

- For the specific problem of better discipline and accuracy in branch cash forecasting, we recommend a combination of motivational measures and compliance enforcement:
    - use the opportunity of the next upcoming branch manager training/ convention at head office as a platform for a cash planning workshop that should solicit feedback on the objectives and methods of the cash forecasting approach.

    - Demonstrate the potential savings from reduced average vault holdings throughout UFT.

    - Invite an external trainer from Rural SPEED to reinforce the message about the importance of cash planning with branch staff.

- Treasury visits all branches for one-on-one workshops over the next six months that will cover cash planning, financial budgeting, product pricing and costing, etc.
- enlist support from internal audit and IT support in making cash planning and reporting compliance a standing item on audit reviews and IT compliance checks

- Integrate treasury reporting compliance into performance appraisal framework for branch managers. For that purpose, Treasury should regularly provide compliance statistics to the Head of Operations.

- Treasury is not the appropriate unit to update the accounts payable queue, the check register and clearing float. It would be more efficient to maintain this data in the general ledger system as part of the primary journal capturing and the accounts payable process managed by the accounting team.

Review of the Asset Liability Management Policy

- A number of smaller adjustments, updates and clarifications have become necessary in the Treasury Management / Asset Liability Management Policy in order to reflect the suggested changes and incorporate interim changes in the actual ALM practice.

- We reviewed the entire policy and identified the required edits and changes, which have been submitted separately as a document revision with changes marked for approval.

Outlook: Product Pricing and the Matched Rate Transfer Pricing Approach

- Prompted by the plans to offer fixed time deposits to U-Trust customers, the question arose how to develop a transparent approach for setting attractive yet profitable asset and liability product rates.

We discussed a modern opportunity cost-based approach to transfer pricing, which treasury might use in setting transfer debits on loans and transfer credits on liabilities that determine the minimum price points from which to build up the customer rates based on required operating margins and credit risk spreads. See the Introduction to transfer pricing and Margins attached as an Appendix to the main report to Rural SPEED.

Appendix 11 FINCA Minutes and Suggested Policy Updates

Working Notes

Bank Account Management

- FINCA will consider the centralization of all outgoing payments in a single clearing account with one of the major banks as a first step towards rationalizing the bank account network. The consolidation will reduce the total clearing balances required for payments compared to provisioning multiple accounts with liquidity. It also improves the negotiating power with that correspondent to lower per-transactions fees on the consolidated volumes.

- In the near-term, FINCA will likely require two parallel primary settlement accounts with different commercial banks because the branch footprint of any single primary correspondent does not match the FINCA branch network closely enough.

- For the convenience of receiving client payments, FINCA will still require additional payment and cash acceptance points outside of its own branches. For this purpose, "collection accounts" with most major banks, sometimes at multiple branches, are still necessary, but they do not need to be provisioned with liquidity, because they will not be used for outgoing payments. Instead FINCA will have standing orders to sweep any receipts daily or weekly into the designated primary clearing account.

- In a second step, FINCA will look to reduce the number of the decentralized collection accounts to ideally just one per bank, most likely maintained at that bank's head office branch. It is recognized that some bank branches might not be keen on regularly processing payments of FINCA clients via accounts not held by that branch, as the bank's profit center accounting may not give credit for these transactions. Where the service quality might suffer otherwise, FINCA must be prepared to maintain some additional decentralized accounts with local bank branches.

- The envisaged thinning out of bank accounts will also greatly simplify maintenance and internal control of authorized signatory registers with the banks. The "collection-only" accounts do not require signature authorities at the FINCA branch level and can be restricted to just a few head office treasury officers.

- Branch level signatory powers to the central clearing accounts are only necessary to the extent required by the banks to disburse vault-cash to branch staff (and branch agents) on pay-against-identification instructions issued by head office.

- The standard processing time of vault cash replenishments from identification of the shipment requirement to the arrival of cash at the branch could be significantly reduced by eliminating the need of couriering physical checks between branch and FINCA head office. Rather than holding checks for vault-cash withdrawals that have been pre-signed by head office treasury, this should be done by electronic "pay-against-identification" instructions for disbursement at the local branch to the debit of the central clearing account.

- It is important to actively negotiate the banking charges for such pay-against-identification orders compared to conventional check payments because "rack rates" for specialized products can be quite high.

Reduction of Unallocated Receipts

- FINCA has an issue with insufficient reference information being captured on cash deposits favor of FINCA. Tellers at commercial bank branches often neglect to capture with sufficient precision the essential information required to identify the depositor and the purpose of the payment (loan account, savings deposit).

- It was recommended that FINCA issue deposit slip booklets to its clients that are pre-printed or pre-stamped with the particular loan or savings account number and to possibly change the design of the deposit slip form to emphasize this reference information

- The loan or savings account number could be preceded by a standard two letter product code, which would further speed up reconciliation of the individual postings at FINCA.

- In parallel, FINCA would remind its correspondent banks of the need to capture this unique loan or savings account number when accepting cash deposits for FINCA at the teller window.

- Systematically capturing the account and transaction identifiers for each cash deposit also prepares the ground for posting credits to client accounts automatically on the basis of electronic bank account statements in a structured format. Most likely, FINCA's loan module already has a built-in interface for bulk posting of client credits. Once the bank statements include standardized and reliable transaction information, the record layout could easily be mapped to the loan module interface eliminating the error-prone manual posting process.

Vault Cash Planning

- It is recommended that FINCA resume planning vault cash flows per branch on a daily basis for at least a rolling full week. FINCA will re-launch its "daily cash planner" format for this purpose and require all branches to compile a thorough forecast of cash disbursements and collections from lending and savings operations every week.

- The need for more accurate vault cash forecasts is motivated by the opportunity cost of holding vault balances while drawing on overdraft borrowing facilities priced at 19% p.a. or higher. At average vault holdings across all FINCA branches of UGS 400 Mio, a 25% reduction of vault balances could save FINCA UGS 19 Mio per year in interest cost alone.

- FINCA will use the daily vault cash planning format set out below that incorporates an anticipatory vault cash approach. This process defines minimum and maximum vault holding limits and derives target vault levels and shipments based on the forecasted vault cash flows:

Proposed FINCA Uganda Branch Vault Cash Planning

DAILY VAULT CASH PLANNER — **Sample Branch X**

Date	4/23/2006	Monday	Tuesday	Wednesday	Thursday	Friday	Total for Week
Week No.	14						
Last Closing Vault Balance (Friday)		30,000,000					
Net Post-Close Transactions		500,000					
Pending Cash Shipments (in transit)		-					
Opening Cash Balance		30,500,000	34,550,000	31,150,000	31,850,000	28,650,000	30,500,000
Add:	Loan Collections	8,000,000	7,000,000	8,000,000	7,000,000	15,000,000	45,000,000
	Savings Deposits	1,000,000	500,000	200,000	1,000,000	2,000,000	4,700,000
	Western Union Receipts	500,000	500,000	500,000	500,000		
	Other cash receipts	-	100,000	-	100,000	100,000	300,000
	Total Receipts	**9,500,000**	**8,100,000**	**8,700,000**	**8,600,000**	**17,100,000**	**52,000,000**
Less:	Disbursements - Loan Product 1	4,000,000	3,000,000	7,000,000	3,000,000	4,000,000	21,000,000
	Disbursements - Loan Product 2	3,000,000	2,000,000	2,000,000	2,000,000	2,000,000	11,000,000
	Disbursements - Loan Product 3	4,000,000	5,000,000	5,000,000	5,000,000	3,000,000	22,000,000
	Savings Withdrawals	500,000	600,000	700,000	800,000	1,000,000	3,600,000
	Western Union Disbursements	800,000	800,000	800,000	800,000	1,600,000	4,800,000
	Other cash expenses	650,000	100,000	-	200,000	100,000	1,050,000
	Total Disbursements	**12,950,000**	**11,500,000**	**15,500,000**	**11,800,000**	**11,700,000**	**63,450,000**
Daily Net Vault Cash Flow		**- 3,450,000**	**- 3,400,000**	**- 6,800,000**	**- 3,200,000**	**5,400,000**	**- 11,450,000**
Forecasted Closing Balance		**27,050,000**	**31,150,000**	**24,350,000**	**28,650,000**	**34,050,000**	**19,050,000**
Maximum Vault Limit		**50,000,000**	**50,000,000**	**50,000,000**	**50,000,000**	**50,000,000**	**50,000,000**
Minimum Vault Limit		**20,000,000**	**20,000,000**	**20,000,000**	**20,000,000**	**20,000,000**	**20,000,000**
Target Vault Level		**27,500,000**	**27,500,000**	**27,500,000**	**20,000,000**	**27,500,000**	**27,500,000**
Cash Delivery / Deposit Triggered		**7,500,000**	**-**	**7,500,000**	**-**	**-**	**15,000,000**
Closing Balance after Shipments		**34,550,000**	**31,150,000**	**31,850,000**	**28,650,000**	**34,050,000**	**34,050,000**

- The following steps were agreed in order to introduce the vault planning system:

1. The daily vault forecast will be piloted beginning the week of April 10 with the three regional managers present at the workshop.

2. Head Office Treasury will approach the other regional / branch managers over the next two weeks to introduce them to the vault planning framework and request their input into finalizing the format and process.

3. Head Office Treasury will derive estimates of the cycle time and the fixed per shipment cost of a vault cash delivery for each branch.

4. Based on typical past vault cash flows, cycle time, shipment cost and the vault cash holding costs (interest, insurance), treasury will work with the branch managers to establish new minimum and maximum vault limits per branch.

5. As the branches adopt the vault cash planning framework, they will track the accuracy of their forecasts against the realized actual flows on a weekly basis.

6. Head Office Treasury will review the performance of the forecasts at least quarterly and will in due course establish target ranges for the forecast accuracy.

Proposed FINCA Uganda Branch Vault Cash Planning

FORECAST PERFORMANCE **Sample Branch X**

Date	4/2/2006	Forecast Week 14	Actual Week 14	Actual / Forecast	Target Range
Opening Cash Balance		**30,500,000**	**30,500,000**	**100.00%**	**100.00%**
Add:	Loan Collections	45,000,000	43,000,000	95.56%	80% - 125%
	Savings Deposits	4,700,000	5,200,000	110.64%	80% - 125%
	Other cash receipts	300,000	500,000	166.67%	80% - 125%
	Total Receipts	**50,000,000**	**48,700,000**	**97.40%**	**80% - 125%**
Less:	Disbursements - VG	21,000,000	20,578,000	97.99%	90% - 111%
	Disbursements - WCL	11,000,000	10,500,000	95.45%	90% - 111%
	Disbursements - SL	22,000,000	15,500,000	70.45%	90% - 111%
	Savings Withdrawals	3,600,000	3,200,000	88.89%	80% - 125%
	Other cash expenses	1,050,000	1,080,000	102.86%	80% - 125%
	Total Disbursements	**58,650,000**	**50,858,000**	**86.71%**	**85% - 118%**
Net Vault Cash Flow		**- 8,650,000**	**- 2,158,000**	**24.95%**	**60% - 167%**

Review of the Treasury Management Policies and Procedures Manual

- A number of adjustments updates and clarifications have become necessary in the Treasury Management Policies and Procedures Manual in order to reflect the suggested changes.

- We reviewed the entire policy and identified the required edits and changes, which have been submitted separately as a document revision with changes marked for approval by the FINCA Board.

Weekly Statement of Liquidity and Loan-to-Deposit Ratio

- As part of its weekly Statement of Liquidity FINCA reports an adjusted Loan-to-deposit Ratio to the Bank of Uganda as required by the prudential regulation of MDIs.

Below is such a sample Loan-to-Deposit ratio calculation as submitted by FINCA:

Computation of Loans Financed by Deposits

Equity		3,000,000
less:		
Net Fixed assets	2,000,000	
Other assets	1,500,000	
(Encumbered) Balances with Fin.Institutions	1,000,000	4,500,000
Residual Capital		(1,500,000)
Total Loan Portfolio		11,000,000
Less		
Residual Capital	(1,500,000)	
Subordinated debt	2,500,000	
Longterm Debt	3,000,000	
Shortterm Borrowings	1,500,000	
Other Current Liabilities	1,800,000	
Total Unencumbered Liquid Assets	1,300,000	8,600,000
Net Loan Balance Financed by Deposits		**2,400,000**
Voluntary Deposits		**4,500,000**
Loan-to-Deposit Ratio (Net Loan Balance / Deposits ex LIF)		**53.33%**

Adding Total Unencumbered Liquid Assets (highlighted in yellow) to the other sources of non-deposit funding that reduce the proportion of net loan portfolio deemed funded by deposits is an error. FINCA is the only MDI that calculates the Loan-to-Deposit Ratio in this way and we believe it negates the purpose (albeit debatable) of the Loan-to-Deposit adjustments. The error is easily visible, if one examines the effect of an additional short-term commercial borrowing. The value of this funding would in fact be deducted twice from the loan portfolio: once as part of the increased Short-Term Borrowing line and secondly again as a holding of unencumbered demand cash balances with banks.

The correct calculation would yield:

Computation of Loans Financed by Deposits

Equity		3,000,000
less:		
Net Fixed assets	2,000,000	
Other assets	1,500,000	
(Encumbered) Balances with Fin.Institutions	1,000,000	4,500,000
Residual Capital		(1,500,000)
Total Loan Portfolio		11,000,000
Less		
Residual Capital	(1,500,000)	
Subordinated debt	2,500,000	
Longterm Debt	3,000,000	
Shortterm Borrowings	1,500,000	
Other Current Liabilities	1,800,000	7,300,000
Net Loan Balance Financed by Deposits		**3,700,000**
Voluntary Deposits		**4,500,000**
Loan-to-Deposit Ratio (Net Loan Balance / Voluntary Deposits)		**82.22%**

Appendix 111 Uganda Microfinance Limited Minutes and Suggested Policy Updates

Working Notes

Bank Account Management

- UML is in the process of rationalizing its network of bank accounts with a view to lowering average clearing balance requirements and streamlining administrative processes around account maintenance and reconciliation.

- UML will consider the centralization of all outgoing payments in a single clearing account with one of the major banks as a first step towards rationalizing the bank account network. If a single correspondent cannot provide the geographical footprint to match the UML branch network, a second primary clearing correspondent with complementary branch locations might be necessary.

- The consolidation of accounts will also improve the negotiating power with that correspondent towards lower per-transactions fees on the consolidated volumes.

- The central clearing account will be used for all outgoing check and electronic transfer payments issued by UML, including supplier payables originating at the branch level as well as vault cash replenishments to the branches.

- More specifically, vault cash shipments to the UML branches will be transacted through the central clearing account(s) by having UML head office treasury issuing a payment order. This payment order instructs the commercial bank to disburse vault cash to the debit of the clearing account at head office via their local branch to an authorized UML employee against identification. This type of instruction should not require an additional UML account at the local branch of the correspondent bank nor should it require a check to be couriered from UML head office to the UML branch for presentation at the bank. Possibly, the bank may require a UML head office check to accompany the payment instruction for documentation purposes, but it would then suffice to deliver the check with only UML head office signatures to the Kampala bank branch.

- It is critical to negotiate the per-item fees for such “pay-against-identification” instructions to make sure that the transaction costs do not drastically exceed the fees for transfers between UML accounts at head office and at the local branch.

- Standard practice at the commercial banks will require that the UML branch staff who may collect vault cash at the local bank must be notified to the bank in advance as authorized agents by filing a form similar to a signature authority. Nonetheless, the maintenance of UML signature authorities will be greatly simplified by working through a single clearing account at head office instead of updating signature registers for multiple decentralized accounts. It should be noted that the branch level account authorizations will specifically not entitle the branch staff to sign checks or otherwise authorize withdrawals from the central account. They will only be entitled to receive vault cash, for which head office has already issued a payment instruction.

- Excess vault cash balances at the UML branches that are to be returned to head office will be deposited by authorized branch staff at the nearest branch of the primary clearing bank to the credit of the central UML clearing account.

- For the convenience of receiving client payments, UML will still require additional payment and cash acceptance points outside of its own branches. For this purpose, “collection accounts” with

most major banks, sometimes at multiple branches, are still necessary, but they do not need to be provisioned with liquidity, because they will not be used for outgoing payments. Instead UML will have standing orders to sweep any receipts daily or weekly into the designated primary clearing account.

- In a second step, UML will look to reduce the number of the decentralized collection accounts to ideally just one per bank, most likely maintained at that bank's head office branch. It is recognized that some bank branches might not be keen on regularly processing payments of UML clients via accounts not held by that branch, as the bank's profit center accounting may not give credit for these transactions. Where the service quality might suffer otherwise, UML must be prepared to maintain some additional decentralized accounts with local bank branches.

- In rationalizing the correspondent account network, UML should nonetheless attempt to maintain good business relationships with all of the major banks in the Ugandan market and continue to cultivate wholesale borrowing and overdraft opportunities. Confirmed overdraft and money market borrowing lines are valuable resource for head office treasury and should regularly be tested by rotating drawings between the counterparts while strictly observing limits on overall utilization in day-to-day treasury operations. Use of these overdraft and other short-term borrowing facilities should be the exclusive prerogative of Head Office Treasury. Drawings and settlements on these lines are again transacted through the designated primary clearing account.

Bank Account Reconciliation and Reduction of Unallocated Receipts

- The issue of insufficient reference information captured on client cash deposits at commercial banks favor of UML currently prevents the envisaged thinning out of "collection" bank accounts. Tellers at commercial bank branches often neglect to capture with sufficient precision the essential information required to identify the depositor and the purpose of the payment (loan account, savings deposit). With imperfect reference information, it remains important to contain the bank account reconciliation effort to a UML-branch specific collection account.

- It was recommended that UML issue deposit slip booklets to its clients that are pre-printed or pre-stamped with the particular loan or savings account number and to possibly change the design of the deposit slip form to emphasize this reference information.

- In parallel, UML would remind its correspondent banks of the need to capture this unique loan or savings account number when accepting cash deposits for UML at the teller window.

- Systematically capturing the account and transaction identifiers for each cash deposit also prepares the ground for posting credits to client accounts automatically on the basis of electronic bank account statements in a structured format. Most likely, UML's loan module already has a built-in interface for bulk posting of client credits. Once the bank statements include standardized and reliable transaction information, the record layout could easily be mapped to the loan module interface eliminating the error-prone manual posting process.

Vault Cash Planning

- It is recommended that UML introduce a vault cash flow planning system per branch on a daily basis for at least a rolling full week. It was suggested that UML use a "daily cash planner" format similar to the sample below and require all branches to compile a thorough forecast of cash disbursements and collections from lending and savings operations every week.

- The need for more accurate vault cash forecasts is motivated by the opportunity cost of holding vault balances while drawing on overdraft borrowing facilities priced at 19% p.a. prime plus margin. The opportunity cost may even be higher, if the overdraft is secured by a partial cash collateral, which earns significantly less than the overdraft rate paid. Assume UML borrows at the margin by drawing on a prime plus 3% = 22% overdraft rate with a 25% parallel cash collateral requirement. If one adds the interest spread paid by UML on the collateral to the funding cost on the net usable liquidity of 75% of each shilling borrowed, the effective annual cost of overdrafts amounts to 34.2% p.a. At average vault holdings across all UML branches of UGS 900 Mio, a 25% reduction of vault balances could therefore save UML 76.9 Mio per year in interest cost alone.

- UML will use the daily vault cash planning format set out below that incorporates an anticipatory vault cash approach. This process defines minimum and maximum vault holding limits and derives target vault levels and shipments based on the forecasted vault cash flows:

UML DAILY VAULT CASH PLANNER							**Sample Branch X**
Date	**4/5/2006**	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Total for Week**
Week No.	**14**						
Last Closing Vault Balance (Friday)		**30,000,000**					
Net Post-Close Transactions		**500,000**					
Pending Cash Shipments (in transit)		**-**					
Opening Cash Balance		**30,500,000**	**34,850,000**	**31,750,000**	**32,750,000**	**29,850,000**	**30,500,000**
Add:	Loan Collections	8,000,000	7,000,000	8,000,000	7,000,000	15,000,000	45,000,000
	Savings Deposits	1,000,000	500,000	200,000	1,000,000	2,000,000	4,700,000
	Western Union Receipts						
	Other cash receipts	-	100,000	-	100,000	100,000	300,000
	Total Receipts	**9,000,000**	**7,600,000**	**8,200,000**	**8,100,000**	**17,100,000**	**50,000,000**
Less:	Disbursements - Loan Product 1	4,000,000	3,000,000	7,000,000	3,000,000	4,000,000	21,000,000
	Disbursements - Loan Product 2	3,000,000	2,000,000	2,000,000	2,000,000	2,000,000	11,000,000
	Disbursements - Loan Product 3	4,000,000	5,000,000	5,000,000	5,000,000	3,000,000	22,000,000
	Savings Withdrawals	500,000	600,000	700,000	800,000	1,000,000	3,600,000
	Western Union Disbursements						
	Payroll Disbursement Service						
	Other cash expenses	650,000	100,000	-	200,000	100,000	1,050,000
	Total Disbursements	**12,150,000**	**10,700,000**	**14,700,000**	**11,000,000**	**10,100,000**	**58,650,000**
Daily Net Vault Cash Flow		**- 3,150,000**	**- 3,100,000**	**- 6,500,000**	**- 2,900,000**	**7,000,000**	**- 8,650,000**
Forecasted Closing Balance		**27,350,000**	**31,750,000**	**25,250,000**	**29,850,000**	**36,850,000**	**21,850,000**
Maximum Vault Limit		**50,000,000**	**50,000,000**	**50,000,000**	**50,000,000**	**50,000,000**	**50,000,000**
Minimum Vault Limit		**20,000,000**	**20,000,000**	**20,000,000**	**20,000,000**	**20,000,000**	**20,000,000**
Target Vault Level		**27,500,000**	**27,500,000**	**27,500,000**	**20,000,000**	**27,500,000**	**27,500,000**
Cash Delivery / Deposit Triggered		**7,500,000**	**-**	**7,500,000**	**-**	**-**	**15,000,000**
Closing Balance after Shipments		**34,850,000**	**31,750,000**	**32,750,000**	**29,850,000**	**36,850,000**	**36,850,000**

- Implementation of the vault planning systems requires that Head Office Treasury and branch managers jointly perform an analysis of vault shipment unit costs and typical vault flows per branch:

1. Derive estimates of the cycle time and the fixed per shipment cost of a vault cash delivery for each branch.

2. Based on typical past vault cash flows, cycle time, shipment cost and the vault cash holding costs (interest, insurance), establish new minimum and maximum vault limits per branch.

3. As the branches adopt the vault cash planning framework, they will track the accuracy of their forecasts against the realized actual flows on a weekly basis.

4. Head Office Treasury will review the performance of the forecasts at least quarterly and will in due course establish target ranges for the forecast accuracy, see sample tracking framework below:

FORECAST PERFORMANCE				Sample Branch X	
Date	4/5/2006	Forecast Week 14	Actual Week 14	Actual / Forecast	Target Range
Opening Cash Balance		**30,500,000**	**30,500,000**	**100.00%**	**100.00%**
Add:	Loan Collections	45,000,000	43,000,000	95.56%	
	Savings Deposits	4,700,000	5,200,000	110.64%	
	Other cash receipts	300,000	500,000	166.67%	
	Total Receipts	**50,000,000**	**48,700,000**	**97.40%**	**80% - 125%**
Less:	Disbursements - VG	21,000,000	20,578,000	97.99%	
	Disbursements - WCL	11,000,000	10,500,000	95.45%	
	Disbursements - SL	22,000,000	15,500,000	70.45%	
	Savings Withdrawals	3,600,000	3,200,000	88.89%	
	Other cash expenses	1,050,000	1,080,000	102.86%	
	Total Disbursements	**58,650,000**	**50,858,000**	**86.71%**	**85% - 118%**
Net Vault Cash Flow		**- 8,650,000**	**- 2,158,000**		

Review of the ALCO Report Pack

- UML asked about a framework for tracking the BOU prudential ratios against statutory limits, specifically the reserve ratio. The reserve calculations are complicated by the need to hold separate reserves of 15% against voluntary deposits and 100% against the Loan Guarantee Fund (Compulsory Deposits). The definition of qualifying liquid assets is not identical for both reserves, the maximum tenor on allowable government debt securities for the LGF is longer than the 90 day maturity maximum on the reserve against voluntary deposits.

- We recommend a sample tracking report as set out below:

Reserve Ratio Tracking								Uganda Shilling '000
Qualifying Core Liquid Reserve Assets against Voluntary Savings								
	Jan	Feb	Mar	…	…	Oct	Nov	Dec
Actual Core Liquid Assets	5,000,000	5,250,000	5,100,000					
Required 15%	375,000	420,000	450,000					
Additional Liquid Assets Qualifying only under LGF Definition								
	Jan	Feb	Mar	…	…	Oct	Nov	Dec
Actual LGF Balance	4,000,000	4,150,000	4,200,000					
Actual Additional Liquid Assets	0	0	0					
Total Liquid Reserve Assets (15% on voluntary plus 100% on compulsory)								
	Jan	Feb	Mar	…	…	Oct	Nov	Dec
Actual	5,000,000	5,250,000	5,100,000					
Required	4,375,000	4,570,000	4,650,000					
Total Reserve Assets / Total Deposits - Actual	76.92%	75.54%	70.83%					
Total Reserve Assets / Total Deposits - Required	67.31%	65.76%	64.58%					

Review of the Liquidity and Funds Management Policies and Procedures Manual

- A number of adjustments updates and clarifications have become necessary in the Treasury Management Policies and Procedures Manual in order to reflect the suggested changes.

- We reviewed the entire policy and identified the required edits and changes, which have been submitted separately as a document revision with changes marked for approval by the UML Board.

- Particular attention was paid to an operational definition and monitoring of foreign exchange rate risk.

Appendix 1V Margins and Transfer Pricing

We briefly touched previously on the importance of funds transfer prices in a decentralized branch banking environment. Such transfer prices are some of the key action variables of treasury management. Funds transfer prices position the central treasury as the market maker to the branches and operating divisions.

We already mentioned that transfer prices are internal shadow prices that do not have actual cash flow consequences. Transfer prices are not play money, though. They provide crucial data for performance measurement and help answer questions about the profitability of a particular branch or product. For example, transfer prices can help determine whether generating savings deposits actually adds or subtracts from the bottom line.

Traditional Total Margin Concepts

The traditional income statement perspective on profitability looks at the MFI as a whole and determines combined total margins based on the interest earned on all assets and the cost of funds incurred for all its liabilities.

Figure 1 shows the margin concepts that correspond to the traditional income statement perspective on total margins.

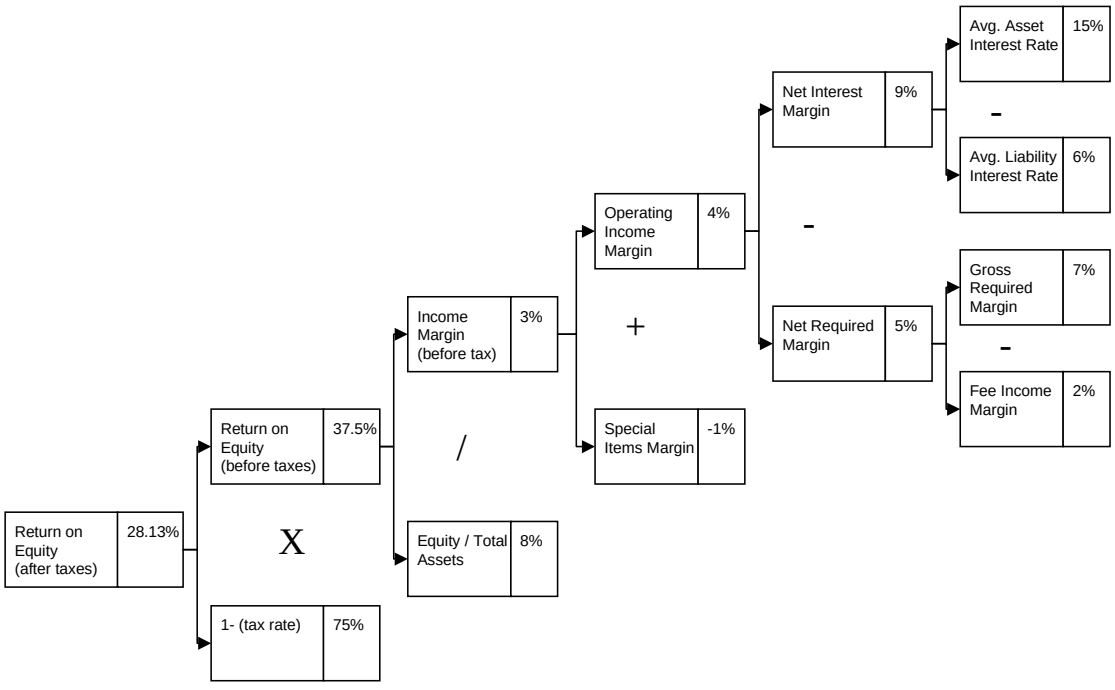

Figure 1: Margin Decomposition

Total margins offer little information about the contribution of particular products or activities.

The gross required margin is defined as Administrative Costs divided by Total Assets. Administrative costs are an area of particular concern for MFIs because of the typically small transaction sizes and the labor intensive handling of the many individual accounts.

Net Interest Margin is the combined spread between asset yields and funding cost. Comparing Net Interest Margin with the Net Required Margin (after netting out fee income) is the litmus test for sustainability of the MFI: can the operation extract enough net interest margin and streamline administrative processes such that Operating Income Margin is consistently positive?

Unfortunately, the above total margin concepts offer very little guidance as to how you could improve the bottom line, i.e. which products are adding value and where is value being destroyed? In order to answer this question, many institutions have initially attempted to make assumptions about which liabilities fund which assets. Banks then construct corresponding asset and liability pools or balance sheet layers that are supposed to capture the funding relationship. Obviously, there is a good measure of arbitrary allocation involved in this process. Ultimately, these efforts serve to obscure rather than clarify the true profitability of individual products or portfolios. Should the lending department take credit for the entire margin between loan interest and the savings deposit interest paid? Should a branch manager be able to lower the loan interest just because his branch was able to attract cheap deposits? Should you close a branch that generates a large volume of deposits but hardly has any lending opportunities?

All of these questions can only be answered if you dissolve the assumed funding linkages between asset and liability transactions and evaluate each side separately based on realistic opportunity costs. This is what a modern matched rate transfer pricing system does.

Matched Rate Transfer Pricing

Opportunity cost approach instead of balance sheet layers.

The basic idea of matched rate transfer pricing is to analyze the contribution of each asset or liability side transaction based on a money or capital markets alternative with negligible counterparty risk and congruent duration. The difference between the higher rate charged on the specific customer loan, for example, and the interest yield of the alternative capital markets investment is the lending spread earned on this transaction.

This concept can be applied either to a single marginal transaction or to an entire portfolio of outstanding assets or liabilities with relatively homogenous properties in terms of maturity, re-pricing intervals and counterparty quality.

Operating units are insulated from interest rate risk.

Note that the transfer price (the interest on the congruent capital markets investment that the customer loan is benchmarked against) eliminates interest rate risk to the lending department. Regardless of future interest rate changes, the department will be credited with the lending spread for the life of the loan. Again, this is only the internal management accounting perspective used in performance measurement. The interest rate risk is, of course, still there, but it is now the concern of the central treasury department.

The major advantage of the matched rate transfer price system is that it does not immediately combine the margins earned on the asset and liability business, but clearly distinguishes the sources of the profit contribution from each individual transaction. This avoids the traditional dilemma of tracking which liabilities fund which assets.

Three main sources of margin contribution.

The main three sources of profit contribution isolated in the matched rate transfer pricing method are:

1) The lending and investment spread (i.e. the asset contribution margin),

2) The funding spread (i.e. the liability contribution margin), and

3) The rate risk spread (i.e. the financial intermediation contribution). The rate risk spread is the result of mismatching maturities, re-pricing and cash-flow characteristics among the assets and liabilities of the MFI as a whole.

From an organizational perspective, the above three sources of margin contribution are controlled by distinct business units or cost centers in a bank or MFI. This is why this method lends itself very well to managing diversified and decentralized financial institutions. The lending department is assessed on the basis of the lending spread, which is the difference between having retail lending operations as opposed to placing all available funds wholesale in the interbank market. Savings operations in turn are measured by how efficiently they collect retail funds against the alternative of simply obtaining the money from a capital markets transaction. And finally, the central treasury who controls the overall intermediation function assumes responsibility for the profit or loss incurred from managing interest rate risk.

Example

Let's look at a very simple example in Figure 2. This MFI has only two transactions on its books, a building loan for four years in the amount of amount of $100,000 and a time deposit for one year also in the amount of $ 100,000.

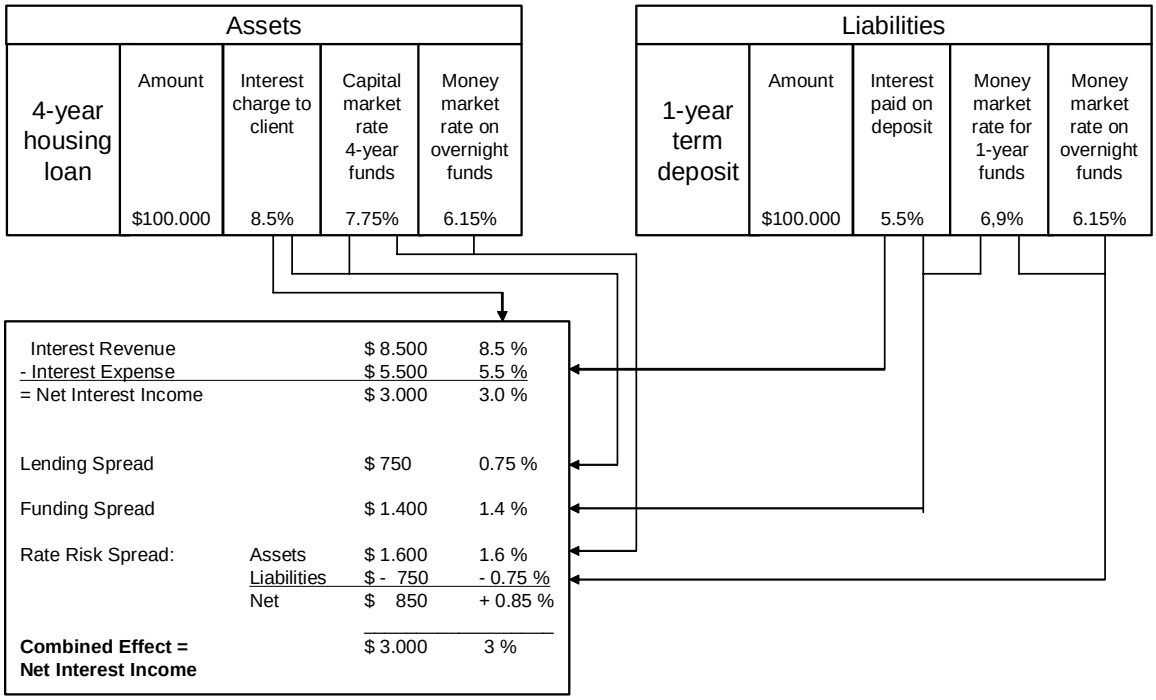

Figure 2: Components of Net Interest Margin

Figure 2 shows how the Net Interest Income (or net interest margin as a percentage) can be decomposed into the three main factors described above.

The traditional way of looking at margin is to derive Net Interest Margin as the difference between the charge to the borrower (8.5%) and the interest paid on the deposits that fund the loan (5.5%) resulting in 3% Net Interest Margin. The lending spread is calculated as the difference between the interest charged to the client (8.5%) and the yield on an alternative capital markets investment at 7.75%. The funding spread equals the difference between the interest paid on deposits (5.5%) and the wholesale funding alternative for one year at 6.9%. Finally, the rate risk spread is derived by benchmarking the specific

matching wholesale alternatives on the asset and the liability side against the standard overnight interbank rate.

Practical Issues for MFIs

Finding realistic alternative wholesale rates for MFIs.

An important practical concern for MFIs wanting to adopt the above methodology is to find appropriate wholesale alternatives to benchmark retail rates against. A large commercial bank in a well developed financial infrastructure will always have recourse to liquid money and capital markets, where it can quickly obtain additional funds at the current market rate. MFIs will only have a limited set of commercial wholesale investment and funding instruments available, if any. It is important not to benchmark microdeposits against LIBOR, if the MFI in reality does not have the opportunity to borrow in the money market at anywhere near LIBOR conditions. The alternative wholesale rates must represent realistic funding or investment opportunities for the particular MFI. So, if your best commercial alternative to soliciting additional deposits at 4% p.a. is to draw on your revolving line of credit at 9% p.a. (with LIBOR at 6%) then the funding spread is 5% not 2%. As long as the required administrative margin[1] does not exceed 5%, you are better off taking the microdeposits rather than drawing on your line of credit.

Figure in required administrative margin on micro transactions.

Note that in the decision about whether the microdeposits are profitable, we specifically did not mention lending opportunities and the rates that we can possibly earn on microloans we make with these funds. If the microloans yield more than the alternative capital markets investment (after deducting a required margin for retail administrative expenses and an appropriate credit risk premium), then we should realize those loans regardless whether deposits will be used to fund them or not. Similarly, if we can attract deposits cheaply, then we should seize that opportunity even if no additional lending opportunities exist. If nothing else, we could always use the deposit funds to pay down more expensive purchased funds.

Problem of Large Spreads in the Wholesale Rates

MFIs will often have to deal with large spreads between their wholesale borrowing and investing rates for the same time horizon. For a typical commercial bank in a well-developed financial market, however, the spread between overnight borrowing and investing is going to be just a few basis points. The large spreads create a distorting effect when using the matched rate transfer pricing system: unattractively low rates on wholesale investment alternatives will make retail lending look more profitable. Conversely, if the only commercial short-term funding available is a high-interest revolving line of credit from a correspondent bank, then microdeposits appear more profitable. The opportunity cost argument still holds, though, at least from a marginal perspective: if you accept an additional microdeposit at the low savings rate and pay back expensive commercial borrowing, the funding spread still captures the true profit contribution from the transaction.

The problem arises at the level of central treasury, which acts as an inhouse market maker and guarantees the funding spread on the deposit in our example. That is easy to do, if treasury can rely on the wholesale market to lock in the guaranteed spread by a congruent wholesale investment transaction at essentially the same or minimally lower rate. In other words, if the branches launch a successful new one-year term deposit product, the MFI may not be able to use those funds for high-yielding loans or paying down commercial borrowings. This would not be a problem for a large commercial bank where treasury simply invests the funds at close to the rate it credited to the branch as a transfer price. Since MFIs have to cope with large spreads between borrowing and investing market rates, treasury will often show a loss on the rate risk spread, because it cannot efficiently offset imbalances in the market.

[1] We will not explain here how to derive a required margin for administrative costs. This will involve setting up a management accounting system (possibly using Activity Based Costing) that helps allocate general ledger administrative expenses to individual products.

Let's look at another simple example of the matched-rate transfer price mechanism using commercial funding alternatives that might be more typical of a small MFI. Figure 5.3 shows the balance sheet of this sample MFI along with the annualized yields of its earning assets and liabilities.

Assets		Liabilities and Equity	
Cash	500	Passbook savings deposits, 3%	800
Revolving 3-month microloans, 25%	600	Long term subsidized donor loan, 9%	400
10-year building loans, 16%	400	Equity	300
Total	1500	Total	1500

Figure 3: Sample MFI Balance Sheet

With this information, we can calculate the net interest income as:

Net Interest Income = 600*0.25 + 400*0.16 - 800*0.03 - 400*0.09
= 154

The following are the relevant wholesale alternatives available to this MFI.

Investments:

1) Overnight money market account with correspondent, 3.5%
2) 3-month term deposit with commercial correspondent bank, 7%
3) Invest in 10-year government notes, 8%

Funding:

1) Revolving line of credit with commercial bank, 14%
2) 10-year mortgage on MFI premises, 12%

Lending Spread

	Retail Rate	Transfer Price	Spread %	Spread $
Cash	0	0.035	-0.035	-17.5
Microloans	0.25	0.07	0.18	108
Building Loans	0.16	0.08	0.08	32
Total				**122.5**

Funding Spread

	Retail Rate	Transfer Price	Spread %	Spread $
Passbook Savings	0.03	0.14	0.11	88
Donor Loan	0.09	0.12	0.03	12
Equity	0	0.12	0.12	36
Total				**136**

Rate Risk Spread

	Transfer Price	Daily Benchmark Rate	Spread %	Spread $
Cash	0.035	0.14	-0.105	-52.5
Microloans	0.07	0.14	-0.07	-42
Building Loans	0.08	0.14	-0.06	-24
Passbook Savings	0.14	0.14	0	0
Donor Loan	0.12	0.14	0.02	8
Equity	0.12	0.14	0.02	6
Total				**-104.5**

Total Spread = Net Interest Income

Lending Spread	122.5
Funding Spread	136
Rate Risk Spread	-104.5
Total Spread	**154**

Figure 4: Decomposition of Net Interest Income for Sample MFI

Deviate from market transfer prices to set incentives.

The problem with the matched rate transfer pricing system for this sample MFI is obvious. Due to the large spread between the wholesale overnight investment and borrowing opportunities, the business units are showing great results on their lending and deposit operations, but central treasury is deep in the red. This may send the wrong signals to branch managers, who may go out and solicit more retail deposits looking at the attractive margin they are credited, while at

the particular point in time the only outlet for these funds might be an overnight money market deposit at 3.5%. Given the substantial administrative margin required on microdeposits, this is almost certainly a money-losing proposition. The answer is not to do away with the transfer pricing mechanism, but deviate from pure market rates and occasionally tweak the transfer prices to set incentives that will steer the operating units towards the desired changes in the asset-liability structure.

Most large commercial banks adopt a passive approach to managing origination.

This is different from the approach to transfer prices that most large commercial banks adopt. In commercial banking, a typical matched rate system as described above does use wholesale market rates as transfer prices. Implicit in this decision is a passive approach by central treasury in regard to managing the asset and liability origination by the branches or operating divisions. In a modern commercial bank, you will rarely find treasury calling up branches asking to sell more long-term housing loans, for example, to bring the interest rate exposure back into line. Instead, branches are left to maximize their earnings based on the interest-risk neutral market rates debited/credited to them for funds used or generated. Central treasury then takes the resulting asset-liability profile and can make desired adjustments using a wide range of hedging techniques and derivative instruments.

MFIs do not have access to derivative instruments required for the passive approach.

Unfortunately, most MFIs do not have access to the derivative instruments necessary to manage interest rate risk in central treasury on an abstract aggregated level. So, even if MFIs had efficient interbank money market alternatives at their disposal, the absence of derivatives to efficiently hedge the asset-liability profile already leads to the need for treasury to assert a direct influence over the originating transactions. Managing with transfer price incentives is the elegant way to exert this influence rather than issuing 'orders of the day' to branch managers and loan officers instructing them which products to push and what business to turn away.

By slightly deviating from true market prices, we can use the transfer price mechanism described above to set incentives for the business units at the customer front. Branches would then find it in their own interest (as measured by their internal branch income statement) to align their origination effort with the asset-liability management objectives pursued by treasury.

Managing With Transfer Price Incentives

We will reuse the data from figures 3 and 4 for an example of how targeted deviations from true market transfer prices may help manage the activities of a decentralized MFI.

Suppose this MFI has just been able to obtain an additional long-term loan of 200 from an international development organization at the preferential interest rate of 8% fixed for ten years, which will be disbursed in just a few days.

These funds will eventually be absorbed by the MFI lending operations. In order not to compromise its stringent credit policies and excellent repayment ratio, the MFI can only gradually expand the loan portfolio. In the meantime, any excess funds would be placed in 3-month term deposits with the commercial correspondent, yielding 7%. Treasury decides to slow down retail deposit growth, to not further aggravate the excess funding situation. Obviously, this should not go as far as forcing closure of small passbook accounts or actively discouraging savers, as treasury does not want to jeopardize the long-term development of the retail savings business. Maybe the branches should simply refrain from launching any special promotions or cancel the annual savings mobilization drive and direct more effort instead at finding new quality borrowers. To send this message, treasury may adjust the transfer price on retail deposits downwards and credit less than the current 14% to branches.

Box 5.1: Transfer Pricing at Grameen Bank in Bangladesh

Bank Rakyat Indonesia (BRI) and Grameen Bank offer an example of two methods of transfer pricing that can help influence the funding structure and operational efficiency of MFIs.

BRI is able to adjust the relative emphasis of the system as a whole on credit versus lending through its transfer price mechanism. The transfer price is the rate that BRI branches pay to the subordinated units for deposits. It determines the units' profitability in generating savings. Since the KUPEDES loan interest rates are fixed, an adjustment in the transfer price can change the relative emphasis that units give to savings and credit. In 1991, when the Indonesian financial system experienced a liquidity squeeze, BRI set the transfer price very high, so that the rate received for placing funds internally neared the rate received on loans. This encouraged the units to mobilize savings which were absorbed by the main branches while additional lending was discouraged. The transfer price for units to borrow from the main branches can be similarly manipulated. At present, the transfer price is set low to provide maximum incentives to lend, and lending levels are beginning to increase again.

The profit center concept is also applied at Grameen Bank. Grameen branches receive their lending funds by using the compulsory savings that they hold (on which they pay 8.5%) and by borrowing from the head office at 12% for general loans (less for housing loans). This price is set by Grameen based on its cost of funds with a view to covering headquarter expenses and to encouraging branches to control costs and generate savings. It should be noted that the profitability of retail units in any MFI is not the same as overall system profitability, because transfer prices are set expressly to give a policy signal and do not necessarily reflect true costs directly.

Source: Joanna Ledgerwood, Microfinance Handbook. World Bank, 1998.

One could even make an argument for bringing the transfer price down all the way to 9%. If the branch can still turn a profit on deposits collected at 3% plus an appropriate administrative required margin, then additional deposits are still welcome. Treasury could then even use the deposit funds to pre-pay the donor loan at 9% and reduce the total funding cost.

Lending Spread				
	Retail Rate	Transfer Price	Spread %	Spread $
Cash	0	0.035	-0.035	-17.5
Microloans	0.25	0.07	0.18	108
Building Loans	0.16	0.08	0.08	32
Total				**122.5**

Funding Spread				
	Retail Rate	Transfer Price	Spread %	Spread $
Passbook Savings	0.03	0.09	0.06	48
Donor Loan	0.09	0.12	0.03	12
Equity	0	0.12	0.12	36
Total				**96**

Rate Risk Spread				
	Transfer Price	Daily Benchmark Rate	Spread %	Spread $
Cash	0.035	0.14	-0.105	-52.5
Microloans	0.07	0.14	-0.07	-42
Building Loans	0.08	0.14	-0.06	-24
Passbook Savings	0.09	0.14	0.05	40
Donor Loan	0.12	0.14	0.02	8
Equity	0.12	0.14	0.02	6
Total				-64.5

Total Spread = Net Interest Income	
Lending Spread	122.5
Funding Spread	96
Rate Risk Spread	-64.5
Total Spread	**154**

Figure 5: Effect of Lower Deposit Transfer Price

Figure 5 shows how this adjustment in the transfer price affects our margin calculations from the table in Figure 4. For simplicity, we assume that the new 8% loan has not yet been received. Changes have been highlighted in gray. The total net interest margin is the same, because the actual assets and liabilities and their contractual rates are unchanged. However, passbook savings operations are clearly less profitable now, particularly when confronted with their retail administration costs, while treasury is being credited for a larger portion of the total spread on deposits.