LIQUIDITY MANAGMENTAND DE-LEVERAGING FOR COMMERCIAL BANKS WORKSHOP

Presentation and Participants Guide

May 7, 2009

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Liquidity Management And De-Leveraging For Commercial Banks Workshop

Presentation And Participants Guide

USAID JORDAN ECONOMIC DEVELOPMENT PROGRAM

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ANNEX ONE

Presentation of the Liquidity Management and Deleveraging for Banks in Jordan

Slide 1

Liquidity Management and Deleveraging for Banks

Presentation by:
James Kent McNeil
April 27-28, 2009

Slide 2

Introductions

- Instructors/Facilitators
- Participants
  - Your name
  - The name of your bank
  - A brief description of your job

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Presenting versus Training

- Presenting
  - Raise awareness
  - Goal? Motivate to act
- Training
  - Impart knowledge and skills
  - Goal? Improve performance

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Retention Quiz

- ___% of what read
- ___% of what hear
- ___% of what see
- ___% of what they hear and see
- ___% of what they hear, see and speak
- ___% of what they hear, see, speak and do

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Participant and Retention

- 10% of what read
- 20% of what hear
- 30% of what see
- 50% of what they hear and see
- 70% of what they hear, see and speak
- 90% of what they hear, see, speak and do!

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How This Happens

- Instructors/Facilitators and participants
- Course meetings (hear, see, speak and do!)
- Exercises (knowledge and skill application)
- Action Plans

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About the Workshop

- Instructors
- Participants
- Participant Guide
- Action Plans

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Course Requests

- Arrive on time and return from breaks promptly
- Participate in discussions and exercises
- Ask questions before, during and after class
- Turn off cell-phones!

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Liquidity Management and Deleveraging for Banks

- Module 1: Overview of Risks in Banking
- Module 2: Liquidity – A Key to Asset and Liability Management
- Module 3: Liquidity Management
- Module 4: Analyzing Liquidity Positions
- Module 5: Liquidity Management and Cash Flow
- Module 6: Liquidity Policy
- Module 7: Liquidity Evaluation
- Module 8: Asset and Liability Management
- Module 9: Leverage Risk

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Learning Objectives

- Explain the primary risks
- Evaluate the importance of liquidity management
- Establish how liquidity management impacts ALM
- Calculate and analyze liquidity positions of banks
- Demonstrate cash flow movements
- Design a liquidity policy for your bank
- Develop a methodology of evaluating liquidity risk
- Formulate an organizational structure
- Explain the importance using leverage in banking

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Expectations

- As a result of attending this liquidity management course, the one thing that I need to be able to is:

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Module 1:

Overview of Risks in Banking

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Learning Objectives

- List the five major risks that bankers must manage.
- Identify ten additional risks in managing a bank.
- Explain the four principals of sound risk management.

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What is Risk?

- Banks must take risk
- Define Risk
- Components of Risk

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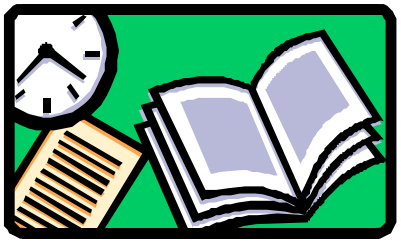
Exercise 1: Define Risk

- Page 1-3
- Exercise instructions
- Exercise time limit



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Market Value of Equity is a Function of :

- FUTURE PROFITABILITY OF THE BANK
- SUBJECT TO THE RISK ABSORBED IN GENERATING THOSE RETURNS

TRADEOFF: RISK VS. EXPECTED RETURN

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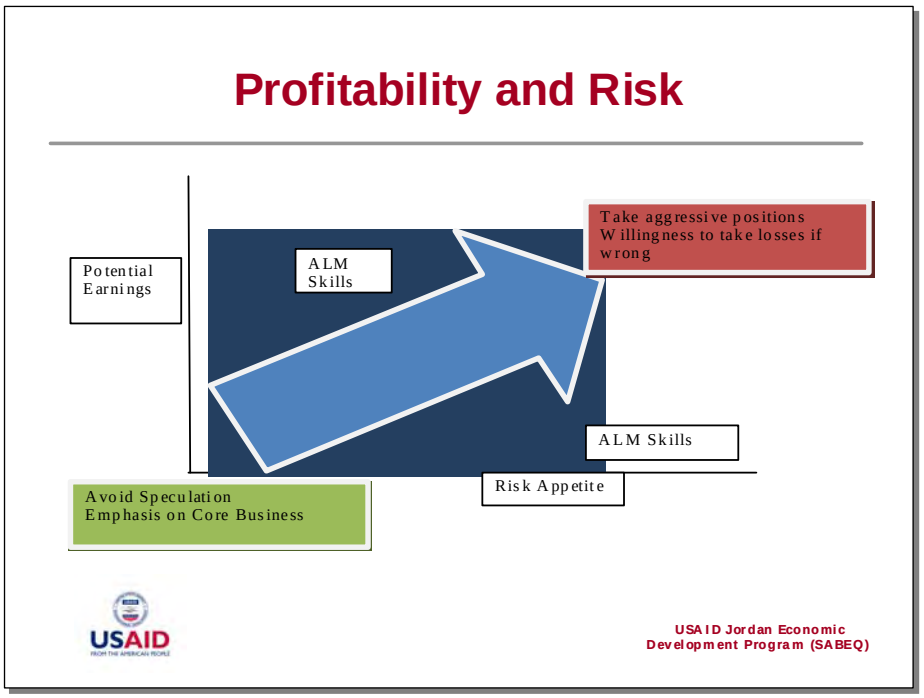

Instructor Notes:

The market value of equity is dependent upon:

- the future profitability of the bank

- subject to the risk taken in achieving those returns

Banks want to maximize the return on equity (please the shareholders) & minimize risk.

However, there is a tradeoff between risk & return. To obtain a higher return, greater risks must be taken.

If risk increases, the expected return should increase to compensate for the increased risk. Mgmt is interested in maximizing the return on shareholders' equity while keeping within acceptable levels of risk.

Examiners are interested in ensuring that the bank is operating within these predetermined acceptable levels of risk.

Flipchart:

A bank's ALM skills should reflect the degree of risks taken by the bank.

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Risks That Must Be Managed by Bankers

- Credit Risk
- Liquidity Risk
- Interest Rate Risk
- Foreign Exchange Risk
- Capital Adequacy Risk

Bankers must identify, measure and effectively manage all of these risks

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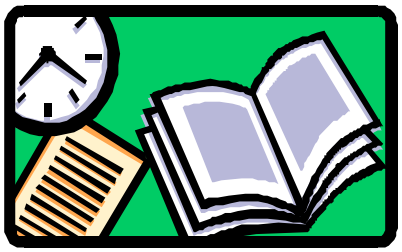
Exercise 2: Rank the Risks

- Page 1-6
- Exercise instructions
- Exercise time limit



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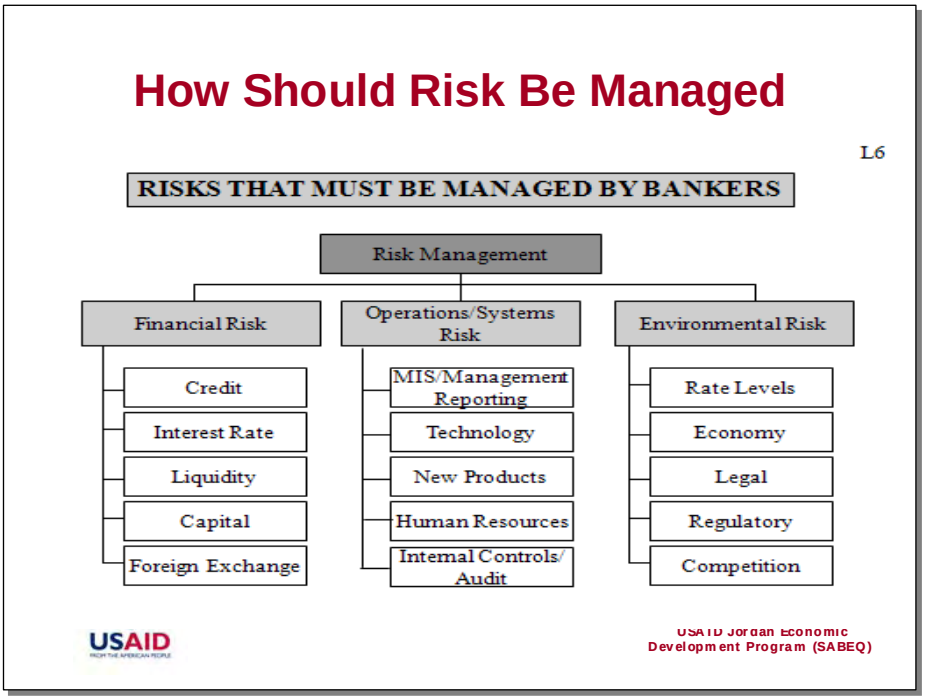
How Should Risk Be Managed
L6
RISKS THAT MUST BE MANAGED BY BANKERS
Risk Management
Financial Risk
Operations/Systems Risk
Environmental Risk
Credit
Interest Rate
Liquidity
Capital
Foreign Exchange
MIS/Management Reporting
Technology
New Products
Human Resources
Internal Controls/ Audit
Rate Levels
Economy
Legal
Regulatory
Competition
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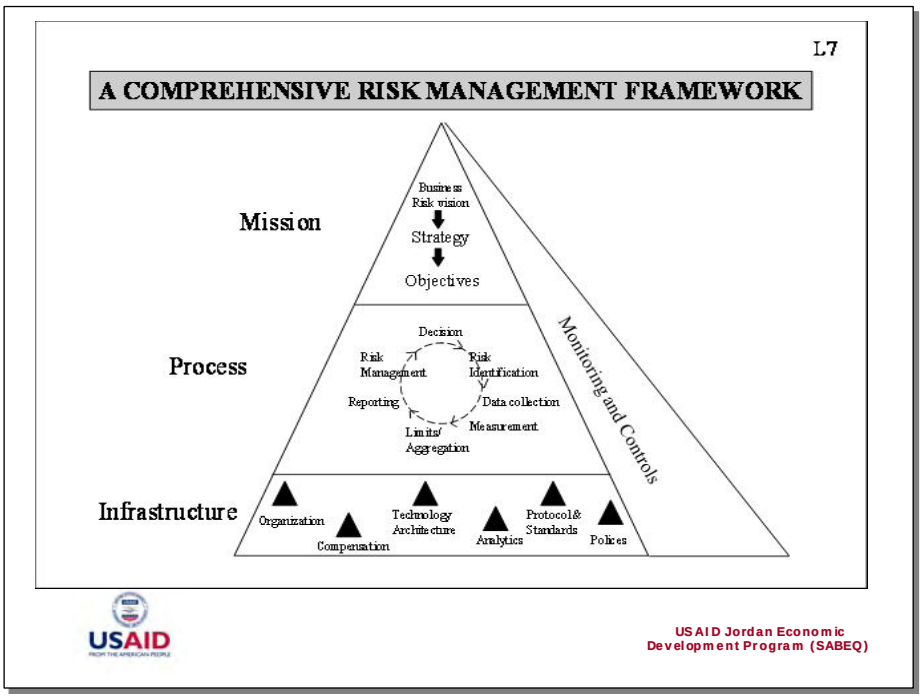
L7
A COMPREHENSIVE RISK MANAGEMENT FRAMEWORK
Mission
Business Risk vision
Strategy
Objectives
Process
Decision
Risk Identification
Data collection
Measurement
Limits/ Aggregation
Reporting
Risk Management
Monitoring and Controls
Infrastructure
Organization
Compensation
Technology Architecture
Analytics
Protocol & Standards
Polices
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Four Principal Elements of a Sound Risk Management

- Active board and senior management oversight
- Adequate policies, procedures, and limits
- Adequate risk management, monitoring, and management information systems
- Comprehensive internal controls

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Board of Directors

- Approve business strategies and policies
- Ensure senior management is capable of managing and taking risks
- Understand the types of risks the institution is exposed to
- Receive reports that identify the size and significance of the risks

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Senior Management

- Implement strategies and ensures compliance
- Design prudent organizational structure
- Possess sufficient knowledge of all major lines of business
- Ensure policies, controls and risk monitoring systems are in place
- Ensure accountability and lines of authority are delineated
- Communicate need for effective internal controls and high ethical standards

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Policies Written and Practiced

- Identify, measure, monitor and control risks in lending, investing, trading
- Consistent with management's experience level, the institution's stated goals and objectives, and the overall financial strength of the organization
- Clearly delineate accountability and lines of authority across the institution's activities
- Ensure infrastructure in place to identify, monitor and control risks

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Limits and Risk Taking Guidelines

- Limits should set boundaries and reflect the risk tolerance
- Limits should be consistent with:
  - Experience level of individuals
  - Market conditions
  - Overall capital position of institution
- Limit structure should permit management to control exposures*

(*positions that exceed predetermined levels should receive prompt management attention)

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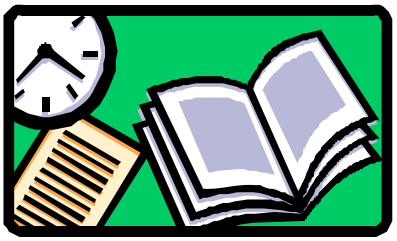
Exercise 3: Assessing Risk Skills

- Page 1-11
- Exercise instructions
- Exercise time limit



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Module 2:

Liquidity – A Key to Asset and Liability Management

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Learning Objectives

- Define liquidity risk within asset and liability management.
- Identify the five components of managing assets and liabilities.
- Calculate key ratios for managing assets and liabilities.
- Identify the ten key management decisions in managing a bank.
- Control liquidity while managing assets and liabilities.

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Setting Up ALM

- In which assets to invest
- How to fund or finance those investments

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Meeting Financial Goals

- Management must decide:
  - Customer mix
  - Nature of the assets and liabilities
  - Economic and competitive environment

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Asset and Liability Management

- Definition:

The process of managing the spread between interest earned and interest paid while ensuring adequate liquidity

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The Risks

- Liquid assets
- Higher paying assets
- Skill of management
- Losses on quick sales

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Opportunities

- Increased earnings
- Better pricing strategies
- Minimize losses

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Management's Knowledge

- Aggressiveness needs great skill
- Good data
- Well informed
- Skilled with numbers

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Supervisors and Managers

- Measures of returns or profitability
- Measures of risk
- How combinations of assets and liabilities affect risks and returns
- How the economic environment affects risks & returns
- Effect of changes in the balance sheet on capital

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Exercise 1: Identifying and selecting qualified management

- Page 2-6
- Exercise instructions
- Exercise time limit

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Return on Equity

$$\text{The Return on Equity} = \frac{\text{Net Income}}{\text{Shareholders' Equity}}$$

- Contributors to ROE:
  - Pricing of assets and liabilities
  - Management of various risks
  - Use of financial leverage

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Return on Assets

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}}$$

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Analysis of ROA

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}} = \frac{\text{Net Income}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Total Assets}}$$

Reflects amount of revenue which remains after expenses

Represents ability to use assets to generate income

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}} = \frac{\text{Net Income}}{\text{Revenue}} + \frac{\text{Revenue}}{\text{Total Assets}}$$

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Exercise 2: Analysis of Return on Assets

- Page 2-8
- Exercise instructions
- Exercise time limit

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Analysis of ROE

- ROE = amount of profit available to shareholders of the bank
- Return on Equity = $\frac{Net\ Income}{Shareholders'\ Equity}$

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Analysis of ROE

$$ROE = \underbrace{\frac{Net\ Income}{Revenue} \times \frac{Revenue}{Total\ Assets}}_{ROA} \times \underbrace{\frac{Total\ Assets}{Shareholders'\ Equity}}_{Leverage}$$

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Exercise 3: What Are Your Total Assets

- Page 2-10
- Exercise instructions
- Exercise time limit

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Ten Management Decisions

PROFIT MARGIN	GROSS YIELD	LEVERAGE
$\frac{\text{Net Income}}{\text{Revenue}}$	$\frac{\text{Revenue}}{\text{Total Assets}}$	$\frac{\text{Total Assets}}{\text{Shareholders' Equity}}$
Decision #4 Funds Mix	Decision #2 Asset Mix	Decision #1 Level of Liabilities
Decision #5 Funds Price	Decision #3 Asset Price	
Decision #6 Provision for Loan losses	Decision #7 Non-interest Income	
Decision #8 Expense Control		
Decision #9 Tax Management		Decision #10 Dividend Policy

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Five ALM Decisions

PROFIT MARGIN	GROSS YIELD	LEVERAGE
$\frac{\text{Net Income}}{\text{Revenue}}$	$\frac{\text{Revenue}}{\text{Total Assets}}$	$\frac{\text{Total Assets}}{\text{Shareholders' Equity}}$
Decision #4 Funds Mix	Decision #2 Asset Mix	Decision #1 Level of Liabilities
Decision #5 Funds Price	Decision #3 Asset Price	

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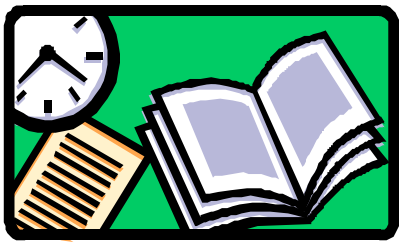
Exercise 4: Managing Liquidity

- Page 2-12
- Exercise instructions
- Exercise time limit



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Module 3:

Liquidity Management

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Learning Objectives

- Define liquidity and its importance in bank management
- Explain the three purposes of liquidity
- Manage liquidity by changing the mix of assets and liabilities
- Evaluate five management decisions for controlling liquidity
- Interpret various liquidity scenarios

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Liquidity Definition

The ability to fund assets and commitments while meeting maturing obligations and decreases in deposits most efficiently under a variety of foreseeable circumstances or normal business conditions.

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Liquidity

- Sufficient funds
- Public trust
- Managing your liquidity

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Purpose of Liquidity

- Meet current and foreseeable obligations of the bank
- Flexibility to grow (to meet credit demand). Growth requires funds.
- Sustain losses

The Tradeoff

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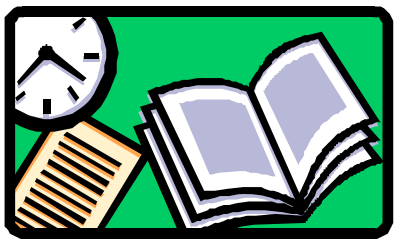
Exercise 1: Liquidity Position

- Page 3-4
- Exercise instructions
- Exercise time limit



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Liquidity Management

- Outside of management control
  - Marketplace and terms
  - Assets in which to invest
- Avoiding mismatches

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Liquidity Management

- Managing assets by changing mix/maturity
  - Structure asset mix and/or maturity to correspond to liability mix/maturity
  - Shorten maturities of assets
  - Reduce loan growth

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Liquidity Management

- Managing liabilities through mix/maturity
  - Extend maturities of liabilities
  - Increase core deposits
  - Reduce volatile sources of funding
  - Diversify funding sources
  - Manage funding relationships

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Analyzing and Managing Liquidity

- Analyzing and managing short, medium and longer term liquidity positions
- Forecasting and managing expected and potential cash flows
- Analyzing present market conditions
- Establishing limits, targets & guidelines
- Planning for possible liquidity crises

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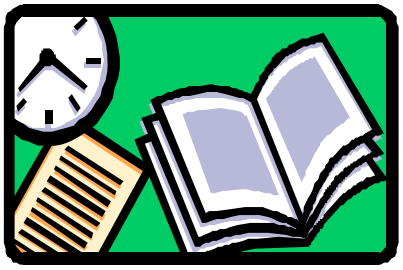
Exercise 2: Liquidity Position

- Page 3-7
- Exercise instructions
- Exercise time limit



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Liquidity Periods

- Statutory Reserves
- Short term (<8 days)
- Medium term (8 days – 3 months)
- Long term (> 3 months)

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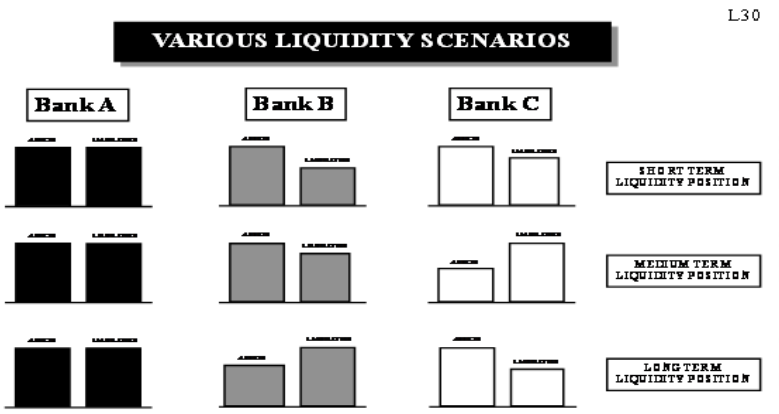
Liquidty Scenarios



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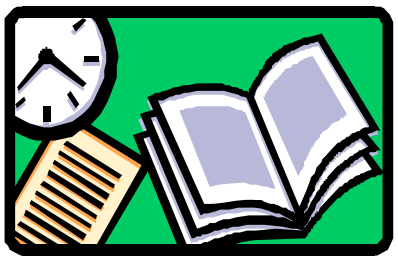
Exercise 3: Liquidity Position

- Page 3-11
- Exercise instructions
- Exercise time limit



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Module 4:

Analyzing Liquidity Positions

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Learning Objectives

- Design a liquidity spreadsheet
- Evaluate liquidity surpluses or shortfalls
- Prepare specific actions to consider in maintaining adequate liquidity
- Assess the amount of liquidity based on economic and bank conditions
-

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Liquidity Spreadsheet

	<8 Days	8 Days - 1 Month	1-2 Months	2-3 Months	3-6 Months	6-12 Months	1-2 Years	Over 2 Years	Total
Assets	950	1,150	1,500	1,250	3,900	4,000	1,050	1,200	15,000
Liabilities & Capital	900	1,050	1,700	1,400	3,850	3,950	900	1,250	15,000
Liquidity Surplus (Shortfall)	50	100	(200)	(150)	50	50	150	(50)	
Cumulative Position	50	150	(50)	(200)	(150)	(100)	50	-	

See questions in Participant Guide

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Analysis

- Surpluses
- Shortfalls
- Adjustments
- The unexpected

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Surplus vs. Shortfall

- Liquidity Surplus
  - Longer term liabilities are funding short-term assets, providing an extra liquidity cushion
  - A very large liquidity surplus means that surplus liquidity is being held at the expense of potential higher interest income
- Liquidity Shortfall
  - Part of the bank's longer term assets are being funded by short-term funds
  - A very large shortfall may negatively affect the bank's ability to meet its obligations

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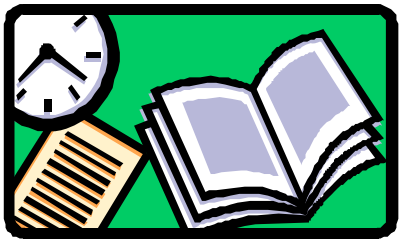
Exercise 1: Spreadsheet Analysis

- Page 4-4
- Exercise instructions
- Exercise time limit



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Factors Affecting Liquidity

- Bank specific
  - Inherent risks and risk activities
  - Risk appetite
  - Volatility of deposits/liabilities
  - Rate of loan/asset growth
  - Expertise of liquidity managers
  - Quality of MIS

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Factors Affecting Liquidity

- Nonbank specific – market environment
  - Overall liquidity of banking system
  - Competitive factors
  - Overall economic environment, including interest rate forecasts

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Maintain Large Liquidity Surplus When

- Bank risks and risk activities are high
- Risk appetite is high
- Deposits/liabilities are highly volatile
- Bank has a high loan/asset growth rate
- Expertise of liquidity managers is weak
- Quality of management information systems is low
- Market environment is highly volatile
- Environment is very competitive
- Bank's portfolio has a large exposure to interest rate risk

Opportunity Cost: Higher potential interest income

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Maintain Small Liquidity Surplus When

- Bank risks and risk activities are low
- Risk appetite is low
- Deposits/liabilities are stable (not volatile)
- Bank does not have a high loan/asset growth rate
- Expertise of liquidity managers is strong
- Quality of management information systems is high
- Market environment is stable
- Competition is low
- Bank's portfolio has little exposure to interest rate risk

Balance trade-off between liquidity risk and profit opportuni ies

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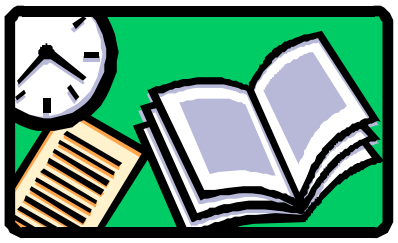
Exercise 2: Analysis of Current Conditions

- Page 1-7
- Exercise instructions
- Exercise time limit



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Volatile Liabilities

- Large accounts with balances which fluctuate greatly
- Deposits where rollover at maturity is highly uncertain (e.g. large time deposits, interbank deposits)
- Short-term borrowings, including interbank borrowings

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When Volatile Liabilities Appear

- Bank is having problems
- Sources of funds is drying up
- To meet liquidity needs a bank must:
  - Liquidate Liquid Assets (assets which can be sold quickly and at little or no loss);
  - Increase Short-Term Borrowings and/or Issue Additional Short-Term Deposit Liabilities;
  - Decrease Holdings of Illiquid Assets;
  - Increase Liabilities of a Term Nature; and/or
  - Increase Capital Funds
- All of these are difficult for a bank in trouble

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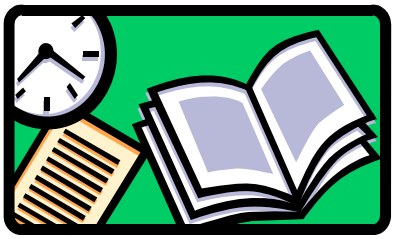
Exercise 3: Analysis of Current Conditions

- Page 4-9
- Exercise instructions
- Exercise time limit



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Module 5:

Liquidity Management and Cash Flow

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Learning Objectives

- Summarize the steps to take to meet liquidity needs
- Diagram the concept of cash flow
- Calculate cash flow projections
- Forecast and adjust cash flows

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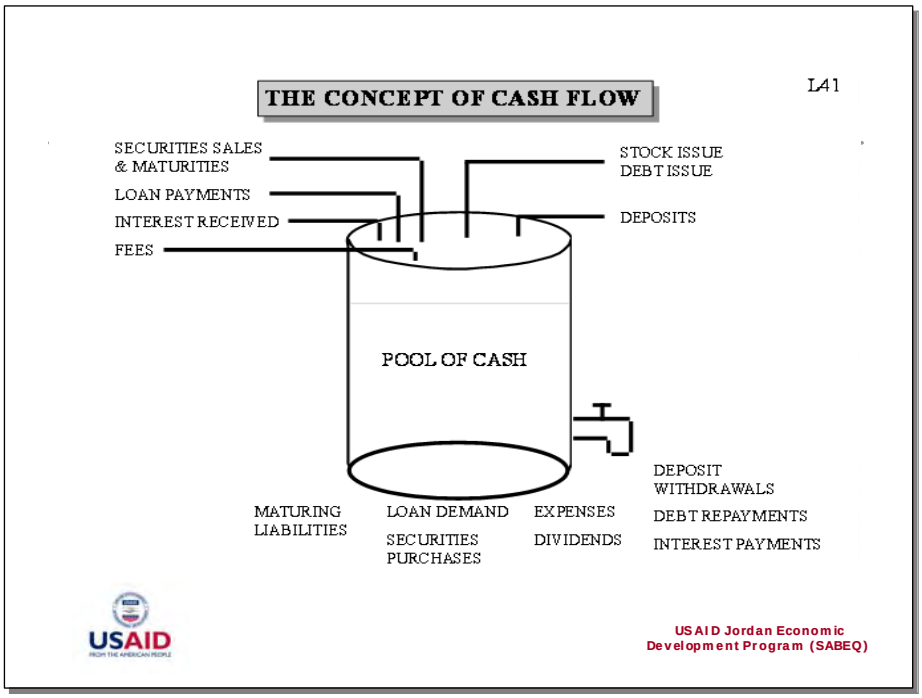

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Cash Flow Evaluation

CASHFLOWIN	CASHFLOWOUT
ACTUAL	
? Maturing assets	? Maturing liabilities and commitments to lend
? Interest from loans and securities	? Interest paid on deposits and borrowings
? Increase in deposits and borrowings	? Deposit withdrawals
? Loan payments	? Loan demand
? Sale of assets	? Purchases of assets
? Capital issues	? Debt repayments
	? Expenses
	? Dividends

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Cash Flow Evaluation

POTENTIAL

- Salable non –maturing assets
- Establish credit lines
- Unspecified maturity retail deposits
- Optional commitments to lend and other off-balance sheet activities

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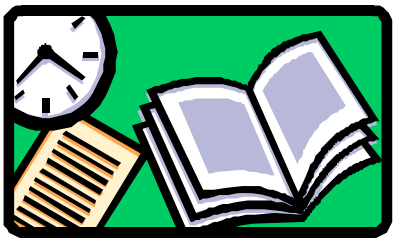
Exercise 1: Project Cash Flow Exercise

- Page 5-5
- Exercise instructions
- Exercise time limit



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Managing Cash Flow of Assets

- Expected level of new loans (including seasonal, unexpected & projected)
- Proportion of maturing assets which are expected to be rolled over or renewed
- Expected level of draw downs of loan commitments
- Expected change in interbank placements

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Cash Flow of Liabilities

- The expected level of new deposits (including seasonal, unexpected, and projected)
- The normal level of rollovers of deposits & other liabilities
- The effective maturity of deposits with no specific maturities
- Expected change in interbank borrowings
- Planned issuance or retirement of long-term debt
- Changes in capital levels

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Cash Flow Spreadsheet

	CURRENT LEVELS	FORECAST CHANGES OVER 3 MONTHS	PROJECTED LEVELS IN 3 MONTHS
Assets			
Cash & due from banks	800	(130)	670
Interbank placements	160	(30)	130
Loans	12,010	1,020	13,030
Treasury securities	1,810	(115)	1,695
Equity securities	220	(55)	165
All other assets	190	-	190
TOTAL ASSETS	15,190	690	15,880
Liabilities			
Demand deposits	2,050	30	2,080
Time deposits	10,660	375	11,035
Interbank borrowings	630	(210)	420
Long-term debt	520	-	520
All other liabilities	180	-	180
Capital & reserves	1,150	10	1,160
TOTAL LIABILITIES	15,190	205	15,395
NET FUNDING REQUIREMENTS		485	485

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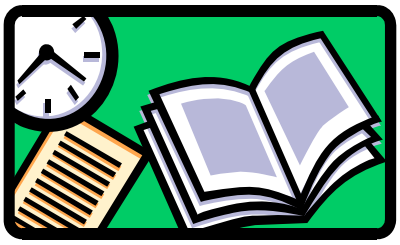
Exercise 2: Project Cash Flow Exercise

- Page 5-8
- Exercise instructions
- Exercise time limit



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Forecasting Cash Flow

- If short falls your could:
  - Seek additional sources of time deposits
  - Reduce any planned loan or asset growth
  - Issue capital or long-term debt
  - Increase marketing efforts to attract deposits

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Forecasting Cash Flow

- If you are forecasting a surplus
  - Set higher loan growth targets
  - Pay off expensive debt
  - Allow high interest rate deposits to run off
  - Enter into new business projects/buy assets
  - Reduce deposits marketing efforts

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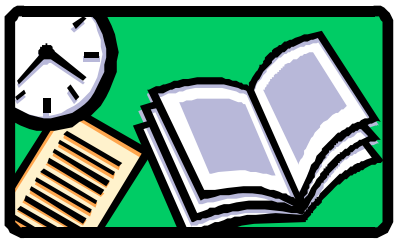
Exercise 3: Analyzing Cash Flow Projections

- Page 5-10
- Exercise instructions
- Exercise time limit



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Module 6:

Liquidity Policy

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Learning Objectives

- Analyze market conditions
- Establish limits and targets for liquidity management.
- Choose a contingency funding/liquidity plan.
-

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Analyzing Market Conditions

- Competitive Environment
  - Number of competitors
  - Number of new products being introduced
- Loan demand in the market
- Liquidity of market
- Regulatory climate
- Political climate

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Establishing Limits and Targets

- Inherent risks and risk activities
- Risk appetite
- Volatility of deposits/liabilities
- Rate of loan/asset growth
- Expertise of liquidity managers
- Quality of management information systems
- Overall market environment

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Main Limits and Targets

- Statutory reserve target
- Liquidity surplus guidelines for the short, medium and long term
- Limit on amount or percentage of volatile liabilities
- Limit on projected cash flow shortages for various periods

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Examples of Liquidity Limits

- Limit on the minimum amount of liquid assets
- Limit on the loan to deposit ratio
- A percentage limit on the relationship between anticipated funding needs and available sources
- Limits on large exposures in deposits and borrowings
- Limits on the minimum/maximum average maturity for different categories of liabilities

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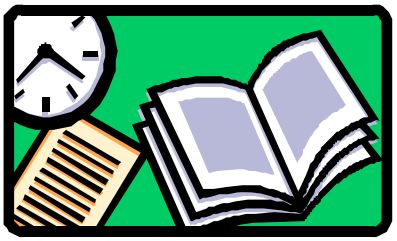
Exercise 1: Establishing Limits

- Page 6-6
- Exercise instructions
- Exercise time limit



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Contingency Planning

- "Going Concern"
- Disaster Scenarios

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Going Concern

Does your bank:

- Analyze the different liabilities -- the stability of these sources and their maturities?
- Manage maturity profiles of liabilities from a liquidity perspective?
- Manage seasonal liquidity changes?
- Recognize the importance of quality perception in the market?
- Manage interest rate return?
- Manage the asset and liability mix?

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Disaster Scenarios

Questions to ask:

- How long will the bank survive if a “run” occurs?
- What are the steps management would take in this situation?
- Has management planned ahead for possible crises?
- Can they continue to operate with minimal disruptions of service to the bank and its customers
  - And with minimal financial loss?
  - Plus ensure that operations are up and running as soon as possible in the event of a disaster?

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Contingency Funding Plan

Components

- Coordination and assignment of responsibilities
- Prediction of balance sheet changes
- Strategy for controlling balance sheet changes
- Maintenance of customer relationships
- Astute public relations

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Different Scenarios

- Did crisis arises from problems in the bank?
- Is crisis being experienced by all banks?
- What alternative funding sources will be used?
- What assets that will be liquidated?
- How much is expected to be obtained from each source?
- Have you set up time schedule?

The strategy should include various stages:
For ex; if deposits drop to a certain level, management will do this.
If deposits drop even further to another level, then management will do this.

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Predicting Balance Sheet Changes

- Maintain current list of customers most likely to cancel or reduce support.
- Identify possible funding sources.
- Quantify anticipated liability runoff within various time periods.
- Quantify probable alternative sources of funds or asset liquidations.
- Estimate possible central bank refinancing credit utilization.
- Provide a planned sequence for controlling balance sheet changes.

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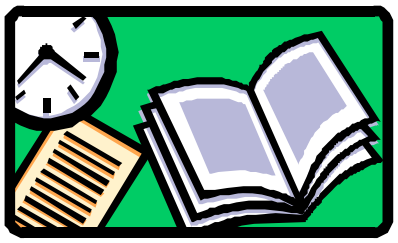
Exercise 2: Predicting Disasters

- Page 6-11
- Exercise instructions
- Exercise time limit



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Module 7:

Liquidity Evaluation

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Learning Objectives

- Assess the adequacy of the bank's liquidity position
- Anticipate future funding needs
- Measure the amount liquidity needs to be raised or lowered

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Adequacy of Liquidity Position

- Historical funding requirements
- Current liquidity position (availability of assets readily convertible to cash)
- Stability of sources of funds
  - Composition and stability of deposit base
  - Seasonal, cyclical and other factors that affect deposit levels
- Level, frequency and purpose of borrowings

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Adequacy of Liquidity

Other factors

- Affects on credit demand
- Usage of credit commitments
- Acquisitions
- Current positions
- Cost of funds
- Options for reducing funding needs

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Adequacy of Liquidity

Other factors – continued

- Ability to borrow
- Present and anticipated asset quality
- Earnings capacity
- Capital position
- Economic and market forecasts
- Effectiveness of policies and procedures

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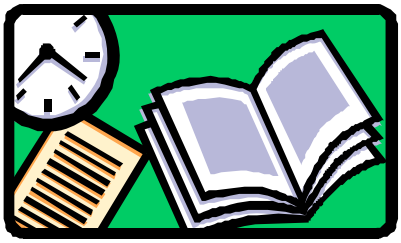
Exercise 1: Higher Liquidity is Needed When:

- Page 7-5
- Exercise instructions
- Exercise time limit



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Ratio Analysis

Can help assess present level and trend

- Deposits
- Borrowings
- Investment Securities
- Trading Assets
- Credit Portfolio
- Loan Commitments
- Other Off-Balance Sheet Activity

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Ratio Analysis Can Help

- Assess Composition and Stability
  - Deposits
- Assess Diversification
  - Sources
  - Instruments
  - Markets
  - Maturities
  - Size

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Ratios

- Average Core Deposits/Average Total Deposits (or Average Total Assets)
- Average Volatile Deposits/Average Total Deposits (or Average Total Assets)
- Average Interbank Deposits/Average Total Deposits
- Net Loans/Core Deposits
- Deposit Growth Rate
- Core Deposit Growth/Asset Growth

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Ratios - Continued

Borrowing ratios that may be used are:

- Borrowed Funds Growth Rate
- Average Short-Term Borrowings/Average Total Assets
- Average Long-Term Borrowings/Average Total Assets
- Net Operating Income/Annual Debt Service

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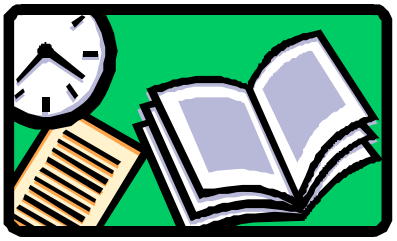
Exercise 2: Ratio Analysis Concepts

- Page 7-8
- Exercise instructions
- Exercise time limit



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Liquid Assets Ratios

$$\frac{\text{Average Liquid Assets}}{\text{Average Total Assets}}$$

$$\frac{\text{Pledged Securities}}{\text{Total Securities}}$$

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Lending Ratios

$$\frac{\text{Net Loans}}{\text{Total Assets}}$$

$$\frac{\text{Net Loans}}{\text{Total Deposits}}$$

$$\frac{\text{Net Loans}}{\text{Core Deposits}}$$

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General Liquidity Ratios

$$\frac{\text{Interbank Placement} + \text{Investment Securities Maturing in 1 Qtr.}}{\text{Funds Borrowed} + \text{Term Deposits Maturing in 1 Qtr.}}$$

$$\frac{\text{Volatile Liabilities}}{\text{Total Assets}}$$

$$\frac{\text{Liquid Assets}}{\text{Volatile Liabilities}}$$

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General Liquidity Ratios

Volatile Liability Dependence

$$= \frac{\text{Volatile Liabilities} - \text{Liquid Assets}}{\text{Net Loans} + \text{Investement Securities}}$$

(Either Reprced or with Remaining Maturities Over 1 yr.)

$$\frac{\text{Total Fee Paid Commitments}}{\text{Own Funds}}$$

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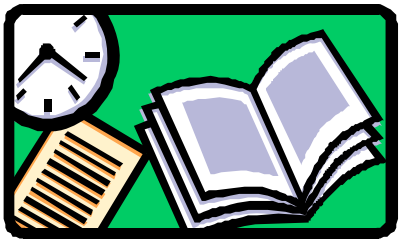
Exercise 3: Calculate and Analyze Liquidity Ratios

- Page 7-12
- Exercise instructions
- Exercise time limit



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Module 8:

Asset and Liability Management

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Learning Objectives

- Diagram the organizational process of liquidity and asset and liability management
- Establish an ALCO (Asset and Liability Committee)
- Outline the responsibilities for an ALCO

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ALM

PURPOSE

To implement the business philosophy of the banking organization.

POLICY

The asset/liability management policy should be developed & implemented by the Asset/Liability Committee (ALCO) following the authority given to it by the Supervisory Board.

ALCO COMMITTEE STRUCTURE

- Loan Portfolio
- Investment Portfolio
- Deposit/Funding Responsibilities
- Economic Forecasting
- Chief Financial Officer
- Chief Executive Officer

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Instructor Notes:

Go over items to be included in a ALM policy of a bank.

The ALCO policy should be approved by the Board.

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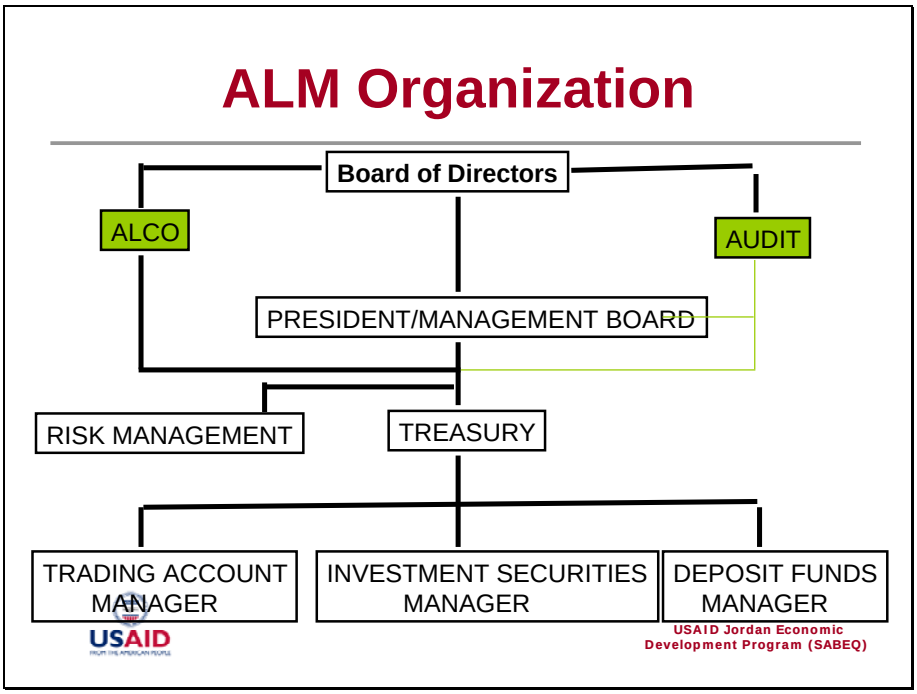

Instructor Notes:

This is a typical organization chart for the liquidity/ALM function.

The Board is responsible for approving the decisions made by ALCO & for periodically reviewing the bank's performance.

ALCO should be the strategic decision maker, with other organizational units providing information support & executing the ALCO decisions.

<u>Principal Roles</u>

Board of Directors: Review/approve policy

Make final decisions

ALCO: Develop liquidity/ALM policies

Make strategic position decisions

Establish limits & guidelines

Risk mgmt: Monitor compliance w/limits & guidelines

Assess risk of activities

Treasury: Execute ALCO decisions

Manage positions

Other depts: Execute ALCO decisions

Provide overall support

Assist in data collection

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Principle Roles

- Board of Directors
- ALCO
- Risk management
- Treasury
- Other departments

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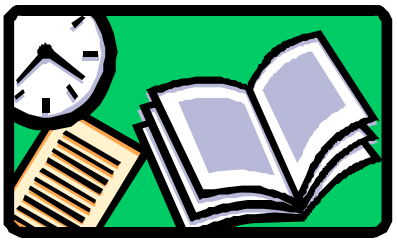
Exercise 1: Design and ALCO Structure

- Page 8-5
- Exercise instructions
- Exercise time limit



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ALCO Responsibilities

- Goals, objectives, policies, limits, targets and guidelines
- Capital you are willing to risk or lose
- Levels of liquidity and interest rate risk
- Balance sheet mix
- Capital adequacy
- Economic outlook and interest rate trends

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ALCO Responsibilities

- Future and revised forecasts
- Compliance with bank policy, laws, regulations and recommendations
- Identifying, analyzing and recommending changes in policy
- Reporting regularly to the Board of Directors on the above

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Goals and Objectives

- Inherent risks and risk activities of the bank
- Risk appetite of the bank
- Volatility of deposits and liabilities
- Rate of loan and asset growth
- Expertise of managers
- Quality of management information systems
- Market environment

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Written Policy

Liquidity/Funding

- Measures of liquidity
- Sources of liquidity/funding
- Funding-mix targets
- Maturity guidelines of various liabilities

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Written Policy

Investment Securities/Loan Mix

- Target mix of both securities and credit portfolios
- Levels of credit quality
- Maturity guidelines of various assets

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Written Policy

Rate Sensitivity/Interest Rate Risk

- Amount of acceptable rate sensitivity
- Methods and products to deal with interest rate risk

Pricing

- Target performance levels
- Minimum spread differentials between asset yields and liability cost rates

Other Items

- Frequency of meetings
- The recordation of each meeting and decisions made

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Reports

- Asset and liability maturity schedule
- Interest rate sensitivity report
- Net interest margin analysis
- Liability and asset pricing reports
- Credit portfolio reports

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Reports

- Securities portfolio reports
- Funding activity reports
- Overall financial performance
- Peer performance
- Forecast of economic activity

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Decisions and Recommendations

- Profitability targets
- Large asset exposures and quality
- Large funding exposures and sources
- Interest rate sensitivity targets
- Capital targets

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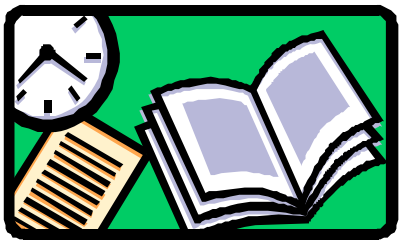
Exercise 2: Preparing for ALCO Meeting

- Page 8-9
- Exercise instructions
- Exercise time limit



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Module 9:

Leverage Risk

Slide 136

Learning Objectives

- Explain the concept of leverage
- Calculate the leverage ratio of a bank
- Determine leverage risk
- Estimate the costs of deleveraging

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Leverage in Banking

- Zero leverage
- 4 to 1
- 8 to 1
- 30 to 1

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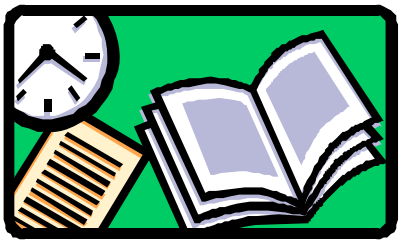
Exercise 1: Calculating Leverage Ratio

- Page 9-5
- Exercise instructions
- Exercise time limit



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Current Financial Crisis - USA

Bank	Assets	Shareholder Equity	Ratio
Bank of America	$1,715B	$146.8B	11.7
Citigroup	$2,187B	$113.6B	19.2
JPMorgan Chase	$1,562B	$123.2B	12.7
Wells Fargo	$ 575B	$ 47.6B	12.0

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European Banks

Bank	Assets	Shareholder Equity	Ratio
Deutsche Bank	€2,020B	€38.5B	52.0
UBS	Fr2,272B	Fr42 5B	53.4
Credit Suisse	Fr1,360B	Fr59 9B	22.7
Fortis	€871B	€34.3B	25.5
Dexia	€604B	€16.4B	36.8
BNP Paribas	€1,694	€59.4B	28.5
Barclays	UK1,227B	UK32.5B	37.8
RBS	UK1,990B	UK91.5B	21.7

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Deleveraging

- Not a word
- “Toxic assets”
- “Zombie banks”

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Exercise 2: Deleveraging

- Page 9-9
- Exercise instructions
- Exercise time limit

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Stress Tests

- Identify sources of potential liquidity strain
- Use stress test to see what happens when…..
- Time will be critical

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Assets	
Cash and balances at central banks	143,687,828
Interbank placements	122,888,304
Trading financial assets	5,990,486
Direct credit facilities	516,151,715
Available -for-sale financial assets	18,802,201
Held-to-maturity investments - net	101,124,373
Mortgaged financial assets	26,250
Fixed assets - net	12,764,073
Intangible assets - net	860,521
Other assets	38,910,387
Total assets	961,206,138
Liabilities and Shareholders' Equity:	
Liabilities:	
Banks and financial institutions deposits	52,886,019
Central Bank of Jordan deposit	36,750,000
Customer deposits	598,417,264
Cash margins	94,991,596
Borrowed funds	17,500,000
Other provisions	2,455,717
Provision for Income Tax	2,624,386
Other liabilities	13,432,188
Total liabilities	819,057,169
Shareholders' Equity :	
Paid-up capital	110,687,500
Share capital premium	99,222
Statutory reserve	8,395,244
General banking risks reserve	5,282,995
Cumulative change in fair value - net	(1,233,906)
Retained earnings	18,917,915
Total shareholders' equity	142,148,969
Total liabilities and Shareholders' equity	961,206,138

Categories for Ratios	In Millions
Liquid Assets	272
Total Assets	961
Pledge Sec	9
Total Securities	126
Net Loans	516
Total Deposits	688
Core Deposits	583
Interbank Placement	123
Inv. Securities Mat 1 Qtr	43
Funds borrowed	18
Term Deposits Mat 1 Qtr	54
Volatile Liabilities	153
Total Fee Paid Commitments	125
Shareholders' Equity	142

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Resources

- Hussman Funds www.hussmanfund.com
- Institutional Risk Analytics
- www.institutionalriskanalytics.com
- John Mauldin www.2000wave.com
- Stratfor www.stratfor.com
- Liscio Report www.theliscioreport.com

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Financial Crisis

MV = PQ

V = financial innovation + leverage

V in US average is 1.67

If money supply = 1trillion and total spending = 2 trillion V = 2

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Intervention

- Central banks and governments respond to crisis by tightening regulations
- “Regulation should be tight when leverage is increasing and relaxed in the face of deleveraging”

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ANNEX TWO

Liquidity Management and Deleveraging for Banks in Jordan

Participants Guide

April 27-28, 2009

Liquidity Management and

Deleveraging for Banks Workshop

April 27-28, 2009

Participant Guide

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LEARNING OBJECTIVES **2**
ABOUT THE COURSE **2**
SUMMARY ..... **ERROR! BOOKMARK NOT DEFINED.**

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Introduction

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OVERVIEW

This course provides a framework for applying the principles of liquidity risk management and deleveraging for the operation of commercial banks. It will put liquidity risk management within the context of asset and liability management.

LEARNING OBJECTIVES

After completing this course, participants will be able to:

- Explain the primary risks that must be managed by bankers
- Evaluate the importance of liquidity management in banking
- Establish how liquidity management impacts assets and liabilities.
- Calculate and analyze liquidity positions of banks
- Demonstrate cash flow movements and their impact on liquidity management.
- Design a liquidity policy for your bank
- Develop a methodology of evaluating your bank's liquidity risk and plan on a continuing basis.
- Formulate an organizational structure to oversee asset and liability management policy.
- Explain the importance using leverage in banking and the management of its risks

ABOUT THE COURSE

This course is designed as a guide to developing liquidity management within a bank. The course will provide an overview of the tools needed to manage liquidity risk throughout a bank. During the course, you will use this book as a resource guide. It contains definitions of terms, concepts, exercises, instructions for assignments, discussion questions and examples.

INSTRUCTORS

In the classroom, your instructors will be the facilitators for your learning. The role of the instructor is to ensure that the classroom environment supports learning.

PARTICIPANTS

The participants in the course come with a variety of valuable experiences. Your contribution to group discussions will be helpful to other participants. Likewise, the experiences of other participants serve as a valuable resource to you. During the course, you will be asked to participate in several ways: group discussions, completing individual assignments, and working in teams with other participants to analyze problems and make recommendations. Please take the opportunity to share your knowledge and experiences, ask questions and challenge concepts.

ACTION PLAN

An important feature of this course is the Action Plan. An Action Plan is created by each participant for the ideas and plans you want to implement in your bank when you complete the course. We will give you the opportunity to write down your ideas on Action Plan worksheets as we complete each module in the course.

Summary

Upon completion of this introduction, you learned to:

- Explain the learning methodology and purpose of the International Trade Finance and International Banking course.

The information that you received in this introduction should ensure that the rest of the course is meaningful to you.

Module 1:

Overview of Risks in Banking

OVERVIEW

Banking is a function that requires the management of risks. This module examines the major risks that bankers must analyze and master. It will examine how to identify, categorize and chart the risks, which is necessary to effectively grapple with all risks while managing each.

LEARNING OBJECTIVES

Upon the completion of this module, you will be able to:

- List the five major risks that bankers must manage.
- Identify ten additional risks in managing a bank.
- Explain the four principals of sound risk management.

MANAGING RISK

In today's challenging environment, bank managers are faced with many decisions. They must effectively manage the bank's assets and liabilities in order to maximize the value of shareholders equity, while at the same time maintaining liquidity and protect earnings from the rapid changes in the financial markets. How bankers do this not only determines their success but, in today's environment, their survival.

Successful bankers must evaluate their bank's liquidity and asset and liability structure. This evaluation should be constantly revised based on changes in the economy and financial markets. We are seeing examples around the world of rapidly changing conditions that have caught many bankers unprepared to handle the unexpected without government intervention.

Ignoring any to the risks while focusing on others can lead to disaster. All too often, bankers focus on profit during good economic times and forget to prepare for the inevitable bad times.

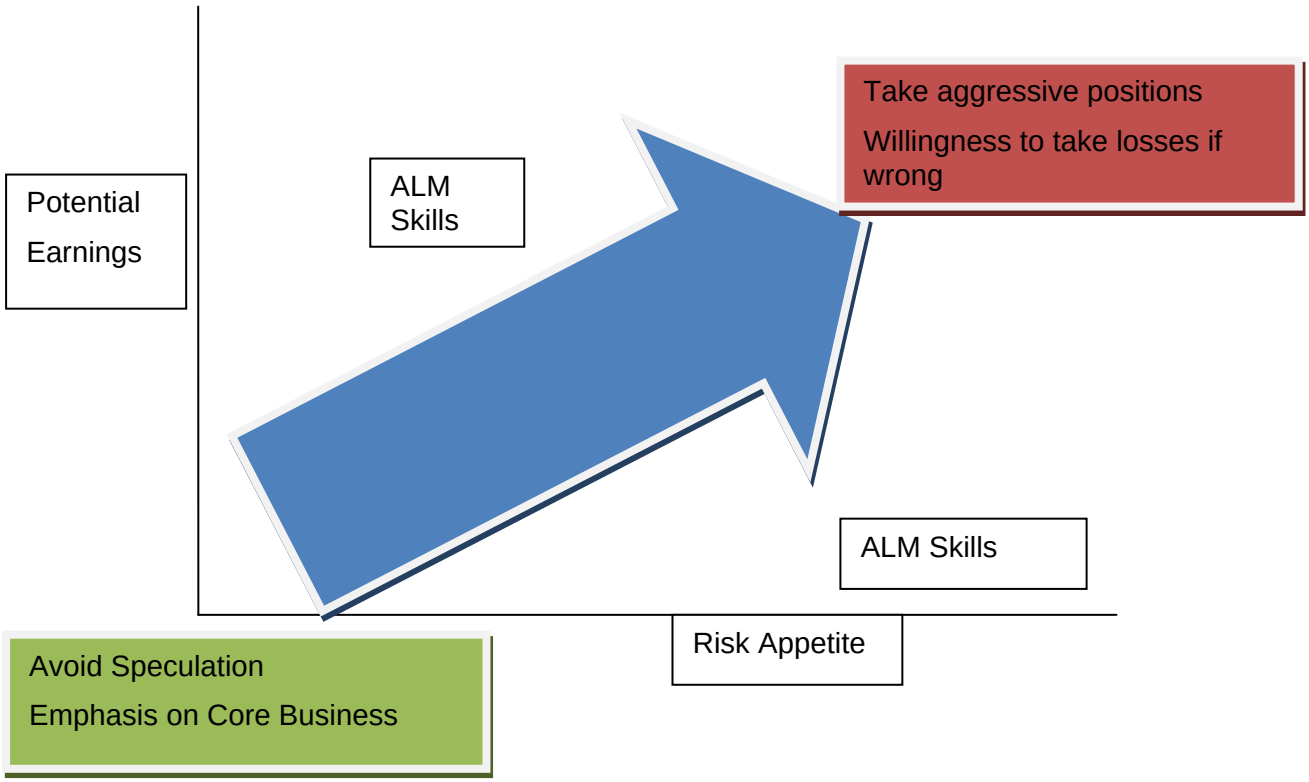
EXERCISE 1: HOW WOULD YOU DEFINE RISK?

Instructions:

Write down a definition for risk. Now, share with your neighbor. Do you agree?

PROFITABILITY AND RISK

The market value of equity is dependent upon the future profitability of the bank but subject to the risk taken to achieve the returns. Banks want to maximize the return on equity to please shareholders and minimize the risk. However, there is a built in tradeoff between these two. To obtain higher returns or profit, greater risk must be taken. If risk increases, then the expected return should increase to compensate for the increased risk.



Even though we will focus on liquidity risk in this workshop, let's first examine the major risks that you face.

RISKS THAT MUST BE MANAGED BY BANKERS

There are five financial risks which must be managed by bankers:

- Credit Risk
- Liquidity Risk
- Interest Rate Risk
- Foreign Exchange Risk
- Capital Adequacy Risk

Each of these risks can have a major impact on the earnings of the bank as well as ability to survive in a competitive market place:

- **Credit Risk:** This is the risk that principal and interest on an asset will not be received as agreed. Excesses or the mismanagement of this risk has been the greatest cause of bank failures around the world.
- **Liquidity Risk:** This risk can also be called cash flow risk, which is the risk that the bank will not have the funds necessary to meet its obligations on time or it will have to pay a very high cost to do so. If liquidity is tight, a bank will not have the funds to pay its bills, salaries, depositor's withdrawals or fund its loan growth. This is referred to as "funding liquidity risk". "Market liquidity risk" is the risk that the bank can easily unwind or offset specific exposures without significantly lowering market prices because of inadequate market depth or market disruptions.
- **Interest Rate Risk:** This is the risk that a change in interest rates will negatively impact the bank's net interest income. This risk can also be affected by inflation.
- **Foreign Exchange Risk:** If the bank has assets and liabilities in foreign currencies, then the bank may be exposed to changes in exchanges rates.
- **Capital Adequacy Risk:** If a bank does not have sufficient capital to adequately absorb losses, then it has seriously underestimated this risk and jeopardized the survival of the bank.

Bankers must identify measure and effectively manage all these risks. Each risk can have an impact on the others. None operates independently of the other risks, so each must be managed with weighing and measuring impacts on other risks or exposures.

EXERCISE 2: RANK THE RISKS

Instructions:

Take the five risks we have just discussed and rank them in the order of greatest exposure to the least exposure in Jordan. List them with the first being the greatest and the last being the least. Now compare with your neighbor.

HOW SHOULD RISK BE MANAGED?

Risk management must occur at all levels of the bank from the board of directors down through every department. The directors have the responsibility of establishing and overseeing that the policies are implemented for each category of risk. They must require continuing reviews of the various risk levels and if they need to be adjusted based on changes in the economy and financial markets. Senior management is responsible for ensuring that the risk policies set up by the board of directors are implemented and adhered to. They need to set up reporting requirements from all departments to ensure that they are receiving comprehensive information on which to base decisions and formulate reports to the board.

The risk parameters established by the board of directors need to be clearly communicated to all levels of the bank. Managers and supervisors must assume responsibility for compliance with the bank's policies for all employees. We have seen numerous examples of how one individual can seriously impact the financial condition of a bank or even cause the bank to fail as with the case of Nick Leeson at Bearings Bank. That was an example of a lack of operational risk management and failure of supervision. Lack of control over reporting trades also created major losses for Diawa Bank in New York, and over €5 billion in losses in the case of Jerome Kerviel at Societe de General.

As global banking becomes more complex the risks become more complex. To help management balance all of the risks, we have placed them into categories.

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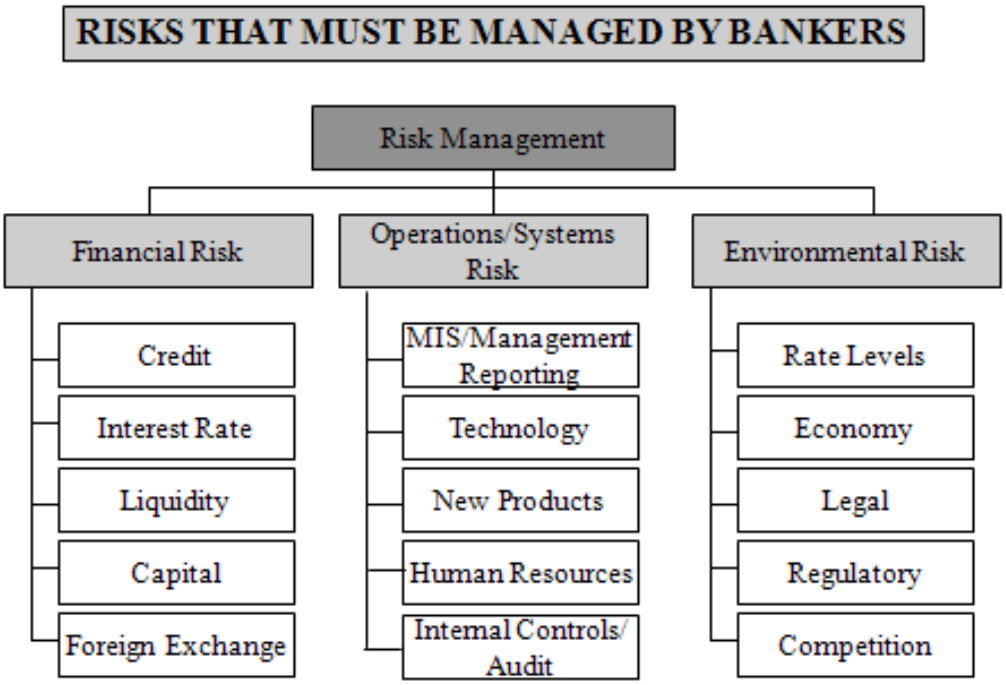

A COMPREHENSIVE RISK MANAGEMENT FRAMEWORK

Directors and senior management need to continually ask questions about the risks their bank is taking within the policies established. Questions such as:

1. How does our bank identify, quantify and control its risks?
2. What levels of management are aware of the risks to which the bank is exposed?
3. Are the reports being prepared at each level of management adequate to monitor and control risks?
4. Is the bank's data processing operation capable of producing the detail of data to quantify and analyze risk?
5. Does the bank need more comprehensive risk management reports?
6. Is the frequency of reports sufficient to monitor and control risk?
7. Does the bank have an adequate infrastructure to support the type of risk-taking activities within the bank?
8. Does the bank have the quality of personnel to support the level of risk taking?

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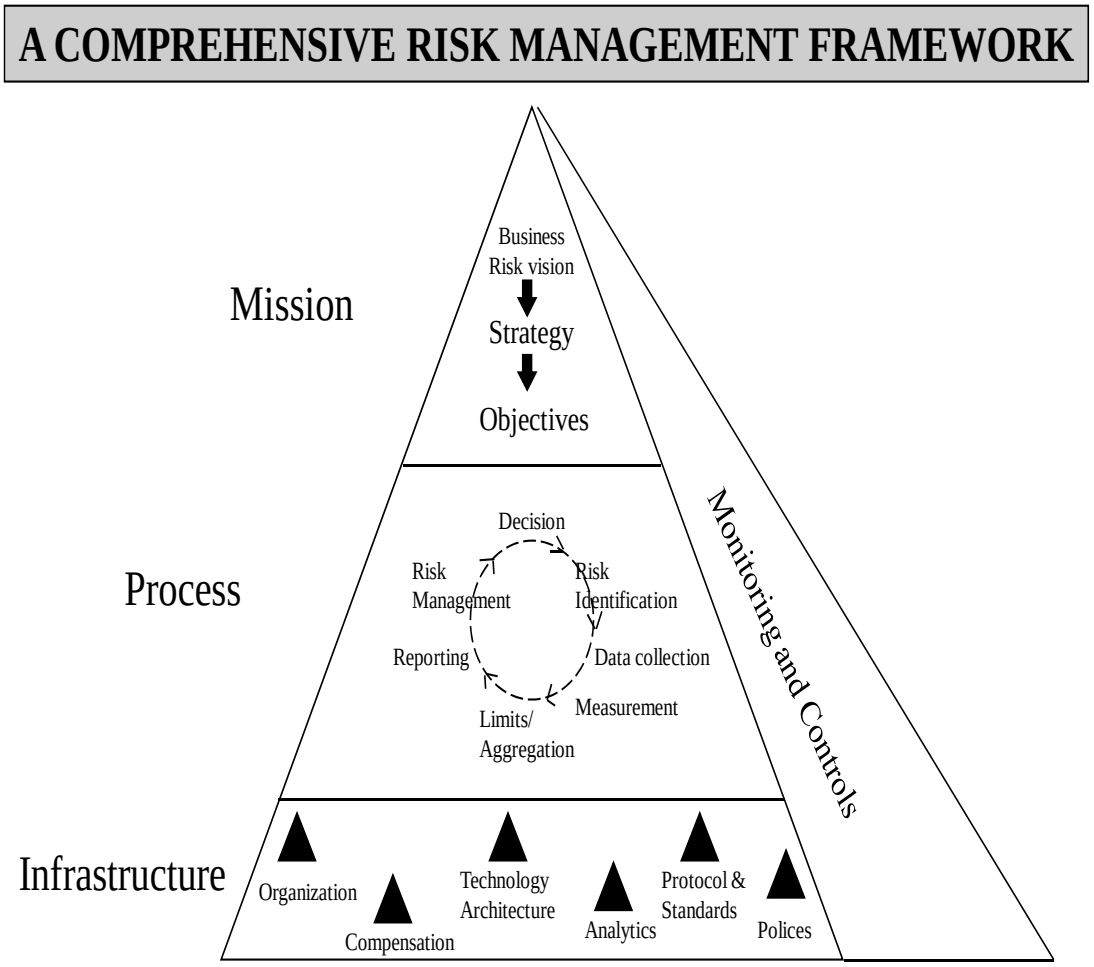


PRINCIPAL ELEMENTS OF SOUND RISK MANAGEMENT

The more risk that the bank takes the more it needs detailed and comprehensive policies. It needs to have an active board of directors and senior management to provide the necessary oversight. The policies, procedures and limits need to be extremely thorough. The risk management, monitoring and management information systems need to be comprehensive. The internal controls need to be communicated and followed closely at all levels of the bank.

The role of the board of directors in active risk management should include:

- Approving business strategies and policies
- Ensuring that senior management is capable of managing and taking risks
- Understanding the types and levels of risks to which the institution is exposed
- Receiving reports that identify the size and significance of the risks.

The role of senior management and its interrelationship with the board of directors should include:

- Implementing strategies and ensuring compliance with policies and regulations established by the board of directors
- Designing a prudent organizational structure
- Possessing sufficient knowledge of all major lines of business
- Ensuring policies, controls and risk monitoring systems are in place
- Ensuring accountability and lines of authority are delineated
- Communicating the need for effective internal controls and high ethical standards

Together the board of directors and senior management should clearly delineate risk management in practice and codify it in written policies. They should take whatever steps are necessary to guarantee that:

- Policies and procedures exist to adequately identify, measure, monitor and control risks posed by its lending, investing, trading activities
- Policies and procedures are consistent with management's experience level, the institution’s stated goals and objectives, and the overall financial strength of the organization
- Policies and procedures clearly delineate accountability and lines of authority across the institution's activities
- Policies include the review procedures of activities new to the financial institution to ensure that the infrastructure necessary to identify, monitor and control risks associated with an activity are in place before the activity is initiated

In addition to establishing policy and procedures, the board of directors along with senior management should implement a sound system of limits and risk taking guidelines. Establishing limits for loan approval is common practice in all banks. This practice needs to apply to all departments that take risk and can impact the financial condition of the bank. Such limits should include:

- Setting limits or boundaries for organization risk-taking and should reflect the risk tolerance of the board of directors and senior management
- Setting limits that are consistent with the experience level of individuals, market conditions and the overall capital position of the institution
- Establishing a limit structure that permits management to control exposures – positions that exceed predetermined levels should receive prompt management attention.

EXERCISE 3: ASSESSING RISK SKILLS?

Instructions:

If you were a manager of a credit department and are interviewing candidates for a senior position in the department, what questions would you ask to determine the applicant's willingness to take risk and how the applicant would mitigate risk?

Write three questions to assess the applicants risk profile.

1.

2.

3.

ACTION PLAN

Instructions:

Reflect on your learning in this module. What kind of changes are you planning to make to your work routine regarding risk management? Please write down your own individual plan and which information you would use.

A = Must do

B = Need to do, if possible

C = Nice to do

Priority A,B,C	***Objective And Tasks***	***Measures***	***Target Date***

SUMMARY

Banking is a function that requires the management of risks. This module examines the major risks that bankers must analyze and master. It will examine how to identify, categorize and chart the risks, which is necessary to effectively grapple with all risks while managing each.

There are risks in managing any business, however, it would be hard to find another that has so many risks to which it is subject while its very survival and success is dependent upon taking risk. Identifying these risks is the first and most critical step to the successful management of a bank. In this module we outlined and diagramed the most common risks and put them into categories.

LEARNING OBJECTIVES

In this module you learned to:

- List the five major risks that bankers must manage.
- Identify ten additional risks in managing a bank.
- Explain the four principals of sound risk management.

Module 2:

Liquidity – a Key to

Asset and Liability Management

LIQUIDITY- A KEY TO ASSET AND LIABILITY MANAGEMENT

OVERVIEW

This course will be focused on the management of liquidity risk. But, as we saw in the previous module, liquidity management is intertwined with other risks under the category of financial risks. It is these risks that encompass asset and liability risk. In this module, we will examine asset and liability management, commonly referred to as ALM, and why liquidity management is such a critical component.

LEARNING OBJECTIVES

Upon the completion of this module, you will be able to:

- Define liquidity risk within asset and liability management.
- Identify the five components of managing assets and liabilities.
- Calculate key ratios for managing assets and liabilities.
- Identify the ten key management decisions in managing a bank.
- Control liquidity while managing assets and liabilities.

INTERACTIONS OF RISKS

As with any business enterprise, banks must make strategic decisions in setting up their organization. They have to decide in what assets they will invest and how they will finance those investments. In banking we call this asset and liability management. However, if a bank took only its initial capital and then bought assets it would not even make enough money to pay its fixed costs and salaries. Therefore, a bank must use leverage, which means that it must take in deposits and borrow funds to multiply the ability of that capital to generate enough return to pay expenses and earn a profit for its shareholders. The amounts of deposits and borrowings have to be limited within reasonable risk parameters to, not only, protect the depositors but also ensure long-term viability.

In the current global financial crisis, the immediate problem for banks is liquidity risk. However, they must still manage other risks such as the problem of interest rate risk; the more liquid the asset the lower the interest rate. For example, US Treasury Bills have a very low yield compared to the higher earning packages of subprime mortgage loans that banks around the world are struggling to sell to raise liquid funds.

In the long-term, the success and survival of a bank depends greatly on management's ability to control their assets and liabilities to ensure that the bank has adequate liquidity and to protect the earnings and capital against potential losses arising from the bank's various risks. Strong asset and liability capabilities ensure that a bank understands the risk positions it has taken and the impact of market changes on those positions. By understanding its risks, a bank can contain potential losses:

- Because liquid assets tend to earn less interest than non-liquid assets (especially loans), banks that keep a large portion of their assets as liquid assets are likely to be less profitable;
- In contrast, banks which aggressively seek profits are more likely to keep a minimum amount of liquid assets so as to maximize their profits;

- The skill of managing liquidity requires that enough liquid assets are maintained to meet reserve requirements (or can be obtained) to meet obligations without having so much liquidity that profits suffer;
- In extreme cases where liquidity must be raised quickly, management may have to sell an asset at a loss in order to meet an obligation -- this, of course, will adversely affect profits. In 2008 we saw many examples of this. Some of the largest banks experienced such deep losses, lack of liquidity and erosion of capital that governments had to pour in money to keep them from collapsing, while closing or merging smaller banks.

Proper asset and liability management can create opportunities for greater earnings:

- Through better liquidity management, the bank can increase earnings by investing excess cash in higher earning assets.
- Through better pricing of loans, a bank can ensure that it is being adequately compensated for the risks taken.
- Through better interest rate management policies, the bank is better able to avoid or minimize losses from changes in interest rates.

KNOWLEDGE OF ASSET AND LIABILITY MANAGEMENT

We have discussed that, if a bank has a policy of being aggressive in taking risk to maximize profits, then it must select highly skilled bankers to implement its strategic plan. These managers must have an in-depth knowledge of asset and liability management.

Good managers know that to make decisions quickly in a competitive environment they must have good data available on a daily basis. However, just having good data means nothing unless they know how to process the data to provide meaningful measures of return and profitability. Being able to effectively measure risk from your data will better enable you to maintain liquidity while managing assets and liabilities for maximum return.

Skilled managers will constantly be monitoring the economic environment in their community, country and other countries with which they have transactions. Today, more than ever, we see how impacted banks from around the world are by changes in global economics. Many countries thought that they were insulated from the banking problems in non-neighboring countries only to find out that a financial crisis can roll around the world like a massive inexorable force.

Despite the fact that bankers work with numbers everyday, it is amazing how many lack the necessary accounting skills to master asset and liability management. Understanding a balance sheet is critical to managing the reconciliation of the risks on each side of the balance sheet and particularly impacts on capital. In the latest financial crisis we have seen numerous examples of how quickly a financial institution’s capital could be wiped out; sometimes so quickly that institutions virtually close overnight.

MEASURING RISK

With the policies and procedures established and risks identified, management needs to then establish a sound system of limits and risk taking guidelines. These limits should set the boundaries for organizational risk-taking and should reflect the risk tolerance established by the board of directors and senior management. The limits should be consistent with the experience level of individuals, market conditions and the overall capital position of the institution. In addition, a well established limit structure should permit management to control exposures. Any positions that exceed predetermined levels should receive prompt management attention. We have seen several examples in recent years of individual traders exceeding their limits, which shines a glaring light on the lack of systems to quickly identify such violations and daily reports that should be going to supervisors and management.

The supervisors and management monitoring risk activities need to have an in-depth knowledge of:

- Measures of return or profitability
- Measures of risk
- How combinations of assets and liabilities affect risks and returns
- How the economic environment affects risks and returns
- Effect of changes in the balance sheet and especially capital

Once again, the greater the risks that a board of directors is willing to take, the greater the need for superior managers who have the skills, intellect and motivation to manage those risks. In 2008, we saw how managing complex risks overwhelmed seemingly superior management at companies such as Bear Stearns, Lehman Bros, Merrill Lynch, CitiBank, AIG and Bank of America.

EXERCISE 1: IDENTIFYING AND SELECTING QUALIFIED MANAGEMENT

Instructions:

You are forming a new bank in Jordan. You plan to have a highly successful and profitable bank providing superior service and being aggressive in lending and investing. With a person sitting next to you (your partner in this new venture), make a list of the attributes that you would use in identifying and selecting your management team. Where could you find such individuals? Would you consider attracting individuals from other countries?

RATIOS USED FOR MANAGING ASSETS AND LIABILITIES

Some of the most common ratios in banking play a key role in measuring and managing assets, liabilities and liquidity. Such ratios as Return on Equity (ROE) and Return on Assets (ROA) are easy to calculate and use. What is also important about these ratios is being able to analyze how changes in the balance sheet will affect each ratio and to interpret these changes for asset and liability management.

The ratio for Return on Equity is:

$$The\ Return\ on\ Equity = \frac{Net\ Income}{Shareholders' Equity}$$

The primary contributors to this calculation are the pricing of assets and liabilities, management of various risks and the use of financial leverage. The pricing or interest rates charged will be directly reflected in this formula. The amount of borrowings used by the bank to leverage its capital will also change the return on equity. Knowing how to calculate a ratio is much easier than understanding how management decisions will cause the formula to change.

The analysis of the Return on Assets (ROA) has several components that are also impacted by asset and liability management decisions.

The ratio for Return on Assets is:

$$Return\ on\ Assets = \frac{Net\ Income}{Total\ Assets}$$

Another way to look at this ratio is to see how changes in revenue will determine your return on assets.

$$Return\ on\ Assets = \frac{Net\ Income}{Total\ Assets} = \frac{Net\ Income}{Revenue} \times \frac{Revenue}{Total\ Assets}$$

By looking at Net Income divided by Revenue, we can see the amount of revenue which remains after expenses, while looking at Revenue divide by Total Assets we can analyze the ability to use assets to generate revenue. Or we can say:

$$Revenue = interest\ income + non - interest\ income$$

With these formulae we can analyze how changes in revenue or expenses will impact the profit of the bank and its ability to grow and be successful.

EXERCISE 2: CALCULATING RETURN ON ASSETS

Instructions:

With your partner please answer the following questions:

Question 1. If assets do not generate any additional revenue, what must happen to expenses to allow ROA to increase?

Question 2. How could these changes occur?

ANALYSIS OF THE RETURN ON EQUITY (ROE)

Providing a return to shareholders is a constant and critical motivation for management. To grow, a bank needs capital. That capital can come from retaining earnings, but that may be a slow growth. To grow faster, the bank needs to raise capital from shareholders. Shareholders will only invest their money if they believe that they will receive a good return on their money.

How do you factor inflation into the equation? Management needs to compare the ROE of the bank to the country's inflation rate. The ROE must be higher than the inflation rate or there will be major problems, because the value of capital is being eroded. If ROE is less than the inflation rate, investors could do better investing their money elsewhere.

As you expand your analysis of the ROA and ROE, you can combine the two ratios in the following formula:

$$Return\ on\ Equity = Return\ on\ Assets \times Leverage\ Ratio$$

This formula will enable you to further analyze the return that you are giving your shareholders and how you can improve that return. However, at the same time you must be analyzing and managing the level of risk that you are taking to achieve the higher return.

ROE = Amount of profit available to shareholders of the bank $= \frac{Net\ Income}{Shareholders' Equity}$

This can be expanded to include more components to enable you to have a clearer picture of the impact of management decisions.

$$ROE = \underbrace{\frac{Net\ Income}{Revenue} \times \frac{Revenue}{Total\ Assets}}_{ROA} \times \underbrace{\frac{Total\ Assets}{Shareholders' Equity}}_{Leverage}$$

With this more detailed look at ROE and ROA you can consider many different decisions and see how each return will change based on the many variables that come from your management decisions.

EXERCISE 3: WHAT ARE YOUR TOTAL ASSETS?

Instructions:

With your partner please answer the following questions:

Question 1. With the following information what are the bank's total assets?

ROA = 1.2%

ROE = 14%

Equity = 90 million JD

Question 2. How can the bank raise its ROE to 18%?

TEN MANAGEMENT DECISIONS

Bank managers make decisions every day that can change the return ratios. Being able to categorize these decisions will help you be more effective in managing your bank. We have been calculating profit margin, gross yield and leverage. What are the decisions that will change each of these?

PROFIT MARGIN	GROSS YIELD	LEVERAGE
$\frac{Net\ Income}{Revenue}$	$\frac{Revenue}{Total\ Assets}$	$\frac{Total\ Assets}{Shareholders'\ Equity}$
Decision #4 Funds Mix	Decision #2 Asset Mix	Decision #1 Level of Liabilities
Decision #5 Funds Price	Decision #3 Asset Price	
Decision #6 Provision for Loan losses	Decision #7 Non-interest Income	
Decision #8 Expense Control		
Decision #9 Tax Management		Decision #10 Dividend Policy

If there is a problem in one of these three ratios, then one of these ten management decisions is what affected the ratios. So if a bank has a problem in one of the ratios, management will need to determine where exactly the problem is located. These are the management decisions which affect each ratio and, in the end, the bank's ROE, and its ability to raise future capital.

Of these ten decisions, five influence asset and liability management:

PROFIT MARGIN	GROSS YIELD	LEVERAGE
$\frac{Net\ Income}{Revenue}$	$\frac{Revenue}{Total\ Assets}$	$\frac{Total\ Assets}{Shareholders'\ Equity}$

Decision #4	Decision #2	Decision #1
Funds Mix	Asset Mix	Level of Liabilities
Decision #5	Decision #3	
Funds Price	Asset Price	

EXERCISE 4: MANAGING LIQUIDITY

Instructions:

How do the following influence liquidity? What happens to capital if liabilities are a high percentage of assets? What are the risks?

Funds Mix

Liquidity

- Deposits
- Borrowings
- Non-Paying Liabilities

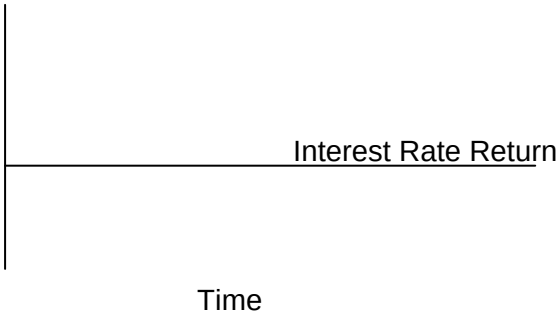
Asset Mix

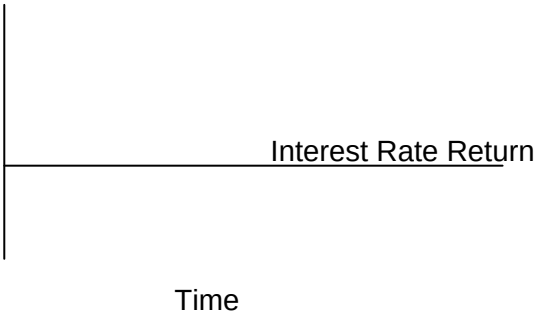
Liquidity

- Interbank Placements
- Securities

Loans

- Non-Earning Assets





We want the best mix within proper limits

ACTION PLAN

Instructions:

Reflect on your learning in this module. What kind of changes are you planning to make to your work routine in analyzing risk in your area of the bank? Please write down your own individual plan and which information you would use.

A = Must do

B = Need to do, if possible

C = Nice to do

Priority A,B,C	***Objective And Tasks***	***Measures***	***Target Date***

SUMMARY

Liquidity risk is a component of asset and liability management. To understand liquidity risk, we must first examine the interaction of assets and liabilities. In this module, we examined the ratios and decisions that affect assets and liabilities and liquidity. By categorizing the decisions, bankers will be able to raise their management skills to a higher level and have a direct impact on the success of their bank.

LEARNING OBJECTIVES

In this module, you learned to:

- Define liquidity risk within asset and liability management.
- Identify five components of managing assets and liabilities.
- Calculate key ratios for managing assets and liabilities.
- Identify the ten key management decisions in managing a bank.
- Control liquidity while managing assets and liabilities.

Module 3

Liquidity Management

Liquidity Management

OVERVIEW

In Module 2 we discussed key management decisions that affect asset and liability management. In this module, the focus will shift to those decisions that directly impact liquidity. As with the other risks, properly managed liquidity can, not only protect the bank and the bank's depositors, but also improve bank earnings. Liquidity management has been a major topic this past year in bank board rooms around the world. Some are responding to the challenge better than others. In times of great stress in banking, well managed liquidity can mean the difference between surviving and being taken over and liquidated (the liquidity management that no banker wants to experience)

LEARNING OBJECTIVES

Upon the completion of this module, you will be able to:

- Define liquidity and its importance in bank management.
- Explain the three purposes of liquidity.
- Manage liquidity by changing the mix of assets and liabilities
- Evaluate five management decisions for controlling liquidity.
- Interpret various liquidity scenarios

INTERACTIONS OF RISKS

Module 2 discussed five management decisions that directly impacted asset and liability management. Two of those, Funds Mix and Asset Mix, involve liquidity management. When making decisions about Funds Mix, liquidity is affected by deposits, borrowings and non-paying liabilities. Liquidity in Asset Mix is affected by interbank placements, securities and loans.

A good definition of Liquidity is:

The ability to fund assets and commitments while meeting maturing obligations and decreases in deposits most efficiently under a variety of foreseeable circumstances or normal business conditions.

A bank has adequate liquidity when it can obtain sufficient funds, either by increasing liabilities or by converting assets to cash, promptly and at a reasonable cost. Liquidity is having enough funds on hand or readily available to meet the actual or potential demand for funds by the bank's depositors and borrowers on time and without having to take a loss to do so.

Liquidity, along with solvency, has to be a primary concern for the board of directors who are responsible for ensuring the soundness of their bank. They are entrusted with the public confidence in their bank and making sure that it will always meet its obligations. A bank has adequate liquidity when it can obtain sufficient funds, either by increasing liabilities or by converting assets to cash, promptly and without high costs that will hurt earnings. In 2008 and 2009, we have seen many examples of banks not able to liquidate assets quickly or without having to take losses. Those banks that were the most highly leveraged are finding that deleveraging in a time of crisis can be very costly and even cause collapse. Some banks have had losses so great that they have severely impaired or even eliminated their capital. In other words, they are insolvent.

Liquidity in a bank is just like your personal liquidity. Do you have enough cash to pay your bills on time? Every day a bank gets money in (from loan payments, deposits) and every day the bank must pay out cash -- to pay bills, make new loans and cover deposit withdrawals. The money coming in every day usually does not equal the amount going out. It varies from day to day. Management must manage the bank's cash flow so that it is never short of money. Management must plan and anticipate cash inflows and outflows that are expected in the future so the bank can meet its obligations. It is the same way that you manage your own money to pay bills on time.

For instance, going back to your personal liquidity, one of the greatest risks is relying on your friends for money. You go and ask a friend for money. He gives it to you. Then you lose your job. Will he lend you any more money? No. When you really need the money, no one will lend to you. The same thing happens in banking. Banks can borrow money until they really need it.

THE PURPOSE OF LIQUIDITY

Liquidity is important for three reasons:

- It allows the bank to meet the current and foreseeable obligations of the bank, which keeps the bank on good terms with its depositors and creditors as well as with the central bank
- Liquidity gives the bank the flexibility to grow (to meet credit demand). Growth requires funds.
- It gives the bank the ability to sustain losses, at least in the short term.

Banks keep a certain portion of their assets in liquid assets. Examples of liquid assets are cash, balances with the central bank over and above the statutory reserve requirements, interbank placements with other banks and short-term treasury securities.

As liquid assets tend to earn less interest income than non-liquid assets (especially loans), banks which keep a large portion of their assets as liquid assets are likely to be less profitable. On the other hand, banks which aggressively seek profits are more likely to keep liquid assets at the lowest possible level so as to maximize their profits. The skill of managing liquidity requires that enough liquidity be maintained to meet obligations without having so much liquidity that profits suffer. It is a balancing act that must be maintained between higher earnings and higher liquidity.

EXERCISE 1: LIQUIDITY

Instructions:

What is the total of liquid assets in the bank below? By just looking at this balance sheet below, what is your assessment of its liquidity position?

BALANCE SHEET

Assets	Amounts (in millions)
Cash & non-interest due from banks	325
Interbank placements	1,500
Loans	10,900
Treasury securities	7,500
Equity securities	1,400
Investments in subsidiaries	5,000
Fixed assets	200
All other assets	90
TOTAL ASSETS	26,915
Liabilities	
Demand deposits	2,900
Time deposits	13,815
Interbank borrowings	5,500
Long-term debt	1,000
All other liabilities	1,500
Capital & reserves	2,200
TOTAL LIABILITIES	26,915
Loan Commitments	1,700

LIQUIDITY MANAGEMENT OF ASSETS AND LIABILITIES

Effective liquidity management is essential to the business of banking. Banks must obtain funds in the marketplace and the terms of these funds are not inherently under the bank's control. For example:

- Customers decide how much to place in various types and maturities of deposits.
- Sudden withdrawals of funds can occur at any time at the customer's discretion.

Similarly, banks place these funds in a variety of earning assets, which, in many cases, are not inherently under the bank's control. For example:

- Borrowers decide whether to borrow long-term or short-term
- Demand for long-term vs. short-term loans can change at any time.

As a result, all banks face the continuing challenge of managing these asset/liability maturity mismatches. Failure to manage these effectively will adversely affect the bank in such ways as:

- The bank may not be able to meet statutory reserve requirements.
- The bank may be unable to meet commitments and deposit withdrawals at all or only at a high price.

Therefore, this is why it is important that the bank manage its liquidity effectively. Banks manage their liquidity and provide for their needs in two ways: managing their assets and managing their liabilities such as the following:

Asset Management

Managing liquidity risk by changing the asset mix and/or maturity you can:

- Structure asset mix and/or maturity to correspond to liability mix/maturity
- Shorten maturities of assets
- Reduce loan growth

Liability Management

Managing liquidity risk by changing the liability mix/maturity and by assuring access to funding sources you can:

- Extend maturities of liabilities
- Increase core deposits
- Reduce volatile sources of funding
- Diversify funding sources
- Manage funding relationships

In order to manage its liquidity successfully, the bank must manage five activities well:

- Analyzing and managing the bank's liquidity positions in the short-term, medium term and long-term
- Forecasting and managing expected and potential cash flows to determine the impact of the cash flows on the bank's liquidity positions.
- Analyzing the present market conditions and their impact on the bank's liquidity positions
- Establishing limits, targets and guidelines which are appropriate for the bank's risks and present market conditions.

- Planning for possible liquidity crises. Developing steps that must be taken in the event a liquidity crisis occurs in the bank or occurs in the marketplace and affects all banks.

EXERCISE 2: CASE STUDY ON MANAGEMENT DECISIONS

Instructions:

If the forecast for the bank from Exercise 1 was that loan demand would be growing and the commitments could be as high as 5,100 instead of 1,700, what adjustments could you consider to prepare for this?

BALANCE SHEET

Assets	Amounts (in millions)
Cash & non-interest due from banks	325
Interbank placements	1,500
Loans	10,900
Treasury securities	7,500
Equity securities	1,400
Investments in subsidiaries	5,000
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Liabilities	
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Interbank borrowings	5,500
Long-term debt	1,000
All other liabilities	1,500
Capital & reserves	2,200
TOTAL LIABILITIES	26,915
Loan Commitments	5,100

MANAGING LIQUIDITY PERIODS

Bank management must manage its liquidity over all time periods. The longer the time period that management has to meet its liquidity needs, the easier it is to obtain the necessary funds. On the other hand, it is very difficult for a bank to raise a large amount of funds in a very short period of time. A need to obtain JD 100 million in a few hours will be a major challenge, and funding options are very limited, with the only real options being the interbank market or central bank. If bank managers have several days to raise this money, more options are available. Short-term securities could be sold. If the bank will need to fund JD 500 million in new loans over the next year, many more options are available. The bank can change its asset/liability structure and could also raise new capital.

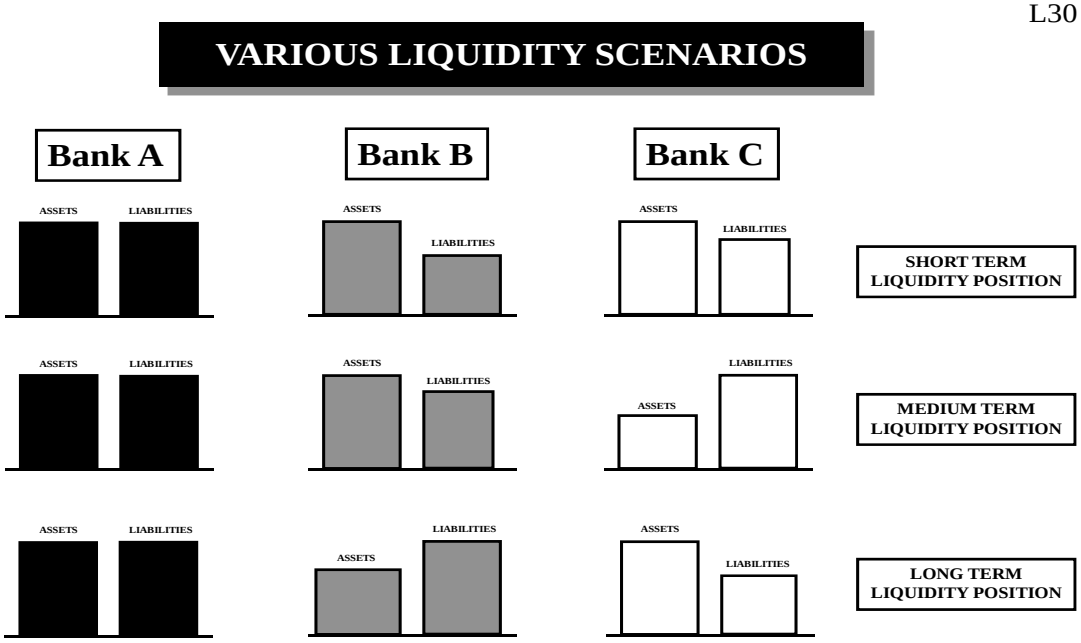
To manage liquidity effectively, the bank must address its liquidity needs for all time periods:

- **Statutory reserves:** requires intense day-to-day management in order to meet and avoid penalties, both monetary and otherwise, such as the bank's reputation in the market, which can be affected by public knowledge of a problem which may lead to increased liquidity problems as customers leave the bank.
- **Short-term:** this is subject to each bank's own definition. For this example, use eight days for this.
- **Medium-term:** eight days to three months
- **Long-term:** three months and longer

LIQUIDITY SCENARIOS

As we have seen, managing liquidity means understanding your bank's current condition and how that might change under different time periods. This also means developing different scenarios to anticipate potential liquidity problems or unexpected events. Here are some examples of scenarios that banks may experience.

L30



Bank A

Maturing assets and liabilities are perfectly matched over the short, medium and long terms. It appears likely that the bank's medium-term position will roll over into a well-matched short-term liquidity position.

Bank B

Bank B's liquidity position appears quite strong. Short and medium term assets are being funded by long-term liabilities, which allow the bank to maintain good liquidity in both the short and medium terms. As the medium term position turns into the short term, the bank's good liquidity position should continue.

Bank C

The short-term liquidity position is currently positive, but the medium-term position is highly negative. Unless the bank takes some action to change this, the bank will experience liquidity shortfalls as the medium term position turns into the short term.

If loans are not funded with longer term liabilities, liquidity risk is created. If the loans are funded with long term liabilities (of similar maturities), liquidity risk is avoided. Longer term liabilities include long term time deposits, subordinated debt & capital. Usually, long-term liabilities are more expensive than

other types of funding, except when the bank is able to lock in low long term funding rates during a period of low interest rates. Conversely long term loans may bring high rates and fee income and can also help build valuable long term customer relationships.

EXERCISE 3: DESIGN LIQUIDITY SCENARIOS

Instructions:

With your partner, determine the length of time for short-term, medium-term and long-term in your banking climate. Then create a liquidity scenario that you think is typical in Jordan.

ACTION PLAN

Instructions:

Reflect on your learning in this module. What kind of changes are you planning to make to your work routine regarding liquidity management? Please write down your own individual plan and which information you would use.

A = Must do

B = Need to do, if possible

C = Nice to do

Priority A,B,C	***Objective And Tasks***	***Measures***	***Target Date***

SUMMARY

Liquidity is an intense and day-to-day discipline that a successful banker must manage. It is a condition that is constantly changing requiring that the banker must anticipate and be ready to respond to unexpected events or changes in the bank's balance sheet. Just as the current financial crisis has demonstrated, managing all risks but particularly liquidity risk can mean the difference between success and failure.

LEARNING OBJECTIVES

In this module, you learned to:

- Define liquidity and its importance in bank management.
- Explain the three purposes of liquidity.
- Manage liquidity by changing the mix of assets and liabilities
- Evaluate five management decisions for controlling liquidity.
- Interpret various liquidity scenarios.

Module 4:

Analyzing Liquidity Positions

OVERVIEW

The quality of information available to management can make a major difference in its ability to take advantage of market conditions. These conditions may call for increased liquidity or allow for the reduction of liquidity. Such decisions will always have offsetting effects on income and profit. Simple spreadsheets can help in such an analysis but the accuracy and thoroughness of the information used is paramount. In this module, we will examine how to spread liquidity information to create a picture that can be quickly analyzed. The analyst of this information must then take into consideration the market conditions, competition, and the bank's customer base.

LEARNING OBJECTIVES

Upon the completion of this module, you will be able to:

- Design a liquidity spreadsheet.
- Evaluate liquidity surpluses or shortfalls.
- Prepare specific actions to consider in maintaining adequate liquidity.

Assess the amount of liquidity based on economic and bank conditions.

LIQUIDITY POSITIONS

Analyzing a bank's liquidity positions requires that the banker examine the amounts and maturities of assets and liabilities. When put into a spreadsheet format, a picture of liquidity positions becomes clearly visible. The banker can see when loans are coming due in future periods and match those against the maturity deposits, borrowings, and other liabilities in the same time periods.

Below is a schedule of Sample Bank's liquidity position. Assets & liabilities are classified into different time periods according to their maturity dates -- the time remaining to maturity from the date of the report.

	-8 Days	8 Days - 1 Month	1-2 Months	2-3 Months	3-6 Months	6-12 Months	1-2 Years	Over 2 Years	Total
Assets	950	1,150	1,500	1,250	3,900	4,000	1,050	1,200	15,000
Liabilities & Capital	900	1,050	1,700	1,400	3,850	3,950	900	1,250	15,000
Liquidity Surplus (Shortfall)	50	100	(200)	(150)	50	50	150	(50)	
Cumulative Position	50	150	(50)	(200)	(150)	(100)	50	-	

In this example we have chosen short maturities, however they can easily be adjusted to fit the specific structure of each bank. The ones above are only for this example. Once you put the maturing amounts into a spreadsheet format, you can begin asking questions to clarify the banks liquidity positions.

Q. What about assets with no stated maturity dates? In what time period would you classify cash & why?

A. Assets such as cash and due from banks which have no stated maturity are slotted into the shortest time period, because they may be withdrawn at any time.

Q. In what time period would you place other assets such as buildings, equipment and investments in subsidiaries?

A. Other assets such as buildings, equipment & investments in subsidiaries are normally considered very long term assets and are put in the longest liquidity time period.

Q. In what time period would you place capital & reserves?

A. Equity items such as capital & reserves, which have no maturity, are also considered very long term.

ANALYZING THE LIQUIDITY POSITIONS

Now that you have a spreadsheet or picture of the bank's liquidity positions you need to analyze if the bank will have liquidity surpluses or shortfalls. You need to determine the impact and severity of those and determine if adjustments need to be made.

Liquidity surpluses occur when longer term liabilities are funding short-term assets, which provide an extra liquidity cushion. A very large liquidity surplus means that the surplus liquidity is being held at the expense of potential higher interest income. This is always the balancing activity that bank management must conduct every day to ensure maximum earnings within proper liquidity protection.

Liquidity shortfalls happen when part of the bank's longer term assets are being funded by short-term funds. This can be dangerous if it will impair the bank's ability to meet its day-to-day obligations. Some banks operate with such a liquidity shortfall that management must analyze the liquidity position each day to determine if the bank can fund loans on that day. Managing this way can work until unexpected events suddenly cause greater shortfalls than can be easily met.

EXERCISE 1: ANALYZING A LIQUIDITY SPREADSHEET

Instructions: Calculate the surplus or shortfall for each time period in the spreadsheet below. What do you conclude from your calculations?

MATURITIES OF SELECTED ASSETS & LIABILITIES

	< 8 Days	8 Days - 1 Month	1-2 Months	2-3 Months	3-6 Months	6-12 Months	1-2 Years	Over 2 Years	Totals
Assets									
Interbank placements	1,050	285	115	50	-	-	-	-	1,500
Loans	850	1,500	2,310	1,000	1,590	1,700	1,550	400	10,900
Treasury securities	600	1,650	1,500	1,350	500	1,300	600	-	7,500
Liabilities									
Time deposits	650	1,175	1,550	1,490	3,100	3,050	2,000	800	13,815
Interbank borrowings	2,200	1,250	1,250	800	-	-	-	-	5,500
Long-term debt	-	-	-	100	-	100	100	700	1,000
Surplus (Shortfall)									
Cumulative									

FACTORS IN LIQUIDITY MANAGEMENT

The amount of liquidity surplus a bank should hold depends on many factors. Each bank will have inherent risks and risk activities that are unique to its style of business and customer base. In addition, each bank will have different levels of appetite for risk. Some may be more comfortable working with a tight liquidity position and think that they can maneuver quickly when unexpected events transpire. Other banks may elect to be more conservative and take very little liquidity risk. However, as we have stated earlier, there are tradeoffs to each position.

Each bank needs to estimate the stability of its deposit and liability structure. What has been the history of the bank and the surrounding community's economy? A new bank will have less of a tradition in a community and may experience less stability than one with a long history.

Is the community in which you operate experiencing rapid growth or is it stable or even declining? If in a region of high growth, will your bank grow rapidly? Will there be daily demands to fund new loans to meet that growth? Or, the board of directors may have decided to invest aggressively in subprime mortgages which will require deposit growth or borrowings. How to fund these investments and maintain adequate liquidity will be the challenge for the risk management department and senior management.

If the board told management to be aggressive in lending or investing, management must evaluate its staff and particularly its liquidity managers. As we pointed out in previous modules, selecting highly qualified personnel and paying them well is an important consideration in this scenario. However, even the best and most qualified personnel are only as good as the data that they have at their disposal. Management may have to substantially improve its management information systems to ensure that managers and supervisors have the most thorough and comprehensive data on a daily basis. They must also take the necessary steps to guarantee its accuracy.

The amount of liquidity surplus needed will also depend on the market environment. What is the overall liquidity in the market? Could that liquidity dry up quickly and put the entire market at risk including your bank. Consider the quick demise of Bear Sterns and Lehman Brothers in 2008.

Competition is a factor that can challenge bank management to perform better or to over extend itself because others are doing so. Consider the contagion of the subprime mortgage market in the quest for maximum profits. Some banks decided that those types of assets were too risky and could possibly become illiquid. Banks that made such decisions saw their profits decline compared to their competitors'; that is until the collapse of the subprime market.

Another factor in the liquidity analysis is the political and regulatory environment. Will the government (central bank, deposit insurance, treasury) come to the banks' aid in times of economic distress? That is a question being debated all over the world with many and varying arguments over the wisdom of such aid.

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MAINTAINING LARGE OR SMALL LIQUIDITY SURPLUSES

There are times and conditions when a bank elects to maintain a large liquidity surplus. These could include:

- When bank risks and risk activities are high
- When risk appetite is high
- When deposits/liabilities are highly volatile
- When bank has a high loan/asset growth rate
- When expertise of liquidity managers is weak
- When quality of management information systems is low
- When market environment is highly volatile
- When environment is very competitive
- When bank's portfolio has a large exposure to interest rate risk
-
- Of course the opportunity cost of the above decisions is that management gives up higher potential interest income. In other words, they will have reduced profit.

Management always needs to manage the liquidity positions and not just let them happen. Surprise is a very negative term in banking and can mean a real lack in management skill.

If management decides to maintain small liquidity surpluses, it needs to be a very conscious decision that could be based on the following:

- When bank risks and risk activities are low
- When risk appetite is low
- When deposits/liabilities are stable (not volatile)
- When bank does not have a high loan/asset growth rate
- When expertise of liquidity managers is strong
- When quality of management information systems is high
- When market environment is stable
- When competition is low
- When bank's portfolio has little exposure to interest rate risk

EXERCISE 2: ANALYSIS OF CURRENT CONDITIONS

Instructions:

A member of senior management of your bank stops by your desk and sees the Liquidity Management Training manual on your desk. He turns to this module and begins asking you the following questions. How would you respond?

Are bank risks high in Jordan at the present time?

Do you think our bank has an appetite for higher risk than our competitors?

Do we expect deposits/liabilities to be volatile in the coming year?

Do you think loan volume will rise this year? Should we anticipate funding more loans?

How would you rate the quality of the information that our bank provides to management on liquidity positions?

What type of economic conditions do you think we will see in the next 12 months?

Is competition getting stronger or weaker?

Does our bank have any unusually large exposures, either deposits or loans?

Should we increase or decrease our liquidity surplus?

VOLATILE LIABILITIES

Volatile liabilities are those that are unstable and/or unpredictable and cannot be relied on as a consistent source of funding. Normally, the major portion of a bank's liquidity need is related directly to the volume and stability of the bank's deposits. Obviously, not all deposits are equally active and thus do not require the same degree of liquidity. The actual liquidity required is related to the likelihood that any specific deposit or group of deposits is withdrawn. The greater the likelihood of withdrawal, the larger the percentage of liquidity required and the shorter the maturities of the liquid assets that should be held by the bank.

Examples of volatile liabilities are:

- Large accounts with balances which fluctuate greatly
- Deposits where rollover at maturity is highly uncertain (e.g. large time deposits, interbank deposits)
- Short-term borrowings, including interbank borrowings

Volatile liabilities frequently involve a rapidly growing bank that is "buying" liabilities to fund its growth. This can be dangerous in financial crisis in which markets dry up and disappear. Conversely, volatile liabilities appear on the balance sheet of banks that are having problems and losing deposits faster than they can convert assets to fund the outflow. If the market learns that a bank is experiencing such a problem, the cost of the purchased deposits or borrowing get very expensive. Usually this is the situation that occurs shortly before a bank becomes insolvent.

To meet liquidity needs a bank must:

- Liquidate Liquid Assets (assets which can be sold quickly and at little or no loss);
- Increase Short-Term Borrowings and/or Issue Additional Short-Term Deposit Liabilities;
- Decrease Holdings of Illiquid Assets;
- Increase Liabilities of a Term Nature; and/or
- Increase Capital Funds

All of these are difficult if the bank is in trouble. Reputation and market confidence are a critical factor that bank management must always consider and never risk.

EXERCISE 3: SPREADSHEET ANALYSIS

Instructions:

How would you assess this bank's volatile liability structure?

ANALYZING LIQUIDITY POSITIONS

VOLATILE LIABILITY SCHEDULE
SAMPLE BANK

TYPE OF LIABILITY	TOTAL AMOUNT	SHORT-TERM AMOUNT	VOLATILE SHORT-TERM AMOUNT	% OF SHORT-TERM AMOUNT	MEDIUM-TERM AMOUNT	VOLATILE MEDIUM-TERM AMOUNT	% OF MEDIUM-TERM AMOUNT
Current accounts	1,000,000	1,000,000	75,000	7 5%			
Time deposits	4,750,000	700,000	120,000	17 1%	1,850,000	250,000	13.5%
Interbank borrowings	200,000	100,000	100,000	100.0%	100,000	100,000	100.0%
Long term debt	150,000				40,000	40,000	100.0%
All other liabilities	60,000						
Capital	400,000						
TOTAL	6,560,000	1,800,000	295,000	16.4%	2,000,000	390,000	19.5%

ACTION PLAN

Instructions:

Reflect on your learning in this module. What kind of changes are you planning to make to your work routine regarding your analysis and management of liquidity at your bank? Please write down your own individual plan and which information you would use.

A = Must do

B = Need to do, if possible

C = Nice to do

Priority A,B,C	***Objective And Tasks***	***Measures***	***Target Date***

SUMMARY

Volatile liabilities can be very dangerous for banks. The management of them while managing liquidity positions is a daily test for management. Having the best information and tools can make this task must easier.

LEARNING OBJECTIVES

In this module, you learned to:

- Design a liquidity spreadsheet.
- Evaluate liquidity surpluses or shortfalls.
- Prepare specific actions to consider in maintaining adequate liquidity.

Assess the amount of liquidity based on economic and bank conditions.

Module 5:

Liquidity Management and Cash Flow

LIQUIDITY MANAGEMENT AND CASH FLOW

OVERVIEW

A liquidity spreadsheet gives the banker a picture of a point in time. However, the banker also needs to have a clear picture of cash inflows and outflows in a projected format. This is called analyzing the sources and uses of funds. In this module we will diagram the cash flow of a bank and then see how to take that concept and put numbers to it.

LEARNING OBJECTIVES

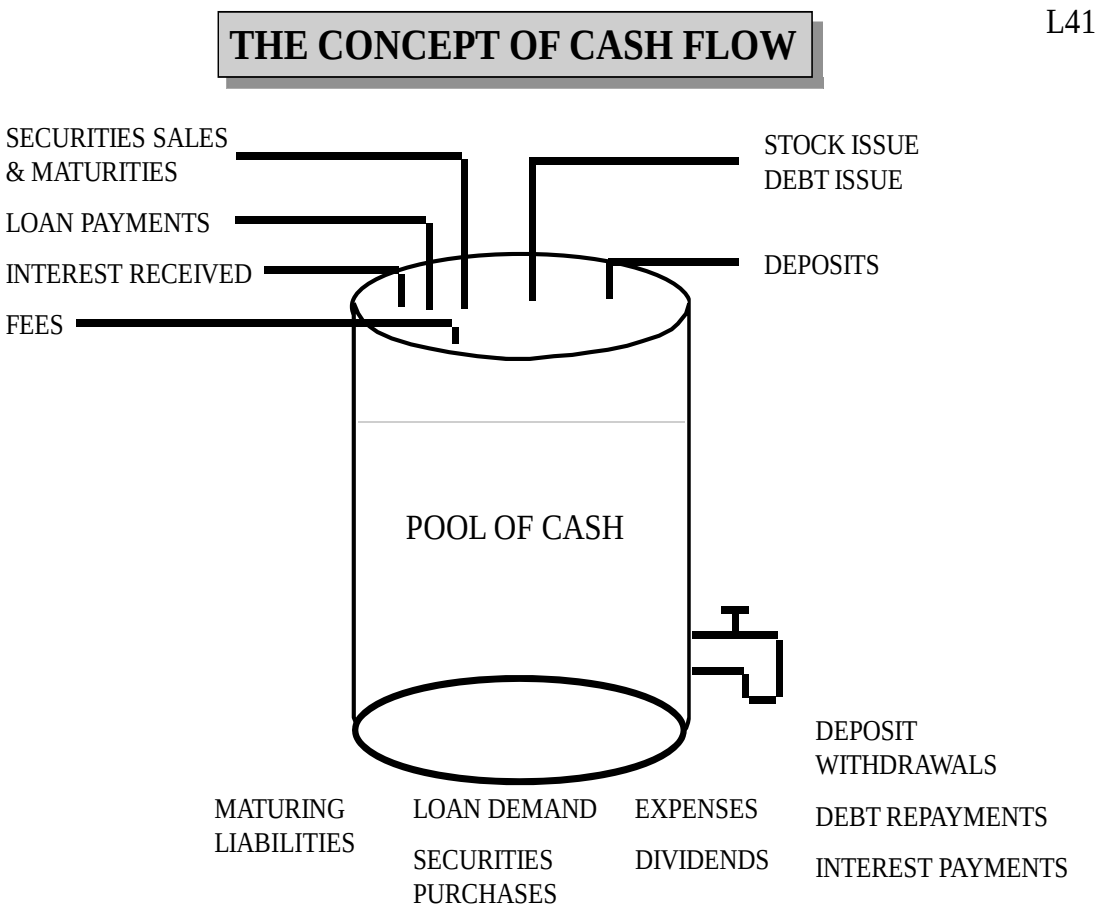
Upon the completion of this module, you will be able to:

- Summarize the steps to take to meet liquidity needs
- Diagram the concept of cash flow
- Calculate cash flow projections
- Forecast and adjust cash flows
-

THE CONCEPT OF CASH FLOW

All businesses experience sources and uses of funds. However, in banking the measurement and management of the constant flow is daily. Some actions drain funds from the bank and from those activities that are sources of funds. Management needs to figure out (predict/anticipate) how to keep the funds coming in.

A diagram of a bank's cash flow can look like this:



Think of your bank as a large vat of cash. Every day you have cash pouring into that vat. People are making payments on their loans, others are paying you fees, many are making deposits, and your investment department is selling securities or collecting interest income. While all of them are dumping money into your vat, you have others that are opening the spigot to let it all out. People are withdrawing funds from their accounts, the investment department is buying more securities, the lending department is making new loans, management is paying out dividends, payroll is paying salaries and marketing is finding usual ways to spend money. Who will monitor and manage this daily filling and draining of the vat?

CASH FLOW EVALUATION

Bank management should perform cash flow projections for various time periods and should take into account all major components of the balance sheet. Maturity reports of assets and liabilities are very useful in developing cash flow projections. However, the liquidity schedule we previously looked at was a point in time schedule. The level of loans, deposits and all other assets and liabilities will change in the future. The liquidity schedule is a good starting point, but the predicted changes in assets and liabilities accounts also need to be forecasted by bank management to ensure that the bank has enough liquidity in the future. This is what cash flow projections attempt to do.

Balancing cash flows means accurately tracking the flows in and the flows out.

CASH FLOW IN	CASH FLOW OUT
ACTUAL	
♦ Maturing assets	♦ Maturing liabilities and commitments to lend
♦ Interest from loans and securities	♦ Interest paid on deposits and borrowings
♦ Increase in deposits and borrowings	♦ Deposit withdrawals
♦ Loan payments	♦ Loan demand
♦ Sale of assets	♦ Purchases of assets
♦ Capital issues	♦ Debt repayments
	♦ Expenses
	♦ Dividends
POTENTIAL	
♦ Salable non-maturing assets	♦ Unspecified maturity retail deposits
♦ Established credit lines	♦ Optional commitments to lend and other off-balance sheet activities

EXERCISE 1: PROJECT CASH FLOW EXERCISE

Instructions: What are the conditions that face cash flow in Jordan?

- What assets could be sold to improve cash flow?
    - Loans
    - Mortgages
    - Investments
    - Bonds
    - Other
- Can capital be raised in the current environment?
- Can long-term borrowings be negotiated now? Would they be expensive?
- Are there large depositors that could be attracted?
- Could expenses be reduced? How?

CASH FLOW MANAGEMENT PLANNING

As part of its liquidity planning process, bank management should identify four categories of loan demand:

- Seasonal, unexpected and projected. Seasonal loan demand is one of the definitive fluctuations which bankers can forecast. For example, if the bank is an agricultural bank, its loans & deposits will fluctuate with the needs of the farmers.
- Unexpected and unusual loan demand, of course, cannot be as easily foreseen. However, the bank should be prepared to accommodate some unexpected loan requests from good customers. The amount of liquidity kept by a bank should also take into account the bank's projected loan growth planned by management and to provide for any expected net increase in the community's demand for credit in the near future.
- Rollovers, draw downs and new loan requests all represent potential cash drains for a bank. However, a bank has some leeway to control many of these items depending on the type of scenario it is forecasting. In a crisis situation, for example, a bank might decide to risk damaging some business relationships by refusing to roll over loans that it would make under normal conditions, or the bank might refuse to honor lending commitments that are not binding.
- Proportion of maturing assets which will be rolled over and renewed. This may be a characteristic in some countries where loans are granted for short periods but the practice is that the loan is renewed several times.

Banks should also project the amount of loan commitments that will be drawn down and any change expected in the level of interbank placements.

CASH FLOW SPREADSHEET

Based on the expected cash flow projections, management can identify funding deficiencies and surpluses and then take whatever action is necessary to remedy shortfalls or invest surpluses.

Once again the creation of a spreadsheet gives management a visual image of the cash flow projections, which can help the decision making to be easier and quicker. Below is a sample spreadsheet that you might use:

	CURRENT LEVELS	FORECAST CHANGES OVER 3 MONTHS	PROJECTED LEVELS IN 3 MONTHS
Assets			
Cash & due from banks	800	(130)	670
Interbank placements	160	(30)	130
Loans	12,010	1,020	13,030
Treasury securities	1,810	(115)	1,695
Equity securities	220	(55)	165
All other assets	190	-	190
TOTAL ASSETS	15,190	690	15,880
Liabilities			
Demand deposits	2,050	30	2,080
Time deposits	10,660	375	11,035
Interbank borrowings	630	(210)	420
Long-term debt	520	-	520
All other liabilities	180	-	180
Capital & reserves	1,150	10	1,160
TOTAL LIABILITIES	15,190	205	15,395
NET FUNDING REQUIREMENTS		485	485

EXERCISE 2: ANALYZE CASH FLOW PROJECTION

Instructions:

How would you assess the cash flow needs of the bank on the previous page?

Will the bank have a surplus or shortfall?

What is the % of assets?

What concerns should this raise for management?

What difficulties or obstacles may the bank encounter?

What confidence level should management have in the cash flow forecast?

ACTIONS TO TAKE AFTER FORECASTING CASH FLOW

Once management is confident in the cash flow projections, it needs to consider all possible actions. If the forecast is for shortfalls, some of the actions to take could be:

- Seek additional sources of time deposits – this might involve a coordinated effort of the customer accounts and marketing departments designing a new product.
- Reduce any planned loan or asset growth – sometimes management has to make the decision to reduce lending or remove current advertising campaigns
- Issue capital or long-term debt – this is a decision that must be made by the board of directors who represent the shareholders. It is they who will feel the impact of raising new capital because their interest could be diluted
- Increase marketing efforts to attract deposits – this is not a quick solution but one that can be effective over a longer period of time.

If the forecast is for cash flow surpluses then management may decide on another set of changes or adjustments to day-to-day operations, such as:

- Set higher loan growth targets – this also may entail the development of new products or more advertising. Once again this is a decision that involves several departments in the bank and requires coordination.
- Pay off expensive debt – this is a top management decision to be made with the board of directors.
- Allow high interest rate deposits to run off – this is an easy decision and improves income.
- Enter into new business projects/buy assets – this is also a policy decision that involves top management and the board of directors
- Reduce deposit marketing efforts – another decision that can improve the bottom line.

EXERCISE 3: ANALYZE CASH FLOW PROJECTIONS

Instructions: How would you analyze the cash flow projections of this bank? What actions would you recommend, if any?

1 MONTH CASH FLOW PROJECTIONS

	CURRENT LEVELS	FORECAST CHANGES OVER 1 MONTH	PROJECTED LEVELS IN 1 MONTH
Assets			
Cash & due from banks	325	25	350
Interbank placements	1,500	(300)	1,200
Loans	10,900	182	11,082
Treasury securities	7,500	625	8,125
Equity securities	1,400	-	1,400
Investments in subsidiaries	5,000	-	5,000
Fixed assets	200	-	200
All other assets	90	2	92
TOTAL ASSETS	26,915	534	27,449
Liabilities			
Demand deposits	2,900	45	2,945
Time deposits	13,815	(950)	12,865
Interbank borrowings	5,500	-	5,500
Long-term debt	1,000	-	1,000
All other liabilities	1,500	13	1,513
Capital & reserves	2,200	18	2,218
TOTAL LIABILITIES	26,915	(874)	26,041
NET FUNDING REQUIREMENTS		1,408	1,408

3 MONTH CASH FLOW PROJECTIONS

	CURRENT LEVELS	FORECAST CHANGES OVER 3 MONTHS	PROJECTED LEVELS IN 3 MONTHS
Assets			
Cash & due from banks	325	25	350
Interbank placements	1,500	100	1,600
Loans	10,900	545	11,445
Treasury securities	7,500	1,875	9,375
Equity securities	1,400	-	1,400
Investments in subsidiaries	5,000	100	5,100
Fixed assets	200	-	200
All other assets	90	9	99
TOTAL ASSETS	26,915	2,654	29,569
Liabilities			
Demand deposits	2,900	135	3,035
Time deposits	13,815	(435)	13,380
Interbank borrowings	5,500	-	5,500
Long-term debt	1,000	(100)	900
All other liabilities	1,500	38	1,538
Capital & reserves	2,200	54	2,254
TOTAL LIABILITIES	26,915	(308)	26,607
NET FUNDING REQUIREMENTS		2,962	2,962

ACTION PLAN

Instructions:

Reflect on your learning in this module. What kind of changes are you planning to make to your work routine regarding the analysis of cash flow in your bank and its impact on your area of the bank? Please write down your own individual plan and which information you would use.

A = Must do

B = Need to do, if possible

C = Nice to do

Priority A,B,C	***Objective And Tasks***	***Measures***	***Target Date***

SUMMARY

There are many demands on bank management's time. Projecting cash flows and making decisions based on those forecast needs to be done in a systematic and practiced manner. The more information and the manner in which it is presented to management can guide it in making decision that will impact several banking departments. However, those are the departments that are constantly looking to management for direction and focus.

LEARNING OBJECTIVES

In this module, you learned to:

- Summarize the steps to take to meet liquidity needs
- Diagram the concept of cash flow
- Calculate cash flow projections
- Forecast and adjust cash flows

Module 6:

Liquidity Policy

LIQUIDITY POLICY

OVERVIEW

Liquidity management requires specific policies that are clearly communicated throughout the bank. The policies need to take into consideration the economy and political environment. The policies need to be written and include reasonable limits that communicate to all staff and management involved in any department that can impact the bank's liquidity within what parameters they are permitted to operate. These policies also should include what to do in the event of a disaster.

LEARNING OBJECTIVES

Upon the completion of this module, you will be able to:

- Analyze market conditions
- Establish limits and targets for liquidity management.
- Choose a contingency funding/liquidity plan.

ANALYZING MARKET CONDITIONS

In previous modules, we have discussed the importance of the flow and accuracy of data in making liquidity management decisions on a day to day basis. However, these decisions need to be made within policy guidelines. To establish a liquidity management policy, bank management needs to analyze the environment in which it operates.

The amount of liquidity that a bank will need to maintain depends on the stability of the market environment. The cash flow projections we discussed in the previous module will be more reliable if the marketplace is more predictable. There are five key areas to examine to understand and predict that market.

1. Competition – You need to determine with whom you are competing. Not every bank is targeting the same market that your bank has decided to pursue. The number of competitors and the number of new products being introduced is another factor in your analysis. How strong, steady or weak are those banks with whom you are directly competing?

2. Loan demand in the market - Are loans growing rapidly, steadily or falling? What impact will this have on your bank's marketing plan and targeted clientele? Is loan demand growing faster than deposits in your region?

3. Liquidity of the market - Are deposits and interbank funds readily available at reasonable rates, or is it difficult to obtain funds? Can you sell loan participations to other regional banks to reduce assets? Are purchased certificates of deposits available in your market? Are the rates reasonable?

4. Regulatory climate - Are major changes taking place with unknown effect? Does the regulatory agency have teams of experienced examiners or new and untrained ones? Will the government be making changes with the regulators and how they function? Is there good cooperation between the regulatory agency and other branches of the government such as the ministry of finance?

5. Political and economic environment - Is the climate stable or unpredictable? What impact could neighboring countries have? Will the influx of refugees influence government decisions that could affect the banks. How are bankers regarded?

As we discussed in earlier modules, if the market environment is not stable and is highly unpredictable, the bank will need to maintain higher liquidity than it would in more stable times. One method of controlling the levels of liquidity is to use limits and targets.

LIMITS AND TARGETS

Limits on liquidity are necessary for the safe and sound management of the bank's liquidity risk. By establishing appropriate limits, management is restricting risk taking. Limits should reflect the maximum amount of risk that the board of directors is willing for the bank to take (and taking into account the prevailing market environment). The limits should be based on and linked to management's assessment of how much capital the bank is willing to risk/lose.

These limits should be stated in a written policy and clearly defined so everyone throughout the bank knows and understands the limits. However, once established the limits need to be reviewed and approved by the board at least annually.

The limits and targets established are dependent upon similar factors as we have defined in previous modules and include:

- Inherent risks and risk activities
- Risk appetite
- Volatility of deposits/liabilities
- Rate of loan/asset growth
- Expertise of liquidity managers
- Quality of management information systems
- Overall market environment

The main limits and targets will include:

- Statutory reserve target
- Liquidity surplus guidelines for the short, medium and long term
- Limit on amount or percentage of volatile liabilities
- Limit on projected cash flow shortages for various periods

The following are some additional liquidity limits that banks may have:

- Limit on the minimum amount of liquid assets to be maintained
- Limit on the loan to deposit ratio
- A percentage limit on the relationship between anticipated funding needs and available sources for meeting those needs (i.e., the ratio of primary sources/anticipated needs shall not fall below _____ percent, primary sources for meeting funding needs should be defined).
- Limits on large exposures in deposits and borrowings
- Limits on the minimum/maximum average maturity for different categories of liabilities

These are just some of the possible limits that management can have. Management needs to assess the limits on a periodic basis and change them as conditions change. Having limits does not necessarily mean that liquidity is being adequately controlled. For instance, the bank's limits may be too high because management wants to be aggressive. It is up to the board of directors to question and assess the limits that management recommends. The board needs to check the limits by determining the maximum loss that could occur and the effects of that loss on the bank's capital. The board should also compare actual figures to the limit over a period of time. If the bank never even gets near the limit, then the limit is probably set too high. What good is that limit, if it really is not serving as a limit? However, the directors need to discuss the limits with bank management and insist on a thorough and well analyzed explanation. There may be a good reason. Perhaps, the bank is in a seasonal low.

Also, limits must be monitored for compliance in order to be effective. They should be monitored by an independent party. Management should document that it has approved all positions that exceed the established limits.

EXERCISE 1: ESTABLISHING LIMITS

Instructions: With the cash flow projections below, consider what limits you might impose. How about a ratio of "primary sources" to "anticipated funding"? What do you think would be reasonable?

LIQUIDITY

LIQUIDITY MEASURE - Example

Anticipated Funding Needs:			**(JD in millions)**	
		Volatile Liabilities	**2,258**	
	+	**Maturing Deposits**	**1,400**	
	+	**Loan Commitments**	**2,900**	
	+	**Seasonal Changes**	**2,000**	
	+	**Trend Needs**	**1,000**	
		Total Anticipated Funding Needs		**9,558**
Primary Sources:				
		Maturing Credits	**1,937**	
	+	**Cash & Reserves**	**1,400**	
	+	**Liquid Assets**	**5,678**	
	+	**Purchased Funds Capacity**	**2,500**	
	-	**Current Purchased Funds**	**0**	
		Total Actual Liquidity		**11,515**
		LIQUIDITY EXCESS (DEFICIENCY)	**1,957**	

CONTINGENCY PLANNING

Examiners will look at a bank's liquidity adequacy from two perspectives, as a "going concern" or in a "disaster scenario". To demonstrate to the examiners that you are thorough in your liquidity planning, it is wise for you to do the same.

On the "Going Concern" basis you should assume that the bank will continue in business in the future. Does your bank:

- Analyze the different liabilities -- the stability of these sources and their maturities?
- Manage maturity profiles of liabilities from a liquidity perspective?
- Manage seasonal liquidity changes?
- Recognize the importance of quality perception in the market?
- Manage interest rate return?
- Manage the asset and liability mix?

However in the "Disaster Scenario" or Contingency Planning - The bank should be prepared for unanticipated crises. So contingency planning is a necessary part of liquidity management, which should include answers to questions such as:

- How long will the bank survive if a "run" occurs?
- What are the steps management would take in this situation?
- Has management planned ahead for possible crises?
- Can they continue to operate with minimal disruptions of service to the bank and its customers
    - And with minimal financial loss?
    - Plus ensure that operations are up and running as soon as possible in the event of a disaster?

The board of directors is responsible for ensuring that senior management has established a contingency funding/liquidity plan and reviews this plan at least annually and updates it, when necessary.

The components of a contingency funding/liquidity plan are:

- Managerial coordination and assignment of responsibilities.
    - The plan should list responsibilities for each member of senior management during a funding/liquidity crisis.
    - Assign responsibilities and establish the order for contacting supervisors, depositors, auditors, etc.
    - Provide a sequence of action to be taken by management
    - Establish responsibility for all press releases and outside contacts
- Prediction of balance sheet changes if a crisis occurs.
- Strategy for controlling balance sheet changes and increasing cash inflows, when necessary.
    - Management should look at several different scenarios:
        - when liquidity crisis arises from problems in the bank (bank-specific)
        - when liquidity crisis is being experienced by all banks (if economic crisis and no bank can obtain funds)
    - What alternative funding sources will be used to replace lost funding or assets that will be liquidated?

- How much is expected to be obtained from each source?
- Set up time schedule
- The strategy should include various stages: For ex; if deposits drop to a certain level, management will do this. If deposits drop even further to another level, then management will do this.

- Maintenance of customer relationships, which will require more contact with customers. Good relationships in the first place will help in maintaining customers throughout the crisis.
- Astute public relations. Senior management plans that all press, customer, regulator, accountant questions are answered promptly and accurately. It is important that all bank personnel dealing with the public are kept well-informed on the condition of the bank.

PREDICTING BALANCE SHEET CHANGES

We discussed earlier about the need to predict balance sheet changes. Let us examine this in closer detail. How does a bank predict or forecast changes in the structure of its assets, liabilities and capital? It must:

- Maintain current a list of customers most likely to cancel or reduce support.
- Identify possible funding sources. Does the bank have confirmed lines of credit with other banks? How much would be available to the bank? It is important to have confirmed lines of credit available, because unconfirmed lines tend not to be available when the bank needs the money the most and so cannot be relied upon. Banks often test lines regularly so that the bank has an idea of what is available from various counterparties.
- Quantify anticipated liability runoff within various time periods.
- Quantify probable alternative sources of funds or asset liquidations.
  Which assets can be reduced or sold relatively quickly without incurring a huge loss or hurt customer relationships? Basically, these would be the bank's secondary sources of liquidity, such as investment securities over one year, equity securities. By having a secondary source of liquidity, management helps to protect the bank from potential liquidity disasters. For cases when this secondary liquidity is not sufficient, the bank should have a plan to sell other less liquid assets, including which assets will be sold and in what order they will be sold.
- Estimate possible central bank refinancing credit utilization.
- Provide a planned sequence for controlling balance sheet changes. For example, lost funds will be replaced by: (1) increased term deposits; (2) increased interbank deposits, etc.

Another issue to consider is how firm are the bank's commitments? Which sources of funding are likely to stay with the bank under any circumstances? Can these be increased?

For example:

Bank of America has a huge retail branch system. During a financial crisis in the late 80's, it found that deposits stayed with the bank through its asset quality problems. These stable deposits helped the bank to maintain liquidity and get through its crisis. On the other hand, we had a situation in the Middle East in which banks suffered a major liquidity crisis during the Gulf War. These banks had backup lines of credit with Japanese banks, but these were not firm lines. As soon as the Gulf War crisis occurred, the Japanese banks withdrew their lines. The banks had no backup facilities from which to get funds when deposits were withdrawn. Soon, all banks were in the same situation. The interbank market dried up, because everyone wanted to borrow and no one could lend. There was no liquidity in the banking system. Also, problems of large deposit exposures -- sheiks withdrew their deposits and sent the funds out of the country.

Which sources of funding can be expected to run off gradually if problems arise and at what rate? Is deposit pricing a way to control the rate of run-off? Texas during the oil crisis. . . The savings and loans increased the rates paid on their deposits to entice depositors to keep money there and attract money. There was a large difference between rates paid on these deposits than on those in banks elsewhere in the country.

Which liabilities can be expected to run off immediately at the first sign of trouble? Usually wholesale corporate and bank deposits. The case of Continental Illinois was the opposite of that experienced by Bank of America, even though both suffered major asset quality problems. Instead of relying on core retail deposits for funding, Continental Illinois relied heavily on borrowings from other banks and large

wholesale deposits. As soon as the asset quality problems arose, the large deposits left and no one would lend to them. The bank had to be rescued by the United States government.

EXERCISE 2: PREDICTING DISASTERS

Instructions: List all the possible disasters that could befall the banks in Jordan?

ACTION PLAN

Instructions:

Reflect on your learning in this module. What kind of changes are you planning to make to your work routine regarding establishing a liquidity policy or contingency planning? Please write down your own individual plan and which information you would use.

A = Must do

B = Need to do, if possible

C = Nice to do

Priority A,B,C	***Objective And Tasks***	***Measures***	***Target Date***

SUMMARY

No one expects a disaster, but planning for one is good management. Even testing possible scenarios and management to ensure that they know their responsibilities should be part of the plan. It is too late to react after the disaster has occurred; however, good planning and proper limits not only ensure the ability to handle the disaster but offer an excellent opportunity to project to the bank's constituents that it is well managed.

LEARNING OBJECTIVES

In this module, you learned to:

- Analyze market conditions
- Establish limits and targets for liquidity management.
- Choose a contingency funding/liquidity plan.

Module 7:

Liquidity Evaluation

LIQUIDITY EVALUATION

OVERVIEW

Liquidity risk is more difficult to calculate and assess than many other banking risks. Each bank needs to determine its current risks and project its future risks. Ratios can be a tool that will help this process. In this module, we will examine how to calculate and use ratios to manage liquidity risk.

LEARNING OBJECTIVES

Upon the completion of this module, you will be able to:

- Assess the adequacy of the bank's liquidity position
- Anticipate future funding needs
- Measure the amount liquidity needs to be raised or lowered

ADEQUACY OF LIQUIDITY POSITION

The same liquidity amount could be adequate for one bank and inadequate for another. To the extent that banks do not have exactly the same loan mix, deposit structure, leverage position, or trade area characteristics, the liquidity needs of each bank are likely to be different. We have covered much of this in previous modules; therefore, the analysis below is a summary of what has been covered to this point. To determine the adequacy of a bank's liquidity position, one must analyze:

- Historical funding requirements at various points in time. For example, you would want to look at the bank's past funding needs at the highest point of the bank's business cycle and at the bottom of the cycle.
- Current liquidity position. This includes the availability of assets readily convertible to cash, particularly the securities portfolio because these are normally easy to sell, especially government securities.
- Stability of sources of funds
- Composition and stability of deposit base
- Seasonal, cyclical and other factors that affect deposit levels
- Level, frequency and purpose of borrowings. At historical high or low? If high, can they access more? If no, they better scale back.

Management must analyze the anticipated future funding needs to include:

Seasonal, cyclical and other factors that affect credit demand

Nature, volume and anticipated usage of credit commitments, bank guarantees and other contingencies

Acquisitions

- Current position: liquidity, point in cycle, level of borrowings. For example, if the bank is in a tourist center, loan demand might be high in the spring and fall, causing the bank's liquidity to suffer. Therefore, management must plan ahead for these expected fluctuations.

Cost of funds - Can the bank afford any increase in volume? rates?

Options for reducing funding needs or attracting additional funds:

Salability of other assets**:** securities, loans. What else is on the balance sheet which could be sold?

Rate increases

Going into new areas, finding new sources of funds

Issuing new capital

Ability to borrow (incl. backup credit lines & reputation)

- Present and anticipated asset quality (both in credit and securities portfolio). If the asset quality is poor, the bank will not be getting principal and interest payments as expected so the bank cannot sell those assets or can sell them only at a large loss.
- Present and future earnings capacity. Poor asset quality will limit earnings potential.

- Present and planned capital position. A new capital issue may not increase liquidity. It may just cover existing losses. We are seeing many examples of this around the world. In fact, many banks have a much greater problem with capital than liquidity.
- Economic and market forecasts. If poor conditions exist, depositors will draw down funds and the bank may need to borrow to cover losses or slow operations. If all banks are affected, as we see in many countries today, there is no interbank liquidity.
- Overall effectiveness of management policies and practices.

EXERCISE 1: HIGHER LIQUIDITY IS NEEDED WHEN…

Instructions: Please discuss the following with your partner and write out your answers.

1. Why is higher liquidity necessary when there is a substantial increase in large deposits or borrowings?

2. Why is higher liquidity necessary if there have been reductions in large deposit accounts?

3. Why is higher liquidity necessary if a significant portion of deposits are short-term?

4. Why is higher liquidity necessary if there are large exposures in funding sources?

5. Why is higher liquidity necessary if a strong relationship exists between individual deposit accounts and principal employers in the area who have financial problems?

RATIO ANALYSIS

It is difficult to come up with a minimum liquidity standard or ratio that would be considered adequate for all types of banks across all points in time. It is a qualitative and subjective assessment; therefore, it is probably the most difficult CAMEL+ component to assess and manage.

Given all the factors which affect liquidity, the analysis of it cannot be easily determined by a single ratio, and, therefore, it must be more subjective than, for example, the analysis of capital, asset quality or earnings adequacy. While a bank management can use many liquidity ratios, there is no single ratio or formula which adequately captures and summarizes all there is to know about a bank's liquidity position. It is important that management not simply measure liquidity using ratios. Instead, management should assess the factors, which impact upon the bank's liquidity and determine the best methods to manage liquidity, taking into account all the factors we have already discussed. However, various liquidity ratios can be used as indicators of a bank's liquidity. It is important to understand that such ratios should be seen only as indicators. They are most useful in looking at trends and in comparing the ratios to those of other similar banks. Through this analysis, management can determine which areas may be weak and need to be analyzed in greater depth.

Ratio analysis helps highlight possible problems and weaknesses that a bank may have in its liquidity. Management should then focus on these areas and drill deeper into the causes in order to determine the solutions.

Ratio Analysis can help do the following:

- Assess Present Level and Trend
- Deposits
- Borrowings
- Investment Securities
- Trading Assets
- Credit Portfolio
- Loan Commitments
- Other Off-Balance Sheet Activity
- Assess Composition and Stability
- Deposits
- Assess Diversification
- Sources
- Instruments
- Markets
- Maturities
- Size

The ratios we analyze are the most common ratios used. They represent only some of the ratios that can be used by management in assessing liquidity. There is no reason to use all of them, only the ones that best support management conclusions and are applicable to their bank. They should

analyze deposit ratios discussed to assess the stability of deposits and deposit growth. They should look at borrowing ratios to determine to what extent the bank is depending on borrowings to fund its operation. Has this changed over time? If so, what are the reasons for the change? What are the levels of borrowings over the period of a year? This will highlight periods of time to analyze in greater depth.

Deposit ratios that will help management in their analysis of liquidity include:

- Average Core Deposits/Average Total Deposits (or Average Total Assets)
- Average Volatile Deposits/Average Total Deposits (or Average Total Assets)
- Average Interbank Deposits/Average Total Deposits
- Net Loans/Core Deposits
- Deposit Growth Rate
- Core Deposit Growth/Asset Growth

These provide a quick review and, when maintained over extended periods of time, highlight trends.

Borrowing ratios that may be used are:

- Borrowed Funds Growth Rate
- Average Short-Term Borrowings/Average Total Assets
- Average Long-Term Borrowings/Average Total Assets
- Net Operating Income/Annual Debt Service

EXERCISE 2: RATIO ANALYSIS CONCEPTS

Instructions:

Individually write down the answers to these questions:

- Who calculates these ratios in your bank?
- Are they communicated to the various departments?
- Would it be helpful to you to see these ratios on a periodic basis?
- Would it be helpful for you to have a better understanding of your bank's financial and its liquidity position?

RATIOS

Let us look at each ratio in greater detail and see how they can best be used and what they can tell us about the bank's liquidity position and trends.

LIQUID ASSET RATIOS

The first ratios to consider are the average liquid assets to average total assets and pledged securities to total securities. Both give a quick insight to liquid conditions of the bank.

$$\frac{\text{Average Liquid Assets}}{\text{Average Total Assets}}$$

Liquid assets are those which can be sold quickly and at little or no loss, which includes cash and due from banks + interbank placements + investment securities due within one year (excluding pledged assets) + trading account securities. This ratio measures the volume of liquid assets compared to the bank's size. The higher the ratio, the more liquidity the bank has.

$$\frac{\text{Pledged Securities}}{\text{Total Securities}}$$

This ratio measures the extent to which investment securities are pledged. If the bank has a high level of pledged securities, these securities are not available for liquidity purposes because they cannot be sold. The ratio also measures how much of the investment portfolio is short-term vs. long-term. Of course, the more securities which mature in the short-term, the greater the liquidity. Management also needs to consider the market value of the investment securities portfolio, and whether there is appreciation or depreciation in the portfolio.

LENDING RATIOS

These ratios examine the loan position of the balance sheet.

$$\frac{\text{Net Loans}}{\text{Total Assets}}$$

This ratio measures the portion of assets comprised of loans (net of loan loss reserves). A higher ratio generally indicates less liquidity since loans are longer term assets.

$$\frac{\text{Net Loans}}{\text{Total Deposits}}$$

This ratio measures the portion of net loans funded by deposits. The higher the ratio, the less liquid the bank because a higher percentage of deposits are funding longer term assets (loans).

$$\frac{\text{Net Loans}}{\text{Core Deposits}}$$

This ratio measures the amount of net loans funded by core deposits. Because of their long-term nature, loans should be funded primarily from stable core deposits. A higher ratio generally indicates less liquidity.

GENERAL LIQUIDITY RATIOS

EXERCISE 3: CALCULATE AND ANALYZE LIQUIDITY RATIOS

Instructions:

See handout

ACTION PLAN

Instructions:

Reflect on your learning in this module. What kind of changes are you planning to make to your work routine regarding the calculation and analysis of your bank's financial ratios? Please write down your own individual plan and which information you would use.

A = Must do

B = Need to do, if possible

C = Nice to do

Priority A,B,C	***Objective And Tasks***	***Measures***	***Target Date***

SUMMARY

Banking is an industry that survives on numbers. Learning and using balance sheet ratios can be a valuable tool in managing liquidity risks. Once the discipline of calculating the ratio is established, the maintenance of the ratios over time gives insight to trends and potential problems before they occur.

LEARNING OBJECTIVES

In this module, you learned to:

- Analyze market conditions
- Establish limits and targets for liquidity management.
- Choose a contingency funding/liquidity plan.

Module 8:

Asset and Liability Management

ASSET AND LIABILITY MANAGEMENT

OVERVIEW

In this module, we will discuss the organizational process of liquidity and asset and liability management. Banks need to set up an asset and liability management committee (ALCO) with specific guidelines on how it will function and to whom it will be responsible.

LEARNING OBJECTIVES

Upon the completion of this module, you will be able to:

- Diagram the organizational process of liquidity and asset and liability management
- Establish an ALCO (Asset and Liability Committee)
- Outline the responsibilities for an ALCO

THE ORGANIZATIONAL PROCESS

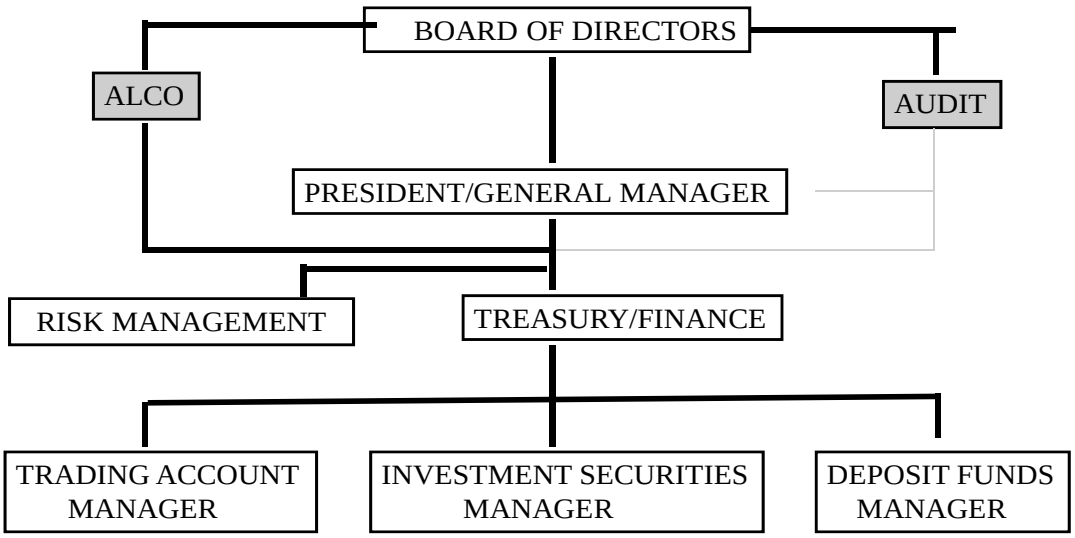
The organization of a well functioning asset and liability management process is frequently overlooked or undervalued by banks. However, it is as critical a part of banking as taking in deposits and giving out loans. The board of directors should insist that the process be set up with a clearly defined purpose, written policy and balanced committee structure. The Asset and Liability Committee (ALCO) needs to meet on a regular basis and have pre-defined what reports will be prepared for the committee to review and consider. The management information systems need to be structured to give as many and as thorough reports as the ALCO requests.

The members of the ALCO can vary but should have the heads of the divisions that have the greatest impact on the bank's balance sheet. These would include:

- Loan Portfolio Manager
- Investment Portfolio Manager
- Deposit and Funding Responsibilities Manager
- Economic Forecasting Manager
- Head of Accounting
- Chief Financial Officer
- Chief Executive Officer

Because the board of directors is ultimately responsible for the condition of the bank's balance sheet, the organizational structure may look something like the following:

TYPICAL ORGANIZATION STRUCTURE



This is a typical organization chart for the liquidity/ALM function. The Board is responsible for approving the decisions made by ALCO and for periodically reviewing the bank's performance. ALCO should be the strategic decision maker, with other organizational units providing information support and executing the ALCO decisions.

The principal roles are as follows:

Board of Directors

- Review/approve policy
- Make final decisions

ALCO

- Develop liquidity/ALM policies
- Make strategic position decisions
- Establish limits and guidelines

Risk Management

- Monitor compliance within limits and guidelines
- Assess risk of activities

Treasury/Finance

- Execute ALCO decisions
- Manage positions

Other departments

- Execute ALCO decisions
- Provide overall support
- Assist in data collection

EXERCISE 1: HOW TO STRUCTURE AN ALCO IN JORDAN

Instructions:

Design an asset and liability management organizational structure for your bank using the positions that you think should be on an ALCO.

ALCO RESPONSIBILITIES

The ALCO's responsibilities are extensive and require considerable amount of time to conduct. All of top management within a bank have many pressures on them and their time and may not want to add the additional burden of the ALCO. But it needs to be viewed as equally if not more important than their day to day responsibilities.

Some of the ALCO responsibilities include:

- Establishing asset/liability management goals, objectives, policies, limits, targets and guidelines
- Determining how much capital it is willing to risk or lose in pursuing liquidity and asset/liability management strategies
- Monitoring and managing the levels of liquidity and interest rate risk
- Managing balance sheet mix
- Ensuring that capital adequacy is maintained
- Monitoring the economic outlook and interest rate trends
- Planning for the future and revising forecasts as necessary
- Monitoring compliance with bank policy, laws, regulations and recommendations
- Identifying, analyzing and recommending changes in policy consistent with the bank's mission and financial goals
- Reporting regularly to the Supervisory Board on the above

Liquidity risk is an important function within the ALCO but certainly not the only one.

Once established the ALCO needs to consider its goals and objectives. These should flow from the bank's strategic plan and be updated at least annually. The goals and objectives should embody much of what we have covered in previous modules such as:

- Inherent risks and risk activities of the bank
- Risk appetite of the bank
- Volatility of deposits and liabilities
- Rate of loan and asset growth
- Expertise of managers
- Quality of management information systems
- Market environment

The goals and objectives should be both general and specific. They should include details such as creating a stable net interest margin, while being specific with measurable targets, such as a net interest margin of 5%.

As with other bank policies the ALCO's should be written reflecting areas of authority and the extent of those authorities. It should reflect:

Liquidity/Funding

- Measures of liquidity
- Sources of liquidity/funding
- Funding-mix targets

- Maturity guidelines of various liabilities

Investment Securities/Loan Mix

- Target mix of both securities and credit portfolios
- Levels of credit quality
- Maturity guidelines of various assets

The written policy should also include:

Rate Sensitivity/Interest Rate Risk

- Amount of acceptable rate sensitivity
- Methods and products to deal with interest rate risk

Pricing

- Target performance levels
- Minimum spread differentials between asset yields and liability cost rates

Other Items

- Frequency of meetings
- The recordation of each meeting and decisions made

As mentioned in our discussions on liquidity management, the source and accuracy of data, ratios, and financial statements is essential for making well thought out decisions. Some of the reports that a typical ALCO will receive include:

- Asset and liability maturity schedule
- Interest rate sensitivity report
- Net interest margin analysis
- Liability and asset pricing reports
- Credit portfolio reports
- Securities portfolio reports
- Funding activity reports
- Overall financial performance
- Peer performance
- Forecast of economic activity

Asset and liability maturity schedule: includes liquidity profile, volatile liability reports, cash flow analyses and forecasts, events and trends affecting liquidity, major loan draw downs and deposit withdrawals

Interest rate sensitivity report: repricing schedule, sensitivity of earnings/capital to changes in interest rates, interest rate forecasts, limits

Net interest margin analysis

Liability and asset pricing reports: competitor pricing, cost of funds, portfolio and market objectives,

Credit portfolio reports: asset quality, past due, large exposure, portfolio composition, marketing

Securities portfolio reports: composition, quality, market prices, purchases, sales, profitability, maturity

Funding activity reports: large funding exposures, pricing schedule of deposits

Overall financial performance: earnings performance, explanations of divergences from budget plans, ROE/ROA targets, financial performance ratios

Peer performance: comparison with peer banks on earnings, credit quality, balance sheet composition, rates offered on deposits

Forecast of economic activity: local, national and international or surrounding countries

The appropriate departments need to be given the responsibility of preparing and delivering the reports in advance of each meeting. The material needs to be assembled and bound to provide ease of review. It is best if the ALCO reports are distributed to the committee prior to the meeting with the directive for each member to review and digest the information before the ALCO meeting is convened.

Each meeting should result in decisions or recommendations that are documented and distributed to the appropriate managers. These may include:

- Profitability targets
- Large asset exposures and quality
- Large funding exposures and sources
- Interest rate sensitivity targets
- Capital targets

The ALCO will be effective if all members attend on a regular basis; it receives timely, accurate and clear reports; the input is concise and it makes regular presentations to the board of directors.

EXERCISE 2: PREPARING FOR AN ALCO MEETING

Instructions: You are a member of the ALCO committee that will be meeting tomorrow. Using the financial statements and schedules from the last exercise in Module 7, consider the following questions to be discussed in that meeting.

Is the bank's capital sufficient? Do we need to raise more?

Are we too dependent on volatile deposits and liabilities?

Could we be more aggressive in our lending considering our current liquidity forecast?

Should we change the mix of our investments?

Should we consider new deposit products? If the answer is "yes", then what type?

Other questions that you think should be discussed.

ACTION PLAN

Instructions:

Reflect on your learning in this module. What kind of changes are you planning to make to your work routine regarding the establishment of an ALCO for your bank or the creation of a policy for your department? Please write down your own individual plan and which information you would use.

A = Must do

B = Need to do, if possible

C = Nice to do

Priority A,B,C	***Objective And Tasks***	***Measures***	***Target Date***

SUMMARY

Setting up an ALCO is not difficult. Writing the policies and procedures are not difficult. However, insisting on regular and fully attended meetings may be. Getting complete, accurate and concise information may be difficult. If the board of directors understands the importance of good asset and liability management, they will insist that the ALCO be a major initiative of the bank and its management of risk.

LEARNING OBJECTIVES

In this module, you learned to:

- Diagram the organizational process of liquidity and asset and liability management
- Establish an ALCO (Asset and Liability Committee)
- Outline the responsibilities for an ALCO

Module 9:

Leverage Risk

LEVERAGE RISK

OVERVIEW

In this module we will discuss the concept of leverage and its importance to banking. Banks cannot exist without leverage but they also can fail if leverage is not managed. Today, we are seeing the results of excessive leverage in many of the world's largest banks and how they are struggling to survive in a global recession. We will discuss how and why banks are now learning the hazards of mismanagement of leverage risk.

LEARNING OBJECTIVES

Upon the completion of this module, you will be able to:

- Explain the concept of leverage
- Calculate the leverage ratio of a bank
- Determine leverage risk
- Estimate the costs of deleveraging

LEVERAGE IN BANKING

If you lend money to someone and charge the going rate of interest you would get a return on your money. However, if you decided to do this on a regular basis you would have to wait for borrowers to pay back their loan before you had the funds to lend again. This would not be an efficient way to make money. Therefore, you get a group of investors to join you to open a bank. They each put up money and encourage other investors to put in funds. So now you have more money to lend but soon you would run out of funds because all of your initial capital would be lent out. This too would not be very efficient nor provide an adequate return to the investors after operational costs. But once you begin to take in deposits you have a great deal more money to lend. Of course, you now have liabilities and responsibilities to those depositors. As long as you make good loans and get paid interest and principle as agreed, you have a nice profitable business. But things do not operate that smoothly in the real world. The greater your liabilities the greater you leverage risk. What is acceptable and what is too much? That is an active debate today.

Some examples of leverage levels can help us analyze this question. In these examples we will measure leverage risk by dividing liabilities by equity.

Zero leverage

10,000,000 Capital	no cost	
10,000,000 Loans	10% rate =	1,000,000
Net income		1,000,000

4 to 1 leverage

10,000,000 capitals	no cost	
40,000,000 deposits	5%	2,000,000
40,000,000 loans	10%	4,000,000
Net income		2,000,000
If 5% of loans become worthless		- 2,000,000
Charge to capital		0

8 to 1 Leverage

10,000,000	no cost	
80,000,000 liabilities	5%	4,000,000
72,000,000 loans	10%	7,200,000
Net Income		3,200,000
If 5% of loans become worthless		-3,600,000
Charge to capital		-400,000

30 to 1 Leverage

10,000,000	no cost	
300,000,000 liabilities	5%	15,000,000
240,000,000 loans	10%	24,800,000
Net Income		9,800,000
If 5% of loans become worthless		-12,000,000
Charge to capital		-3,200,000

This simple example demonstrates that too little leverage in banking will not work but that too much leverage can be dangerous and irresponsible in times of economic decline. The ratio that is use to monitor a bank's leverage is usually liabilities to equity.

EXERCISE 1: LEVERAGE OF BANKS IN JORDAN

Instructions: Calculate the leverage ratio of your bank

Leverage of Large Banks in the USA and Europe

There is a great deal of concern about the leverage levels of the largest banks throughout the world. It was an attitude amount governments and regulators that the largest banks could function with less capital and hence higher leverage ratios than smaller banks. The largest were considered highly diversified and well managed and therefore could be allowed to take higher risks. We now see the flaw in this thinking. The size of a bank does not matter if the losses are greater than its capital. A bank of any size can be become insolvent. Now we have the debate over whether the large banks are "too big to fail" or that their demise would create too much disruption in the markets, particularly banks that have offices around the world.

As this financial crisis deepens we begin to see that even though the crisis started in the United States, European banks are emerging as being much more highly leverage and of greater concern to their respective governments and the banking system as a whole.

Estimates based on assets from September 2008 indicate the following leverage levels:

Bank	Assets	Shareholder Equity	Ratio
Bank of America	$1,715B	$146.8B	11.7
Citigroup	$2,187B	$113.6B	19.2
JPMorgan Chase	$1,562B	$123.2B	12.7
Wells Fargo	$ 575B	$ 47.6B	12.0

The three largest US banks have balance sheets that represent 40% of US GDP.

The largest banks in Europe offer a much different picture:

Bank	Assets	Shareholder Equity	Ratio
Deutsche Bank	€2,020B	€38.5B	52.0
UBS	Fr2,272B	Fr42.5B	53.4
Credit Suisse	Fr1,360B	Fr59.9B	22.7
Fortis	€871B	€34.3B	25.5
Dexia	€604B	€16.4B	36.8
BNP Paribas	€1,694	€59.4B	28.5
Barclays	UK1,227B	UK32.5B	37.8
RBS	UK1,990B	UK91.5B	21.7

Clearly the leverage levels in Europe and the UK are markedly higher than in the US. More staggering is the size of the balance sheets. It should be noted that these leverage ratios are estimates to demonstrate the higher leverage with the banks in Europe versus the United States. Some argue that comparing the accounting standards of the two regions will result in different ratios.

However, no disagrees with the conclusion that the banks in Europe are more highly leveraged and could have very serious capital problems.

The European banks are also examples of banks that adhered to Basel regulations while becoming highly leverage. However, as one internationally recognized bank examiner and Basel Accord expert stated, “European bankers seemed to manage their banks according to Basel, a regulatory document. The Basel Accord and credit ratings became THE risk management process, rather than tools IN a risk management process. A word to the wise is never to manage your bank according to a regulator's wishes. Compliance with regulations is important, but risk management is even more important.”

DELEVERAGING

A term that has become quite popular in just the last two years is deleveraging (which is a new or coined word). Leveraging means using borrow funds to amplify potential gains at the risk of greater losses. So deleveraging has come to mean the reduction of borrowed funds to reduce potential losses. The term has become popular because it describes what is happening with major banks. For years, if banks encountered a recession some would experience losses but survive a few might have to be taken over by their central bank or deposit guarantee agency and sold to a strong bank. So why has deleveraging become a common description during this crisis? This time the world is experiencing more than a recession and the strong banks are the smaller ones and the biggest banks are the ones in trouble. The smaller banks do not have the capital or capacity to take over the deeply troubled larger banks. Therefore, to get themselves into a position to survive the crisis they must sell assets to pay down debt and to have sufficient liquidity to meet their obligations.

Next we have another new term that is now haunting the larger banks: “toxic assets”. This term is being used to describe assets that the banks are trying to sell which no one wants. As we discussed in earlier modules liquidity depends on a bank’s ability to raise cash quickly by increasing deposits, borrowing, or liquidating securities or other assets. However, if your bank is in trouble, increasing deposits could be difficult or very expensive, borrowing becomes a problem because of the lack of lenders, selling short-term securities may help unless they represent a small portion of your assets, so finally we get to less liquid assets. In time of financial crisis the less liquid assets become those least wanted and therefore start dropping substantially in value. If the assets you want to sell suddenly lose their AAA credit rating or the guarantor becomes bankrupt (AIG), they become very difficult to sell and the new term for them is “toxic”, meaning no one wants to touch them.

The difficulty that the larger banks are facing with these toxic assets is that they can sell them at a substantial discount but because these assets substantially exceed their capital account, selling them is admitting insolvency. Now, the government enters the picture and begins to devise methods to take the toxic assets off the bank’s balance sheets and keep the banks solvent. This has created major debates in the USA, which are ragging at this very moment.

After the deleveraging and toxic asset debate, some critics are using one more new term in banking: “zombie banks” (a term from US movies that refers to dead people that can walk around and haunt the living). These are the so called banks that are insolvent but still operating, like dead men walking.

EXERCISE 2: DELEVERAGING

Instructions: What assets on the books of banks in Jordan could be difficult to sell or liquidate in a severe economic downturn? How would this effect the capital of the bank.

ACTION PLAN

Instructions:

Reflect on your learning in this module. What kind of changes are you planning to make to your work routine to analyze your bank's exposure to deleveraging? Please write down your own individual plan and which information you would use.

A = Must do

B = Need to do, if possible

C = Nice to do

Priority A,B,C	***Objective And Tasks***	***Measures***	***Target Date***

SUMMARY

Developing the delicate balance of maximizing leverage within banks to achieve higher profits, while managing leverage levels to protect depositors and the survival of the bank has become a topic of discussion around the world. This is a discussion within banks, within bank examination departments and within governments. In this module we have learned the importance of using leverage but also the essential challenge to banks to properly manage leverage risk.

LEARNING OBJECTIVES

In this module, you learned to:

- Explain the concept of leverage
- Calculate the leverage ratio of a bank
- Determine leverage risk
- Estimate the costs of deleveraging

Conclusion

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OVERVIEW

This course was designed to be an overview of the issues and principles of liquidity management and the complications of deleveraging in difficult economic conditions. These are issues and decisions that you face every day in the managing of the liquidity risk in your banks. The course also gave you some insight into how analyze and manage those risk and how banks around the world are finding difficulties with their liquidity positions during the current financial crisis. We also practiced the practical application of skills which can be taken back to your banks. You have the opportunity to expand your current skills or introduce new skills to your colleagues.

LEARNING OBJECTIVES

After completing this course, participants are able to:

- Explain the primary risks that must be managed by bankers
- Evaluate the importance of liquidity management in banking
- Establish how liquidity management impacts assets and liabilities.
- Calculate and analyze liquidity positions of banks
- Demonstrate cash flow movements and their impact on liquidity management.
- Design a liquidity policy for your bank
- Develop a methodology of evaluating your bank's liquidity risk and plan on a continuing basis.
- Formulate an organizational structure to oversee asset and liability management policy.
- Explain the importance using leverage in banking and the management of its risks

PARTICIPANT GUIDE

This course and the participant guide were designed to provide you with a resource that you can use when you return to your job. We encourage you to keep this resource guide as a handy reference and refer to it often.

ACTION PLANS

An important feature of this course was the Action Plan. After each module, you were asked to create an Action Plan for the ideas and plans you want to implement in your bank following the conclusion of the course.

SUMMARY

We have covered many topics from an overview perspective. Each topic can be expanded into a more extensive course. However, having a broad picture of liquidity risk management is important for each of us, no matter what our specific job. Understanding risks and how to manage them is the key to a successful bank. Sometimes we have to step back from our day-to-day tasks and see how all functions fit together and understand the risks managed by each function.

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