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KPMG Consulting
Barents Group

RISK MANAGEMENT WORKSHOP
Siam Commercial Bank, Thailand

Presented by:
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Prepared by Richard Currie

USAID Objective 1.1 : Critical private markets expanded and strengthened
G/EGAD SSO 3: Support appropriate and functioning economic policies, market reforms, and institutions in emerging markets and priority countries
G/EGAD SPO2: Enhance the ability of indigenous business to become viable within emerging markets.

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RISK MANAGEMENT WORKSHOP

Siam Commercial Bank

Presented by:

Risk Management Workshop

Chapter 1: Introduction and Overview

- Objectives of Risk Management Workshop
- At the end of this workshop you will be able to:
  - Explain the various financial risks faced by SCB
  - Explain risk management principles, best practices and industry trends in integrated risk management
  - Explain different measurement techniques to measure market risk, credit risk and operational risk

Risk and Banking

- A financial institution is confronted with many types of risk.

- Management's attitude toward risk and their ability to understand and manage risks determine the long-term profitability for the institution.

The nature of Risk Management in banks is changing fundamentally. Until recently, it has been an exercise in damage limitation. Now it is becoming an important weapon in the competitive struggle between financial institutions.

Those who can manage and control their risks best will be the most profitable, lowest priced producers.

Those who misjudge or misprice will be out on their ear.

-The Risk Game

The Economist, Survey of International Banking *(1996)*

Risk Management is:

- The deliberate acceptance of risk for profit. It involves making informed decisions regarding the trade-offs between risk and reward, and using various financial and other tools to maximize risk-adjusted returns within pre-established limits

  designed to:

  - Prevent Loss
  - Insure Loss
  - Control Loss
  - Price Risk Appropriately

  includes:

  - Comprehensive Risk Policy
  - Monitoring/Reporting Procedures
  - Enforcement

Why is Risk Management Relevant Now?

- A changing market
- Customer preferences, behavior and sophistication
- Complexity and velocity of international financial markets
- Increase in transactional volumes
- Competition of non-bank financial services
- A changing industry
- Banks' share of traditional businesses is shrinking
- Expansion into new businesses and geographical markets
- Traditional products are changing in nature or delivery
- Reorganization of industry
- A changing world
- Emergence of developing markets: Eastern Europe, Chine
- European alliance
- Technological advances

Historical Approach to Risk Management

- Focused on a few traditional risks
- Risk avoidance a prevailing attitude
- Compartmentalized structures
- Subjective views
- Inconsistent response and application of resources
- Not well connected to business activities and goals
- No overall risk profile to support executive decisions

Evolving Trends

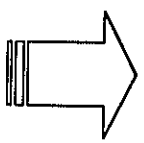
- Awareness of expanded risk categories
- Risk for reward
- Quantity of risk and quality of risk management
- Objective vs. intuitive approach
- Measurement and management on portfolio level
- Interactive management structures and processes
- Link to strategic planning/business goals

Awareness of Expanded Risk Categories

One/Several Risk Types

Credit

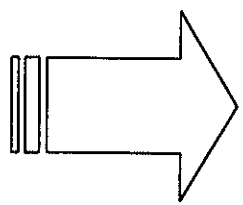
Interest rate
Foreign Exchange
Basis
Regulatory Compliance
Liquidity



Expanded Scope

Reputation
Strategic
Customer
Products
Financial Markets
Operations/Transaction Processing
Human Capital
Information Integrity
Technology

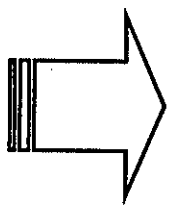
Risk Management versus Risk Control

Risk Control		*Risk Management*
Avoid		**Absorb/reserve for**
Decrease		**Hedge/Transfer**
Limit		**Sell/Share**
		Insure
		Price for
		Limit

Quantity of Risk and Quality of Risk Management

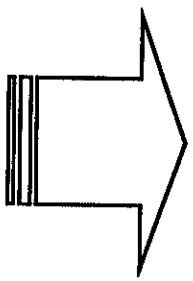
What risks and how much		*What risks, how much and how well managed*
Loan Rating		**Loan Rating**
Value-at-risk reporting		**Value-at-risk analysis**
Mark-to-Market portfolios		**Risk self-assessments**
		Operating risk analogs
Historical analysis		**Historical analysis and forward modeling**

Objective versus Intuitive Approach

Intuitive		*Objective*
Intuitive Understanding		Data informed
People dependent		Process dependent
Single risk process		Independently validated

Measurement and Management on Portfolio Level

Transactional



Transactional

Segment

Portfolio

Interactive Management Structures and Processes

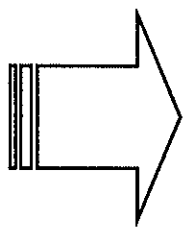
Compartmentalized

Credit

ALM

Compliance

Legal



Interactive

Risk Committees

Oversight by

Chief Credit Officer

Chief Financial Officer

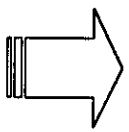
Chief Risk Officer

Linked to Strategic Planning/Business Goals

Safety & Soundness

Loss prevention

Allowances and reserves



Risk for reward

Loss prevention

Portfolio management

Allocation of risk and resources

RAROC

EVA

Benefits of an Integrated Risk Management Framework

- Promotes and strengthens a consistent risk culture
- A clear and consistent position on risk enhances market image
- Supports the efficient use of financial and human resources for maximum risk-adjusted returns
- Facilitates the dissemination of multi-dimensional risk knowledge and expertise to where it makes a difference
- Provides corporate level overview of risks and risk trends for strategic and business planning
- Enables performance evaluation on a risk-adjusted basis

Risk Management Culture

- Common language
- Consistent measurement and methodologies
- Integrated processes
- Clear roles and responsibilities
- Excellent training and communications
- Technology supported-MIS a key driver
- Not bureaucratic—enabling, not controlling

Risk Management Structure at SCB

Board of Directors	* Board oversight/Executive Committee
Risk Policy	* Risk Management Office * Corporate strategy and policies * Oversight of all risks * Work with Business Units
Risk Oversight/Specialist (in process)	* One risk type bank wide * Insures consistency
Risk Officers	* Credit officers in each business unit * Quantity/quality of risks
Risk review & audit	* Independent testing * Separate perspective of risks

Risk Overview

What is Risk?

- Probability/Volatility
- Depends on historical time series and projected or expected results

Financial objectives of SCB

- Short-term: Net income
- Long-term: Economic value of equity (EVE)

What is Risk?

Risk is the potential that events, expected or unanticipated, may have an adverse impact on the bank's capital and/or earnings

Pricing of Risk

- The market prices risk by requiring a higher return for investments or assets that are perceived to have more risk. There are several methods to measure the trade-off between increased risk and increased return.

- Cost of capital
- Dividend Discount Model
- Capital Asset Pricing Model
- Efficient frontier

Bank Earnings Analysis and Model

- Banks make money by assuming risk
- Banks lose money by not managing risk or by not getting paid for the risk assumed

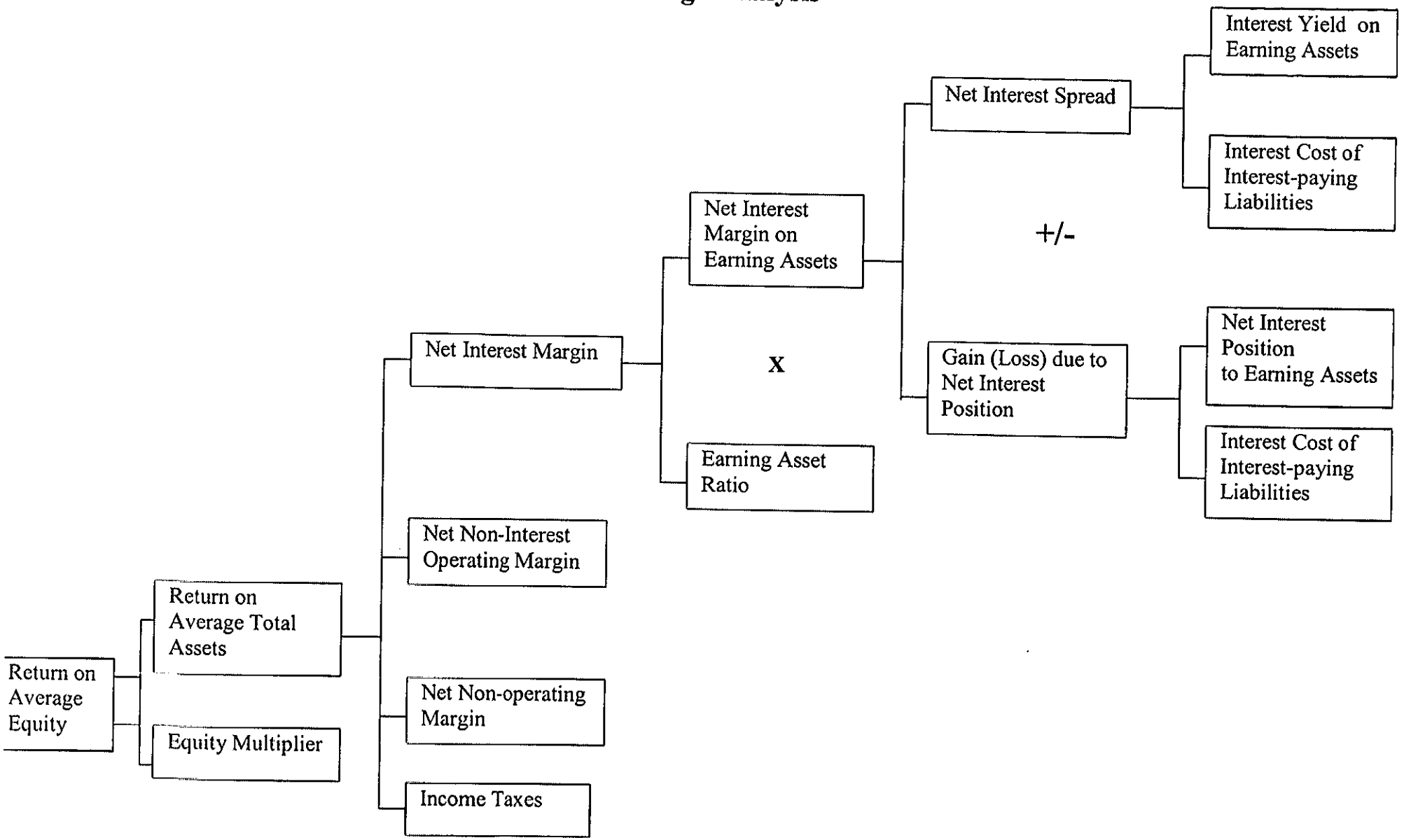
Risk-Reward Trade-off

- Short-term vs long-term (maturity)
- Liquidity
- Floating vs fixed
- Hierarchy (ie., place on the balance sheet)
- Credit

Key Measurement Factors

- Net interest income
- Return on assets
- Return on equity
- Efficiency ration
- Asset quality
- Predictability of income
- Growth

Earnings Analysis



Interest Margin Objective Worksheet

Annual Plan from_____to_____

Determined Required Return on Assets
Desired Return on Equity times Required Equity to Assets Ratio equals % Return on Assets

	ROE		Capital Ratio		ROA
1		x	2	=	3

Determined Required Net Income
Decimal Required Return on Assets Times Total Assets equals net income

	ROA		Assets		Net Income
3a		x	4	=	5

Determining Interest Margin
Required Net Income plus operating expenses plus loan and security losses plus taxes

Net Income		Operating Expenses		Loan and Security Loss		Taxes
5		+ 6		+ 7		+ 8

Less fees equals desired margin

	Fees		Interest Margin
- 9		=	10

Chapter 2: Risk Management System

Building Blocks

- Risk Identification
- Risk Measurement
- Risk Management
- Risk Monitoring/Controlling

Major Risk Areas

- Operational Risk
- Liquidity Risk
- Price Risk
- Foreign Exchange Risk
- Interest Rate Risk
- Credit Risk

Risk Management System

- Who is ultimately responsible for risk management?

- The Board of Directors has the fiduciary responsibility to mange an institution in a safe and sound manner

Responsibility and Duties

- Define
  - a risk management process
- Assign
  - responsibility and authority
- Review
  - reports
- Understand
  - amount and types of risk

Oscar Wilde said

"Experience
is the name
we give to our
past mistakes"

Policies

are a means of passing experiences to a new generation of management

Henry Wallach said

"Policy is the name we give to our future mistakes"

(a former US Federal Reserve Board Governor)

Good Risk Policies

- Assign responsibilities and duties
- Define risk measures
- Set risk limits
- Specify how to handle exceptions to limits
- Set times for review and revision
- Set how and when the process should be audited
- Receive Board of Directors' approval

Each section should contain

- What
- Why
- Who
- Where
- How
- How much
- When

A Check List

- WHAT
  - Overall statement of goals and objectives
- WHY
  - Definition of a risk and its consequences
- WHO or WHERE
  - Assignment of responsibilities within the organizational structure

A Check List (continued)

- HOW
  - Description of how the assignees are to function as a team
  - What risk management tools can be used
- HOW MUCH
  - Description of measures and acceptable limits
- WHEN
  - Specification of content and frequency of reporting

How Policies and Components Are Related

- Understanding risks
  - What, Why
- Collecting data on risk
  - Who, Where, How
- Measuring risk
  - Who, How much
- Managing risk
  - Who, How, When

Measurement is Essential

Saying
"don't take too much risk"
is like saying
"don't swim too far from shore"

Management Policies at SCB

Credit Policy Guide and Credit Administration Manual*

- *Credit Policy Principles*
- *Credit Risk Policies*
- *Credit Risk Guidelines*
- *Approval Authorities*

*in development

ALM Policy

- *ALM Policy*
- *Liquidity Policy*
- *Investment Policy*
- *Capital Policy*

Risk Management

Monitoring and Control

Preventive Controls

Internal controls designed to prevent errors, irregularities, fraud or misstatements of financial statements resulting from an event

Detective Controls

Controls designed to detect errors, irregularities, fraud, or misstatements of financial statements after the event for the purpose of correcting the condition

Corrective Controls

Controls to resolve the error, irregularity fraud or misstatement of financial statement resulting from an event

Chapter 3: Risk Management--Operational Risk

Operational Risk (including event risk)

"Uncertainty in terms of timing and magnitude of the expected and unexpected potential loss to long-term shareholder value resulting from breakdowns in processes due to internal and external factors."

- Assets lost, stolen, destroyed or otherwise reduced in value
- Voluntary obligations fail to work out
- Legal liabilities lead to civil, criminal and regulatory penalties
- Operations are disrupted due to internal and external factors

Operational Inefficiency

"Excess costs that are known with reasonable certainty, attributable to poor process designs, misalignment of resources or management decisions which can be rectified, if wished, with management initiatives and adjustments to infrastructure."

Operating Risk

"The strategic risk of selecting and the consequences of operating that business or a group of businesses"

Operational Risk- put another way

- Not credit, market, interest rate or liquidity risk
- Covers "routine" processes
- Payments
- Settlements
- Documentation
- Natural disasters and force majeure
- IT, regulatory, legal risk, fraud
- Fuzzy issues
- Strategy and planning
- Competitors

Operational Risk Management Objectives

- Prevent accidents
- Price operational risk into transactions
- Link capital and then compensation
- Realign resource and infrastructure allocation

Operational Risk Policy Check List

- What
  - Identify the non-interest costs associated with a given volume of each product
- Why
  - As volumes of products change, it is necessary to predict and manage growth of support areas

Operational Risk: Policy Check List

- Who
  - Accounting Department, Comptroller
- How
  - using a responsibility cost accounting system in conjunction with product volume modeling
- How much
  - budget (annual or rolling twelve months)

Operational Risk Policy Check List

- When
  - Monthly to senior management
  - Annually to Board of Directors

Operational Risk Measurement Challenges

- Limited pure market data
- Low probability/large loss
- Cause and effect
- Aggregation/Desegregation
- Market is not pricing
- Cost to control
- Component intuitively too small
- Exit costs

Operational Risk Management: Challenges

- Areas of over control
- Decentralized LOB risk ownership—disparate standards
- Not linked to enterprise risk appetite and strategy
- No guardian, risk not being managed
- No commonly held view of operational risk
- Too many functions dealing with same operational issues

Operational Risk Identification

Tools

- Categorization
- Internal and industry database of loss experience
- Brainstorming future risk events and exposures
- Analysis of actual (or potential) causes and effects

Approaches

- Assets/liabilities approach: risks to each LOB
- Process-based approach: risks affecting quality and continuity of processes
- Combinations of above

Operational Risk Identification

Transactional or Asset/Liability based

- Define impact in terms of cash losses and/or impact on value of assets/liabilities
- Analysis carried out by LOB, Business Unit
- Define categories of risk by event
- Easy/faster implementation
- Not fully in line with "best practice" efficiency concepts based on business process concepts

Operational Risk Identification

Business Process Based

- Define impact in terms of effect on quality or continuity of the process
- Organization defined in terms of processes and sub-processes
- Risks categorized by event
- Differentiate between frequent/infrequent processes
- Needs extensive process definition and mapping
- Focus on control portfolio
- May be expensive to implement

Operational Risk Measurement

Assessment of Impact

- High, medium and low ratings
- Two dimensions: Impact and likelihood
- For prioritization purposes, compress to one dimension
- For modeling purposes, need probability distributions

Operational Risk Measurement Assessment Methodology

High Cost/Low Probability events •Internal and industry historical database of actual loss experience	**High Cost/High Probability events**
Low Cost/Low Probability events •Apply simple risk factors to exposures •Recognize and manage as efficiency issues	**Low Cost/High Probability events** •Supplement by inferring frequency of large losses from more frequently observed small losses •Apply beta for new product attribution

Chapter 4: Market Risk

Volatility in earnings or capital arising from a change in market prices or rates:

- Interest rates
- Foreign Exchange rates
- Securities prices
- Commodity prices

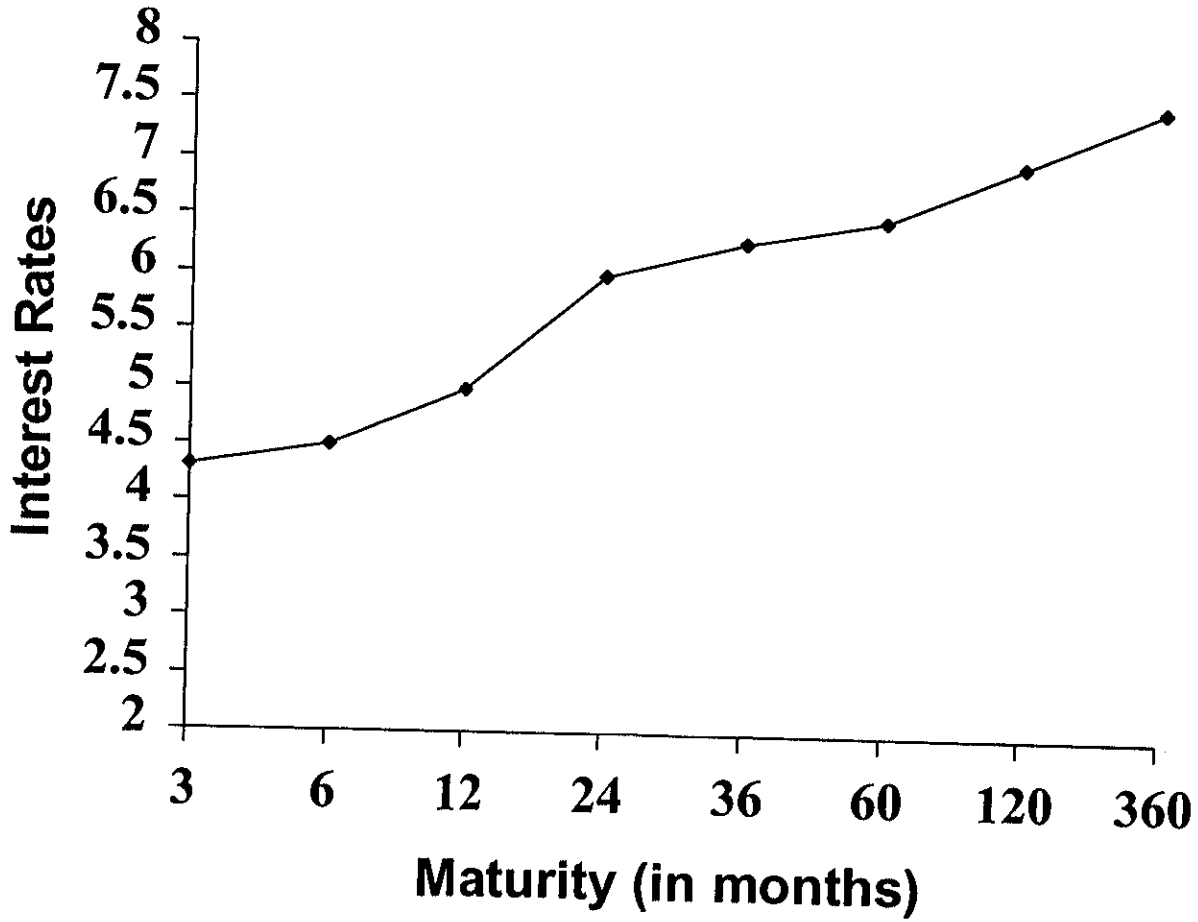
Yield Curve - Definition

- Yield curve is the market's prediction of future interest rates

- The shape of the yield curve tells much about the state of the economy and a country's monetary policy

The Yield Curve - Different Shapes

POSITIVELY SLOPED - NORMAL

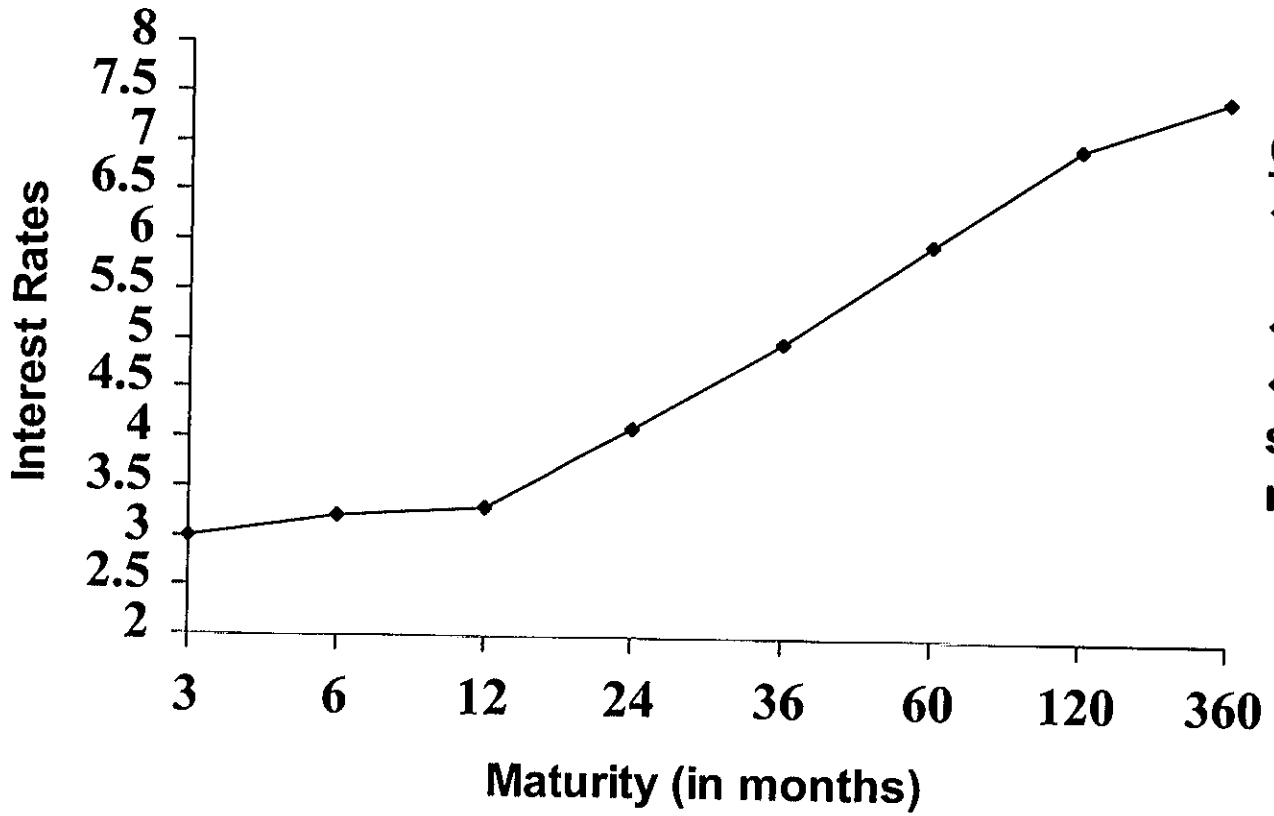


Generally implies:

- Growing economy
- Moderate Fed policy
- Expectation of some future rate increases

The Yield Curve - Different Shapes

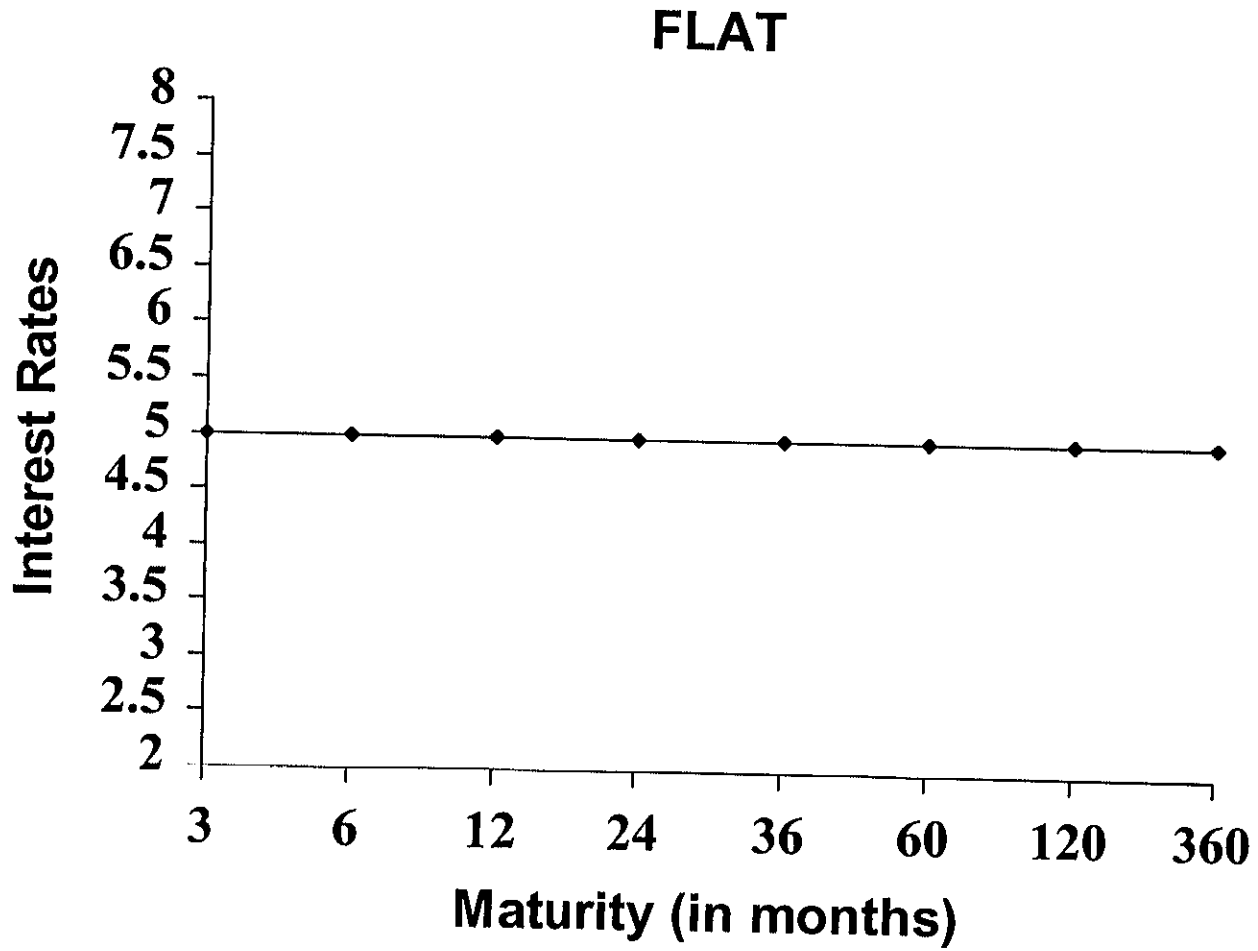
POSITIVELY SLOPED - STEEP



Generally implies:

- Economy rebounding from recession
- Easy Fed policy
- Expectation of significant future rate increases

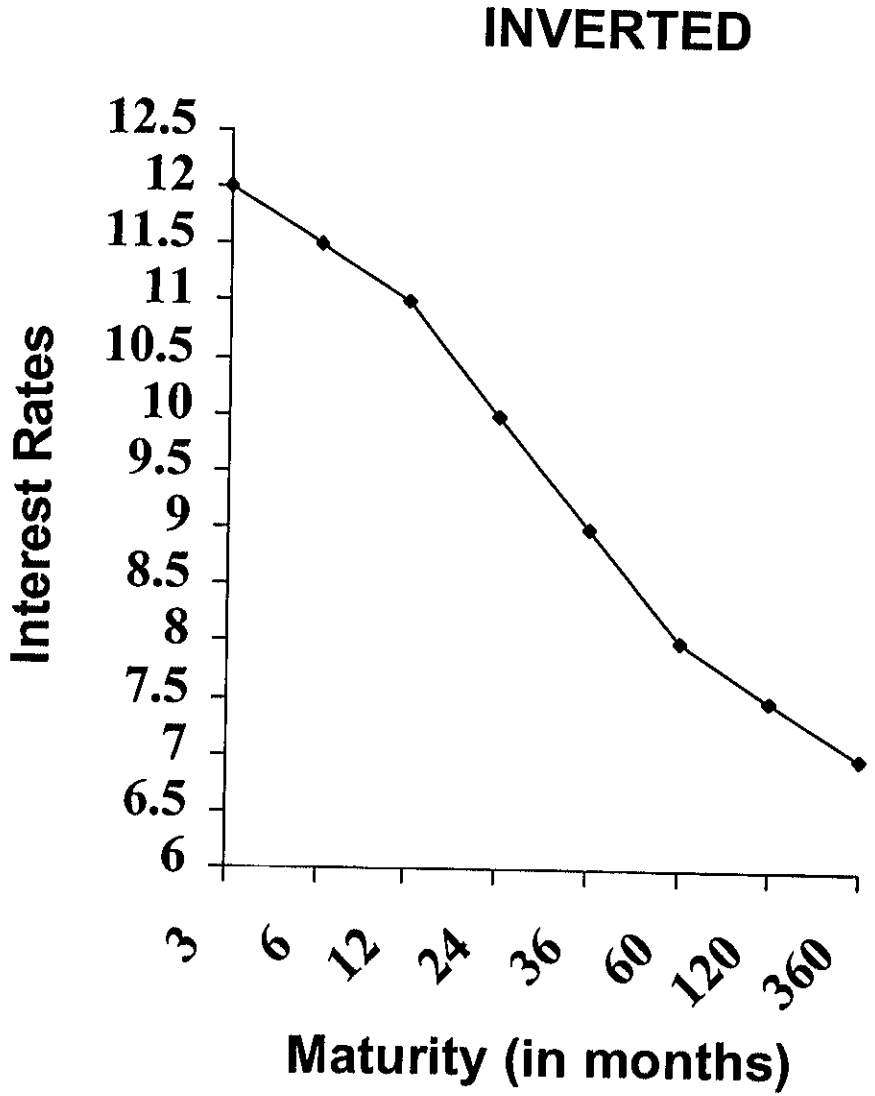
The Yield Curve - Different Shapes



Generally implies:

- High growth economy
- Fed tightening to reduce growth and inflation
- Expectation of falling future rates

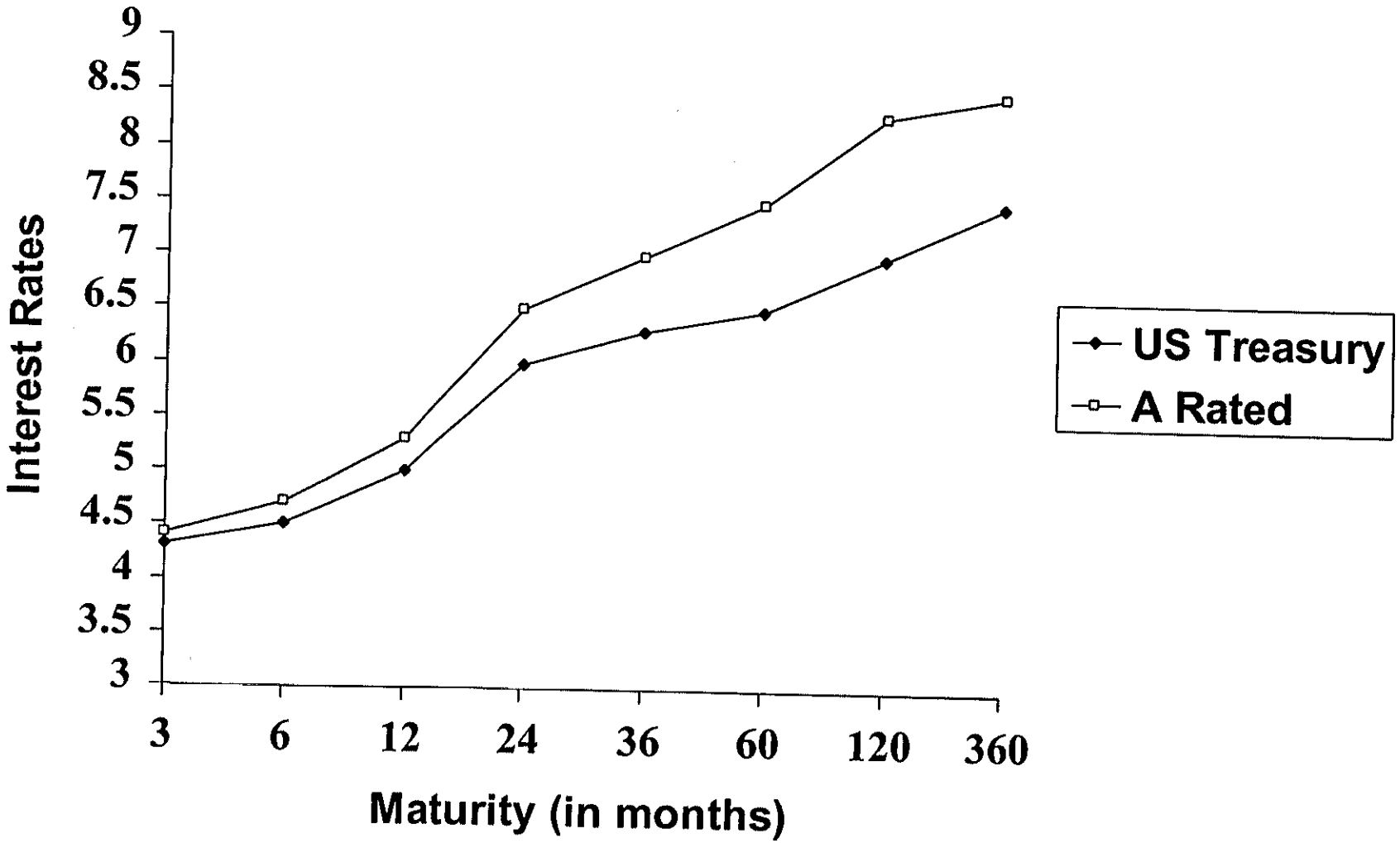
The Yield Curve - Different Shapes



Generally implies:

- **Unsustainably High Growth economy**
- **Aggressive Fed tightening**
- **Expectation of significantly lower future rates**

The Yield Curve - Credit Differences



Factors Influencing the Shape of the Yield Curve

- Supply and demand
- Risk and reward
- Inflation
- Expectation of borrowers and investors

Reasons for Changes in the Yield Curve

- Money market policy of the domestic central bank
- Public sector as a borrower
- Change in the exchange rate (appreciation/depreciation)
- Money market policy of foreign central banks

Interest Rate Risk

Interest rate risk is the volatility in earnings or capital arising from changes in interest rates.

- Earnings are affected if assets and liabilities have different interest rate sensitivity. This means that assets and liabilities reprice at different times, such as when assets have a fixed rate and liabilities are variable over a given time horizon.

Example: 10 million Bt loan @ 8% fixed for one year

10 million Bt 3-month deposit at variable rate currently 4%

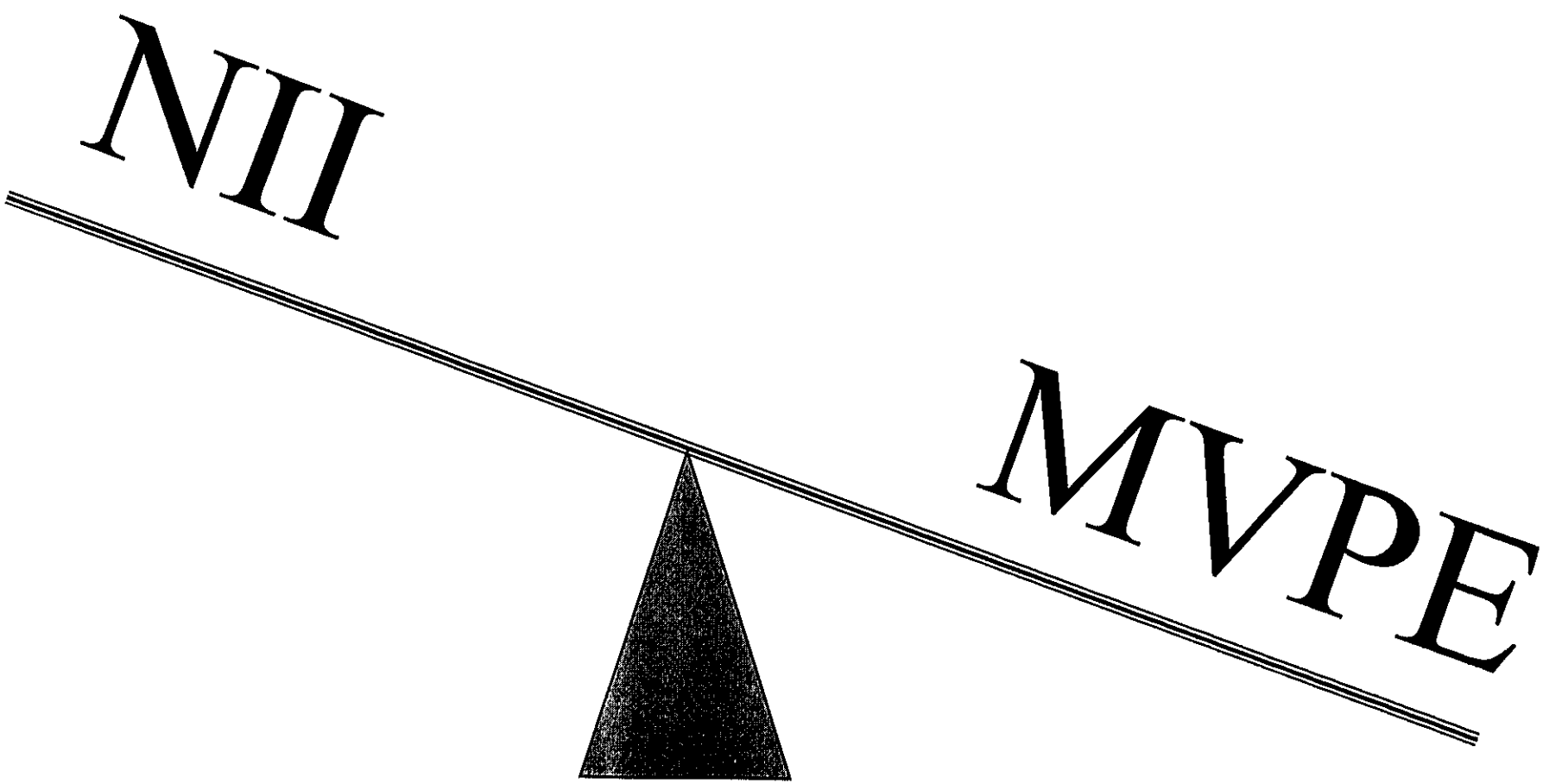
Interest margin of 4% or 400,000 Bt decreases if the variable rate increases during the year.

- Capital or EVE is affected if fixed rate assets are marked-to-market and interest rates change.

Example: 10 million Bt 6% MOF due 2005 currently selling at par (ie., market yield is 6%)

If interest rates increase 1% (100 basis points), the market value of the bond decreases to 9.59 Bt for a loss of 410,000 Bt.

MVPE and NII are inversely related



Interest Rate Risk Measurement System

Measures change in short-term earnings or impact of future changes of interest rates on the estimated economic value of assets, liabilities and off-balance sheet contracts

- Assumption driven
- Involve judgment
- Utilize some verifiable inputs
- Produce outputs that require independent evaluation
- Unique financial contracts or volatile markets tend to decrease a system's precision

Interest Rate Risk Measurement: Sensitivity Analysis

Yield Sensitivity: Yield sensitivity analysis requires that fixed rate and rate sensitive assets and liabilities be separated.

Rate Sensitive: Rate sensitive assets and liabilities are those that mature or will be repriced in less than one year. Some examples include the following:

- Maturing loans
- Floating rate loans
- Short-term CDs
- Floating rate certificates

Fixed Rate: Fixed rate assets and liabilities that mature or will be repriced in more than one year.

Interest Rate Risk Measurement: Simulation

Rate Shock Exposure

	Net	Interest	Income	Current	Market	Value
Change in Rates (b.p.)	Estimated Value	Change From Base	% Change from Base	Estimated Value	Change From Base	% Change from Base
+ 400	6,155	476	8.4	10,812	(2,875)	(21.0)
+ 200	5,969	290	5.1	12,741	(946)	(6.9)
Base	5,679	0	0.0	13,686	0	0.0
-200	5,401	(278)	(4.9)	14,565	879	6.4
-400	4,978	(701)	(12.3)	16,426	2,740	20.0

Rate Cycle Exposure

	Net	Interest	Income	Current	Market	Value
Y/Curve Type	Estimated Value	Change From Base	% Change from Base	Estimated Value	Change From Base	% Change from Base
Fully Inverted	7,111	1,414	24.8	9,409	(4,277)	(31.3)
Semi Inverted	6,641	944	16.6	11,052	(2,634)	(19.2)
Flattening	5,762	65	1.1	13,237	(449)	(3.3)
Base	5,697	0	0.0	13,686	0	0.0
Steepening	5,148	(549)	(9.6)	14,790	1,103	8.1

Rate Forecast Exposure

	Net Interest Income		Current Market Value		
Change in Rates (b.p.)	Estimated Value	Change From Base	% Change from Base	Estimated Value	Change From Base	% Change from Base
Rising	5,829	129	2.3	17,102	(1,043)	(5.7)
Most Likely	5,691	(9)	(0.2)	18,461	316	1.7
Base	5,700	0	0.0	18,145	0	0.0
Declining	5,536	(164)	(2.9)	19,412	1,267	7.0

Interest Rate Risk Management Tools

- 1. Spread Analysis (SAR)
- 2. Gap analysis/rate sensitivity analysis
- 3. NIM variances
- 4. Yield curve strategies
- 5. Duration analysis
- 6. Hedging

Leads to limits

¨ In terms of net income, NII, NIM

In terms of capital, market value of equity or "VaR"

Interest Rate Risk Management: Monitoring and Control

Minimum MIS/Reports

- Asset yields, liability costs
- NIM, variances from prior period and budget
- Longer term interest margin trends
- Rate sensitivity position
- Static and dynamic gap
- Exceptions to policy guidelines

Risk Management: Liquidity Risk

- The potential loss in income or reduction in market value of the bank due to an inability to meet cash needs for withdrawals or to support credit demands and growth in a timely and cost-effective manner.

What Does Liquidity Mean?

- Liquidity is a bank's ability to meet all cash demands anytime and entirely
- It is not
  - Cash or other types of assets like reserves at the Central Bank
  - A ratio
  - Earnings of a bank

Liquidity Risk

Liquidity and Profitability Trade-Off

Potential Deposit Losses

- Composition of liabilities and sensitivity to changes in interest rates and credit rating
- Deposits owned by money traders, public institutions, foreign investors, and large corporations
- Large deposits held by any single group or individual
- Seasonal or cyclical patterns

New Loan Demand

- Unused credit lines outstanding
- Business activity in your trade area
- Demographic changes in your trade area
- Aggressiveness of loan marketing efforts – strategies to expand market share and pricing decisions
- Funding under letters of credit and bank guarantees

Asset Liquidity Management vs Liability Liquidity Management

Examples of Liquid Assets:

- Cash and due from banks in excess of required reserves or compensating balances
- Federal funds sold and repurchase agreements
- Government securities that mature within one year
- Loans that can be readily sold or "securitized"

Collateral for borrowings

- Potential Asset Liquidity Concerns

Some assets cannot be sold because they are already pledged as collateral

- Market risk
- Target loan to deposit ratio

Loans are among the least liquid assets.

Deposits represent the primary source of funds.

High (low) ratio indicates illiquidity (strong liquidity)

Examples of Liability Liquidity

Equity to asset ratio -- target: to be "well capitalized"

- Risk assets to total assets
- Loan losses to net loans
- Reserve for loan losses to non-performing loans
- Core deposits to total assets
- Volatile (purchased) liabilities to liquid assets
- The composition of deposits (diversified customer base)
  - Market access
  - Secured lines of credit
  - Collateralized borrowings
  - Funding available at increased cost

Funding Sources

- Funding sources represent the bank's ability to acquire funds
  - Ways to convert less liquid assets into highly liquid assets
  - Acquiring new funds by borrowing from bank lines or in the market
  - Should be diversified

Liquidity Risk Management: Planning

- Liquidity management is a daily responsibility
- The longer the planning horizon, the more inaccurate the prediction

Liquidity Management: Liquidity Planning

- Banks have no control over customer-determined actions
- Important for bank to have good data bases an communications systems to estimate future cash flows based on historical behavior
- Plan should include worst case scenario

Liquidity Risk: Monitoring and Controlling

Minimum MIS/Reports

- Liquidity gap limits
- Sources of funds
- Maturity distribution
- Volatile funds dependency
- Stress testing using assumptions of deposit/funding attrition

Risk Management: Foreign Exchange Risk

- Foreign exchange risk is the volatility in earnings and/or capital arising from a change in foreign exchange rates.

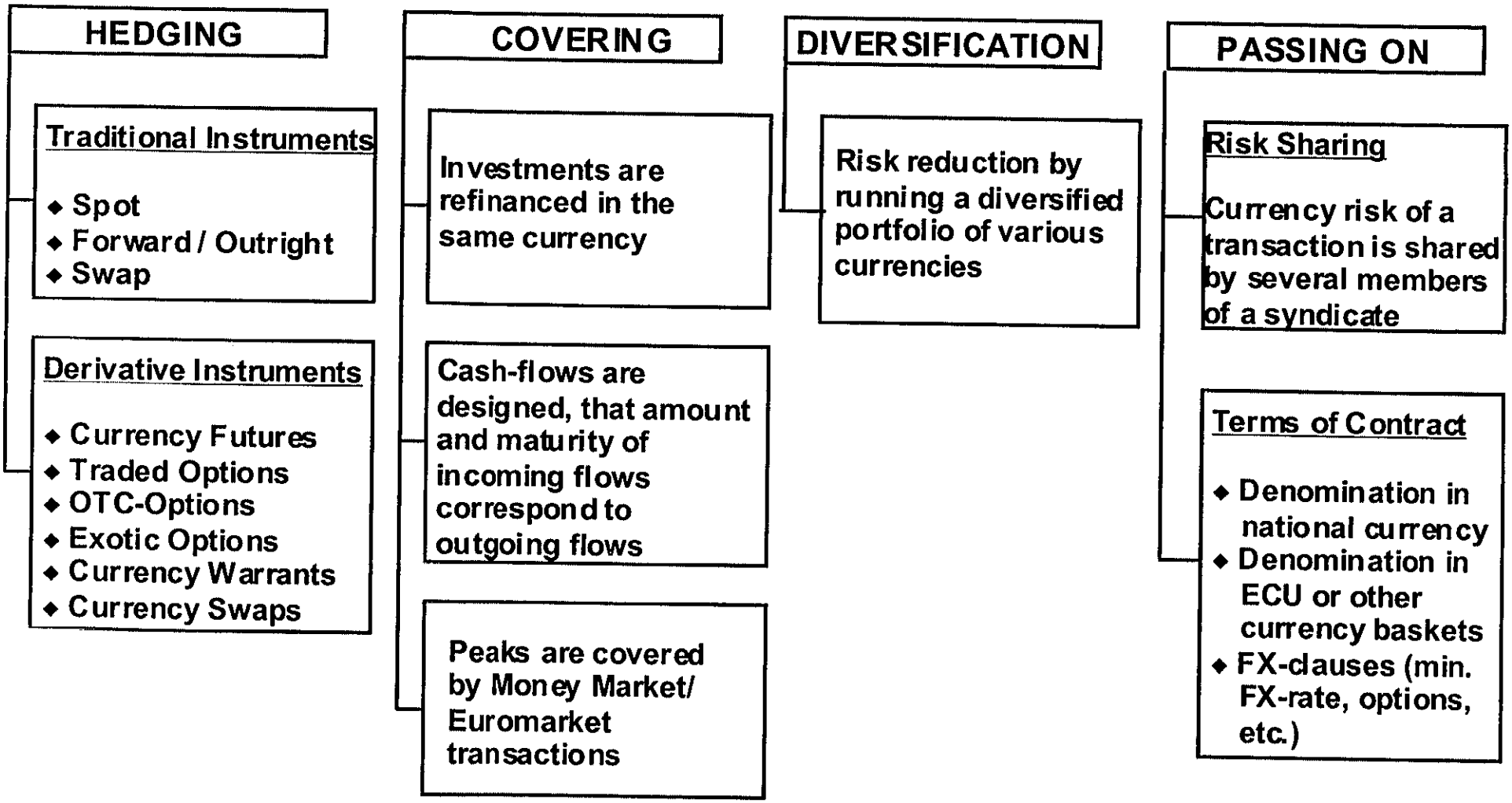
Foreign Exchange Risk Identification

- The simplest method to identify FX exposure is to analyze the balance sheet in terms of net long or short position
  - (A) FCY Assets + contingent FX bought less
  - (B) FCY Liabilities + FX sold equals the foreign exchange position

Foreign Exchange Risk Measurement

- An open position represents FX exposure and can be either short or long
- A short position means FX liabilities > FX assets. The risk is measured by the amount that the foreign currency can appreciate vis a vis the domestic currency.
- A long position means FX assets > FX liabilities. The risk is measured by the amount that the foreign currency can depreciate vis a vis the domestic currency.

Managing Foreign Exchange Risk



Market Risk Management Strategies

Derivatives: "A bilateral contract or payments exchange whose value derives, as its name implies, from the value of an underlying asset or underlying reference rate or index."

Source: The Group of Thirty

Derivatives

Examples:

- Forward contracts
- Put and call options
- Interest rate and currency swaps
- Caps, floors and collars

Uses of Derivatives

- To hedge currency risk
- To hedge interest rate risk
- To hedge commodity risk
- To achieve desired payoff pattern
- To avoid regulatory costs

Chapter 5: Credit Risk

Credit risk is the volatility in earnings and/or capital arising from an obligor's failure to meet the terms of any contract with the bank or otherwise fail to perform as agreed.

Credit risk is found in all activities where success depends on counterparty, issuer or borrower performance.

It arises any time bank funds are extended, committed, invested or otherwise exposed through actual or implied contractual agreements, whether reflected on or off balance sheet.

Risk Management: Credit Risk

Credit risk is the volatility in earnings and/or capital arising from an obligor's failure to meet the terms of any contract with the bank or otherwise fail to perform as agreed.

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It arises any time bank funds are extended, committed, invested or otherwise exposed through actual or implied contractual agreements, whether reflected on or off balance sheet.

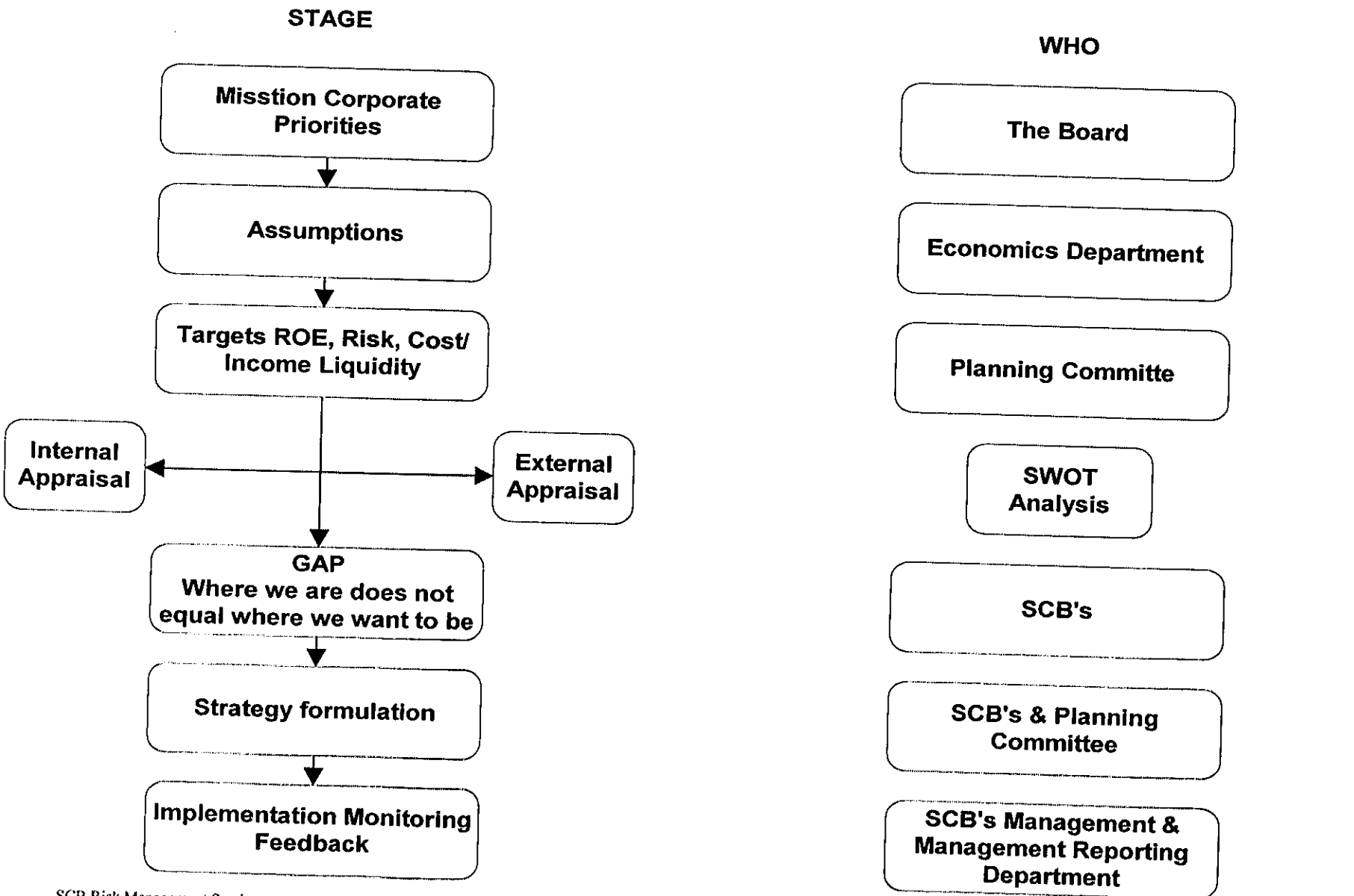
Credit Risk also...

- Arises from inadequate diversification in terms of
  - Geographical markets
  - Customers
  - Industries
  - Maturities
  - Type of collateral (and value of collateral)

Credit Risk Management

- Credit Culture and Policy
- Credit Initiation and Analysis
- Credit Risk Measurement
- Credit Monitoring/Loan Administration
- Credit Workout

THE PLANNING PROCESS IN A MAJOR CONTINENTAL BANK



WHY PLAN?

»Increase Profitability

»Future Direction

»Internal and External Factors

APPROVAL AND ENFORCEMENT OF CREDIT POLICIES ARE A PRIMARY RESPONSIBILITY OF DIRECTORS AND SENIOR MANAGEMENT TO ENSURE BANK OBJECTIVES ARE MET

- Credit Policies not only set the framework but also reinforce credit culture
  - ◊ Conservative credit policies should set a conservative culture
  - ◊ Conservative credit policies will reinforce a conservative culture if **enforced**
- Credit Policies should be specific and unambiguous (see facing page)
  - ◊ Accepted and understood by all credit personnel
  - ◊ Enforced by line management
  - ◊ Should be clear, concise, and relevant
- Credit Policies are usually supported by Credit Procedures
- Communicating change in credit policy to staff and customs gives a clear and consistent signal

ADMINISTRATION OF LOAN POLICY
PLANNING AND CREDIT POLICY

» Purpose of Planning

» Benefits of Planning

» Basic Bank Credit Cultures

» Written Loan Policy

» Objective of Loan Policy

A CREDIT PROCEDURE IS A STEP WITHIN A METHODOLOGY CLARIFYING THE EXECUTION OF A CREDIT POLICY

PROCEDURE

- Is part of a set of major consecutive action steps describing a methodology
- Supports (along with related procedures) one specific policy only
- Tends to be a workstep for executing a specific policy rather than a detailed approach on how to implement an action step (training materials)
- Can be depicted in a workflow chart as one of the activity boxes
- Is supported by "person responsible" and "corresponding authorities"

Credit Culture

KEY CAUSES OF CREDIT PROBLEMS

1. Politically Mandated/Directed Credit
   - ♦ Primary cause of bad loans in former communist/socialist countries
   - ♦ Loans were made with little or no regard for ability to repay
2. Self Dealing
   - ♦ Is usually involved in many significant bank problems
   - ♦ Is generally found in the form of over-extension of credit on an unsound basis to directors or shareholders, or their interests, who have used their position of influence to obtain unjustified loans
   - ♦ Officers who hold their position at the pleasure of the board and/or shareholders may by subject to these influences
3. Anxiety for Income
   - ♦ Loan Portfolio is usually the most important revenue producing asset and weak accounting conventions can allow for overstatement of income
   - ♦ New banks or banks under aggressive management are particularly susceptible

Compromise of Credit Principle

- Timidity in dealing with people of influence or in positions of power
- Friendships or conflict of interest
- Self dealing or competitive pressures

5. Incomplete Credit Information
   - Complete credit information is the only acceptable and accurate method for determining the borrower's financial capacity
   - Lack of proper, verified information is an important cause of problems

6. Failure to Obtain or Enforce Repayment Agreements
   - Loans granted without a clear agreement governing repayment violate fundamental lending principles
   - Banks often have agreements but fail to collect principal and interest promptly

7. Complacency/Poor Supervision
   - Lack of adequate supervision of longstanding/familiar borrowers
   - Reliance on oral information furnished by borrowers in lieu of reliable financial data
   - Optimistic interpretation of known credit weaknesses

8. Technical Incompetence
   - ♦ Technically incapable of analyzing financial statements
   - ♦ Found in many emerging economies where there is a lack of qualified, trained personnel

9. Poor Selection of Risk
   - ♦ Loans to new businesses where the loan represents an excessive proportion of required capital relative to equity investment
   - ♦ Loans based on hope of future success and not existing ability
   - ♦ Loans for carrying real estate against narrow equity ownership

10. Overlending: It is almost as serious to lend too much money to fundamentally sound, creditworthy borrowers as it is to lend to unsound, non-creditworthy borrowers

11. Competition: Competition among banks for size and community influence may result in compromise of credit principles and acquisition of unsound loans

KEY SUCCESS FACTORS

THE COMBINATION OF A STRONG CREDIT PROCESS AND CREDIT CULTURE CAN CONTROL AND MINIMIZE TEN OF THESE KEY CAUSES

PRIMARY PROTECTION AGAINST LOSSES	
Credit Process	**Credit Culture**
♦ Incomplete credit information ♦ Poor risk selection ♦ Technical incompetence ♦ Overlending	♦ Self dealing ♦ Anxiety for income ♦ Compromise of credit principles ♦ Complacency/poor supervision ♦ Competition ♦ Failure to enforce agreements

- As seen above, a sound credit culture is critical toward achieving a sound credit portfolio
  - ◊ Credit process is equivalent to the engine
  - ◊ Credit culture is the driver

CREDIT CULTURE AT ITS ESSENCE IS THE COMMITMENT TO FOLLOW THROUGH IN ADHERING TO SOUND CREDIT PRINCIPLES

- The commitment must start from the top
  - ◊ Governance, i.e., owners, board members
  - ◊ Senior management
- If the board and top management have the commitment to a sound credit culture, they will influence credit personnel to exercise prudent judgment
- Prudent credit culture is critical to achieving solid credit quality because no matter how good the process, judgment is always involved in making credit decisions
  - ◊ Lending is an art, not a science
  - ◊ The judgments required will be heavily influenced by the culture
    - Prudent culture: Conservative, patient, thorough, diligent, full disclosure
    - Weak culture: Optimistic, misleading, open to influence, excessive risk taking

EACH GROUP OF CREDIT PERSONNEL HAS A DIFFERENT ROLE IN ACHIEVING A SOLID CREDIT CULTURE

PERSONNEL INVOLVED IN THE PORTFOLIO MANAGEMENT FUNCTION SHOULD DRIVE THE CREDIT CULTURE

PORTFOLIO MANAGEMENT FUNCTION	
Participants	**Role**
Owners	♦ Active oversight ♦ Appointment of high integrity Board ♦ Avoidance of self dealing
Board Member	♦ Active oversight ♦ No self dealing, high integrity ♦ Technically capable
Credit Policy committee	♦ Set credit policy ♦ Determine risk parameters ♦ Actively monitor credit quality and upgrade as situation requires

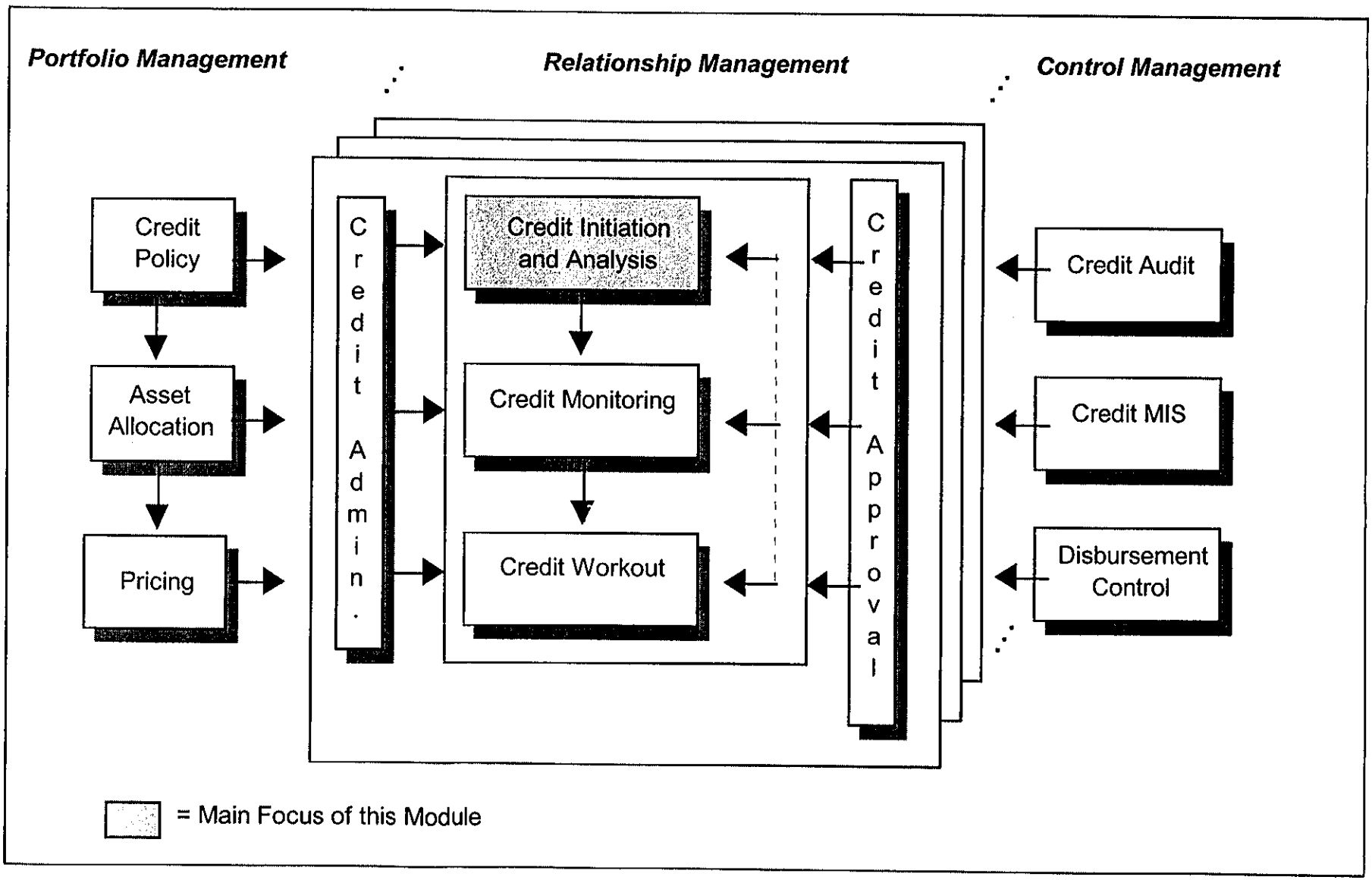
RELATIONSHIP MANAGEMENT PARTICIPANTS ARE ON THE FRONT LINE AND MUST REINFORCE THE CULTURE THROUGH THEIR DAILY INTERACTIONS

PARTICIPANTS	ROLE
♦ Relationship Managers ◊ Initiation/Monitoring ◊ Workout	♦ Front line ♦ Ensure standards are met ◊ Attention to detail ◊ Thorough ◊ Diligent ♦ Forceful
♦ Credit Division Managers ◊ Credit approval ◊ Policy creation	♦ Sound judgment ♦ Adherence to and enforcement of sound credit policy
♦ Credit administration Officers ◊ Files ◊ MIS ◊ Policy adherence	♦ Attention to detail ♦ Non-compromising of credit policy ♦ Monitor quality

THE KEY ROLE OF CREDIT CONTROL PARTICIPANTS IS TO MAINTAIN THE OVERALL INTEGRITY OF THE PROCESS AND CULTURE

PARTICIPANTS	ROLE
♦ Credit audit	♦ Review loan quality ♦ Ensure policy adherence ♦ Maintain independence ♦ Remain unbiased
♦ Disbursement control ◊ Branch personnel ◊ Control clerks	♦ Control available funds ♦ Review documentation ♦ Maintain independence ♦ Maintain high attention to detail
♦ Credit MIS	♦ Diligent ♦ Attention to detail ♦ Creative

CREDIT MANAGEMENT FRAMEWORK



CREDIT MANAGEMENT FRAMEWORK

THE KEY TO SOUND CREDIT MANAGEMENT LIES IN EVALUATING AND CONTROLLING INDIVIDUAL CREDIT RELATIONSHIPS AND THE PORTFOLIO AS A WHOLE (REFER TO FACING PAGE)

- Portfolio Management should operate at a strategic level and determine the kinds of risks the bank will accept and how much will be accepted
  - ◊ Credit policy should set the overall rules and risk parameters a bank operates within
  - ◊ Asset allocation guidelines limit type and amount of risk that a bank will take by industry/sector or other predetermined controls
    - Example: Commercial Real Estate concentration not managed at a strategic level at US banks in 1980s
  - ◊ Pricing guidelines determine what a bank must charge to remain profitable

- Credit Analysis, Monitoring and Credit Workout should be Relationship Management processes focused on measuring and containing individual credit risks within strategic guidelines
  - ◊ Credit Analysis focuses on evaluating the creditworthiness of individual borrowers and structuring individual credits
  - ◊ Credit Monitoring focuses on ensuring that creditworthiness is maintained
  - ◊ Credit Workout focuses on regaining creditworthiness once it is lost

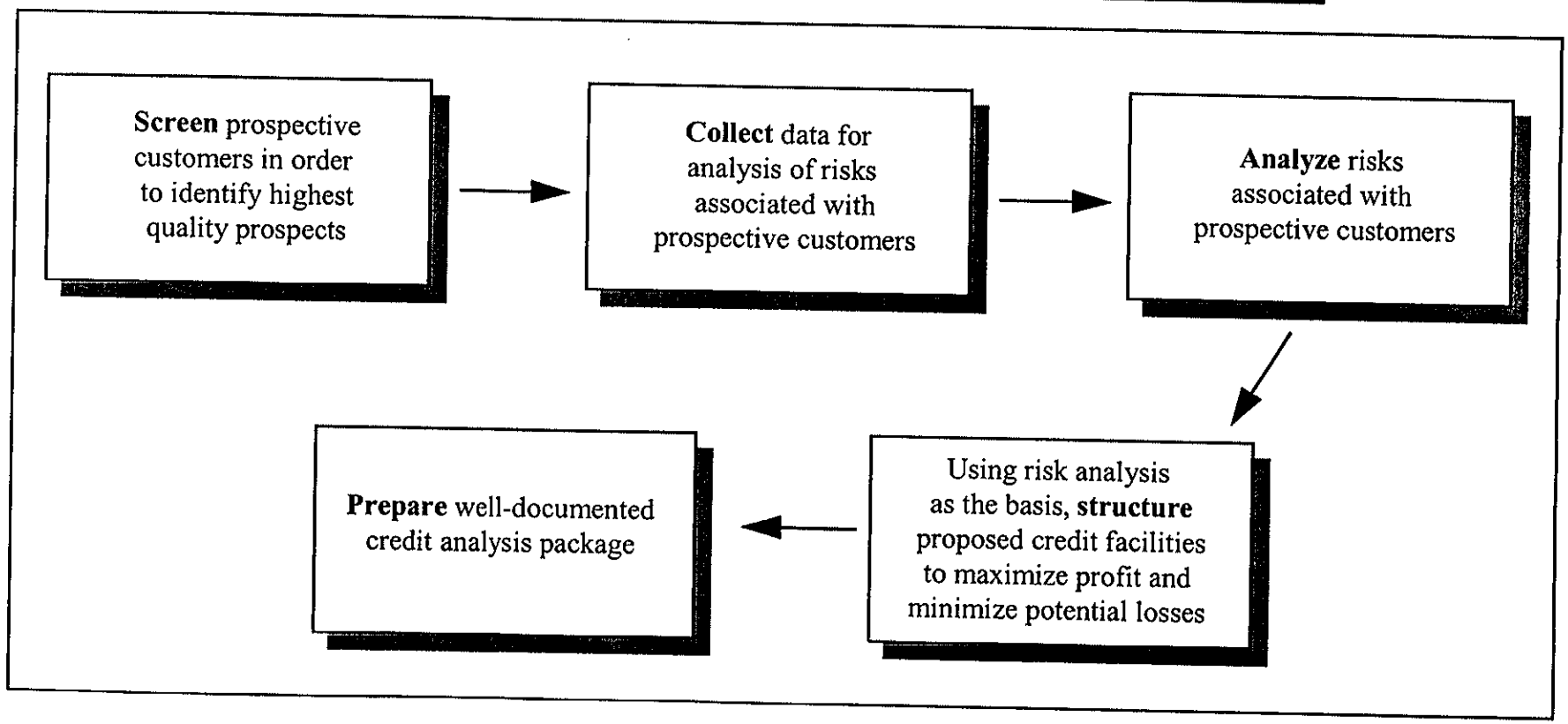
THE KEY TO SOUND CREDIT MANAGEMENT (CONTINUED)

- Credit Approval and Administration should be the line control process embedded in the relationship processes
  - ◊ Analysis, Monitoring and Workout Management all involve decisions which entail risk and require line control
  - ◊ The Approval Chain and Authorities should be common to each relationship process

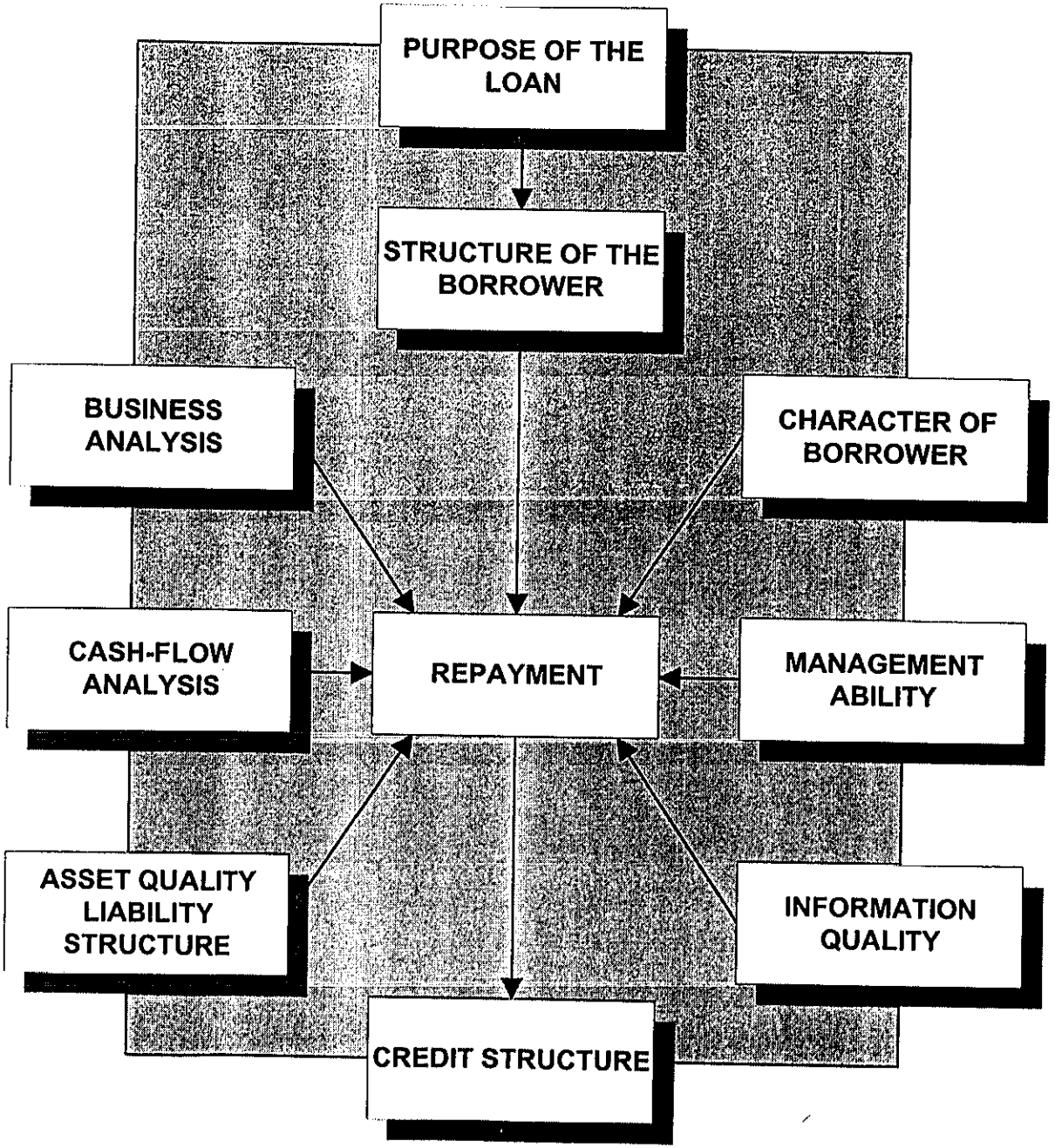
- Control Management should be an independent management control process that reviews the individual credit decision, portfolio composition and staffing of each business unit
  - ◊ Credit Audit should be a qualified, independent review of credit decisions
  - ◊ Credit MIS should provide both Relationship Managers and Control Managers with proper information to monitor credit quality
  - ◊ Disbursement control should ensure that money is not availed until all approval and documentation requirements are met

WE WILL NOW BRIEFLY REVIEW EACH COMPONENT OF THE FRAMEWORK

CREDIT INITIATION & ANALYSIS PROCESS



FRAMEWORK FOR CREDIT ANALYSIS



FIVE "C'S"

- CHARACTER
- CAPACITY
- CAPITAL
- CONDITIONS
- COLLATERAL

The Traditional "5 C's of Credit"

Character	Does the borrower demonstrate a commitment to honor his transactions and keep his promises even under adverse circumstances?
Capacity	Does the business demonstrate the capacity to apply the loan funds? Does management have a business plan? Are plant and equipment sufficient? Are marketing and product delivery well developed?
Conditions	What are the economic and market conditions that could impair the company's ability to service the debt and repay the loan? Does the company recognize these risks and have plans to mitigate them?
Cash Flow	Can the cash flow of the business and the transaction support the credit? Are cash flows from operations a viable primary source of repayment?
Collateral	Is the collateral sufficient as a secondary source of repayment? If the collateral must be liquidated, is the realizable value enough to repay principal, outstanding interest, and cover the bank's administrative costs of liquidation?

CREDIT INITIATION & ANALYSIS SHOULD ENSURE THAT LOANS ARE WITHIN POLICY GUIDELINES AND MEET CREDIT STANDARDS

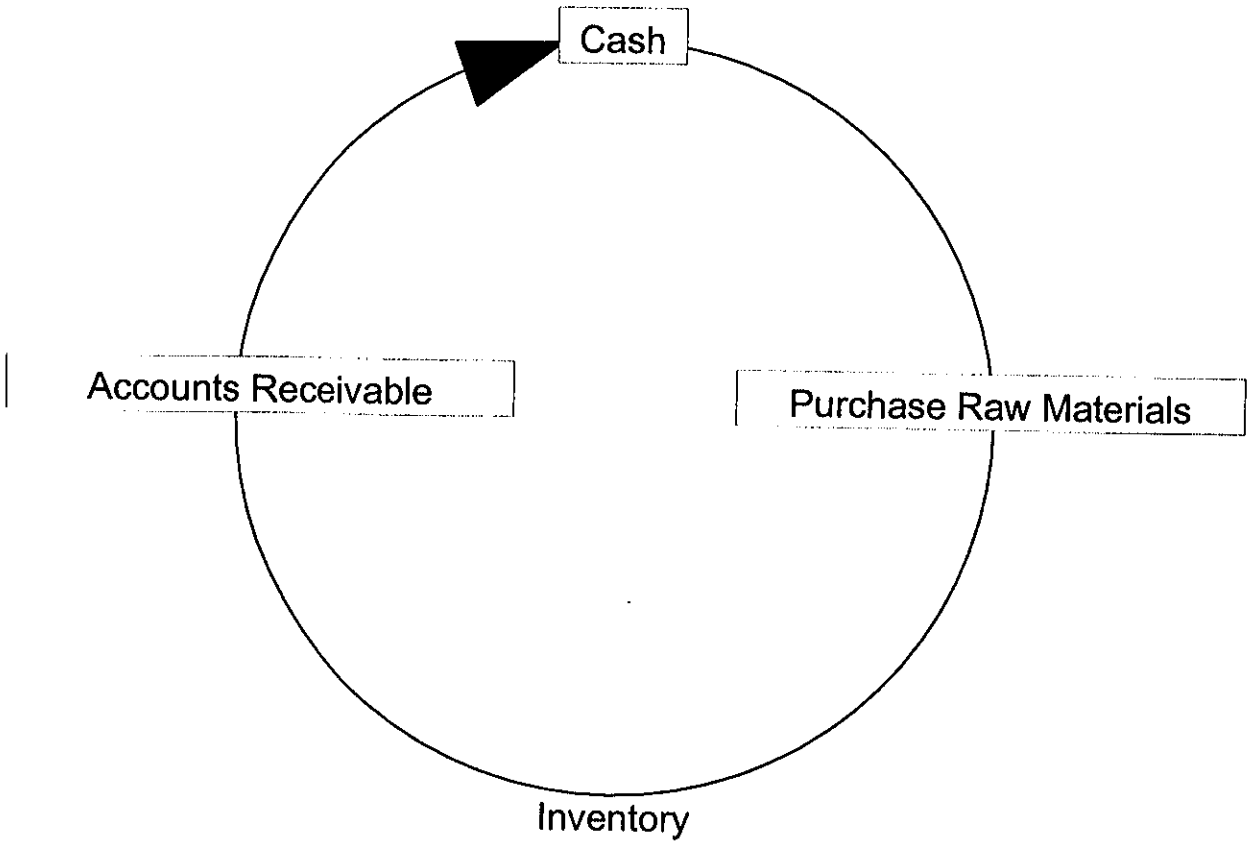
- Initiation & Analysis Process should follow a typical diagnostic process flow, beginning with data collection and moving to actions (refer to facing page)
- Analysis of risks should focus on the four foundations of creditworthiness
  - **Industry** focuses on the *industry dynamics* and *company position within the industry*. Weakness in the industry foundation can significantly affect repayment ability **
    - Commodity industry, i.e. coffee, is important
  - **Financial Condition** determines the borrower's ability to generate sufficient cash to repay or ability to draw on existing resources, e.g., capital or assets, to repay bank borrowings. The three specific measurement criteria are *profitability, liquidity* and *leverage*
  - **Management Quality** determines the *competence, integrity* and *alliances* of the key individuals running the company. Weakness here can affect not only repayment ability but security realization
  - **Security Realization** determines the level of the bank's *control* over collateral and the likely *liquidation value,* factoring in time, i.e., net present value. Weakness in security realization threatens second source of repayment

CREDIT INITIATION & ANALYSIS SHOULD ENSURE LOANS (CONTINUED)

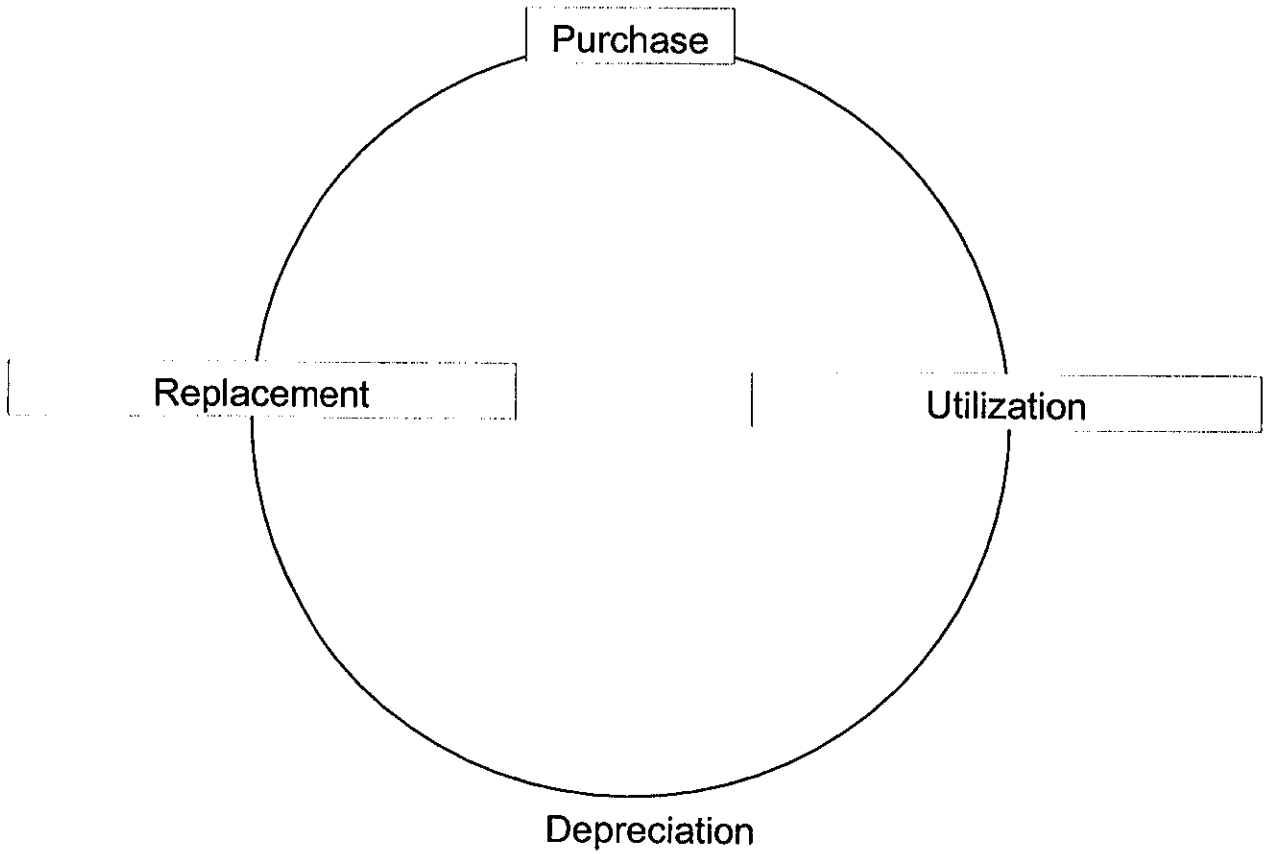
- Based on the analysis of these four foundations, the credit should be "structured" to contain risks and meet return requirements
- This structure should be approved based on the Approval Policy and Credit Authorities established by the Credit Policy Committee
- Finally, facilities should be booked and dispersed

THE CREDIT INITIATION & ANALYSIS PROCESS IS A KEY FOCUS POINT OF THIS MODULE AND WILL BE COVERED IN MORE DETAIL LATER IN THIS MODULE

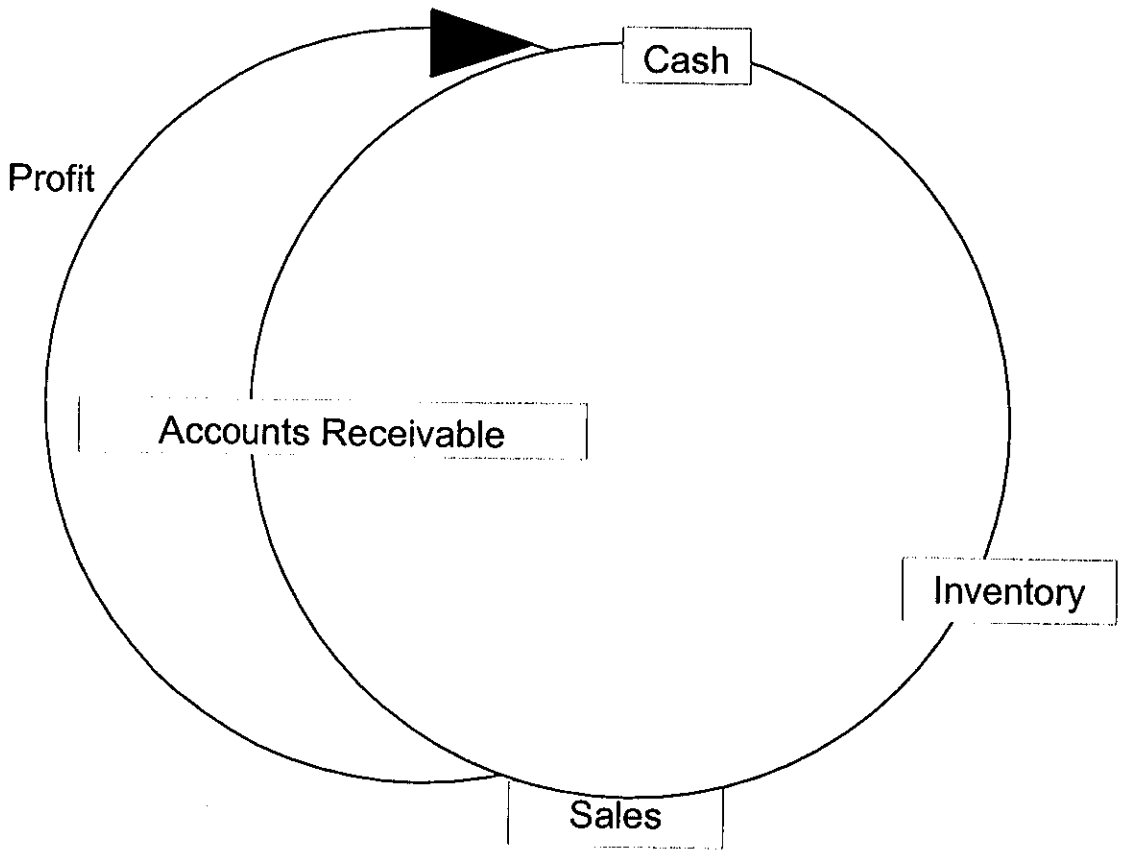
OPERATING CYCLE – MANUFACTURER



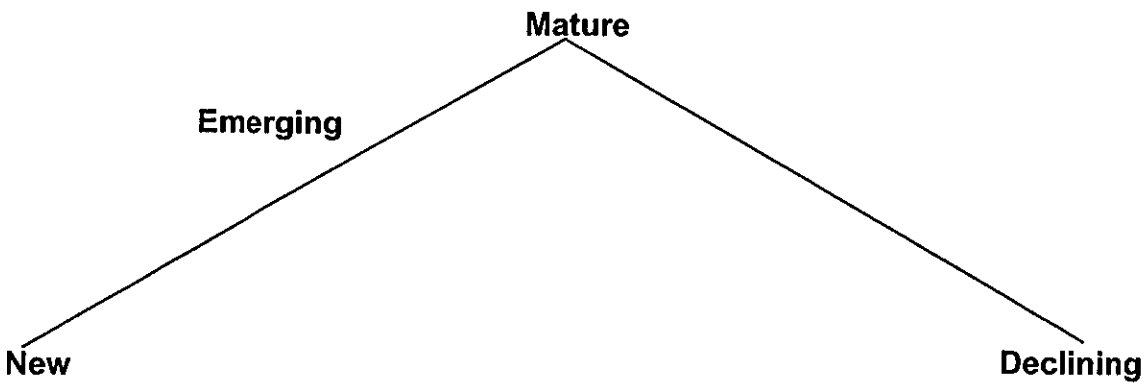
FIXED-ASSET CYCLE



PROFIT CYCLE



Life Cycle



SPREADSHEET

Spreadsheets enable the bank to:

- Establish common definitions of financial ratios and common size comparison of income statements, balance sheets, and cash flow items.
- Facilitate the calculation of key ratios and cash flow analysis.
- Identify and highlight critical information and ratios for analysis.

CLASSES OF RATIOS

- **Liquidity**
  - Current
  - Quick

- **Efficiency**
  - Receivables turnover
  - Inventory turnover
  - Payables turnover
  - Fixed asset turnover
  - Debt/equity

- **Profitability**
  - Interest coverage
  - Fixed charge coverage
  - Net profit margin
  - ROA
  - ROE

- **Valuation**
  - Price/Earnings
  - Market/Book

Dupont Theory

$$ROE = \frac{\text{Net Income}}{\text{Sales}} \quad \frac{\text{Sales}}{\text{Assets}} \quad \frac{\text{Assets}}{\text{Equity}}$$

FOUNDATIONS OF CREDITWORTHINESS

» Industry Dynamics

» Financial Condition

» Management Quality

» Collateral Realization

INDUSTRY DYNAMICS

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Profitability	¨ Financial ratios • Return on assets • Return on sales • Return on equity • Operating Profit/Sales ¨ Profit and loss statement analysis ¨ Quality of A/R ¨ Inventory quality ¨ Fixed asset quality	• Complete financial spreads • Verify profitability information and determine accuracy • Perform trend analysis • Compare figures with other companies in industry • Perform site visits to assess inventory and fixed asset quality • Determine quality of A/R	• Declining revenue • Increasing costs • Payroll • Financing • Cost of goods • Depreciation • Insufficient profits to support growth • Insufficient scale—excess fixed costs • Poor quality receivables • Insufficient inventory to meet demand • Outdated production

FINANCIAL CONDITION (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Liquidity	• Financial ratios • Current • Quick • Inventory turnover • A/R days on hand • A/P days • Interest/operating profit • Cash flow • Debt service • Sources funds analysis • Uses fund analysis	• Evaluate integrity of creditor support • Evaluate current asset quality and aging of receivables • Evaluate liquidity of investments • Assess shareholders' support • Willingness to guarantee • Willingness to inject additional capital • Review cost structure	• Poor quality current assets • Illiquid investments • Withdrawal of creditor support • Excess debt that drains available cash • Withdrawal of shareholder support • High cost borrowings/ bunching of payments • High payroll/material costs • Large investment costs

FINANCIAL CONDITION (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Liquidity, continued	• Lines of credit • Bankers • Suppliers • Shareholders	• Develop debt service profile • Review investment budget • Review intra-group accounts • Consolidating statements • Receivables and payables to related companies • Prices to related companies • Dividend payments • Owners' salaries/payment	• Diversion of funds to associated companies/ transfer funding

FINANCIAL CONDITION (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Leverage	• Financial ratios • Debt/net worth • Debt/assets • Interest coverage • Rate sensitivity	• Reconcile net worth • Evaluate capital structure • Assess creditor/shareholder support • Perform rate sensitivity analysis under varying rate scenarios • Evaluate	• Excess debt • Withdrawal of support • High cost borrowings/ bunching of payments • Overvalued equity • Over-sensitivity to interest rate swings

MANAGEMENT QUALITY

Risk Area	Explanation
Integrity	• Forms the whole basis for a sound banking relationship • Lack of integrity leads to: • Inability to negotiate and reach sound agreements • Lack of confidence in application of bank funds • Integrity often deteriorates in difficult times
Competence	• Incompetent management has little chance of competing or addressing and resolving credit problems if they occur • Poor management skills lead to credit problems and failures

MANAGEMENT QUALITY (Cont.)

Risk Area	Explanation
Market Confidence	• Market confidence will influence management/bank power balance • If market confidence is strong, the company may be better able to survive a crisis • Poor market confidence can quickly cause liquidity problems as creditor support is withdrawn

MANAGEMENT QUALITY (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Integrity	• Honesty • Quality/reliability of information • Meeting of commitments • Character and track record • Cooperativeness • Consistency and quality of communication with bank • Supportiveness • Willingness to negotiate and be flexible in difficult times	• Review credit files • Note missing information/ documentation • Frequency/nature of communication • Interview branch/regional managers familiar with customer • Interview management • Test openness • Ask for references • Develop impressions • Interview private sector individuals familiar with management	• Quality/reliability of information • Failure to disclose • Misrepresentation • Inconsistent information • Changing of auditors • Refusing audits • Meeting commitments • Failure to meet with bank • Failure to meet contractual obligations • Failure to provide documentation • Double pledging of security

MANAGEMENT QUALITY (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Integrity, continued		• Compare promises with actions • Compare information with others	• Character • Obsessive tax avoidance • Involved in questionable activities • Poor reputation • Communication • Postponing meetings • Supportiveness • Will not provide information • Will not pledge security

MANAGEMENT QUALITY (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Competence	• Ability • Experience • Operating skills • Financial skills • Administrative skills • Management structure • Management depth • Skills • Decision-making track record • Ability to adapt to changes	• Interview branch/region bank manager • Interview management • Obtain key managers' history and determine: • Education • Experience • Related skills • Review performance • Profits, growth, direction of trends • Compared with other companies	• Experience • Lack of relevant experience • Inability to manage • Skills • Insufficient technical skills • Management structure • Poor controls • Lack of key functions • Lack of depth

MANAGEMENT QUALITY (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Competence, continued		• Review organization chart • Determine span of control • Interview individuals familiar with management • Review risk profile & investments, debt/leverage • Compare impressions with other creditors	• Decision-making • Autocratic style • Lack of MIS/analysis • Unwilling to make difficult decisions (cost cutting, etc.) • High-risk investments
Market Confidence	• Market reputation • Length of management experience	• Interviews • Time in business • Group memberships	• Management disliked by competitors who may spread rumors • Out-of-favor politically • Poor reputation

COLLATERAL REALIZATION

Risk Area	Rationale
Control	• Without proper documentation, the bank has no claim on collateral • Without ability to execute claim, collateral cannot be realized
Net Liquidation Value	• Low liquidation values may not cover outstanding debts • High liquidation costs will reduce net amount received • Collateral quality may deteriorate over time • Money has time value

COLLATERAL REALIZATION (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Control	• Perfection • Legal rights • Documentation adequacy • Double pledged collateral • Fraud • Insurance policy • Executability • Ability to obtain favorable judgment • Ability to take possession • Length of legal process	• Verify documentation • Collateral perfection • Documentation completeness • Documentation integrity • Insurance policy and documentation • Assess customer's lobbying power with legal authorities, local potential buyers • Conduct site visit(s) to verify collateral existence	• Legal rights • Land title not pledged • Bank has second priority or is subordinated • Documentation adequacy • Lacking notary • Missing signatures • Incomplete documentation • Lacking stamp duty • Outdated, past due

COLLATERAL REALIZATION (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Control, continued		• Review recent trends in legal execution • Assess length of time to complete legal action	• Fraud • Criminal proceedings • Insurance does not cover exposure • Ability to obtain favorable judgment • Customer has strong lobbying power • Judge sympathetic towards customer

COLLATERAL REALIZATION (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Control, continued			• Ability to take possession • Missing security • Difficulty in evicting squatters • Collateral transferred • Collateral immobile • Length of legal process • Documentation • Lobbying conflicts • Slowness of due process

COLLATERAL REALIZATION (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Net Liquidation Value	• Liquidation value • Quality • Quantity • Time of sale • Market price dynamics • Opportunity cost • Technology replacement • Long legal process	• Use assessor to value collateral • Quality and quantity • Market demand • Review recent cases • Assessed value vs. sale value • Change in sale value • Time to sell	• Collateral is of poor quality or perishable • Quantity not sufficient to cover exposure

COLLATERAL REALIZATION (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Net Liquidation Value, continued		• Review economic conditions • Determine overall likely length of sale • Auction process • Auction success/failure • Sale on secondary market • Select appropriate discount rate • Determine net liquidation value	• Market demand • No market for goods • Collateral highly specialized • Value too great—few can afford • Borrower has influence over potential buyer • Collusion against bank • Market price dynamics • Volatility • Inflation • Rapid depreciation

COLLATERAL REALIZATION (Cont.)

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Net Liquidation Value, continued			• Opportunity cost—value increases/decreases over time • Technology—collateral becomes obsolete • Legal process • Erodes collateral value • Market could change during process

INDUSTRY DYNAMICS

Components	Analysis	Problem Areas (Example)
Excessive and Unacceptable Risk	• Shrinking market; highly cyclical and concentrated • Severe structural problems • Unfavorable regulatory environment	• Company severely disadvantaged • No strategy • Alliances impair market position
High Risk	• No market growth, cyclical and concentrated • Unattractive structure • Worsening regulatory environment	• Weak when measured against Key Success Factors (KSFs) • Poor strategy • Alliances weaken position
Moderate Risk	• Slowing growth, signs of increasing cyclicality • Emerging structural concerns • Neutral regulatory environment	• Slightly disadvantaged against Key Success Factors (KSFs) • Strategy only partially addresses weaknesses • Neutral alliances
Low and Acceptable Risk	• Growing, attractive market • Attractive structure • Favorable regulatory environment; no expected change	• Well positioned • Practical, achievable strategy • Favorable alliances

FINANCIAL CONDITION

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Excessive Risk & Unacceptable Risk	• Negative ratios, declining trend • Increasing cost ratio, declining revenue ratios	• Debt/Service below 1.00 • Current ratios below 0.75 • Declining trend • Well below industry average	• Debt/Tangible Net Worth>5.00 • Owners not willing to inject equity • Large amount of short-term debt supporting fixed assets
High Risk	• Profit ratios probably negative • Flat trend • Cost ratios high, but not increasing	• Debt/Service well below 1.00 • Current ratios below 0.75-1.00 • Declining trend • Below industry average	• Debt/Tangible Net Worth 2.00-3.00 • Owners willing to provide limited support • Short-term debt financing fixed working capital
Low Risk & Acceptable Risk	• Positive ratios, well above industry average • Flat increasing trend	• Debt/Service above 2.00 • Strong current ratio • Above industry average	• Debt/Tangible Net Worth below 2.00 • Strong owner support • Appropriate capital structure

MANAGEMENT QUALITY

Risk Area	Strength Measures	Analysis	Problem Areas (Example)
Excessive & Unacceptable Risk	• Never meets commitments • Poor quality, unreliable information • Refuses to support relationship	• No relevant experience/skills • No vision • No depth • Inappropriate organization structure • Aggressive risk taker	• Allied against current administration • Poor reputation causing loss of credit
High Risk	• Rarely meets commitments • Information is of low quality, low reliability • Weak relationship support	• Limited experience/skills • Limited vision • Limited depth • Poor structure • Risk taker	• Recent problems diminishing reputation
Medium Risk	• Generally meets commitments • Reasonable quality of information, generally reliable • Supports relationship	¨ Moderate experience/skills ¨ Moderate depth ¨ Some vision ¨ Adequate structure ¨ Risk neutral	• Neutral reputation
Low & Acceptable Risk	• Always meets commitments • Quality, reliable information • Strong relationship support	¨ Experience/skilled ¨ Deep management team ¨ Good structure ¨ Risk averse	• Strong reputation

COLLATERAL REALIZATION

Components	Analysis	Problem Areas (Example)
Excessive and Unacceptable Risk	¨ Collateral not perfected ¨ Executability severely impaired	¨ Collateral cover below 50%
High Risk	¨ Perfection is weak ¨ Executability complex	¨ Collateral cover 50% - 75%
Medium Risk	¨ Perfection adequate ¨ Potential executability issues	¨ Collateral cover 75% - 100%
Low and Acceptable Risk	¨ Strong perfection ¨ No executability complications	¨ Collateral cover above 100%

Example of Risk Acceptance Guidelines

Foundation	Common Performance Categories
Industry	Specific industry risk acceptance standards are usually not set. Instead, others are altered for specific industries.
Financial Condition	•Leverage •Liquidity •Performance
Management Quality	•Years in business •Management depth
Security Realization	•Net Liquidation Value •Control •Executability

Cash Flow Choices

- Investing
- Financing
- Operations

Cash Flow Analysis

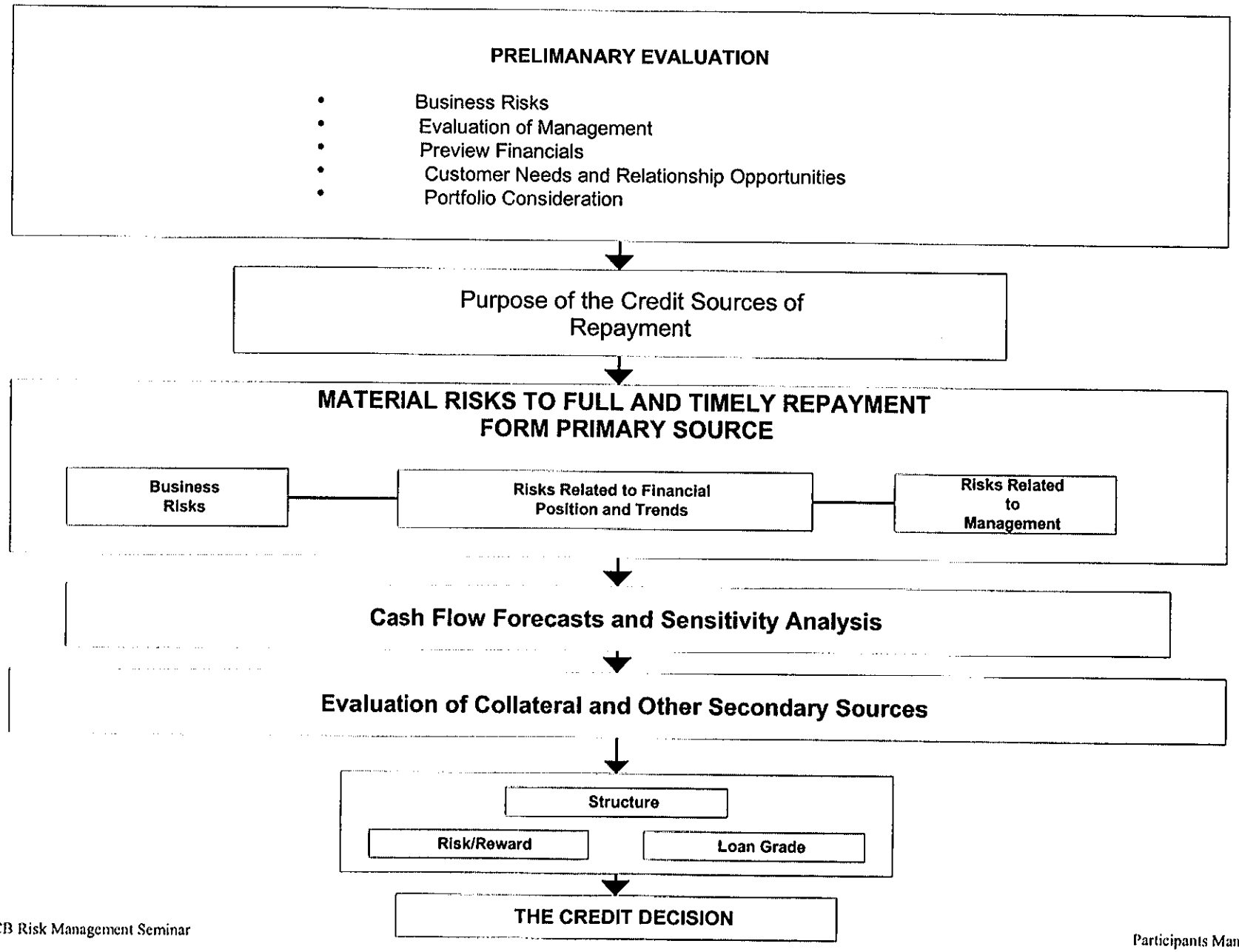
Loan Repayments Sources

- Cash from earnings
- Cash from conversion of seasonal assets
- Cash from sale of assets
- Cash from new equity or guarantors' collateral is secondary source

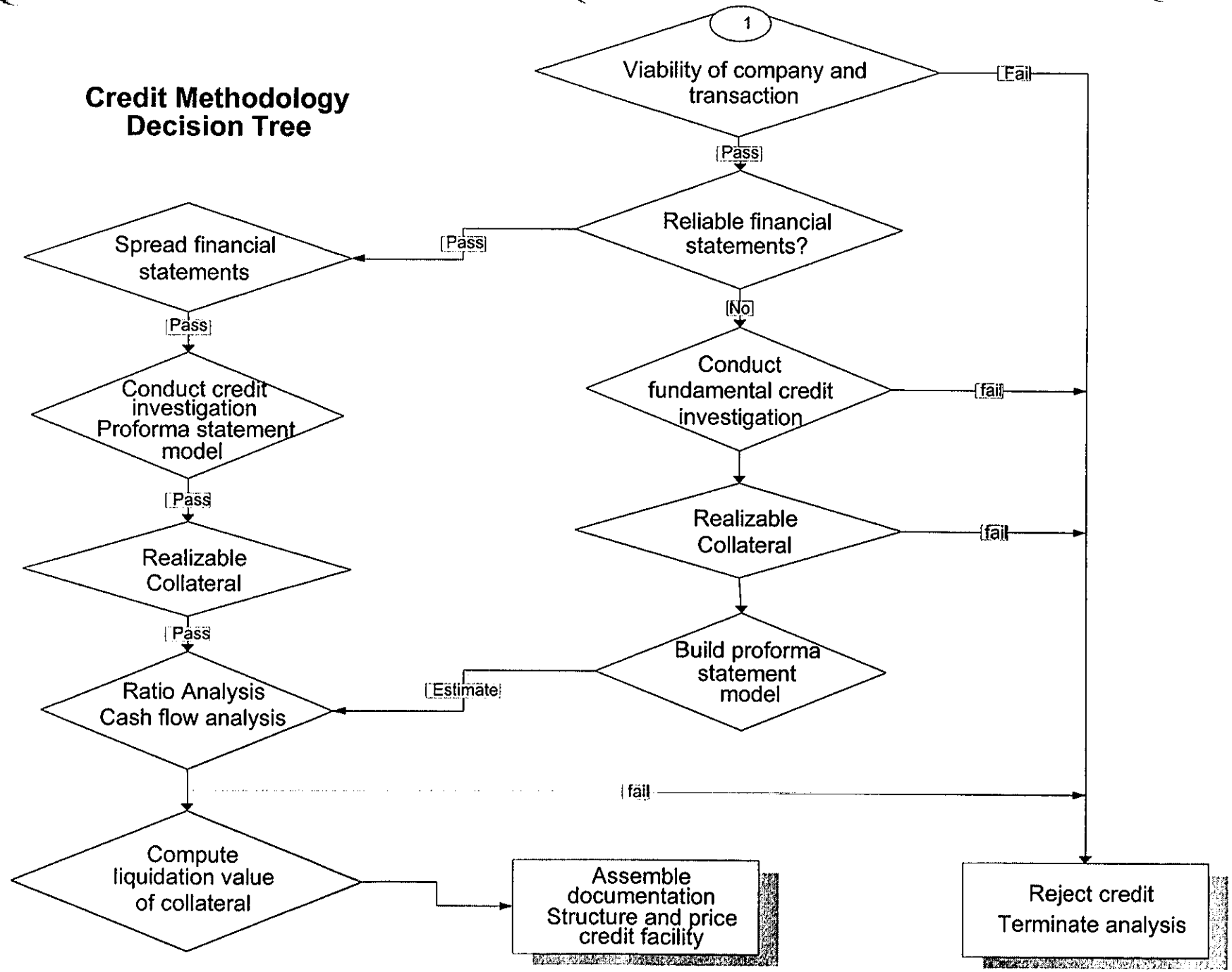
Contents of a Business Plan

- Executive Summary
- Mission and Vision
- Market Analysis
- Product Analysis
- Company Organization
- Company Operations
- Marketing Plan
- Financial Plan
- Risks
- Collateral
- Guarantors
- Supporting Documents

Credit Decision Process



Credit Methodology Decision Tree



The Steps in the Credit Methodology Decision Tree

1. Check on the viability of the company and the transaction.
   - Viable. Continue credit investigation and analysis
   - Not viable. Reject the credit and terminate the analysis. Report on reasons for rejection.
2. Does the company have reliable, published financial statements?

- Yes:
  - Spread the financial statements in a common size, IAS format.
  - Conduct credit investigation at the business of the customer. Verify the reason for the application of loan funds. Build a proforma financial projection of balance sheet and income statement.
  - Check the collateral. Is it available, viable and realizable?
  - Conduct ratio analysis and cash flow analysis. Is cash flow sufficient to repay the loan?
  - Compute the liquidation value of the collateral under the distress conditions of a forced sale.

The Steps in the Credit Methodology Decision Tree (cont.)

- No, Conduct fundamental credit investigation as described below:
  - Check the collateral. Is it available, viable and realizable?
  - Build a proforma financial projection model as in Module Two.
  - Conduct ratio analysis and cash flow analysis based upon management's information and projections
  - Compute the liquidation value of the collateral under the distress conditions of a forced sale.

3. Assemble documentation, copies of financial records and bank statements and appraisals of property and collateral. Structure and price the credit facility.

Preparing the Credit Approval Package
Credit Approval Steps

- Purpose of Credit Request
  - Reason for request
  - Brief description of borrower
  - History of relationship
- Summary Risk Assessment Form
  - Summary of each credit foundation, Industry, Management, Financial condition, Collateral
  - Overall risk
  - What could go wrong
- Credit Requirements
  - Summary of borrower requirements, based on cash flow
  - Sensitivity of borrower analysis based on projections
- Credit Recommendations
  - Facility amount
  - Key reasons for approval
  - Structural par aments

Key Supporting Documents

- Credit approval package
- Basic loan application
- Financial spreadsheets
- Projections
- Security documentation checklist
- Other relevant documents

CREDIT APPROVAL

THE OBJECTIVE OF THE CREDIT APPROVAL PROCESS IS TO CONTROL RISKS WITHIN POLICY GUIDELINES WHILE MAINTAINING A STREAMLINED PROCESS

- Ensure that all credit decisions meet required policy guidelines and are based on sound credit judgment
- Require higher approval for higher risk to ensure that senior management approves the highest risk credits
- Require multiple signatures to ensure that credit decisions are made with the "collective wisdom" of a group of experienced bankers and to enforce the first level of control over the credit process
- Ensure individual accountability so that each and every approving officer is fully responsible for the credit decision made, and exercises required due diligence in approving loans

Balance level of control with efficiency

- Achieve some degree of decentralization to avoid excessive delays in approval times
- Higher concentration of exposure in a relatively few loans allows banks to more easily balance control and efficiency (see facing page)

THE KEY DEVELOPMENTAL ISSUES FOR APPROVAL AND EXPOSURE CONTROL ARE OF GREAT IMPORTANCE FOR MOST BANKS

KEY APPROVAL ISSUES	
KEY ISSUES	**COMMENTS**
♦ Delegating Authority	♦ Is too much authority concentrated at the top ♦ Should Credit Policy Committees have approval authority?
♦ Approving Frequency	♦ How often should Credit Approval Packages (CAPs) be reviewed and approved?
♦ Controlling Approvals	♦ What controls over the approving process are required?
♦ Approving Exceptions and Problem Loans	♦ Should exceptions and problem loans require higher approval? ♦ Exception process - required signature(s) accountability, transparency, could discourage insider loans
♦ Approving Groups	♦ What are necessary controls over availment to minimize mistakes?
♦ Modifying Facilities	♦ Should high and low risk facility modifications require different approval levels?

Basic Classification of Loans:

Loan Type	**Primary Repayment Source**	Secondary Sources of Repayment
Seasonal Loan	Cash from seasonal conversion of assets	A. Sale of Assets for Cash B. Cash Flow C. Refinance by Third Party D. Equity Injection
Term Loan	Cash from earnings	A. Sale of assets for cash B. Refinance by third party C. Equity injection
Bridge Loan	Cash from the event—either refinancing or asset sale	A. Cash flow B. Sales of assets for cash C. Refinance by third party D. Equity injection
Permanent Working Capital Loan	**Near Term:** Revolver **Ultimate Repayment:** Cash From Earnings	A. Sale of Current or Fixed Assets For Cash B. Refinance by Third Party C. Equity Injection D. Term, with Periodic Amortization Through Cash Flow

Basic Classification of Loans:

Type of Loan/Purpose	Repayment	Analysis
Short term Seasonal working capital line of credit; letters of credit; transactional	Loan is repaid when borrower sells inventory and collects receivables	Working capital: projections should show cash-to cash cycle; the timing and reliance on inventory as support. Note expected peak loan needs, timing of draw-downs, link between bank loans and supplier credit
Bridge Loans Project financing; construction	Expected longer-term refinancing or take-out event Maturities tailored to the refinancing event	Probability that refinancing event will occur (Event analysis) Analyze borrower's ability to repay if refinancing fails
Medium term loans Equipment and vehicle acquisition; lease	Repayment based upon cash flow of firm Maturities roughly match the useful lifetime of the asset or the legal tax amortization period	Incremental cash flow to firm due to the equipment Business and industry analysis: competitiveness Sensitivity analysis on cash from operations
Term loans Financing the purchase of fixed assets or broad expansion of the production lines; maturities over 1 year less than 10.	Firm must have predictable, long-term sources of cash. Cash flow (shelter) from depreciation expense Long term tenor to match the useful lifetime of the assets	Long term profitability of the firm. Business and industry analysis: Competitive strength within the industry. Sensitivity analysis based upon state of the economy and other assumptions; breakeven analysis

Seasonal Loans

Purpose	To finance season increases in everyday and receivables
Repayment	Cash from conversion of seasonal assets
Structure Considerations	Maturity should correspond with seasonal low point Structure to track seasonal patterns with cleanup or seasonal ceiling May want to sue guidance line to track seasonal needs Normally secured; with annual lien search
Collateral	May want to receive receivable testing at seasonal peak
Analysis	Focus on peaks and low points of current assets and liabilities Monthly or quarterly projections are essential Close monitoring- deviation from projected patterns triggers investigation

Seasonal Loans (cont.)

Monitoring	-Deviation from expected peaks and low pints should be investigated -Quarterly statements should be received; at minimum, receivables, inventory trade debt and accruals should be monitored
Typical Risks	-Product cannot be sold because of style, demand or obsolescence -Products or services cannot be produced because of cost problems, labor, machinery, supplies, other problems -Receivables cannot be collected -Trade not fully paid (may create problems for next season) Earnings insufficient to repay bank
Common Lending Errors	-Advances under seasonal loans go to other purposes Lender overlooks need for underlying cash flow as a secondary source; if the borrower cannot sell peak season inventory, how will the bank? -Financing a 'speculative' position

BRIDGE LOANS

Purpose	To finance seasonal increases in everyday and receivables
Repayment	Refinancing New equity Sale of non-current assets
Structure Considerations	Maturity should coincide with the anticipated event
Analysis	Focus on likelihood that the event will occur and repay the debt Focus on the borrower's ability to service the debt if the event does not occur The bank needs to be prepared to take on term debt under the scenario which causes the event not to occur . . . under what may be an impaired situation
Monitoring	Varies widely according to circumstances; an interim construction loan requires extensive monitoring, other types may not
Typical Risks	-Repayment event may not occur, and the borrower may not have the ability to service the debt. -Asset sale at less the an anticipated price. -Prior loans or divergent claims such as in a divorce situation. -Uninsured damage to the asset for sale. -Lack of a firm commitment to refinance. -Inability to meet contingencies of a refinancing commitment. -Inability or unwillingness of other lender to meet its commitment. -Abrupt increase in interest rates. -Inability to sell additional equity

Bridge Loans (cont.) & Permanent Working Capital Loans

Common Lending Errors	-Not properly analyzing the secondary repayment source, which is generally long-term cash flow. -Overvaluing an asset being sold. -Failure to consider all contingencies which could preclude the repayment event from occurring. -Inadequate refinancing because of cost overruns, accumulation of interest, etc. -Inadequate risk-reward relationship, i.e., a one-time bridge loan to a non-relationship

Permanent Working Capital Loans

Purpose	To finance a portion of non-seasonal inventory and receivables
Repayment	This is a revolving facility for which repayment is indefinite; eventual repayment sources may include: -Conversion of the facility to a term loan or, alternately, a step-down in the borrowing base; in either case, repayment coming from cash in profits -Refinancing -Infusion of equity -Liquidation of assets, which is the least desirable
Structure Considerations	-Advances should be made only on proof of adequate collateral, with an appropriate borrowing base -Unless capitalization and cash flow are relatively strong and stable, consideration may be warranted for an asset-based loan, including careful monitoring of collateral and a lock-box arrangement -Covenants should be set at appropriate levels dependent on the point in the company's growth cycle

Permanent Working Capital Loans

Analysis	-Collateral valuation and control -Long-term earnings power; the bank may not require immediate amortization but is intensely interested, on an ongoing basis, in the capacity of the borrower to repay the debt . . . i.e., if growth were to stop, does the borrower have the cash flow capacity to term out the debt? -Borrower's internal controls and reporting systems -All of the considerations of term loan analysis, including management capacity, industry and business risks, management strategy, competitive situation, market position; the bank is not a factoring company and looks to sustainable earnings power for repayment when requested
Monitoring	-Careful, ongoing monitoring of eligibility and borrowing base -Monthly listings of accounts receivable -Monthly or quarterly financials should be reviewed -Audits as appropriate -If covenants have been properly set, violations should be reviewed as significant -Violations should be immediately dealt with so the agreement is not demeaned
Typical Risks	-Profits deteriorate and cannot support the debt

Term Loans

Term Loans	
Purpose	-Purchase fixed assets
	-Acquisition financing
	-Repay unpaid seasonal loans
	-Repay permanent working capital loans at an appropriate time
Repayment	-Cash from profits over more than one year
Structural Considerations	-Term loan agreement should be executed, specifying terms, conditions, responsibilities, and remedies
	-Repayment should match purpose, i.e., term should be equal to or less than the life of the asset financed
Analysis	-Focus is on long-term earnings stability and potential risks thereto
	-Reliance should be placed on historical performance rather than optimistic projections
	-Business and industry risks, management risks, and financial risks, aw well as mitigating factors, should be car fully analyzed
	-Analysis of the borrower's strategy, market position, and competitive position is important
	-Sensitivity analysis establishes the margin of error under which the bank will be repaid in a timely manner by the primary repayment source
	-Term loans to finance fixed assets should be followed up with the borrower with an ROA analysis (of the assets financed) to assure that the barrower's investments are producing appropriate returns.

Term Loans (cont.)

Monitoring	If covenants have been properly set, violations should be viewed as significant
	Violations should be immediately dealt with so the agreement is not demeaned
	Avoid the "book it and forget it" syndrome. There should be ongoing monitoring of the potential risks analyzed at the time of underwriting
Typical Risks	Inadequate sales
	Pressure on margins and/or operating expenses
	Inability to reduce overhead in the face of declining sales
	Cash flow applied to growth, without appropriate new equity to support the growth
	Fixed assets become obsolete
	Cash flow diverted from repayment to bank
Common Lending Errors	Failure to understand business and industry risk, and to realize that markets change
	Reliance on optimistic forecasts unsubstantiated by historical performance
	Failure to properly assess management
	Failure to provide an adequate margin of error
	Failure to anticipate additional financing needs
	Overestimating collateral value

COMMERCIAL COLLATERAL VALUATION

Borrower_____

	Book or Valuation	Realization Percentage	Net Valuation
Cash – Pledged	$_____	_____	$_____
Receivable – Aging			
0 – 30 days	_____	_____	_____
30-60	_____	_____	_____
60-90	_____	_____	_____
90-120	_____	_____	_____
Over 120	_____	_____	_____
Total	$_____	_____	$_____
Inventory – Book Value			
Raw Materials	_____	_____	_____
In Process			
Finished Goods	_____	_____	_____
Retail/Wholesale	_____	_____	_____
Total	$_____	_____	$_____
Equipment – Book Value or Appraised Value			
Manufacturing	_____	_____	_____
Office/Furniture/Fixtures	_____	_____	_____
Transportation Equipment	_____	_____	_____
Total	_____	_____	_____
Less: Superior Encumbrances	_____	_____	_____
Net Value	$_____	$_____	$_____

Real Estate – Appraised Value

Land	_____	_____	_____
Buildings	_____	_____	_____
Leaseholds	_____	_____	_____
Total	_____		_____
Less: Superior Encumbrances	_____		_____
Net Value	$_____		$_____
Other Collateral – Securities, etc.	$_____	_____	$_____

Recap	**Net Valuation**	**Cost to Liquidate**	**Net Realizable Value**
Cash	_____	_____	_____
Accounts Receivable	_____	_____	_____
Inventory	_____	_____	_____
Equipment	_____	_____	_____
Real Estate	_____	_____	_____
Other	_____	_____	_____
Total Net Liquidation Proceeds (A)			$_____
Less Gross Loan Balance (B)			_____
Net (Loss) or Collateral Cushion			$_____
Collateral Coverage Ratio A + B			_____%

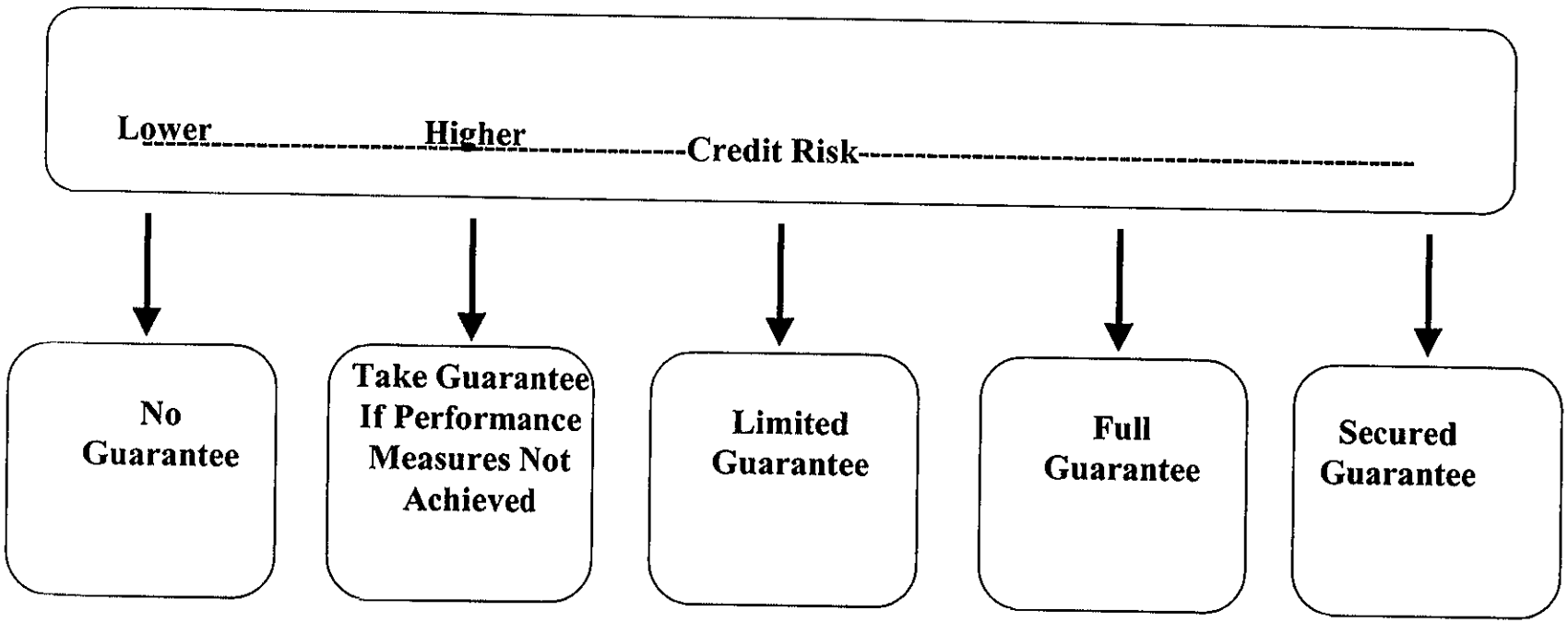
GUARANTORS AND CO-SIGNERS

- Loans should not be underwritten based primarily upon the financial support of guarantors. Collateral and/or guarantor support, while important, are not substitutes for cash flow.

- Guarantees from principals of closely held corporations, joint ventures, partnerships, or sub-S corporations are required.

- Consideration must be evident in the transaction.

Guarantee Spectrum



Loan Agreements

Functional Objectives of Loan Agreements

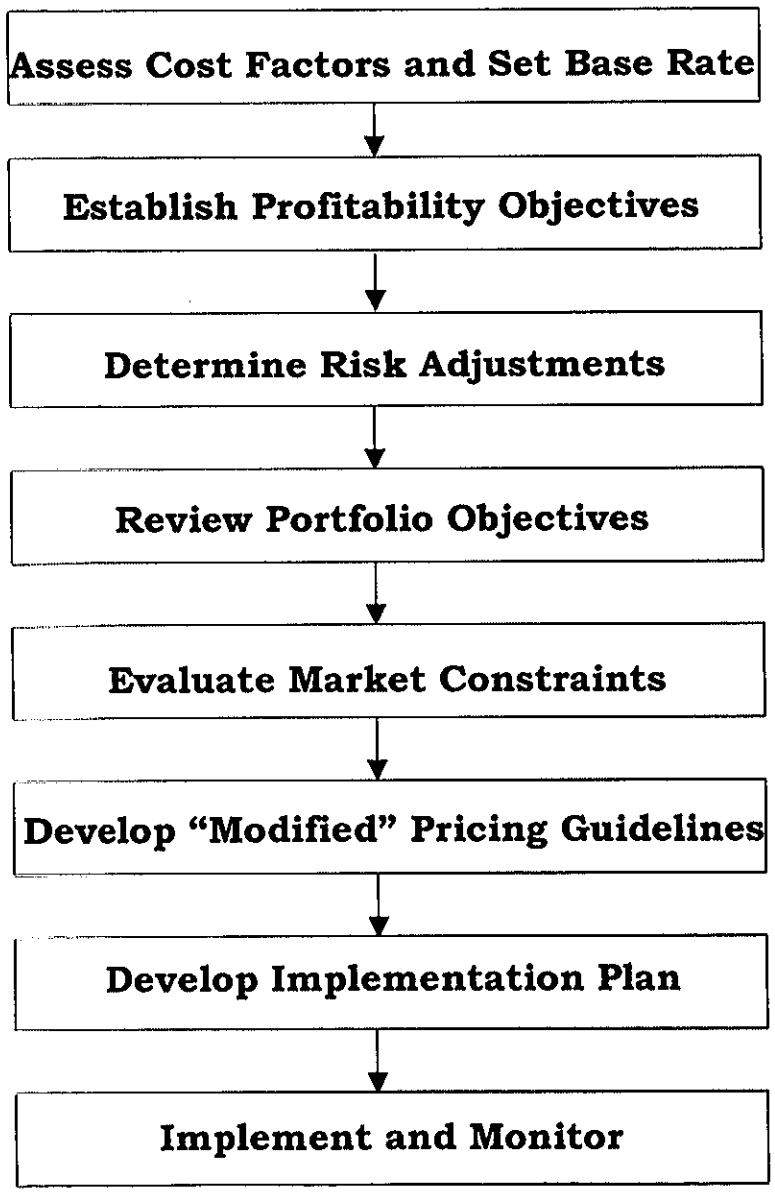
- Preserve the net worth of the borrower
- Full disclosure of the information
- Protect the primary source of repayment (cash flow)
- Preserve the value of the collateral (secondary source of repayment)
- Maintain the quality of management
- Assure the continuance of the legal status
- Maintain adequate growth
- Insure a profit for the bank
- Establish a base for financial performance (a report card for the company's expectations)
- Provide the lender with an early protection trigger to obtain collateral
- Give the lender the rights for early enforcement of collateral if in default

Loan agreements cannot repay the loan; provide future information or manage the borrower's business.

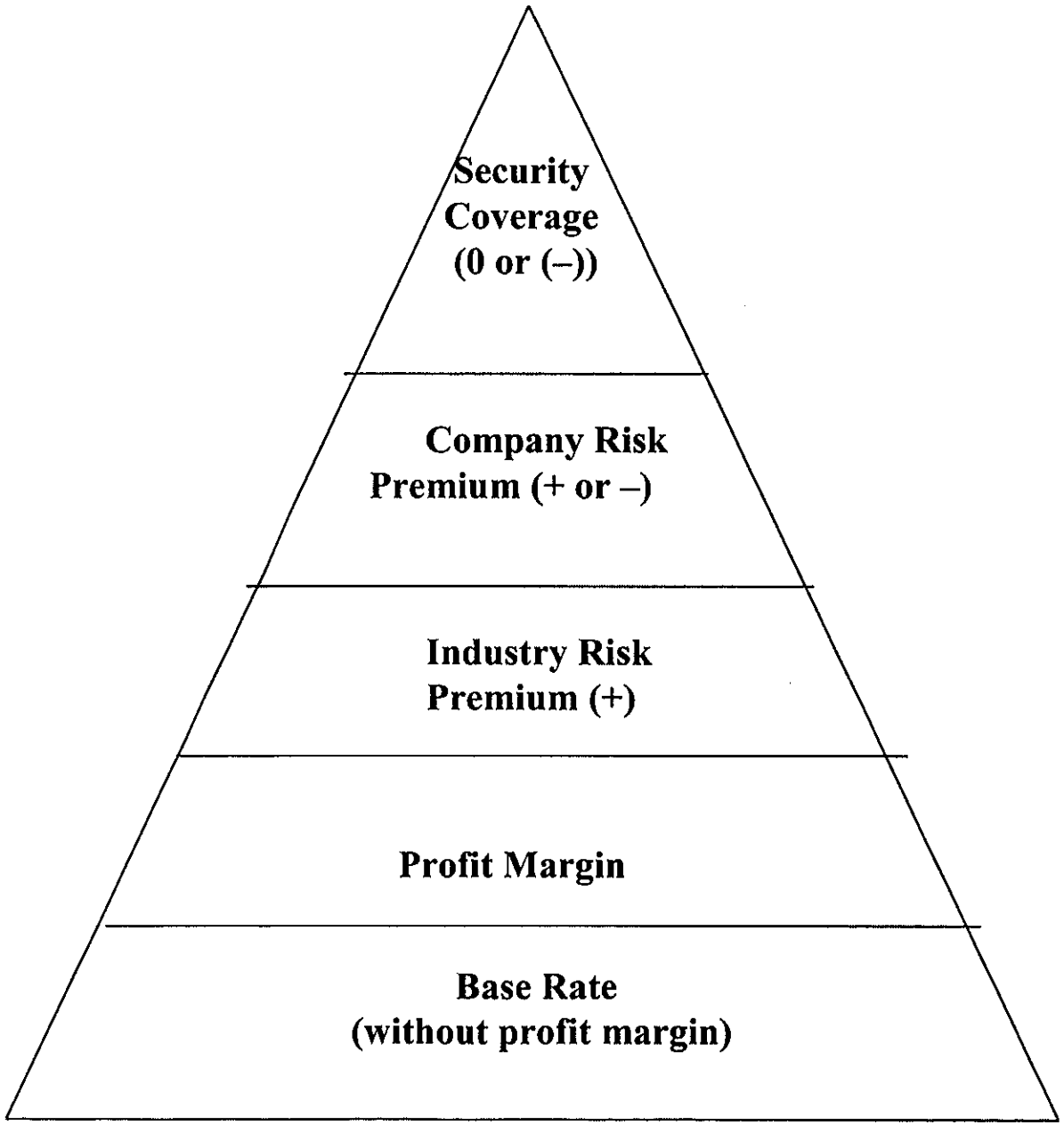
Typical Loan Agreement Components

Representation and Warranties	Affirmative Covenants	Negative Covenants	Events of Default	Remedies
•Properly incorporated •Power and authority to borrow •Current on taxes •Litigation disclosures •Good title to assets •Assets not pledged expect as disclosed •No violation of any other agreement •Has made full financial disclosure	•Submit annual/periodic reporting •Submit period compliance certificates •Maintain corporate existence •Maintain adequate insurance •Maintain assets •Pay taxes	•Financial ratio maximums/minimums •Interest/debt coverage •No additional borrowings •Limits on third party obligations •Limits on capital expenditures •Limits on dividends, stock purchases •Will not pledge assets to other creditors •No mergers/ acquisitions •No sale of assets •No investments in other companies	•Failure to pay principal/ interest •Failure to comply with affirmative/ negative covenants •Incorrect representation or warranty •Default on debt to third party •Bankruptcy	•Declare entire principal and accrued interest immediately due and payable

Loan Pricing Methodology



Risk Adjustment



PRICING

A KEY PORTFOLIO MANAGEMENT FUNCTION OFTEN OVERLOOKED IS PRICING GUIDELINES

- Many banks we have diagnosed have poor pricing processes
  - Pricing does not reflect true cost of funds, ignoring marginal cost
  - Pricing is not differentiated according to customer risk
    - Does not encompass servicing cost
    - Marketing costs
    - Administrative costs
- Failure to price using marginal costs of funds is one of the most common mistakes we encounter
  - Banks look at pricing on an average basis
  - This approach can quickly reduce profitability as cheaper retail deposits and any priority funding are exhausted (see facing page)

Loan Review vs. Loan Monitoring

- Loan Review – Strategic Third Party
- Loan Monitoring Tactical Process

Objective of Loan Review

- Evaluate credit quality
- Assess adequacy of the loan loss reserve
- Determine trends
- Identify problems
- Adherence to credit policy
- Portfolio profitability
- Effectiveness of credit administration

How Loan Review Performs its Function

- Determine what is to be reviewed and when, given time and resources
- Loan reviewed should be representative of the portfolio as a whole
- Establish a minimum loan amount for review
- Employ random sampling on a statistical basis
- Industry, geographic, customer concentrations must be detected and examined
- Borrowers with certain financial characteristics must be scrutinized
- Examine branch credits in detail
- Frequency of loan review based on risk rating of a loan
- Monitor situations where corrective action has been recommended

FIVE Specific Issues Should Be Addressed When Examining Individual Credits

- Credit Quality
- Documentation
- Liquidation of collateral
- Pricing and funds management objectives
- Compliance with policies, laws and regulations

Portfolio Trends Track

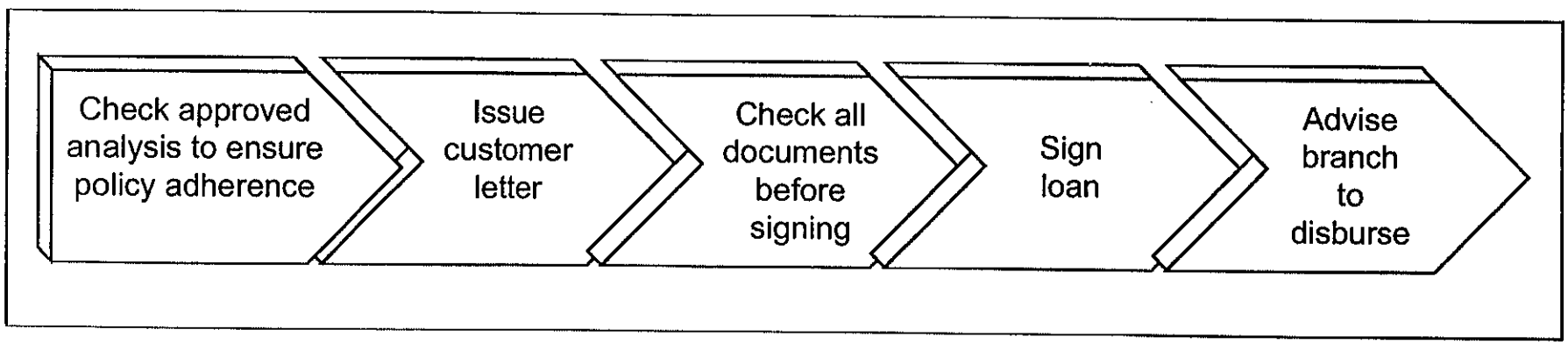
- Risk ratings
- Classified loans to total loan portfolio
- Concentrations
- Losses and recoveries
- Loan loss provisions
- Loan loss reserve to total loans
- Delinquencies
- Other real estate, non-accruals, restructured loans
- Earnings data
- Marketing data- number of borrowers, account balance totals, etc.

Contents of the Loan Review Report

- Scope of examination
- Review of previous exam
- Credit process
- Review
- Accuracy of loan grading system
- Credit policy compliance
- Financial analysis of borrowers
- Problem loan resolution
- Maintaining adequacy of loan loss reserve
- Other items of concern
- Summary/ recommendations

DISBURSEMENT CONTROL IS CRITICAL TO ENSURE THAT SECURITY AND REQUIRED DOCUMENTATION ARE OBTAINED BEFORE FUNDS ARE DISBURSED

BASIC DISBURSEMENT CONTROL FLOW



- If disbursement control is weak, the whole integrity of the credit process can be weakened
  - Approval Authorities may be circumvented
  - Corruption and fraud easily exercised

SAMPLE

CREDIT APPROVAL MEMO (CAM)	
Company Name:	
Date:	**CAP NO:**

Address the following issues:

1. **Purpose of Credit**
   - Reason for Request
   - Brief Description of Borrower
   - Brief History of Relationship
2. **Risk Analysis**
   - Summary of Each Foundation
   - Overall Risk
3. **Credit Requirement**
4. **Credit Recommendation**
   - Facility Amount
   - Why the Loan Should Be Made
   - Structural Parameters

	Preparer:

CREDIT ADMINISTRATION

CREDIT ADMINISTRATION IS A NECESSARY FUNCTION THAT SHOULD COVER SEVERAL KEY FUNCTIONS

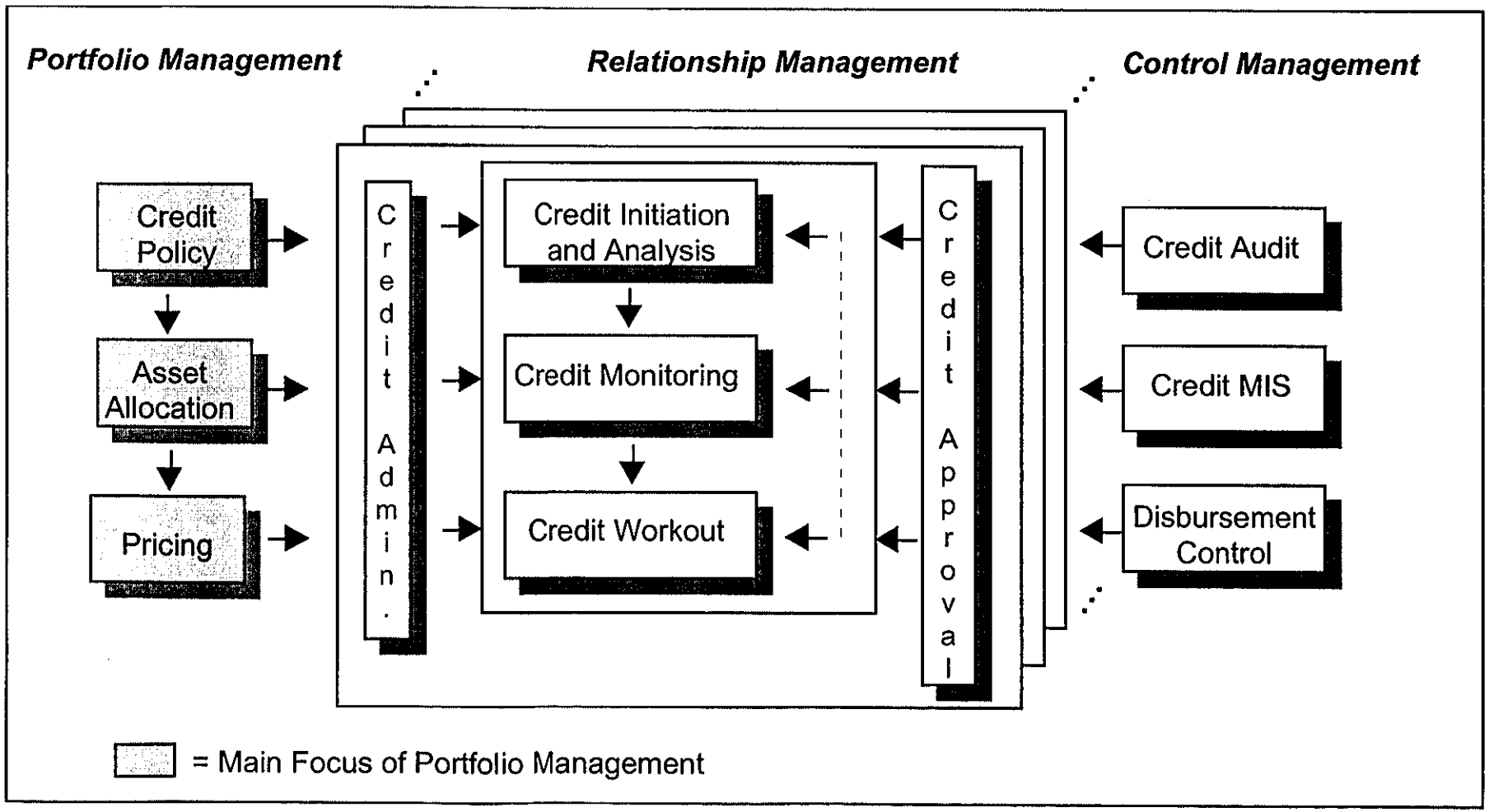
- **Conduct Key Exposure Control** usually focuses on availment control and modifications
  - ◊ Availment control should ensure that security and required documentation are obtained before funds are disbursed
  - ◊ Modification control should ensure any modifications that occur are approved within credit policy

- **Maintain Orderly Credit Files** is another vital function
  - ◊ An organized and easily accessible filing system is critical in supporting sound credit operations
  - ◊ Documentation files are particularly important for security and confidentiality reasons
  - ◊ Can be easily overlooked, yet vital for collection

- **Impose Tickler Files** will provide necessary control
  - ◊ Ensure documentation does not go stale
  - ◊ Ensure that prompt notification of credit reviews and renewal dates occurs

THE PORTFOLIO MANAGEMENT FUNCTION SHOULD HAVE DEFINED FUNCTIONS RELATED TO CREDIT POLICY, ASSET ALLOCATION AND PRICING

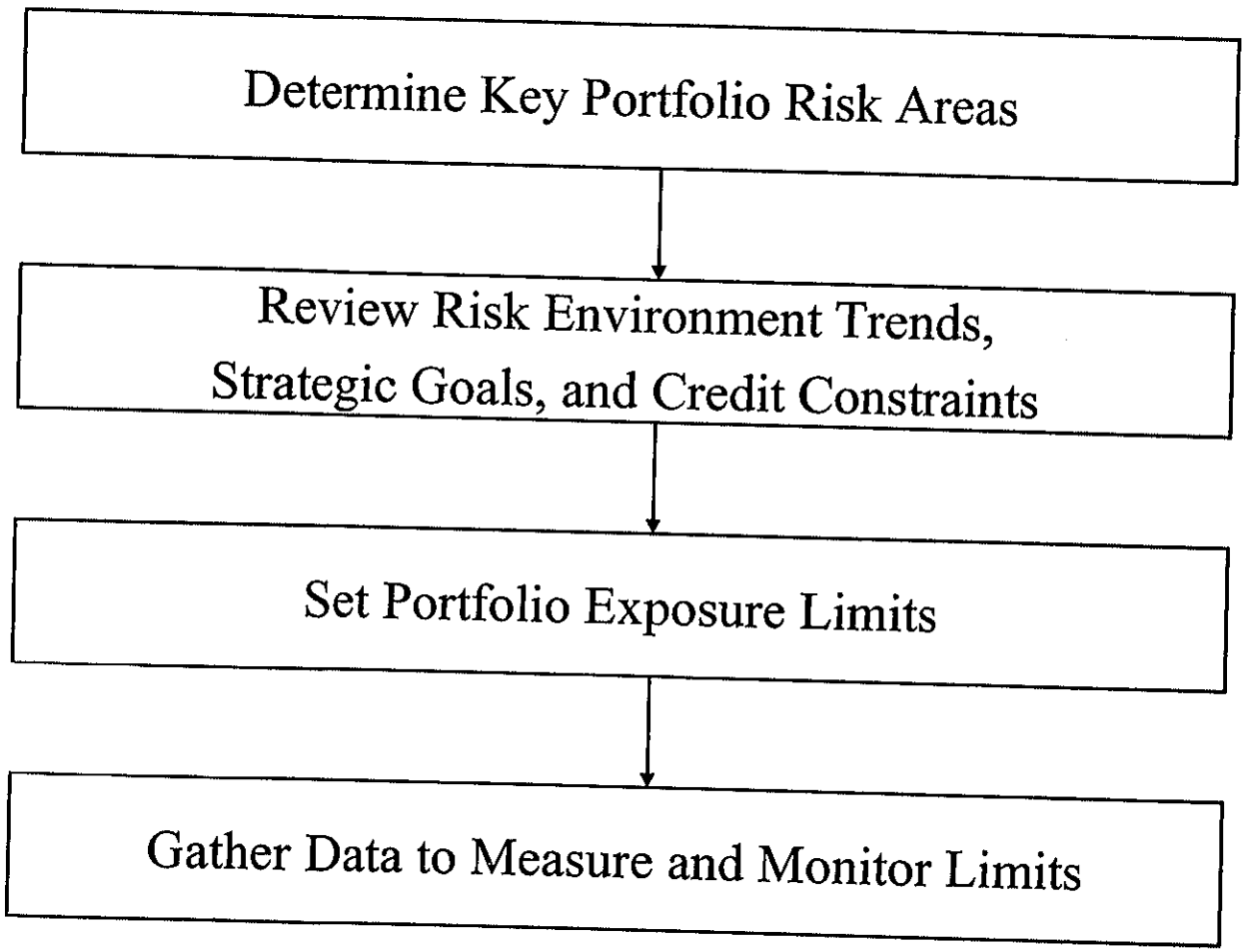
Credit Management Framework



ASSET ALLOCATION STANDARDS ARE A CRITICAL CREDIT MANAGEMENT TOOL

- **Portfolio Limits** are a key asset allocation control used to contain risks and improve long-term viability
  - ◊ Avoid catastrophic losses from overexposure in any one risk area
  - ◊ Diversify the portfolio to reduce concentrations and provide a more stable earning base
- **Priority Portfolio Management** sets guidelines to productively move the portfolio toward lower risks and higher returns
- **Risk Acceptance Guidelines** define performance criteria and structuring requirements for individual credits within risk areas

Process for Establishing and Implementing Portfolio Exposure Limits



MANAGEMENT SHOULD DETERMINE RELEVANT PORTFOLIO LIMITS BASED ON KEY FACTORS RELEVANT TO ITS MARKET

Key Factor	Sample Question
Current Risk Environment	♦ What key environmental trends are prevalent and how will they impact each risk area?
Growth Goals	♦ What is the bank's overall growth objective and what are specific objectives for each risk area? ♦ What exposure levels are implied by the growth objectives? ♦ Do implied exposure levels conflict with conclusions regarding risk trends?
Government and Developmental Banking Objectives & Regulations	♦ What exposure levels do government regulations/objectives imply for key risk areas? What are the implications for other risk areas? ♦ Do these exposure levels conflict with the bank's own growth goals and the level of environmental risk?
Market Structure	♦ What is the current competitive environment in key risk areas? ♦ What are demand trends? ♦ How do these trends impact exposure levels?

KEY RISK AREAS WILL DIFFER BY BANK AND COUNTRY

SAMPLE KEY RISKS

Risk Area	Rationale
Single Borrowers	♦ Excessive exposure to a single borrower that goes out of business and does not pay could eliminate a year's profit or capital ♦ Exposure to large borrowers is difficult to unwind once unforeseen problems emerge
Groups (affiliated borrowers)	♦ Same as above ♦ Financial problems in only a part of a group's businesses often cause the whole group to fall apart
Industries/ sub-industries	♦ Cyclical or systemic structural weaknesses in an industry can result in bankruptcy of all but the strongest companies ♦ Industry structural problems impact both first and second way out
Business Segments	♦ Economic events can cause entire banking businesses to experience downturns – e.g., financing real estate, consumer lending
Products (Letters of Credit)	♦ Product profitability is generally impacted by a set of structural elements which lead to cyclicality of performance ♦ Over-concentration in any one product could expose the bank to cyclical swings in earnings

THE OBJECTIVE OF PRIORITY PORTFOLIO MANAGEMENT IS TO IMPROVE OVERALL BANK PROFITABILITY BY MIGRATING THE PORTFOLIO TO THE MOST ATTRACTIVE MARKET SEGMENTS

- Identify high return/low risk portfolio areas within market realities
  - Base on historical profitability and risk analysis
  - Adjust for strategic objectives and future expectations regarding environmental trends and credit conditions
- Proactively guide relationship managers in pursuing growth in attractive areas and limiting or reducing growth in unattractive areas
- Examples of priority segments
  - Consumer lending versus wholesale, or
  - Credit cards versus home mortgage lending within consumer lending

EXAMPLE OF RISK ACCEPTANCE GUIDELINES

Foundation	Common Performance Categories
Industry	♦ Specific industry risk acceptance standards are usually not set. Instead, others are altered for specific industries.
Financial Condition	♦ Leverage ♦ Liquidity ♦ Performance
Management Quality	♦ Years in business ♦ Management depth
Security Realization	♦ Net Liquidation Value ♦ Control ♦ Executability

RISK ACCEPTANCE GUIDELINES CONTROL INDIVIDUAL CREDIT EXPOSURE AND STANDARDIZE CREDIT QUALITY BY SETTING PRUDENT EXTENSION STANDARDS

- Determine performance thresholds which a company must meet prior to being considered for credit extension (see facing page)
- Establish credit structuring requirements that must be met prior to extending a loan
  - Ensure facilities are structured to address key risks
  - Address one or more of the six structuring parameters
- They should be guidelines and not inflexible rules
  - Guidelines are meant to control
  - RM must understand the specific credit issues of each individual credit
- Exception should be approved at a higher level and explained in writing

Asset Allocation Guidelines

Asset Allocation Components	Key Issues
Portfolio Limits	•Determine portfolio categories to limit •Set portfolio limits •Execute portfolio limits •Measure and monitor limits
Priority Segments	
Risk Acceptance Guidelines	

Asset Segment Guidelines

Portfolio Management Components	Key Issues
Portfolio Limits	
Priority Segments	•Identify attractive market areas •Establish priority segment guidelines •Implement priority segment guidelines •Measure and monitor guidelines
Risk Acceptance Guidelines	

Portfolio Segment Guidelines

Portfolio Management Components	Key Issues
Portfolio Limits	
Priority Segments	
Risk Acceptance Guidelines	•Determine proper categories •Set risk acceptance guidelines •Monitor risk acceptance guidelines

FINANCIAL CONDITION RISK ACCEPTANCE GUIDELINES PROVIDE A GOOD EXAMPLE

FINANCIAL CONDITION RISK ACCEPTANCE GUIDELINES

Broad Industry Category	Maximum Debt/Equity	Minimum Debt Service
Trade and Commerce (Retail)	5.0	1.2
Banking and Finance	BIS Standards	1.2
Manufacturing and Mining	2-0	1.5
Construction	1.5	1.5
Tourism, Recreation and Transportation	2-0	1.5
Services	3.0	1.2
Agricultural - farming - processing - trading		

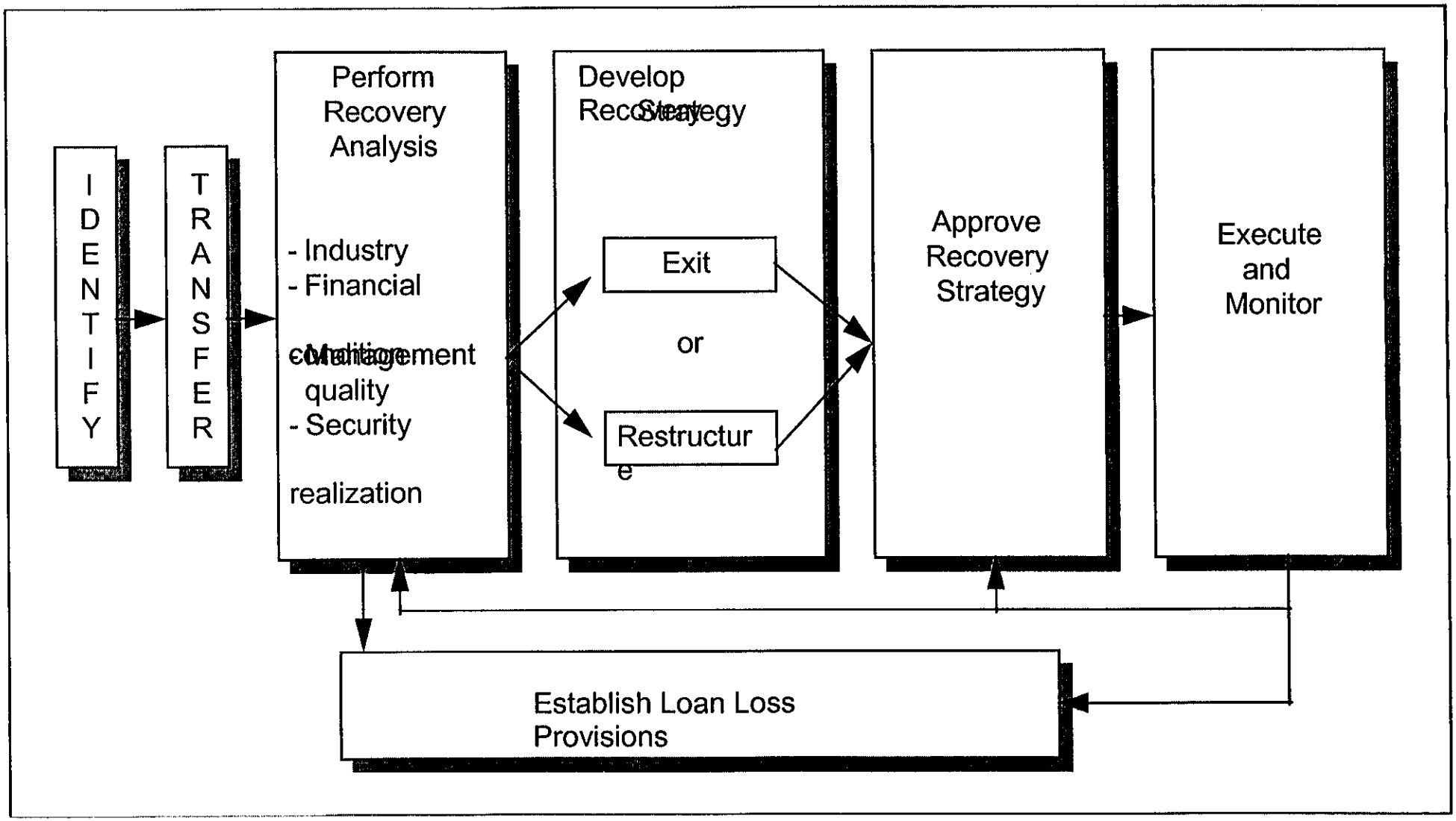
Problem Loan Administration

- Definition
- Working With
- Predicting
- Recovery Strategy
- Cash Flow/ Breakeven
- Stages of Deterioration
- Causes for Workouts

Avoiding Problem Loans

- Good underwriting
- Active monitoring
- Early problem loan identification
- Aggressive corrective action

LOAN WORKOUT ROCESS



LOAN WORKOUT

THE WORKOUT PROCESS SHOULD GUIDE THE BANK IN "WORKING-OUT" PROBLEM LOANS IDENTIFIED IN THE MONITORING PROCESS

- Problem customers should be identified via the risk classification system introduced in monitoring
- The problem customers should be analyzed, based on the analytical framework introduced in the analysis process
- Then, strategies and action plans should be formed to solve the problems
- The strategy will ultimately result in a decision to restructure or exit
- The restructure or exit decision drives the actions
- Based on approval, these plans should be implemented

Progress should be monitored monthly and problems re-analyzed and new action plans developed as necessary

Major Causes of Business Failure

(according to business owners)

- Incompetent Management
- Lack of Managerial or Technical Experience
- Neglect
- Lack of Performance-Oriented Goals
- Failure to consider Capital Requirements
- Product/Service Life Cycle Impact
- Disaster
- Regulatory Environment
- "Leveraging" Equity

Primary Causes of Loan Losses
(in order of occurrence)

1. Poor Initial Selection of Risk
2. Timidity
3. Overlending
4. Documentation Flaws
5. Failure to Implement Approval Terms and Conditions

Management/Operational Early Warning Signs

1. Lack of Supportable Business Plan and Forecast
2. Consistent Failure to Meet Projections
3. Use of Short-Term Solutions
4. Capital withdrawals/Dividend Payouts
5. Poor financial Controls
6. Poorly coordinated Interoffice/Intracompany Transactions
7. Changes in the Personal Habits of Owners/managers
8. Supporting Multiple Family Members at the Expense of Expertise and/or Profitability
9. Venturing into New Business or Investment Areas
10. Managing Profitability

Critical Occurrences

- Requests for Credit Restructures
- Collateral Overadvances
- Overdrafts
- Conversion of Trade Debt to Notes Payable
- Tax Problems
- Rapid Growth in Plant or Equipment
- Mismatched Asset Funding
- Debt Servicing Deficiencies

Calculating a Debt Service Deficiency

Needs

- Existing Operational (Bank) Debt
- Accounts Payable
- Accruals
- Term Debt Payments
- Overdrafts or Held Checks
- Asset Acquisition Needs

LESS

Sources

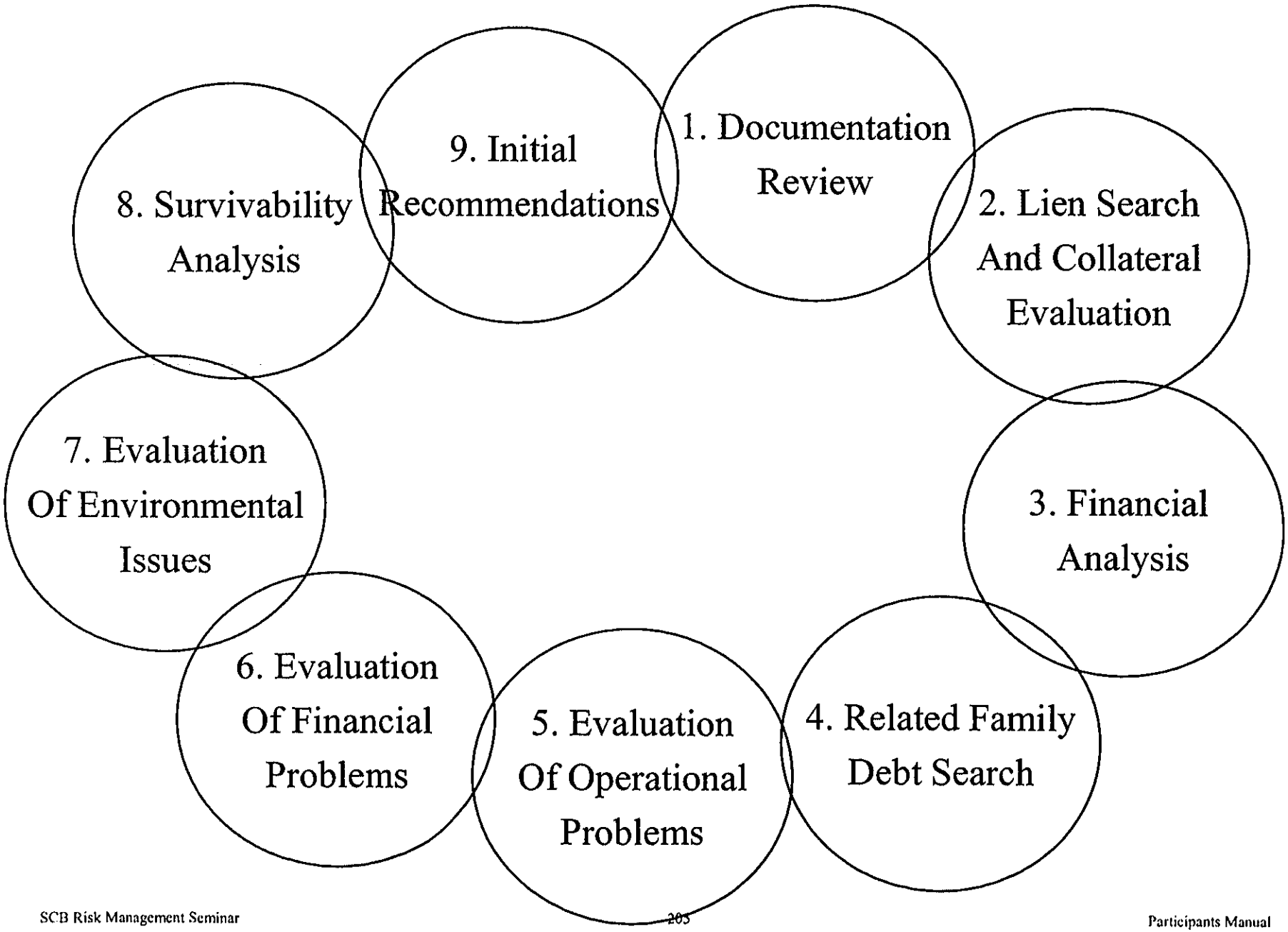
- Margined Accounts Receivable Borrowing Base
- Margined inventory Borrowing Base
- Equity Capital
- Extended Trade Creditor Terms
- Asset Sales

= Debt Service Deficiency

Working with the Problem Credit

- Sounding the Alarm
- Determining Who Will Handle the Problem Account
- Analyzing the Problem Loan: A Nine-Part Process
- Analytical Aids
- Special Considerations

Analyzing Problem Loans: A Nine-Part Process



Analyzing the Problem Loan

Part 1: A Complete Documentation Review

- Authority Documents
- Notes
- Security Agreement and Financing Statement
- Mortgages/Trust Deeds
- Assignments
- Entity Verification
- Guarantees
- Loan Agreement

Analyzing the Problem Loan

Part 2: Complete New Lien Search and Collateral Evaluation

- Certified Lien Search
- Determination of Lien Priorities
- DMV Search
- Status of Taxes
- Status of Suits and/or Judgments
- Analysis and Valuation of Collateral

Analyzing the Problem Loan

Part 3: Financial Analysis

- Accrual Basis Financial Statements and Projections
- LIFO versus FIFO Inventory Valuation Analysis
- Pro Forma Cash Budget and Profit Plan
- Tax Returns
- Updated Personal Financial Statement
- Depreciation Schedule

Analyzing the Problem Loan

Part 4: Related Family Debt search

- Related Entity Debt
- Related Guarantor Debt

Analyzing the Problem Loan

Part 5: Evaluation of Operational Problems

Part 6: Evaluation of Financial Problems

Analyzing the Problem Loan

Part 7: Evaluation of Environmental Issues

- Environmental (EPA/DEQ) Impact
- Markets (Geographic Cost-Benefit Analysis)
- Products/Services (Mix and margin Analysis)
- Distribution Systems
- Competition

Analyzing the Problem Loan

Part 8: Survivability Analysis

- Can the Borrower Survive?
- What Resources Are Necessary?
- Where Will the Money Come From?
- How Much Risk Capital Is the Bank Willing to Put In?

Analyzing the Problem Loan

Part 9: Initial Recommendations

- Decide What You Want to Do
- Decide How to Implement
- Decide a Time Line

Analytical Aids

- On-Site Analysis
- Industry (Peer Group) Analysis
- Turnaround or Management Consultants
- Break-Even Analysis
- Performance (Trend Line) Analysis
- Computer Modeling

Break-Even Analysis

Step 1. Classify Costs as Fixed or Variable

Step 2. Determine Variable Costs as a Percentage of Sales

Step 3. Determine Contribution Margin Ratio (CMR)

$$CMR = 100\% - \text{Variable Costs}$$

Step 4. Calculate Break-Even Sales

$$\frac{\text{Fixed Costs}}{\text{CMR}} = \frac{\text{Break- Even}}{\text{Sales \$}}$$

$$\frac{\text{Fixed Costs}}{\text{(Price Per Unit)-(Variable Cost Per Unit)}} = \text{Break- Even Units}$$

Break-Even Matrix

	Units	Dollars
Break-Even Level	$\frac{\text{Fixed Costs}}{(\text{P/Unit}) - (\text{VC/Unit})}$	$\frac{\text{Fixed Costs}}{\text{CMR}}$
Sales Level to Make a Profit	$\frac{\text{Fixed Costs \& Profit}}{(\text{P/Unit}) - (\text{VC/Unit})}$	$\frac{\text{Fixed Costs \& Profit}}{\text{CMR}}$

Factors Involved in Becoming a Controlling Person

- Voting Power
- Economic Leverage
- Control over Financial Affairs
- Physical Possession of Borrower's Assets

Communicating the Decision to "Outplace" a Loan

- Present the Decision Face-to-Face
- Confirm the Decision in a Letter
  - Provide Adequate Notice
  - Be Simple and Direct
  - Avoid Citing Reasons
  - Address:
    - Overdrafts
    - Payment of Checks against Uncollected Funds
    - Advances in Interim
  - Provide a Copy to All Guarantors
  - Have the Borrower Sign a Copy and Return It to You

Choosing Workout: Major Considerations

- Is the Product/Service Viable?
- Is There a market?
- Are the Necessary Resources Available?
  - Competent Management
  - Financial Resources
- Will the Bank Improve Its Position?
  - Improving Documentation
  - Taking Additional collateral
  - Eliminating of Debtor Defenses
  - Positioning for Later Stages
- Is There an Identifiable Source of Repayment
- Is the Borrower Cooperative?

Decision to Liquidate: Major Considerations

- Documentation Weaknesses
- Hidden Collateral Weakness
- Relationship Issues
  - The Borrower's Relationship to the Bank
  - Public Relations Impact
- Economic Issues
  - Costs of Liquidation
  - Going Concern versus Liquidation Value
  - Possibility of Exchanging an Earning Asset for a Nonearning Asset
- Legal Issues
  - Debtor Defenses
  - Provocation of Bankruptcy
- Consequences of Surrender of Collateral

Criteria for Evaluating a Workout Program

- Was the decision to Enter Workout Based on a Consideration of All Options?
- Can the Program Be Monitored and Enforced?
- Is the Agreement Tied to a Plan Driven by Clear Objectives and Goals?
- Is the Program Flexible?
- Des the Program Avoid the Short-Term Solution Trap?
- Is the Program Based on Complete and Accurate Data?
- Is the Program Based on a complete Understanding of Borrower's Operation?
- Does the Program Incorporate necessary Redocumentation?
- Is the Written Document Drafted by Counsel?

Debt Restructuring

1. Select restructuring actions that address credit problems:
   - Actions for each risk area
   - Are actions practical and/or achievable?

2. Cash flow projections
   - Assess financial impact
   - Determine credit requirements

3. Sensitivity analysis
   - Worst case scenario
   - When will the credit facilities be repaid?

4. Restructure credit facilities and refine them
   - What are the restructuring parameters?
   - How do they minimize the risks?

5. Specific action plans to implement
   - What are the action steps?
   - Assign responsibilities
   - Determine a time frame with final payment/resolution date

Workout Strategies

- Develop debt restructuring
- Additional documentation and/or collateral
- Additional collateral
- Inject new capital from owners
- Liquidate other assets
- Arrange for joint venture/new capital
- Retrenchment program with closely monitored budgets
- Sale of company to third party
- Replace management
- Appoint key managers and/or consultants
- Debt-equity swap
- Bankruptcy

Special Issues and concerns in Workouts

- Leases
- Liens
- Taxes
- Third-Party Creditors
- Long-Term Contracts
- Guarantors
- Technology
- Potential for Bankruptcy
- Legal Process
- Environmental Problems
- Lender Liability issues

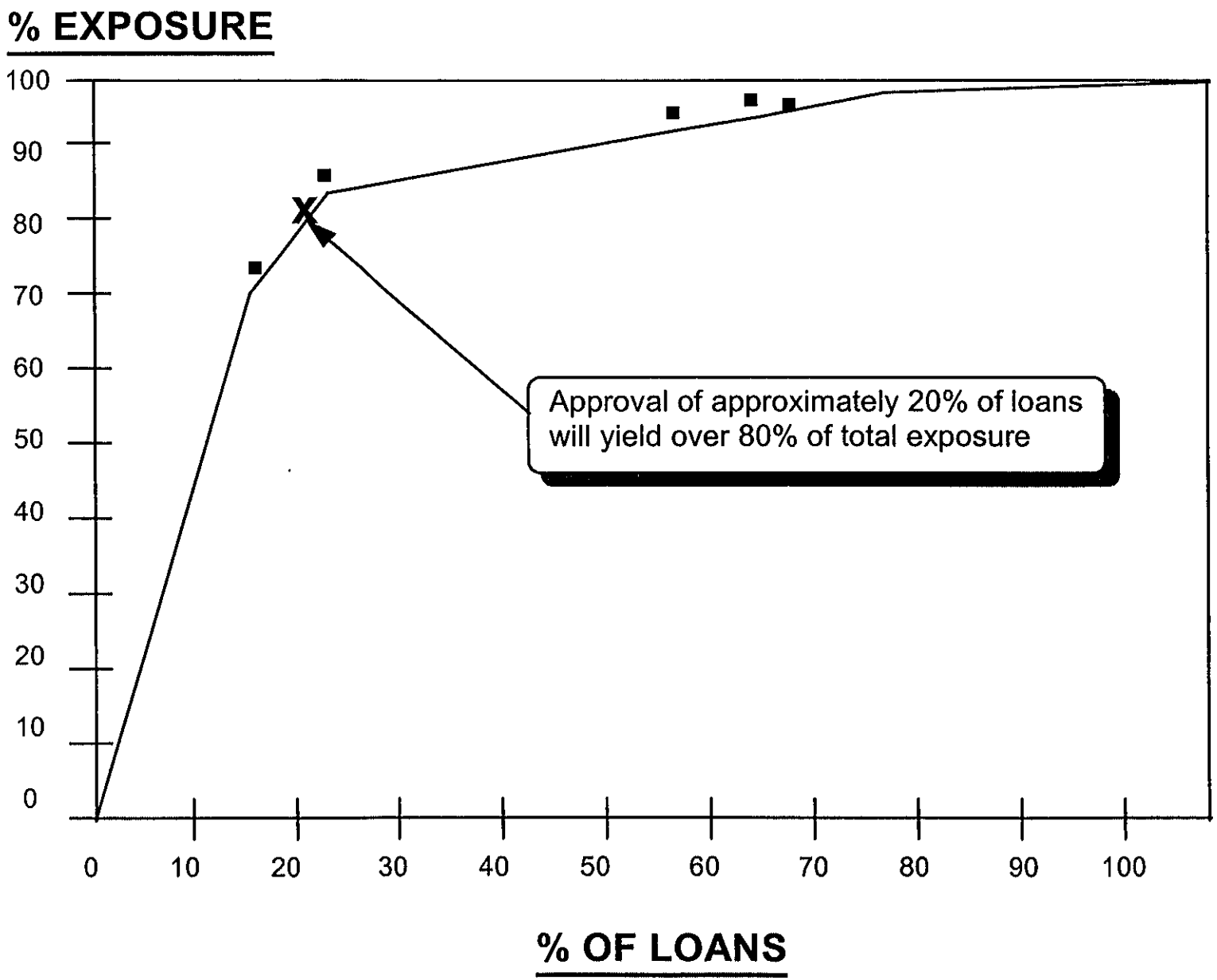
Behavioral Key to Workout Success

- Keep Your focus- and the Borrower's- on the Basics
- Act with Integrity and Credibility
- Be Flexible
- Adopt an Effective Negotiation Strategy

Six Guides for Better Negotiation

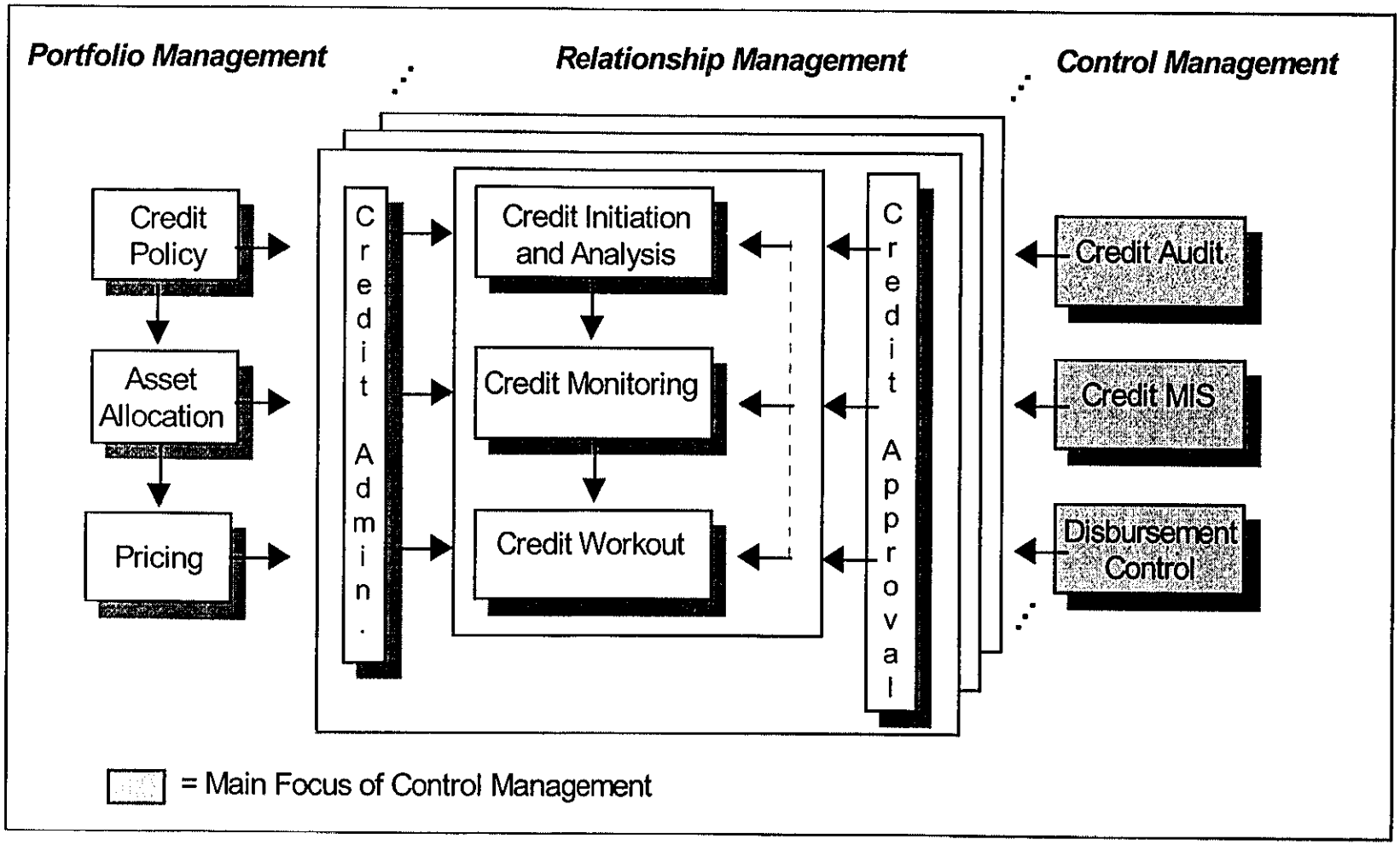
1. Act Rationally
2. Understand the Position of the Other Side
3. Communicate Effectively: Be Simple; Be Direct
4. Behave Reliably
5. Use Persuasion, Not Coercion
6. Accept the Legitimacy of the Other Side

TYPICAL LOAN CONCENTRATIONS

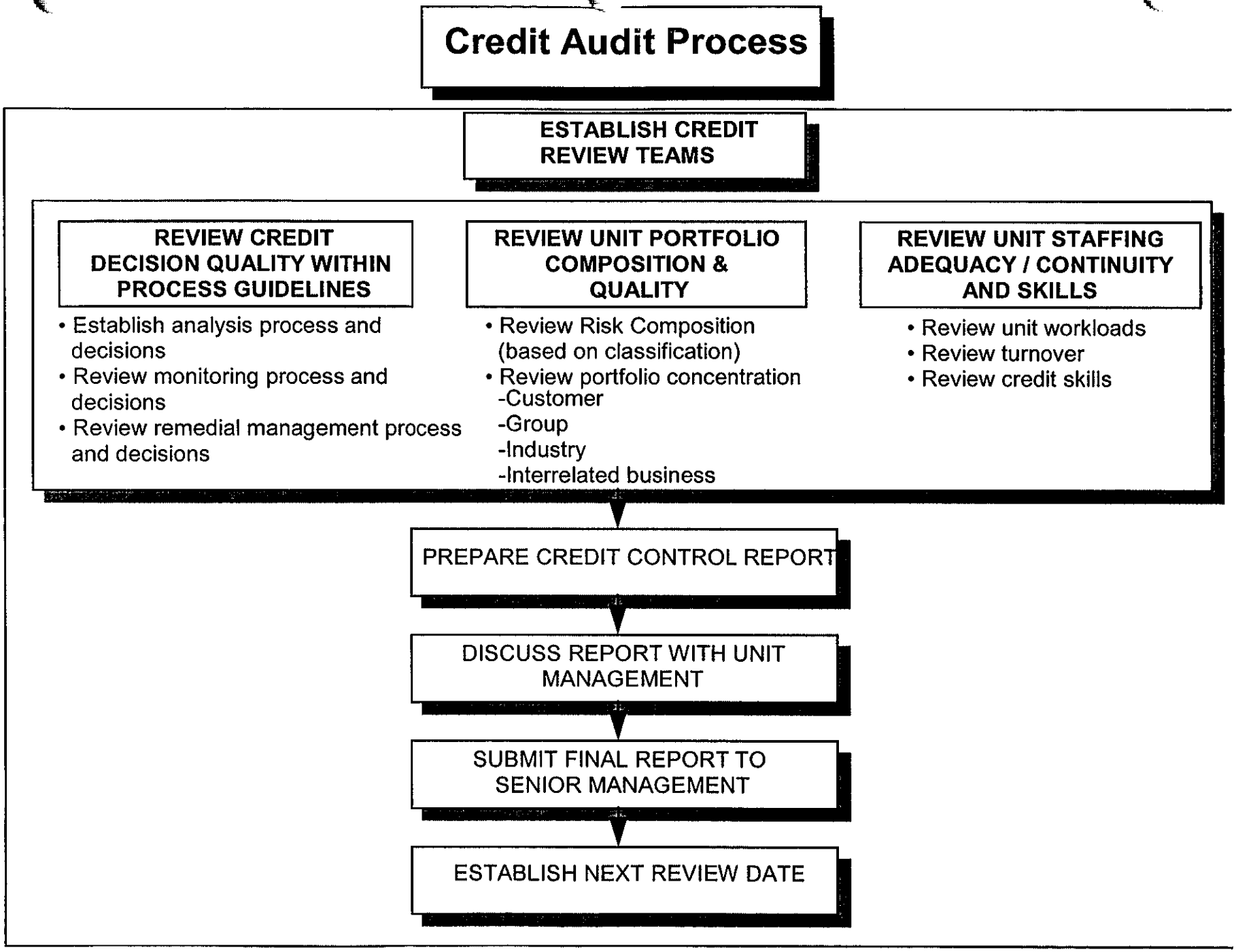


THE CONTROL MANAGEMENT FUNCTION SHOULD HAVE DEFINED PROCESSES RELATED TO CREDIT AUDIT, MIS AND DISBURSEMENT CONTROL

Credit Management Framework



Credit Audit Process



CREDIT AUDIT

AN INDEPENDENT CREDIT AUDIT (RISK ASSET REVIEW) SHOULD ENFORCE CREDIT POLICY AND PROCESSES IN LENDING UNITS

- A credit audit team should review unit credit files and interview staff to ensure that processes are being followed according to credit policy and that appropriate credit decisions are made (see facing page)
- In addition, the portfolio composition and quality in each unit should be reviewed
- Provides a data base for compiling portfolio data for the whole bank and supports setting portfolio guidelines in the credit policy process
- Highlights any problems or concentrations in unit portfolios and allows corrective actions to be planned
- Next, the staffing adequacy, continuity and skills should be reviewed to ensure that the business unit has the staffing required to maintain good credit processes
- Based on these reviews, a credit control report should be prepared and circulated to management
- Problems identified across lending units should be addressed at the policy level (e.g., policies should be created or revised to address problems)

THE CRITICAL FACTOR HERE IS INDEPENDENCE AND EMPOWERMENT TO OBTAIN FULL DISCLOSURE

EXAMPLE OF CREDIT MIS REPORTING FORMATS

REPORT	FREQUENCY	CONTENT
Customer Status Update	After any change in customer status	♦ Customer Name ♦ Recovery Officer ♦ Branch ♦ Facilities and outstanding borrowings ♦ Activity, e.g., payment/non-payment, collateral liquidation, etc.
CAP Review Date Report	Quarterly	♦ List of CAPs up for renewal by officer for any overdue CAPs and CAPs due next 3 months
Group Status Report	Quarterly	♦ List of individual facilities and exposures for all component companies ♦ Classification for component companies and group ♦ Aggregation exposure for group
Policy Exception Report	Quarterly	♦ Name of customer, facilities, exposure by RM where policy exception has been granted ♦ Specific exception granted, date of approval, any expiration date
Classification, Aggregation & Migration	Quarterly	♦ Portfolio stratification by classification ♦ Migration analysis from prior quarter and prior year
Documentation Expiration Date	Quarterly	♦ Number of customers by RM where documentation has expired and length of expiration
Credit Watchlist	Quarterly	♦ Customers classified 4 by RM ♦ Facility limits & exposure ♦ Date of 4 classification ♦ Amount past due ♦ Days past due ♦ Total facilities & exposure ♦ Current credit classification

CREDIT MIS

RELIABLE AND TIMELY CREDIT INFORMATION IS CRITICAL TO MANAGING THE CREDIT PROCESS

- Basic credit MIS is often severely deficient not only in banks in emerging markets but in developed markets as well
  - Basic customer data is missing or inaccessible (see facing page)
  - The data provided does not allow for effective monitoring of exposures, trends or actions

- Improvements here are critical to supporting not only the overall credit process but the building of a strong credit culture, as well
  - If timely and useful information is available, management is much better equipped to direct and control prudent credit processes
  - Without timely and useful information, the integrity of the process weakens

Risk Management: Summary

Effective Risk Management
is a global strategic approach
to coordinating the
use of a variety of risks
to achieve desired objectives

Risk Management: Summary

Philosophy

- Manage risks at source: Primary responsibility for risk decisions are at the businesses
- Within businesses, segregation of responsibility for risk management and for customer profitability
- Risk management is a culture issue: volunteerism
- Risk management policies and practices should support business goals

Risk Management: Summary

Critical Success Factors

- Executive level commitment and leadership
- Education and communication
- Clear roles and responsibilities
- Risk management must support business activities and goals—managing risks for rewards
- Information based decisions
- Understandable measurements

RISK MANAGEMENT: SUMMARY
The Ten Questions

Risks

What are the risks the Bank faces?

Policies

What policies can control the risks?

Measurement

How should the risks be measured?

Pricing

What information is needed to set pricing policy?

Capital

What information is needed to establish capital policy?

Information

What information is needed to measure these risks?

Systems

What systems are needed to provide information?

Process

How should the risks be managed?

Organization

How should the functions be organized for reporting and monitoring?

Control

What internal controls are needed to safeguard Bank assets, earnings and reputation?

Glossary of Risk Terms

Risk

Potential loss of earnings or capital

Risk Management

The deliberate acceptance of risk for profit. Risk management involves making informed decisions on the trade-offs between risk and reward, and using various financial and other tools to maximize risk adjusted returns on both a transaction and a portfolio level within pre-established risk limits.

Risk Information

Data and measurements on the types, quality and quantity of risk in a given transaction, process or portfolio. Risk information alone is not risk management.

Risk Management Culture

A body of risk knowledge and expected behavior which are broad-based and institutionalized across the entire corporation, resulting in a consistent approach to the understanding and management of risks.

Credit Risk

The potential exposure to financial loss resulting from:

- **Counterparty**- another party's inability or unwillingness to repay an obligation.
- **Portfolio**- inadequate diversification in terms of geographic markets, industries, maturities, and/or type of collateral
- **Country**-

  Transfer risk- inability of a country to generate sufficient dollars to meet external obligations

  Socio-Political risk- adverse changes in the social and/or political situations of countries in which the bank's assets are held or from which the assets are derived
- **Concentration**- inadequate diversification in terms of customers
- **Collateral**- Deterioration in the value of collateral assets, causing insufficient securitization for underlying credits

Financial Market Risk

The potential risk of loss resulting from adverse changes in external market forces

•**Liquidity**- The ability to meet obligation as they come due and to transact incremental business on a cost effective basis. (Market/Funding)

•**Valuation**- The risk to earning and/or equity resulting from the effect of external forces other than interest rates on the principal value of the bank's assets, liabilities and off-balance sheet positions.

•**Interest Rate**- The risks resulting form movements in interest rates, encompassing both risk to bank earning resulting form the repricing of assets and liabilities and changes in valuation of assets recorded on a market-to-market basis, and the risk to market value of equity:

-Repricing (or Gap)- the mismatching in timing of repricing of assets and liabilities;

-Option (or Prepayment)- customer exercising the right to execute a transaction unfavorable to the Corporation;

-Basis (or Spread)- the degree to which the difference between two rates fluctuate (such as Prime versus financial market rates);

-Behavioral- changes in customer preference;

-Trading- the organizational and processing risks of a trading operation

-Currency- The risk to earning and/or equity resulting form fluctuation in the dollar equivalent values of foreign currency position, as well as availability and convertibility.

Product Risk

Risks relating to:

•*Design*- that product features and pricing do not meet the needs and expectation of the targeted market; that the financial return is not achievable as planned.

•*Delivery*- that the activities of brining a product to market in untimely, not well executed, not adequately supported by resources, or not according to plan.

•*Marketing*- that the product is not marketed through effective means, or inadequate distribution channels. The deliberate acceptance of risk for profit. Risk management involves making informed decisions on the trade-offs between risk and reward, and using various financial and other tools to maximize risk adjusted returns on both a transaction and a portfolio level within pre-established risk limits.

Operations risk

The exposure to loss relating to:

-**Systems and Operations**- the failure of systems to process, produce or analyze items in an accurate, through, and timely manner.

-**Management Information Systems Integrity**- the failure of systems to provide comprehensive, timely and accurate management information.

Contingency/Recovery- lack of adequate provision/recovery plans for contingencies

-**Settlement Risk**- failure of a major financial settlement system such as CHIPS, MAC, Fedwire, ACH or others.

Technology Risk

The exposure to loss relating to:

-Organization- the failure to train and staff technology departments and appropriately plan for upgrades and replacement of existing systems

-Availability- the failure to execute contingency plans in the even of damage by natural disasters, terrorism and mistakes.

-**Infrastructure & Application Integrity-** mainframe and desktop computer, models and software programs do not work as intended.

-**Security**- effective encryption software and other defenses against hackers.

General Business Risk

ENVIRONMENTAL

•**Economic-** risk arising form impact of economic trends/changes in economic conditions

•**Political-** risk arising form impact of political instability

•**Social**- risk arising from adverse changes in the social condition

•**Legal**- risk arising from the impact of social, political and/or commercial legislation or judicial decisions

•**Compliance & Regulatory**- Potential risk resulting from non-compliance with laws and regulations.

Products./Services/Processing- Consumer, Nonconsumer, Fiduciary

Corporate Governance - SEC, Ethics, Insiders etc

Human Asset management - EEO, ADA etc

Physical Asset management - EPA, OSHA, etc

•**Agency-** Potential risk arising form undertaking and obligation as Agent to principals

•**Environmental contamination**- deterioration of assets and/or collateral due to environmental changes or contamination

•**Taxes**- risk arising from impact of taxes and levies

MANAGEMENT RISK

•**Fraud/Crime**- risk arising from internal and external fraud and crime

•**Error**- risk of human error and/or omissions

•**Control Risk**- Risks resulting from inadequate internal administrative and accounting controls that individual may act inappropriately, through acts of omission or commission

•**Quality Risk**- Potential business impact related to customer service and/or customer satisfaction.

•**Reputation risk**- Potential impact of damaging event of issues on corporate image.

•**Loss of Management**- Potential impact form loss of continuity and/or expertise through personnel changes.

•**Integration (Merger/Acquisition)-** Potential impact from the integration of businesses and systems relating to the implementation of a merger or acquisition.

HUMAN CAPTIAL RISK

•**Staffing**- insufficient, untrained or inexperienced staff to perform function reliably, including potential impact form loss of continuity and/or expertise through personnel changes.

•**Recruitment and Development**- failure to recruit appropriate talent to support business goals, or to develop human capital to meet changing business needs.

•**Compensation and Performance Management**- performance management and compensation practices fail to provide m management with the tools to properly motivate staff to achieve business goals.

STRATEGIC RISK

•**Investment/Acquisition-** potential business impact related to inadequate due diligence on intended M&A activity

•**Management Succession**- potential risk arising from lack of, or disruption to Management Succession plans

•**Implementation Risk**- the probability of success- a business initiative (whether a new product, service, an acquisition or a new venture) is not successfully implemented and/or does not meet planned objects. Could be affected by reliance on untested or new technology, uncertain market conditions, lack of experienced staff, etc.

•**Technology Risk**- Potential business impact associated with changing technology and the need for technology to keep pace with and support changing business objectives and initiatives.

•**Competition-** Potential business impact arising form inadequate/untimely response to changes in competition

•**Planning**- Potential impact arising form inadequate and/or uncoordinated strategic and business planning.

GLOSSARY OF BANKING TERMS

ALCO - acronym for asset and liability management committee.

ALM - acronym for asset and liability management.

Annualized - percentages and amounts are converted to an annual basis. For example, monthly information is multiplied by 12 to become annualized information; quarterly information is multiplied by 4, and semi-annual information is multiplied by 2.

Asset utilization - total operating income divided by average total assets.

Asset yield - Operating interest income divided by total assets

At the money - An option in which the market price of the underlying asset equals the strike price.

Base rate - any interest rate used as an index to price loans or deposits; quoted interest rates are typically set at some mark-up, such as 0.25% or 1%, over the base rate and thus change whenever the base rate changes.

Burden - non-interest expense minus non-interest income.

Call option - An option in which the buyer has the right to buy an underlying asset at a predetermined strike price for a set period of time.

Cap-a series of interest rate calls which provide insurance against a rise in the interest rate of a variable rate loan above a certain level (cap rate).

Collar-A combination of a cap and a floor, setting a maximum and a minimum rate for a variable rate asset or liability.

Cost of funds - interest expense divided by the dollar volume of interest-bearing liabilities.

Delta - Change in an option's price relative to the change in price of the underlying asset or futures contract.

Duration - a measure of the approximate price sensitivity of an asset or portfolio to a change in interest rates.

Duration gap - the weighted duration of bank assets minus the product of the weighted duration of bank liabilities and the bank's liability to asset ratio.

Earning ratio - the dollar volume of a bank's earning assets divided by the dollar volume of total assets.

Equity multiplier - average total assets divided by average stockholders' equity.

Exercise an option - The buyer of an option liquidates the position by enforcing the terms of the option.

Financial leverage - the extent to which a firm relies on debt relative to capital to finance the firm's operations

Fixed-yield asset - the interest return on the asset does not vary with the movement of interest rates and repayment of the asset is due in more than one year.

Fixed-yield liability - the interest cost of the liability does not vary with the movement of interest rates and repayment of the liability is due in more than one year.

Floor-a series of interest rate puts which provide insurance against a decline in the interest rate of a variable rate investment under a certain level (floor rate).

Floating rate - assets or liabilities that carry rates tied to the prime rate or other base rates. The instrument is repriced whenever the base rate changes.

Forward contract (or rate)-agreement to buy and sell a specific quantity of a foreign currency at a specified price with delivery and payment at a

specified future date. Forward rate agreements are contracts to borrow at a future specified rate on a specified future date.

Futures option - An option on a futures contract.

Gamma - Rate of change in an option's delta relative to the change in price of the underlying asset or futures contract.

GAP - the dollar volume of rate-sensitive assets minus the dollar volume of rate-sensitive liabilities.

GAP ratio - the dollar volume of rate-sensitive assets divided by the dollar volume of rate-sensitive liabilities.

Hedging - taking a position or implementing a transaction to reduce overall risk associated with an existing position.

In the money - A call option in which the market price of the underlying asset exceeds the strike price; a put option in which the strike price exceeds the market price of the underlying asset.

Interest margin - the gross dollar interest income minus the gross dollar interest expense.

Interest spread - the percentage yield on earning assets minus the percentage cost of interest-bearing liabilities.

Intrinsic value - For a call option, the greater or the market price minus the strike price and zero; for a put option, the greater of the strike price minus the market price and zero.

Leverage ratio - total liabilities divided by total assets.

Net interest margin - net interest income divided by earning assets.

Net overhead - non-interest income minus non-interest expense.

Non-rate gap - non-interest bearing liabilities plus equity minus non-earning assets as a ratio of earning assets.

Out of the money - A call option in which the strike price exceeds the market price of the underlying asset; a put option in which the market price of the underlying asset exceeds the strike price.

Premium - The price of the option.

Profit margin - net income divided by total operating income.

Put option - An option in which the buyer has the right to sell the underlying asset at a predetermined strike price for a set period of time.

Rate-sensitive assets - the dollar value of assets that either mature or can be repriced within a selected time period, such as 90 days.

Rate-sensitive liabilities - the dollar value of liabilities that either mature or can be repriced within a selected time period, such as 90 days.

Return on assets (ROA) - net income divided by total assets.

Return on equity (ROE) - net income divided by stockholders' equity.

Sensitive yield asset - an asset with one of two characteristics - either repayment is due within one year (short-term) or the asset has a variable rate.

Sensitivity analysis - conducting "what if" analysis by varying factors that affect interest income and expense to determine how changes in key factors affect a bank's net interest margin and market value of equity.

Short-term asset - repayment of the asset is due within one year.

Short-term liability - repayment of the liability is due within one year.

Simulation - analysis of possible outcomes for net interest margin and market value of equity resulting from selecting hypothetical values for key variables that influence these measures and conducting forecasts to determine the effects of changes in the key variables.

Speculation - taking a position or implementing a transaction that increases risk in hopes of earning above average returns.

Spread - yield rate minus the cost of funds.

Strike price - The predetermined price at which a call option allows the buyer to buy the underlying asset; the predetermined price at which a put option allows the buyer to sell the underlying asset.

Swap-A contractual agreement to exchange payments at specified future dates. Payments are based on a notional amount and an underlying interest rate (fixed or variable), foreign currency or other underlying. A swap is a series of forward agreements.

Theta - Rate of change in an option's price relative to time until option expiration.

Time value - The difference between the option premium and the intrinsic value.

Variable rate - assets or liabilities that are automatically repriced at regular intervals.

Variable rate asset - the interest return on the asset moves up or down with market interest rates over a given period.

Vega - Rate of change in an option's price relative to a change in price volatility of the underlying asset and futures contract.

Variable rate liability - the interest cost of the liability increases or decreases with market interest rate over a given period.

Yield rate - tax-equivalent interest income divided by the dollar volume of earning assets.

ADDITIONAL EXPLANATIONS

Cash accounting - Many smaller banks prepare and maintain their records on the cash receipts and disbursements basis of accounting. That is, certain revenues, including interest income, and the related assets are recognized only when received rather than when earned. Likewise, certain expenses, such as interest expense, are recognized when paid rather than when the obligation is incurred.

If your bank's accounting records are prepared using the cash basis of accounting, calculation of the interest spread may be more meaningful and useful if prepared using the accrual basis. Providing accrual basis interest income and expense, and determining the related asset and liability balances can be complicated. This can involve a significant modification of the accounting process which many smaller banks do not feel they can afford to make, despite many advantages and benefits that can be derived from such a conversion.

A simpler approach is to use a worksheet to convert **significant** accounts to calculate the interest spread on an accrual basis. A significant account might represent at least 10 percent of the bank's total assets. Such a worksheet would not be considered to be one of the bank's primary accounting records. Accrual conversion may entail precise detail calculations or broad general estimates.

Interest margin - Refers to the gross dollar interest income less the gross dollar interest expense. The interest margin provides a basis for paying operating expenses, covering loan and security losses, meeting income tax obligations, augmenting retained earnings, and generating cash dividends. If the resultant interest margin is not sufficient, and changes in asset size, portfolio mix, and interest spread are not feasible, then the bank must obtain other fee income, cut operating expenses, lower shareholder dividends or reduce capital ratios.

Net interest margin - refers to the interest margin divided by the bank's average earning assets. The net interest margin provides a measure of the bank's profitability.

The exact target for percentage interest margin is unique to each bank. For example, if a bank has a branch and thereby increases operating expenses, it needs a bigger percentage interest margin. Part of that margin should be provided by the extra deposits generated by the branch 1 location. Conversely, if the bank invests extensively in US Government securities, losses will be lower, and the bank will not need as high a net interest margin.

Interest spread - refers to the percentage yield on earning assets less the percentage cost of interest-bearing liabilities. The interest spread concentrates specifically on the direct relationship of asset return versus liability cost and ignores the volume of earning assets compared to interest-bearing liabilities.

Other ratios provided in the reports highlight the comparison of fixed and sensitive yield accounts. The difference between fixed-yield assets and fixed-yield liabilities is often known as the gap. Analysis of the accounts provides the means of obtaining interest margin stability over the business cycle. There are two ratios that analyze sensitivity:

- **Sensitive assets to sensitive liabilities** - measures the relationship between yield-sensitive assets and liabilities. You may insulate or stabilize the interest spread by targeting a yield-sensitive asset to a yield-sensitive liability ratio of 1. You may want to reposition your portfolio based on anticipated interest rate changes. For example, if you believe interest rates are going up equally for assets and liabilities, then you need a higher ratio to improve the interest spread. Of course, the margin will decline if interest rates go down. Conversely, if you believe interest rates are going down, a lower ratio will improve the interest spread. Many bankers and economists have not been successful in correctly predicting movements in interest rates. As a result, some bankers try to more closely match sensitive assets with sensitive liabilities.

- **Fixed-yield assets to fixed-yield liabilities** - a ratio near 1 indicates the bank's interest spread will remain relatively constant for the fixed part of the total portfolio regardless of what happens to interest rates in the near term. This is especially true when the fixed-yield components represent a large portion of the bank's total assets. The bank is less likely to achieve either outstanding or disastrous results when the ratio approaches 1. However, you may reposition the portfolio based on expected interest movement. Increase the ratio if you believe rates are going down in the future and decrease ratio if you believe rates are going up in the future. The ratio is most easily decreased by issuing long-term debt and most easily increased by originating long-term loans or buying long-term securities.

  Spread analysis reports ("SAR's) describe the specific yield sensitivity and yield history of major assets and liability accounts. The ratios included on the reports indicate which accounts should be changed to either improve or stabilize the spread.

Risk Assessment Guide

This Annex presents a compilation of various risk factors and how they are evaluated by the Office of the Comptroller of the Currency, the primary regulator of national banks in the United States. The guide is used to assess how well a bank manages risk over time, rather than only assessing the bank's condition at a single point in time.

Risk Management

Because market conditions and company structures vary, there is no single risk management system that works for all banks. Each institution should develop its own risk management program tailored to its needs and circumstances. The sophistication of the risk management system will increase, for example, with the size, complexity, and geographic diversity of each bank. All sound risk management systems, however, have several common fundamentals. For example, sound risk management systems are independent of risk-taking activities. Regardless of the risk management program's design, each program should include:

- Risk identification: Proper risk identification focuses on recognizing and understanding existing risks or risks that may arise from new business initiatives. Risk identification should be a continuing process, and should occur at both the transaction and portfolio level.

- Risk measurement: Accurate and timely measurement of risks is a critical component of effective risk management. A bank that does not have a risk measurement system has limited ability to control or monitor risk levels. Further, the sophistication of the risk measurement tools a bank uses should reflect the complexity and levels of risk it has assumed. The bank should periodically verify the integrity of the measurement tools it uses. Good risk measurement systems assess both individual transactions and portfolios.

- Risk management: The bank should establish and communicate limits through policies, standards, and/or procedures that define responsibility and authority. These limits should be meaningful management tools that can be adjusted if conditions or risk tolerances change. The institution should have a process to authorize exceptions or changes to risk limits when they are warranted.

- Risk monitoring and control: Institutions should monitor risk levels to ensure timely review of risk positions and exceptions. Monitoring reports should be frequent, timely, accurate, and informative, and should be distributed to appropriate individuals to ensure action when needed.

Effective risk management requires the bank's council or board be informed. The board must guide the bank's strategic direction. A key component of strategic direction is endorsing the organization's risk tolerance by approving policies that set standards, either orally or in writing. Well-designed monitoring systems allow the board to hold bank management accountable for operating within established tolerance levels.

Capable management and appropriate staffing also are critical to effective risk management. Bank management is responsible for the implementation, integrity, and maintenance of risk management systems. Management also must keep the council or board adequately informed.

Management must:

- Implement the bank's strategic direction.
- Develop policies, formal or informal, that define the institution's risk tolerance that are compatible with the institution's strategic goals.
- Oversee the development and maintenance of management information systems to ensure they are timely, accurate, and informative.
- Ensure that strategic direction and risk tolerances are effectively communicated and adhered to throughout the organization.

Assessment of a risk management system considers policies, processes, personnel, and control systems. A significant deficiency in one or more of these components constitutes a deficiency in risk management. All of those systems are important, but the sophistication of each will vary depending upon the complexity of the institution. Smaller, less complex institutions normally have less formalized policies, processes, and control systems in place than do larger institutions. This does not mean, however, that risk management systems are not just as important for less complex institutions. It simply means that the formalization of the process is less distinct. All institutions should be able to clearly articulate and demonstrate the effectiveness of their own risk management systems. Nonetheless, an effective risk management process includes consistent policies, processes, personnel, and control systems.

- Policies reflect the institution's intent and commitment to pursuing desired results. They set standards and courses of action to pursue, implement, or enforce specific objectives. Good policies link and reflect an institution's underlying mission, values, and principles. They also clarify the institution's tolerance for risk. Mechanisms should be in place to trigger a review of policies in the event that activities or tolerances change. Policies may be written or unwritten depending upon the effectiveness of management and the complexity of the area or institution. In any event, standards should be articulated and adhered to in practice.
- Processes are the procedures, programs, and practices that govern how an institution will pursue its objectives. Processes define how daily activities are carried out. Good processes are consistent with the underlying policies, are efficient, and include checks and balances.
- Personnel are the staff and managers that execute or oversee performance of the processes. Good staff and managers are qualified, competent, and perform as expected. They understand the institution's mission, values, policies, and processes. Compensation programs should be designed to attract, develop, and retain qualified personnel.

- Control systems are tools and information systems that bank managers use to measure performance, make decisions, and assess effectiveness of existing processes. These feedback devices must be timely, accurate, and informative. They measure performance and assist in decision-making.

Categories of Risk

The OCC defines nine categories of risk: Credit, Interest Rate, Liquidity, Price, Foreign Exchange, Operation, Business/Strategic, Reputation and Compliance/Legal.

Credit Risk

Credit risk is the risk to earnings or capital arising from an obligor's failure to meet the terms of any contract with the bank or otherwise fail to perform as agreed. Credit risk is found in all activities where success depends on counterparty, issuer, or borrower performance. It arises any time bank funds are extended, committed, invested, or otherwise exposed through actual or implied contractual agreements, whether reflected on or off the balance sheet.

Evaluation Factors

The following evaluation factors should be considered in making risk assessments.

- Portfolio composition and the existence of concentrations. Relevant factors include:

  - Products.
  - Risk ratings.
  - Customers.
  - Geographic regions.
  - Sources of repayment.
  - Industries.
  - Originations.
  - Size of loans and leases.
  - Single/related obligor(s).
  - Collateral.

- The protection provided by collateral. In evaluating collateral, supervisors should analyze collateral type, quality, margins, marketability, and the level and nature of documentation exceptions.

- The existence of underwriting standards (written or unwritten).

- Exposure to unfunded commitments (commercial and standby letters of credit, lines of credit, etc.).

- Trends in loan volume and growth, delinquencies, nonperforming loans, classified loans, and losses.

- The adequacy of the provision for loan and lease losses.

- The volume of various capital markets instruments, such as:

  – Repurchase agreements.
  – Swaps.
  – Options.

- Forwards.
- Futures.

- Whether policies or limits are approved by the council, board, or other committee, as necessary.
- How policies or limits are communicated to responsible staff.
- The existence of timely, accurate, and informative management information.
- The effectiveness of credit administration, including credit analysis, workout strategies, collateral valuation, and lien documentation.
- The adequacy of methods used to identify credit problems.
- Whether the provision for loan and lease losses is maintained at a level commensurate with risks.
- Staffing levels and skills in relation to volume of credits, type of credits, and magnitude of problems.
- Whether proper accounting treatment is used for credit-related assets, liabilities, and provisions.
- The existence of appropriate control mechanisms to grade portfolios, ensure accuracy of data, and monitor compliance with policies or laws.

Summary Assessment

Low	Moderate	High
Management fully understands all aspects of credit risk and anticipates and responds well to changes in market conditions	Management reasonably understands key aspects of credit risk and adequately responds to changes in market conditions	Management does not understand, or has chosen to ignore, key aspects of credit risk. It does not anticipate or take timely and appropriate actions in response to changes in market conditions.
Policies are effective.	Policies are satisfactory.	Policies are ineffective.
Credit risk diversification is actively managed	Attention to credit risk diversification is adequate.	Credit risk diversification is unsatisfactory.
New loans are conservative in structure, terms, growth, or settlement practices.	New loans are prudent in structure, terms, growth, or settlement practices.	New extensions are aggressive in structure, terms, growth, or settlement practices.
Few or not exceptions to sound underwriting standards exist.	A limited volume of exceptions to sound underwriting standards exist.	A large volume of exceptions to sound underwriting exist.
Concentrations of credit reflect appropriate diversification.	Concentrations of credit reflect adequate diversification.	Significant concentrations of credit exist.
Collateral values satisfactorily support credit exposure.	Collateral values protect credit exposure.	Collateral is illiquid or values provide inadequate support.
The volume of problem credits is low and can be worked through in the normal course of business.	The volume of problem credits is moderate and can be worked through in reasonable time frames.	The volume of problem credits may be high and may require extended time for resolution.
Provisions adequately cover inherent losses. Exposure to loss of earnings or capital from credit risk is minimal.	Inherent credit losses should not seriously deplete current provisions or necessitate more than normal provisions. Exposure to loss of earnings or capital from credit risk is manageable.	Credit-related losses may seriously deplete current provisions or require abnormally large provisions to cover inherent losses. Exposure to loss of earnings or capital from credit risk is substantial.
Credit analyses are comprehensive and promote early identification of emerging risks.	Credit analyses are satisfactory, as are risk measurement and monitoring systems.	Credit analyses are not comprehensive or are of deficient quality.
Internal grading appropriately stratifies portfolio quality and provides early detection of potential problems.	Internal grading reasonably stratifies portfolio quality.	Internal grading of loans does not accurately reflect the portfolio's quality.
Loan review and audit are timely, comprehensive, and independent.	Loan review and audit are acceptable.	Serious weaknesses exist in loan review and audit, such as lack of independence, timeliness, or scope of review.
The ALLL methodology is sound and appropriate coverage of risks exists.	The ALLL methodology is generally adequate and coverage of risks is acceptable.	The ALLL methodology is flawed. It provides insufficient coverage of risks present in the portfolio.

Interest Rate Risk

Interest rate risk is the risk to earnings or capital arising from movements in interest rates. The economic perspective focuses on the value of the institution in today's interest rate environment and the sensitivity of that value to changes in interest rates. Interest rate risk arises from differences between the timing of rate changes and the timing of cash flows (repricing risk); from changing rate relationships among different yield curves affecting bank activities (basis risk); from changing rate relationships across the spectrum of maturities (yield curve risk); and from interest-related options embedded in bank products (options risk). The evaluation of interest rate risk must consider the impact of complex, illiquid hedging strategies or products, and also the potential impact on fee income which is sensitive to changes in interest rates. In those situations where trading is separately managed, this refers to structural positions and not trading portfolios.

Evaluation Factors

Supervisors should consider the following evaluation factors in making risk assessments. These evaluation factors are not mandatory checklists, but rather an overview of issues that can assist the supervisor in making decisions within the RAS.

- The size and stability of net interest margins and sensitive fee income.
- The component and aggregate levels of interest rate risk including repricing, basis, yield curve, and option risk relative to earnings and capital.
- Interest rate risk over both the short- and long-term.
- The vulnerability of earnings and capital under meaningful rate changes such as gradual rate shifts and yield curve twists. The appropriateness of the scenarios should be evaluated in the context of the current rate environment. Rate scenarios of sufficiently wide variability will be necessary to provide meaningful analysis (i.e., evaluation of repricing risk with a market rate change of at least 2-3 percentage points over a 12-month time horizon).
- The character of risk such as the volume and price sensitivity of various products.
- The complexity of risk positions, such as the various lending transaction in which institutions engage.
- The relative volume of and prospects for continued support from low cost and stable funding sources, especially non-maturity deposits.
- Whether policies or limits are approved by the council, board or an appropriately delegated committee, as necessary.
- How policies or limits are communicated to responsible staff.
- The existence of timely, accurate, and informative management information to monitor positions and sensitivity.

- Whether a process exists for independently measuring and analyzing risk in all significant activities from interest rate movements using a variety of scenarios.
- Whether risk positions are appropriately adjusted for changing market conditions.
- Whether management has sufficient expertise and market access to flexibly adjust risk levels.
- Testing the reasonableness and validity of assumptions and models, as necessary.
- The level and skill of management and staff.
- The existence of proper control mechanisms to monitor the accuracy of information, proper accounting treatment, and compliance with policies or laws.

Summary Assessment

Low	Moderate	High
Responsible officials fully understand all aspects of interest rate risk.	Responsible officials reasonably understand the key aspects of interest rate risk.	Responsible officials do not understand or choose to ignore key aspects of interest rate risk.
Management anticipates and responds well to changes in market conditions.	Management adequately responds to changes in market conditions.	Management does not anticipate or take timely and appropriate actions in response to changes in market conditions.
Knowledge of interest rate risk is well understood at appropriate levels in the bank.	Knowledge of interest rate risk exists at appropriate levels in the bank.	Knowledge of interest rate risk may be concentrated in too few individuals.
Responsibility for monitoring risk limits and measuring exposures is independent from those executing risk-taking decisions.	Responsibility for monitoring risk limits and measuring exposures is independent from those executing risk-taking decisions.	Responsibility from monitoring risk limits and measuring exposures is not independent from those executing risk-taking decisions.
Exposure reflects little repricing risk and minimal exposure to basis risk and yield curve risk. Options positions are clearly identified and well-managed.	Exposure reflects repricing risk, basis risk, yield curve risk, and options risk that are collectively maintained at manageable levels.	Exposure reflects significant repricing risk, high levels of basis risk, undue yield curve risk, or significant levels of options risk.
Mismatched positions are short-term.	Mismatched positions may be longer term, but are effectively hedged.	Mismatched positions are longer term and costly to hedge.
The mismatches are unlikely to cause earnings or capital volatility due to the movement in interest rates.	Substantial volatility in earnings or capital due to the movement of interest rates is not anticipated.	The probability of substantial volatility in earnings or capital due to the movement of interest rates is high.
The interest rate risk management process is effective and proactive.	The interest rate risk management process is adequate.	The Interest rate risk management process is deficient.
Measurement tools and methods enhance decision making by providing meaningful and timely information under a variety of defined and reasonable rate scenarios.	Measurement tools and methods have minor weaknesses, but are appropriate given the size and complexity of the institution's on- and off-balance sheet exposures.	The process is overly simplistic in light of the relative size and complexity of the institution's on- and Off-balance sheet exposures.
Management information systems are timely, accurate, complete and reliable.	Management information is generally timely, accurate, complete and reliable.	Management information systems contain significant weaknesses.
Limit structures provide clear parameters for risk to earnings and the economic value of equity under a variety of defined and reasonable interest rate scenarios.	Limit structures are adequate to control the risk to earnings and the economic value of equity under defined and reasonable interest rate scenarios.	Limit structures are not reasonable or do not reflect an understanding of the risks to earnings and the economic value of equity.

Liquidity Risk

Liquidity risk is the risk to earnings or capital arising from an institution's inability to meet its obligations when they come due, without incurring unacceptable losses. Liquidity risk includes the inability to manage unplanned decreases or changes in funding sources. Liquidity risk also arises from the institution's failure to recognize or address changes in market conditions that affect the ability to liquidate assets quickly and with minimal loss in value.

Evaluation Factors

Supervisors should consider the following evaluation factor's in making risk assessments. These evaluation factors are not mandatory checklists, but rather an overview of issues that can assist the supervisor in making decisions within the RAS.

- The volume and composition of asset-based liquidity in relation to the liability structure. Relevant factors include:

  -- Money market assets (overnight funds sold, foreign placements, etc.).
  -- Unencumbered, marketable securities.
  -- Asset sales, securitization opportunities, etc.

- The funding volume and composition of the institution. Relevant factors include:

  -- Wholesale versus retail funding.
  -- Concentrations in large fund providers, either by provider or instrument.
  -- The level of dependence on credit-sensitive sources.

- The diversification of funding sources, including:

  -- The proportion of funding from direct relationships (vs. brokers, professional money-managers, out-of-market sources, etc.).
  -- Sources of funds providers: for example, over-reliance on specific types of providers, instruments, and/or maturities.

- Net funding gaps, with an emphasis on short-term exposures, including:

  -- Projected funding needs.
  -- Ability to cover potential funding gaps at reasonable prices.

- The composition of on- and off- balance sheet portfolios, including:

  -- Cash flows.
  -- Collateral and early termination arrangements.
  -- The depth and breadth of secondary markets available to convert the instruments to cash.

- Resistance to the institution's name in the marketplace as demonstrated by deteriorating credit ratings and debt spreads over comparable government securities.
- The cost of funding for this institution compared to the cost with its competition.
- The views of formal or informal rating services and analyses about the institution, including current ratings and rating trends.
- Whether policies or limits are approved by the council, board, or an appropriately delegated committee, as necessary.
- The existence of appropriate contingency planning.
- How policies or limits are communicated to responsible staff.
- The existence of timely, accurate, and informative management information.
- The level and skill of management and staff.
- The existence of proper control mechanisms to monitor the accuracy of information, proper accounting treatment, and compliance with policies or laws.

Summary Assessment

Low	Moderate	High
Management fully understands all aspects of liquidity risk.	Management reasonably understands the key aspects of liquidity risk.	Management does not understand, or ignores the key aspects of liquidity risk.
Management anticipates and responds well to changes in market conditions.	Management adequately responds to changes in market conditions.	Management does not anticipate or take timely or appropriate actions in response to changes in market conditions.
Liquidity position is favorable, with negligible exposure to earnings and capital expected.	The bank is not excessively vulnerable to funding difficulties should an adverse change in market perception occur. Earnings or capital exposure is manageable.	The institution's access to funds is impacted by poor market perception or market resistance, resulting in substantial exposure to loss of earnings or capital.
Ample funding sources exist. Funding sources provide the bank with a competitive cost advantage.	Sufficient funding sources exist to provide cost-effective liquidity.	Funding sources and portfolio structures suggest current or potential difficulty in sustaining long-term cost-effective liquidity.
Borrowing sources are widely diversified, with little or no reliance on institutional or other credit-sensitive funds providers.	Borrowing sources are diversified with few providers or groups sharing common investment objectives, timing, and economic influences.	Borrowing sources are concentrated in a few providers or providers with common investment objectives or economic influences.
Market alternatives exceed demand for liquidity, with no adverse changes expected.	The liquidity position is not expected to deteriorate in the near term.	Liquidity needs may be increasing with declining medium- and long-term funding alternatives.
Liquidity risk management processes reflect a sound culture that has proven effective over time.	Liquidity risk management processes are adequate.	Liquidity risk management processes are deficient.
Management information is timely, complete and reliable.	Management information is generally timely, accurate, complete and reliable.	Management information systems do not provide useful information for managing liquidity risk.
Appropriate attention is given to balance sheet symmetry and the cost effectiveness of liquidity alternatives.	Access to funding markets is properly assessed and diversified, and attention to balance sheet symmetry is appropriate.	Management has not realistically assessed the institution's access to funds and has not paid sufficient attention to diversification. Attention to balance sheet symmetry is deficient.
Contingency plans are well-developed and effective.	Contingency planning is effective, and the cost of liquidity alternatives is adequately considered.	Contingency planning is either nonexistent or incomplete. The cost of liquidity alternatives has not been adequately considered. A high probability exists that contingency funding sources are needed. Improvement is not expected in the near future.

Price Risk

Price risk is the risk to earnings or capital arising from changes in the value of portfolios of financial instruments. This risk arises from market-making, dealing, and position-taking activities in interest rate, foreign exchange, equity, and commodities markets.

Evaluation Factors

Supervisors should consider the following evaluation factors in making risk assessments. These evaluation factors are not mandatory checklists, but rather, an overview of issues that can assist the supervisor in making decisions within the RAS.

- The source of price risk including interest rate, foreign exchange, commodity, and equity prices.
- The size, tenor, and complexity of positions.
- The components of price risk including forward and options risk.
- The stability of trading revenues.
- The trend of earnings and capital at risk.
- The vulnerability under probable rate scenarios and stress environments.
- The character of risk, including the volume and price sensitivity of various products.
- The flexibility afforded by the current risk profile and management's ability to hedge the risk at reasonable cost. The ability to hedge should include consideration of the institution's access to markets.
- The size of open positions versus revenues generated and expected (i.e., risk versus reward).
- Whether policies or limits are approved by the council, board, or an appropriately delegated committee, as necessary.
- How policies or limits are communicated to responsible staff.
- The existence of timely, accurate, and informative management information.
- The level and skill of management and staff.
- The existence of proper control mechanisms to monitor the accuracy of information, proper accounting treatment, and compliance with policies, limits, or laws.

Summary Assessment

Low	Moderate	High
Management fully understands all aspects of price risk	Management reasonably understands the key aspects of price risk	Management does not understand, or has chosen to ignore, key aspects of price risk
Management anticipates and responds well to changes in market conditions	Management adequately responds to changes in market conditions.	Management does not anticipate or take timely and appropriate actions in response to changing market conditions.
Knowledge of price risk exposure is well-understood at appropriate levels throughout the institution.	Knowledge of price risk exposure is adequate and is understood at appropriate levels throughout the institution	Knowledge of price risk exposure is limited or concentrated in too few individuals
Exposure reflects limited open or unhedged positions. As a result, earning and capital are vulnerable to nominal volatility from revaluation requirements.	Exposure reflects moderate open or unhedged positions, limiting the vulnerability of earnings and capital to moderate volatility from revaluation requirements.	Exposure reflects significant open or unhedged positions which subjects earnings or capital to significant volatility from revaluation requirements.
Exposures are confined primarily to those arising from customer transactions, and involve liquid and readily manageable products, markets, and levels of activity.	Exposure originates primarily in conjunction with customer transactions. The bank has access to a variety of risk management instruments and markets at reasonable costs, given the size, tenor, and complexity of open positions.	Exposure may arise from transactions or positions that are taken as management's or trader' s views of the market, or in conjunction with customer transactions.
The frequency and size of position-taking are expected to continue at, or decline from, current levels.	The frequency and size of position-taking are expected to remain at current levels.	The positions may be difficult or costly to close out or hedge due to complexity; difficulty in readily accessing certain instruments, markets or tenors; or the general illiquidity of markets or products. The frequency and size of position-taking are expected to continue at or increase beyond, current levels.
Price risk management processes have few or no deficiencies.	Price risk management processes are adequate.	Price risk management processes are deficient.
Measurement tools and methods are sophisticated, given the size and complexity of activities.	Measurement tools and methods have minor deficiencies, but are sufficient give the size and complexity of activities.	Measurement tools and methods are inadequate given the size or complexity of activities.
Management information provides a clear assessment of the potential volatility and aggregate risk-taking	Management information reasonably portrays the potential volatility and aggregate risk-taking	Management information does not accurately characterize potential volatility or aggregate risk-taking
Valuation methods are "state of the art," independently reviewed, tested, and documented.	Valuation methodologies are acceptable.	Valuation methodologies are flawed.
Limit structures are reasonable, clear, and effectively communicated. The limits reflect a clear understanding of the risk to earnings and capital under a variety of defined and reasonable scenarios.	Limit structures are reasonable, clear, and effectively communicated. The limits also reflect a clear understanding of the risk to earnings and capital under defined and reasonable scenarios.	Limit structures are not be reasonable, clear, or effectively communicated. Limits may not reflect a complete understanding of the risk to earnings and capital.
Responsibility for measuring exposures and monitoring risk is independent from risk-taking activities.	Responsibility for measuring exposures and monitoring risk is independent from risk-taking activities.	Responsibility for measuring exposures and monitoring risk is not independent from risk-taking activities.

Foreign Exchange Risk

Foreign exchange risk is the risk to earnings or capital arising from movement of foreign exchange rates. This risk is found in operating activities or cross-border investing or lending. Market-making and position-taking in foreign currencies should be captured under price risk.

Evaluation Factors

Supervisors should consider the following evaluation factors in making risk assessments. These evaluation factors are not mandatory checklists, but rather an overview of issues that can assist the supervisor in making decisions within the RAS.

- The volume of business subject to revaluation from currency translation requirements.

- The composition of the portfolio, including an assessment by:

  -- Currency.
  -- Products.
  -- Tenor or anticipated duration of positions.
  -- The size and maturity of cash flow mismatches.
  -- The extent of positions in thinly traded currencies.

- The potential volatility of capital ratios from translating accounts denominated in other currencies to their dollar equivalent. This includes an analysis of recent trends and projections.

- Whether policies or limits are approved by the council, board, or an appropriately delegated committee, as necessary.

- How policies or limits are communicated to responsible staff.

- The existence of timely, accurate, and informative management information.

- The level and skill of management and staff.

- The existence of proper control mechanisms to monitor the accuracy of information, proper accounting treatment, and compliance with policies or laws.

Summary Assessment

Low	Moderate	High
The foreign exchange risk management process is well understood throughout the institution.	The foreign exchange risk management process is adequate. Knowledge of foreign exchange risk exposures is adequately understood at appropriate levels.	Knowledge of foreign exchange risk exposure is limited or concentrated in too few individuals.
Management fully understands all aspects of foreign exchange risk.	Management reasonably understands the key aspects of foreign exchange risk.	Management does not understand, or has chosen to ignore, key aspects of foreign exchange risk.
Management anticipates and responds well to changes in market conditions.	Management adequately responds to changes in market conditions.	Management does not anticipate or take timely or appropriate actions in response to changes in market conditions.
Exposure reflects non-dollar denominated positions that are largely hedged.	Exposure may reflect large non-dollar denominated positions that are open, but can be readily hedged at a reasonable cost.	Exposure reflects large non-dollar denominated positions, or cash flow mismatches, that are unhedged.
Cash flows are predictable and are closely matched or hedged.	Cash flow mismatches are predictable and moderate in size.	Some positions may be denominated in relatively illiquid currencies, complicating the ease, speed, and cost of hedging.
There is negligible volatility to earnings or capital because of translation adjustments.	There is moderate volatility to earnings or capital due to translation adjustments.	There is substantial volatility to earnings or capital due to translation adjustments.
Risk measurement tools and methods are sophisticated, given the size and complexity of activities.	Risk measurement tools and methods may have minor deficiencies, but are sufficient given the size and complexity of activities.	Risk measurement tools and methods are inadequate given the size or complexity of activities.
Management information systems provide a clear assessment of the potential volatility and aggregate risk-taking.	Management information systems provide a reasonable assessment of the potential volatility and aggregate risk-taking.	Management information systems do not accurately portray the potential volatility or aggregate risk-taking.
Limit structures are reasonable, clear, and effectively communicated.	Limit structures are reasonable, clear, and effectively communicated.	Limit structures are not reasonable, clear, or effectively communicated.
Limits reflect a clear understanding of the risk to earnings and capital risk to earnings and under a variety of defined and reasonable scenarios.	Limits reflect an understanding of the risk to earnings and capital under a defined yet reasonable scenarios.	Limits do not reflect a complete understanding of the risk to earnings and capital.
Qualified individuals independent from risk-taking activities, have the responsibility for measuring exposures and monitoring risk.	Responsibility for measuring exposures and monitoring risk is independent from risk-taking activities.	Responsibility for measuring exposures and monitoring risks is not independent from risk-taking activities.

Operations risk

Operations risk is the risk to earnings or capital arising from problems with service or product delivery. This risk is a function of internal controls, information systems, employee integrity, and operating processes. Operations risk exists in all products and services.

Evaluation Factors

Supervisors should consider the following evaluation factors in making risk assessments. These evaluation factors are not mandatory checklists, but rather an overview of issues that can assist the supervisor in making decisions within the RAS.

- The volume of transactions in relation to systems development and capacity. This analysis should incorporate the institution's historical record, current condition, and prospective systems.
- The complexity of processing transactions and delivering services in comparison to systems development and capacity.
- The volume of administrative and accounting control exceptions.
- The potential for financial loss due to:

  -- Human error or fraud.

  -- Competitive disadvantage.

  -- Incomplete information.

  -- Operational disruption.
- The history of litigation related to operations.
- The volume and adequacy of controls over outsourcing arrangements.
- Whether policies are approved by the council, board, or an appropriately delegated committee, as necessary.
- How policies are communicated to responsible staff.
- The existence of timely, accurate, and informative management information.
- The level and skill of management and staff.
- The existence of proper control mechanisms to monitor the accuracy of information, proper accounting treatment, and compliance with policies or laws.

Summary Assessment

Low	Moderate	High
Management fully understands all aspects of operations risk. Management anticipates and responds well to market and technological changes.	Management reasonably understands the key aspects of operations risk. Management adequately responds to changes of a market or technological nature.	Management does not understand, or has chosen to ignore, key aspects of operations risk. Management does not anticipate or take timely and appropriate actions in response to market or technological changes.
The volume and complexity of transaction processing is low and well supported by systems development.	The volume and complexity of transactions expose the bank to some degree of risk. Systems development adequately supports the level of transaction processing.	The level of transaction processing and state of systems development are inconsistent and reflect weaknesses.
Possible damage to reputation, or loss of earnings and capital, is slight.	Possible loss to reputation, earnings, or capital exists but is mitigated by adequate internal controls.	Weak internal controls expose the bank to significant damage to reputation, or loss of earnings or capital.
The bank has a history of sound operations. The likelihood of future transaction processing failures is minimal because of the presence of strong internal controls.	The bank has a history of adequate operations. The likelihood of future transaction processing failures is minimized by generally effective controls.	The bank may have a history of transaction processing failures. The likelihood of future transaction processing failures is high because of the absence of effective internal controls.
The bank has a strong control culture that results in systems, internal controls, audit, and contingency plans that are sound.	Adequate operating and information processing systems, internal controls, audit coverage, and contingency plans are evident.	Serious weaknesses exist in operating and information systems, internal controls, audit coverage or contingency plans.
Management information is satisfactory.	Minor deficiencies may exist in management information that relates to transaction and information processing activities.	Management information related to transaction processing activities exhibits significant weaknesses.
Management has demonstrated favorable performance in acquisitions and the introduction of new products and services.	Planning and due diligence are performed although minor weaknesses exist.	Planning or due diligence may be inadequate, exposing the bank to risk from the introduction of new products and services or acquisitions.
Implementation plans are clear and followed.	Implementation plans are evident although they are not always comprehensive.	The bank may be exposed to processing risks because of poor conversion management, either from the integration of new acquisitions with existing systems, or from converting one system to another.
Management identifies weaknesses quickly and takes appropriate action.	Management recognizes weaknesses and generally takes appropriate action.	Management has not demonstrated a commitment to make the corrections required to improve transaction processing risk controls.

Business/Strategic risk

Business/Strategic risk is the risk to earnings or capital arising from adverse business decisions or improper implementation of those decisions. This risk is a function of the compatibility of an organization's strategic goals, the business strategies developed to achieve those goals, the resources deployed for those goals, and the quality of implementation. The resources needed to carry out business strategies are both tangible and intangible. They include communication channels, operating systems, delivery networks, and managerial/personnel capacities and capabilities.

Evaluation Factors

Supervisors should consider the following evaluation factors in making risk assessments. These evaluation factors are not mandatory checklists, but rather an overview of issues that can assist the supervisor in making decisions within the RAS.

- The company's mission, goals, culture, corporate values, and tolerance for risk.
- Management's method of communicating, modifying, and implementing strategic plans.
- The magnitude of changes in established strategic direction or in risk tolerance.
- Management information systems and controls available to monitor business decisions.
- Strategic choices relating to technological, product, and competitive environments and their impact on franchise value.
- Merger and acquisition plans and opportunities.
- The compatibility of strategic initiatives with available or planned resources.
- The company's market position, including market penetration at both the product and geographic level.
- The company's diversity in terms of products, geography, and demographics.
- The company's past performance in offering new products and services.
- The company's ability to monitor lending and reinvestment issues in light of corporate activities.

Summary Assessment

Low	Moderate	High
Risk management practices are an integral part of strategic planning.	The quality of risk management is consistent with the strategic issues confronting the organization.	Risk management practices are inconsistent with strategic initiatives. A lack of strategic direction is evident.
Strategic goals, objectives, corporate culture, and behavior are effectively communicated and consistently applied throughout the institution. Strategic direction and organizational efficiency are enhanced by the depth of management talent.	Management has demonstrated the ability to implement goals and objectives and successful implementation of strategic initiatives is likely.	Strategic initiatives are inadequately supported by the operating policies and programs that direct behavior. The structure and talent of the organization do not support long-term strategies.
Management has been successful in accomplishing past goals and is appropriately disciplined.	Management has a reasonable record in decision making and controls.	Deficiencies in management decision making and risk recognition do not allow the institution to effectively evaluate new products, services, or acquisitions.
Management information systems effectively support strategic direction and initiatives.	Management information systems reasonably support the company's short-term direction and initiatives.	Management information systems supporting strategic initiatives are seriously flawed or do not exist.
Exposure reflects strategic goals that are not overly aggressive and are compatible with developed business strategies.	Exposure reflects strategic goals that are aggressive but compatible with business strategies.	Strategic goals emphasize significant growth or expansion that is likely to result in earnings volatility or capital pressures.
Initiatives will have a negligible impact on capital, systems or management resources. The initiatives are well supported by capital for the foreseeable future and pose only nominal possible effects on earnings volatility.	The corporate culture has only minor inconsistencies with planned initiatives. The initiatives are reasonable considering the capital, systems, and management available to support them. Decisions are not likely to have a significant adverse impact on earnings or capital. If necessary, the decisions or actions can be reversed without significant cost or difficulty.	The impact of strategic decisions is expected to significantly affect franchise value. Strategic initiatives may be aggressive and/or incompatible with developed business strategies. Decisions are either difficult or costly to reverse.
Initiatives are supported by sound due diligence and strong risk management systems. The decisions can be reversed with little difficulty and manageable costs.	Strategic initiatives will not materially alter business direction, can be implemented efficiently and cost effectively, and are within management's abilities.	Strategic goals are unclear or inconsistent, and have led to an imbalance between the institution's tolerance for risk and willingness to supply supporting resources.

Compliance/Legal risk

Compliance/legal risk is the risk to earnings or capital arising from violations of, or nonconformance with, laws, rules, regulations, prescribed practices, or ethical standards. Compliance/legal risk also arises in situations where the laws or rules governing certain bank products or activities of the bank's clients may be ambiguous or untested. Compliance/legal risk exposes the institution to fines, payment of damages, and the voiding of contracts. Compliance/legal risk can lead to a diminished reputation, reduced franchise value, limited business opportunities, lessened expansion potential, and lack of contract enforceability.

Evaluation Factors

Examiners should consider the following evaluation factors in making risk assessments. These evaluation factors are not mandatory checklists, but rather an overview of issues that can assist the examiner in making decisions within the RAS.

- The volume and significance of violations or nonconformance with prescribed standards or legal requirements. (Significance is determined by analysis of the frequency, dollar amount, and nature of noncompliance.) The analysis should incorporate both current and historical perspectives.
- The history of complaints and litigation by customers and others. The complaints or litigation may involve:

  -- Consumer protection (lending, deposits, funds transfer fee-based services, etc.).

  -- Applicable banking laws and regulations.

  -- Other explicit or implied prudential and ethical standards, whether established internally or mandated by others.

- Whether policies are approved by the council, board or an appropriately delegated committee, as necessary.

- How policies and limits are communicated to management and staff.

- The existence of timely, accurate, and informative management information.

- The level and skill of management and staff.

- Independent and effective feedback on compliance with policies and operating procedures. Control systems should be consistent with the complexity of the activities, but at a minimum should include internal and/or external audit reviews.

Summary Assessment

Low	Moderate	High
Management fully understands all aspects of compliance/legal risk and exhibits clear commitment to compliance.	Management reasonably understands the key aspects of compliance/legal risk.	Management doesn't understand, or has chosen to ignore, key aspects of compliance/legal risk.
The commitment is communicated throughout the institution.	Its commitment to compliance is reasonable and satisfactorily communicated.	The importance of compliance is not emphasized or communicated throughout the organization.
Authority and accountability for compliance are clearly defined and enforced.	Authority and accountability are defined, although some refinements may be needed.	Management has not established or enforced accountability for compliance performance.
Management anticipates and responds well to changes in the market or regulatory nature.	Management adequately responds to changes of a market or regulatory nature.	Management does not anticipate or take timely or appropriate actions in response to changes of a market or regulatory nature.
Compliance considerations are incorporated into the product and system development process.	While compliance may not be formally considered when developing products and systems, issues are typically addressed before they are fully implemented	Compliance considerations are not incorporated in product or systems development.
Violations or noncompliance issues are insignificant, as measured by their number or seriousness.	The frequency or severity of violations or noncompliance is reasonable.	Violations or noncompliance expose the company to significant impairment of reputation, value, earnings, or business opportunity.
When deficiencies are identified, management promptly implements meaningful corrective action.	Problems can be corrected in the normal course of business without significant investment of money or management resources. Management is responsive when deficiencies are identified.	Errors are often not detected internally, corrective action is often ineffective, or management is unresponsive to identified deficiencies.
The institution has a good record of compliance, and a strong, effective control culture. Compliance management systems are sound and minimize the likelihood of excessive or serious future violations.	Compliance management systems are adequate to avoid significant or frequent violations or noncompliance.	Compliance management systems are deficient, reflecting and inadequate commitment to risk management.
Appropriate controls and systems are implemented to identify compliance problems and assess performance.	No shortcomings of significance are evident in controls or systems. The probability of serious violations or noncompliance is within acceptable tolerance.	The likelihood of continued violations or noncompliance is high because of corrective action program does not exist, or extended time is needed to implement such a program.
Training programs are effective and the necessary resources have been provided to ensure compliance.	Management provides adequate resources and training given the complexity of products and operations.	Management has not provided adequate resources or training.

Reputation Risk

Reputation risk is the risk to earnings or capital arising from negative public opinion. This affects the institution's ability to establish new relationships or services, or continue servicing existing relationships. This risk can expose the institution to litigation, financial loss, or damage to its reputation. Reputation risk exposure is present throughout the organization and is why banks have the responsibility to exercise an abundance of caution in dealing with its customers and community. This risk is present in activities such as asset management and agency transactions.

Evaluation Factors

Supervisors should consider the following evaluation factors in making risk assessments. These evaluation factors are not mandatory checklists, but rather an overview of issues that can assist the supervisor in making decisions within the RAS.

- The market or public perception of management and the financial stability of the institution.
- The market or public perception of the complexity of business products and services.
- Management's willingness and ability to adjust strategies based on regulatory changes, market perception, or legal barriers.
- The company's history of, and plans for, analyzing risks in new services, developing policies, and conducting due diligence.
- Plans for new services that test legal barriers.
- The volume of assets and number of accounts under management or administration.
- The nature and volume of customer complaints and management's ability and willingness to respond to those complaints.
- The existence of highly visible or conspicuous litigation.
- Historical losses arising from litigation.
- The findings of internal and supervisory reviews and management's willingness and ability to respond to these reviews.
- The existence of appropriate fiduciary or other liability insurance.

Summary Assessment

Low	Moderate	High
Management anticipates and responds well to changes of a market or regulatory nature that impact its reputations in the marketplace.	Management adequately responds to changes of a market or regulatory nature that impact the institution's reputation in the marketplace.	Management does not anticipate or take timely or appropriate actions in response to changes of a market or regulatory nature.
Management fosters a sound culture that is well supported throughout the organization and has proven very effective over time.	Administration procedures and processes are satisfactory. Management has a good record of correcting problems. Any deficiencies in management information systems are minor.	Weaknesses may be observed in one or more critical operational, administrative, or investment activities. Management information at various levels exhibit significant weaknesses.
The bank self-polices risks.	The bank effectively self-polices risks.	The institution's performance in policing risk is suspect.
Internal controls and audit are fully effective.	Internal controls and audit are generally effective.	Internal controls or audit are not effective in reducing exposure. Management has either not initiated, or has a poor record of, corrective action to address problems.
Franchise value is only minimally exposed by reputation risk. Exposure from reputation risk is expected to remain low in the foreseeable future.	The exposure of franchise value from reputation risk is controlled. Exposure is not expected to increase in the foreseeable future.	Franchise value is substantially exposed by reputation risk shown in significant litigation, large dollar losses, or a high volume of customer complaints. The potential exposure is increased by the number of accounts, the volume of assets under management, or the number of affected transactions. Exposure is expected to continue in the foreseeable future.
Losses from fiduciary activities are low relative to the number of accounts, the volume of assets under management and the number of affected transactions. The bank does not regularly experience litigation or customer complaints.	The bank has avoided conflicts of interest and other legal or control breaches. The level of litigation, losses, and customer complaints are manageable and commensurate with the volume of business conducted.	Poor administration, conflicts of interest, and other legal or control breaches may be evident.

Annex 3: Credit Analysis Primer

Credit analysis is about predicting whether or not a customer will repay a loan. Credit analysis seeks evidence that allows the analyst to assess whether a customer will have the capability, and willingness, to repay the loan. This evidence can come in a variety of forms, both internal and external to the bank, and can be both objective and subjective, quantitative and non-quantitative.

When a banker makes a loan, he entrusts funds from depositors, creditors and investors to the customer in the expectation that the borrower will use the funds profitably, return the principal and generate a return for the bank. As SME bankers, we need to know if our bank is being compensated for the risk and the costs we undertake in making the loan. With so much at stake, we need reasons to believe that the customer will return our principal and compensate us for his use of our funds. Credit analysis, then, is about conducting a systematic investigation of the customer to understand his strengths and weaknesses, and to identify the situations and conditions that could cause poor loan performance or even default.

Besides judging the probability of default, we are also interested in the business of the customer and how we can structure the credit facility to serve the borrower and the bank. Judging the probability of default allows us to accept or reject the credit application and calculate a price for the risk premium of dealing with the particular credit.

Credit Investigation

Credit investigation is a fundamental part of the credit underwriting process. It is an active process best carried out at the place of business of the customer where the banker can observe the operations, review records, and verify the condition of inventory, plant and equipment. The structured interview guides the banker in gathering relevant and material information to build a simple financial projection model.

The purpose of credit investigation is to provide information about the applicant that will allow the banker to analyze the borrower, accept or reject the application, and structure the credit facility. The depth of the information collected in the investigation is partly determined by the kind of credit under consideration.

Internal Sources of Information

If the loan customer has an existing relationship with the bank, a great deal of information is internally available to the bank about the customer's willingness and capacity to service the proposed loan. Inflows and outflows to the customer's accounts may reflect a seasonality of business, the magnitude of the business, and a sense of the

variety and quality of customers. Importantly, owners of the business may have personal bank accounts or have purchased CDs or other investment instruments of the bank that are valuable for cross-selling services and also for providing funded personal guarantees.

External Sources of Information

Where available, credit information bureaus where available allow banks and non-bank credit institutions to share information about borrowers. This information can reduce the cost of gathering information aimed at answering the question:

"Does the borrower honor his obligations?"

Where available, mutual revision among banks can serve the same purpose, to understand the financial position of a client and at minimum whether the experience has been favorable or unfavorable. Mutual revision is the protocol whereby banks share information about customers as part of the interbank credit culture.

Visiting the Customer

In SME lending, visiting the customer's business is important in making an informed credit decision. The banker requests the following information from the applicant:

- A brief description of the proposed transaction
- Personal financial statement
- Current and previous three year-end financial statements for existing businesses
- Resumes for all partners
- A business plan

Customer Interview

Although customer interviews can present a lopsided picture of the borrower, it is still the principal source of information. The prospective medium-sized borrower should:

- Indicate the type and amount of loan requested;
- Designate the proposed source and plan of repayment;
- Identify the collateral or guarantors;
- Name other previous and current creditors;
- List primary customers and trade suppliers;
- Identify the firm's accountant;
- Indicate the principal officers and shareholders;

- Give personal and business histories.

Ideally, the borrower also should provide documents needed to establish the lending relationship, including such items as:

- The latest three or more years of business financial statements;
- Personal financial statements;
- Income tax returns;
- Borrowing authorities;
- Evidence of insurance, and continuing guarantees[1].

In small business lending and in banking in transitional economies, however, these requirements are frequently unrealistic.

The conventional method for investigating the client means calling at his place of business and conducting a *structured interview* to help judge his overall strengths and weaknesses. This interview will answer such questions as:

- What are the characteristics of the borrower's market?
- Who owns the business? What is their background and experience?
- Who runs the business? Does the manager have a stake in the business?
- Who is in charge in the absence of the general manager?
- What is the state of bookkeeping and accounting?
- Is accounting performed by the cash or the accrual method?
- Who manages the treasury and has access to cash?
- How are the products sold and distributed to the market?
- On what basis does the customer compete--How important is price, quality, or service in selling the product?
- What is the technology of the production process?
- Does the business appear to be a thriving concern?
- Is labor availability a constraint?
- Does the order book show a future stream of purchases?
- Is the inventory system orderly and up to date?

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[1] See Chapter 11, "Lending Principles and the Business Borrower," Hemple, Simonson, and Coleman. Also Chapters 1-3, *Credit Analysis*, Hale.

The degree to which the banker will wish to investigate a company depends on the breadth of the relationship and the credit facilities used. A very short-term, self-liquidating loan will require a different level of effort than a term loan that is based on the residual cash flows of operations.

The structured interview will also be the opportunity to collect financial information in the absence of financial statements.

The process of the visit:

1. **Research the customer's character.** External analysis. Talk to other shops and business-people in the neighborhood to find out if they have any strong positive or negative opinions about your prospective customer. Ask them about the vitality of the neighborhood and the vitality of your customer's business.

- How long has your customer been in business?
- Do they know the owner?
- Is the business a "good neighbor"?
- If a retail merchant, for example, how does he compare to competitors?

2. **Ask the applicant's permission to talk to his customers and suppliers.**

- How do these products compare to those of competitors?
- Quality?
- Price?
- Does the applicant pay his bills on time?

3. **Research the quality of the assets and property:**

- Does this appear to be a quality business? Are the premises clean? Are employees behaving purposefully?
- Is the equipment new or old?
- Are there obvious problems?

4. **Review financial statements, relevant records and documents:**

- Are records orderly and accessible?
- Who are the owners?
- Does the business have a business registration?
- What is the form of ownership? Sole proprietorship? Partnership? Corporation?
- Does the business have a balance sheet and income statement?
- What kind of bookkeeping and accounting system does the business have?
- Does the business have a tax statement?
- Has the business pledged any assets to other creditors?

5. **Assemble relevant documents:**

- Bank statements
- Records of customers and accounts receivable
- Records of supplies and accounts payable
- Record of fixed assets
- Tax records
- Business registration
- Title to business property, vehicles and equipment
- Title to the personal property and assets of the business owner(s)

6. **Interview the business owner about the operations of the business:**

- Conduct the interview
- Determine how the applicant wishes to use loan funds
- Gather sales revenue and operating cost information
- Build the financial projection model
- Determine the future cash flow shortfalls of the business

Financial analysis: Building the Visual Model of Financial Projections

The basic model can be drawn on a blocked, graphic pad, 0.5cm or ¼" blocks. The purpose is to create an income statement and balance sheet projections that can be compared visually. The proportionate size and relationship of each is portrayed on the graph pad[2].

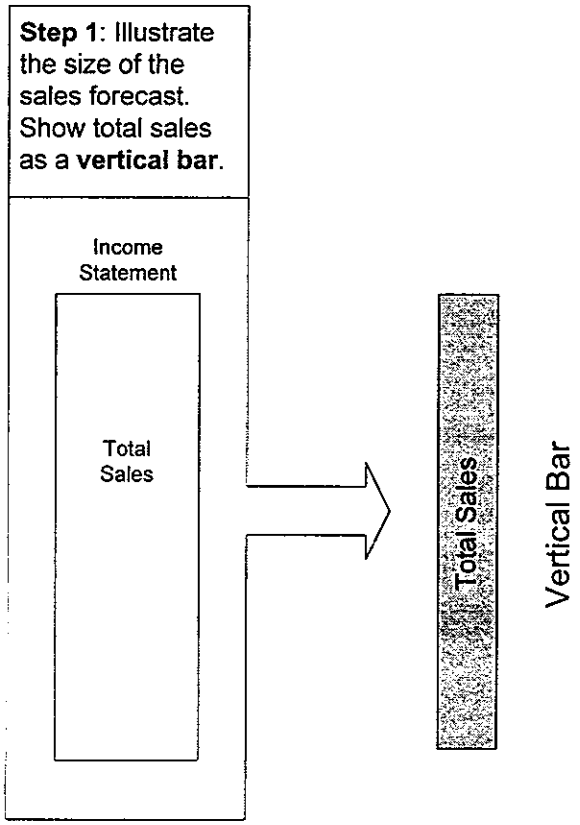
[2] "The Art of Making Financial Statement Projections: A Six-Step Visual Model," by Richard Hamm (Robert Morris Associates, 1995).

1. Develop a Sales Forecast

Estimate sales for the first period. Interview concentrates on:

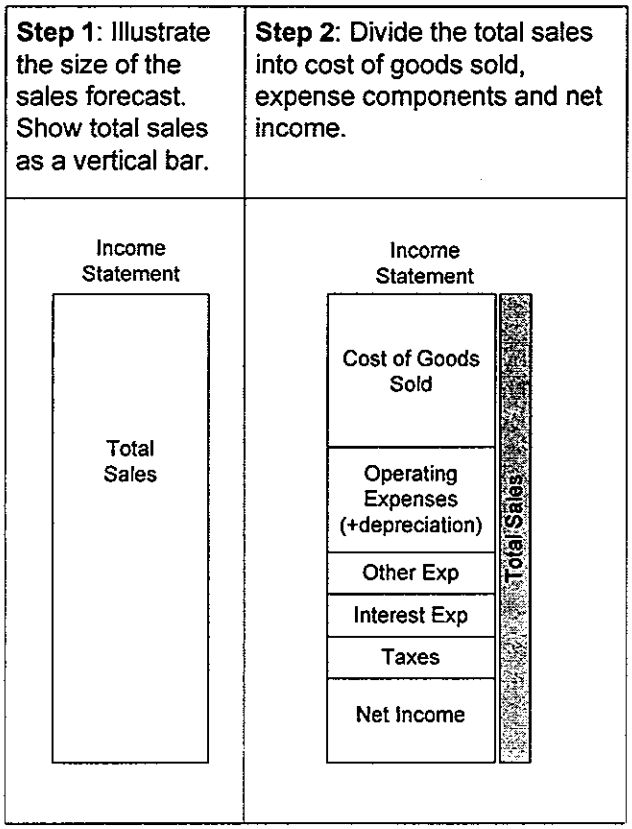
- Volume of sales x price = sales revenues
- Other income
- Use historical sales as a basis
- Review the order book of the applicant and any other records indicating future sales
- Review the customer's marketing plan and targets

Draw a vertical bar on the right 1/3 of the graph paper leaving ample space on the left.



2. Estimate Costs, Expenses and Profit

Break the income statement down into items covered by the revenue:



Projected sales is a key driver of net income and cash flow and is therefore crucial to the derivation of all other income statement and balance sheet items.

In step No. 2, break down total sales into the major components of the income statement: cost of goods sold, operating expenses, interest expense, taxes and net income. Other elements also should be considered if they are material to the borrower's business.

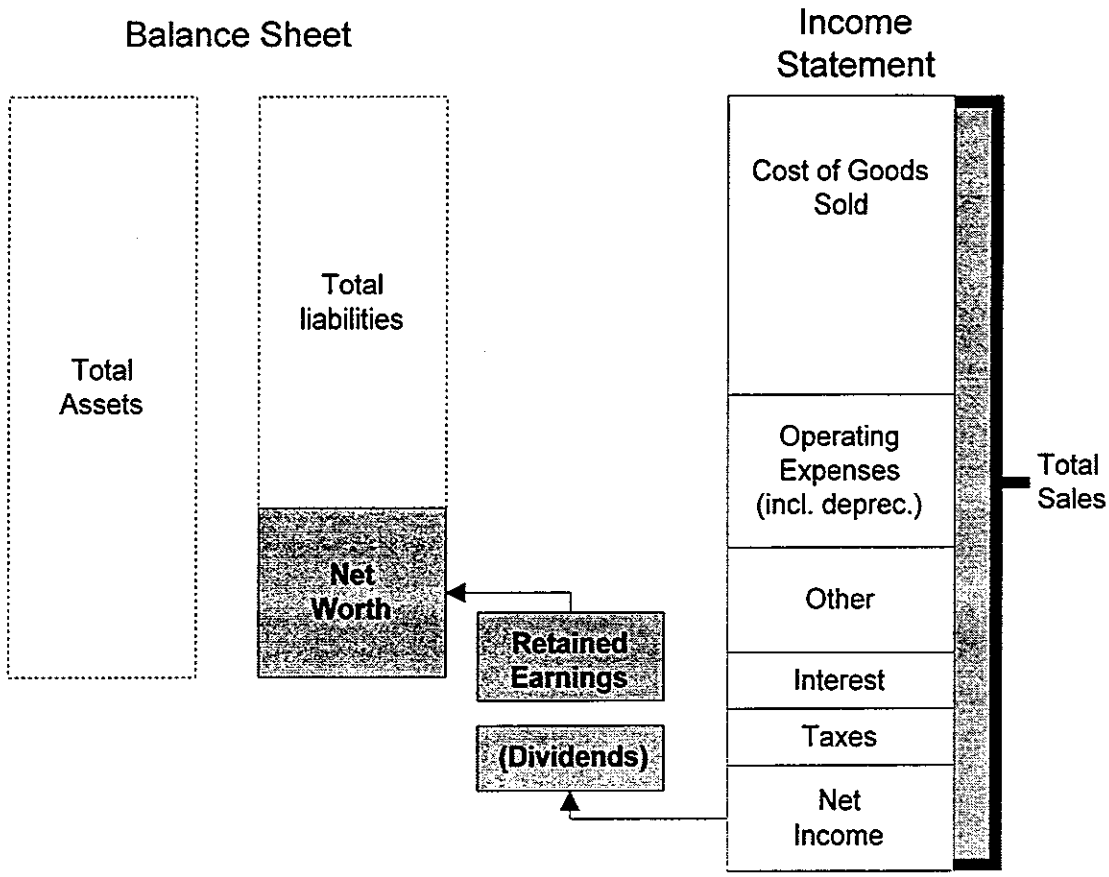
In the model, the income statement is shown as a stacked bar and the individual elements are shown in blocks proportional in size roughly to their percentage value.

For instance, most firms reflect cost of goods sold at 60-75% of sales, so this is usually the largest cost component. The bar "total sales" shows that the revenues from sales cover all the costs plus the return to the owner in the form of net income.

3. Add Retained Earnings to Net Worth

Show the balance sheet as two equal, vertical bars. Retained earnings = net income less dividends. Add retained earnings to net worth. Adjust net worth in proportion to total liabilities.

Sketch in the balance sheet on the left. For most companies, sales can be double the total assets so, in the model, make the balance sheet bars shorter than the income statement bar. This presentation emphasizes the relative efficiency, or inefficiency, of the firm's utilization of assets.

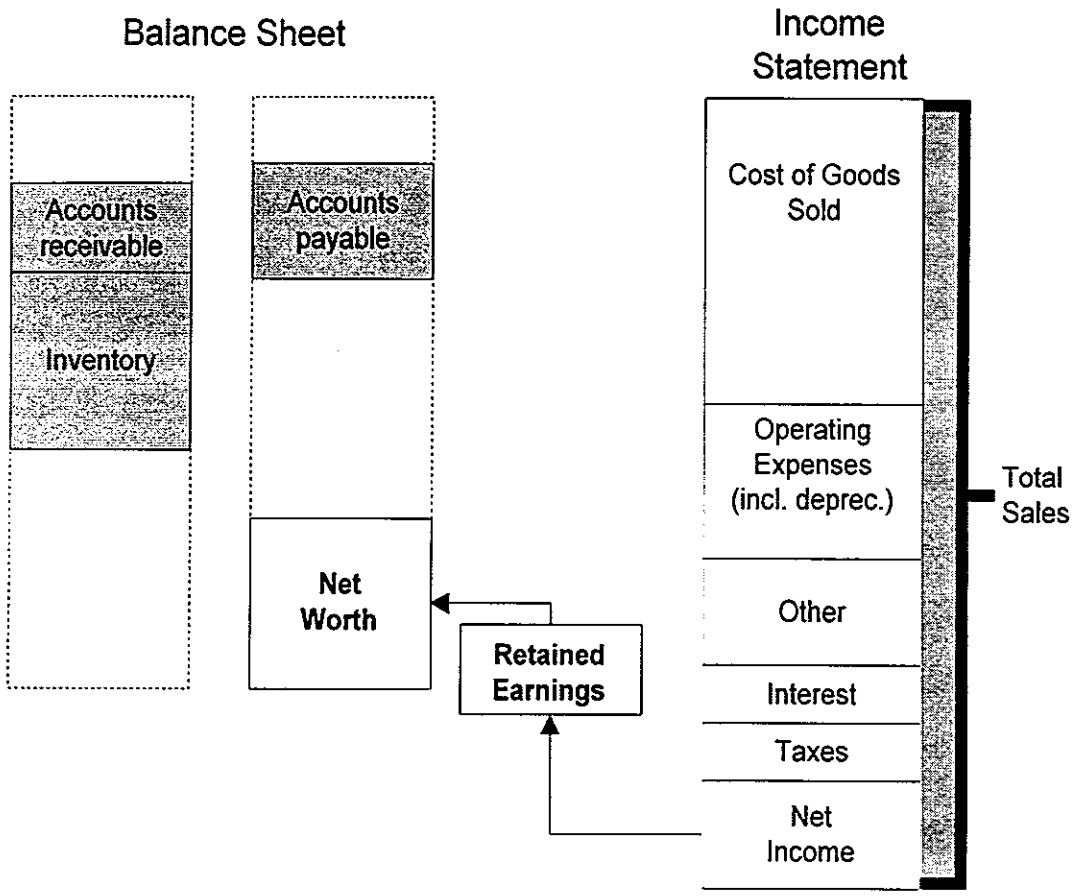

Balance Sheet
Income Statement
Total Assets
Total liabilities
Net Worth
Retained Earnings
(Dividends)
Cost of Goods Sold
Operating Expenses (incl. deprec.)
Other
Interest
Taxes
Net Income
Total Sales

Forecast the Net Working Assets

Net working assets = current assets – current liabilities – cash. *Net Working Assets* (NWA) are different from *Working Capital* because they contain accounts that move proportionately with the level of sales. NWA does not include short term debt or cash because the purpose of this project model is to derive cash, or the lack thereof, resulting from the ordinary process of buying raw materials, manufacturing them into products, selling the products, and collecting the sales proceeds.

Using historical records as a guide, sketch in proportionate amounts of accounts receivable, inventory and accounts payable as in the figure 4 below:

Figure 4. Net Working Assets



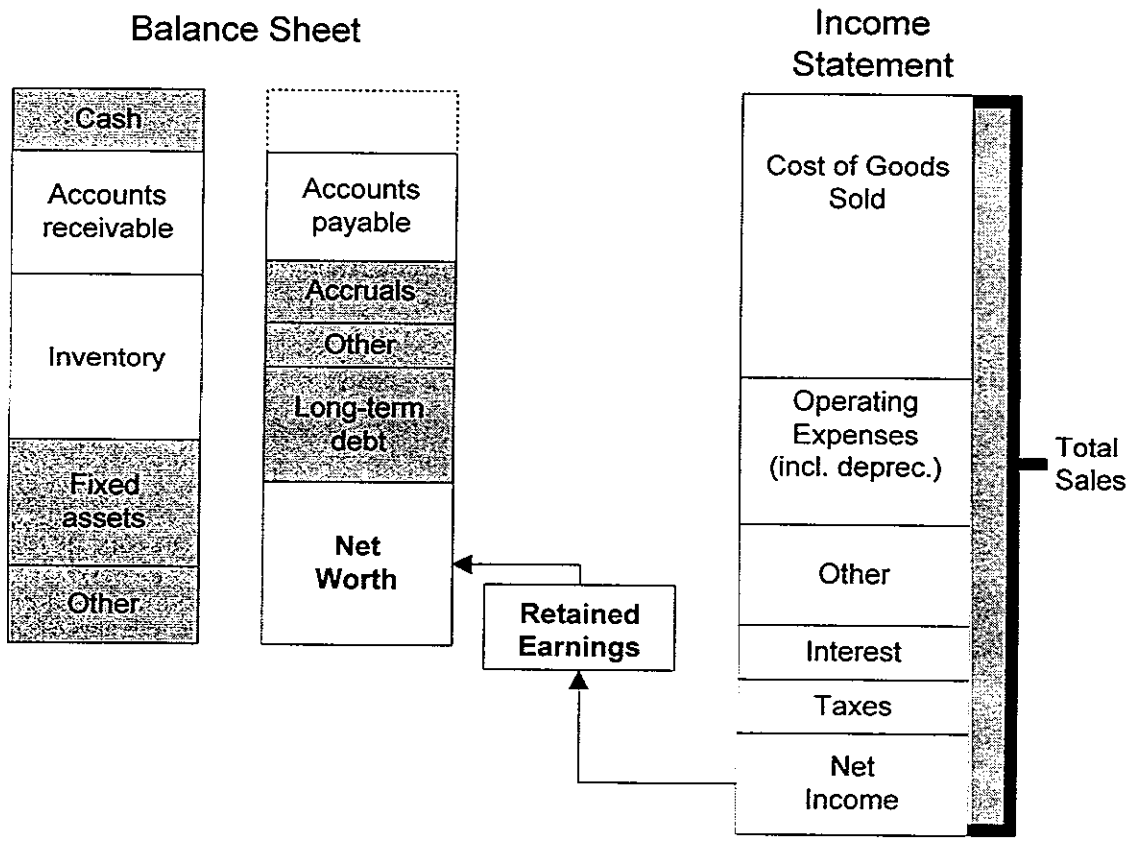
3. Forecast Other Assets and Other Liabilities

Project the value of any significant remaining assets. In most cases, these projections will include nominal cash and fixed assets. Sketch in short-term debt to equalize the bars depicting assets and liabilities, since it is assumed that the purpose of the financial projection is to support a credit decision or the expansion of an ongoing credit relationship.

The acquisition of fixed assets can be associated with needs such as expanding productive capacity, reducing processing costs, new product production, or external acquisitions of other companies. An increase in fixed assets can be expected to affect income statement accounts, revenues and expenses moving into the future.

On the liability side, it must be noted that accruals—obligations to be paid such as salaries—can be an important source of short term financing.

Figure 5. Other assets and liabilities

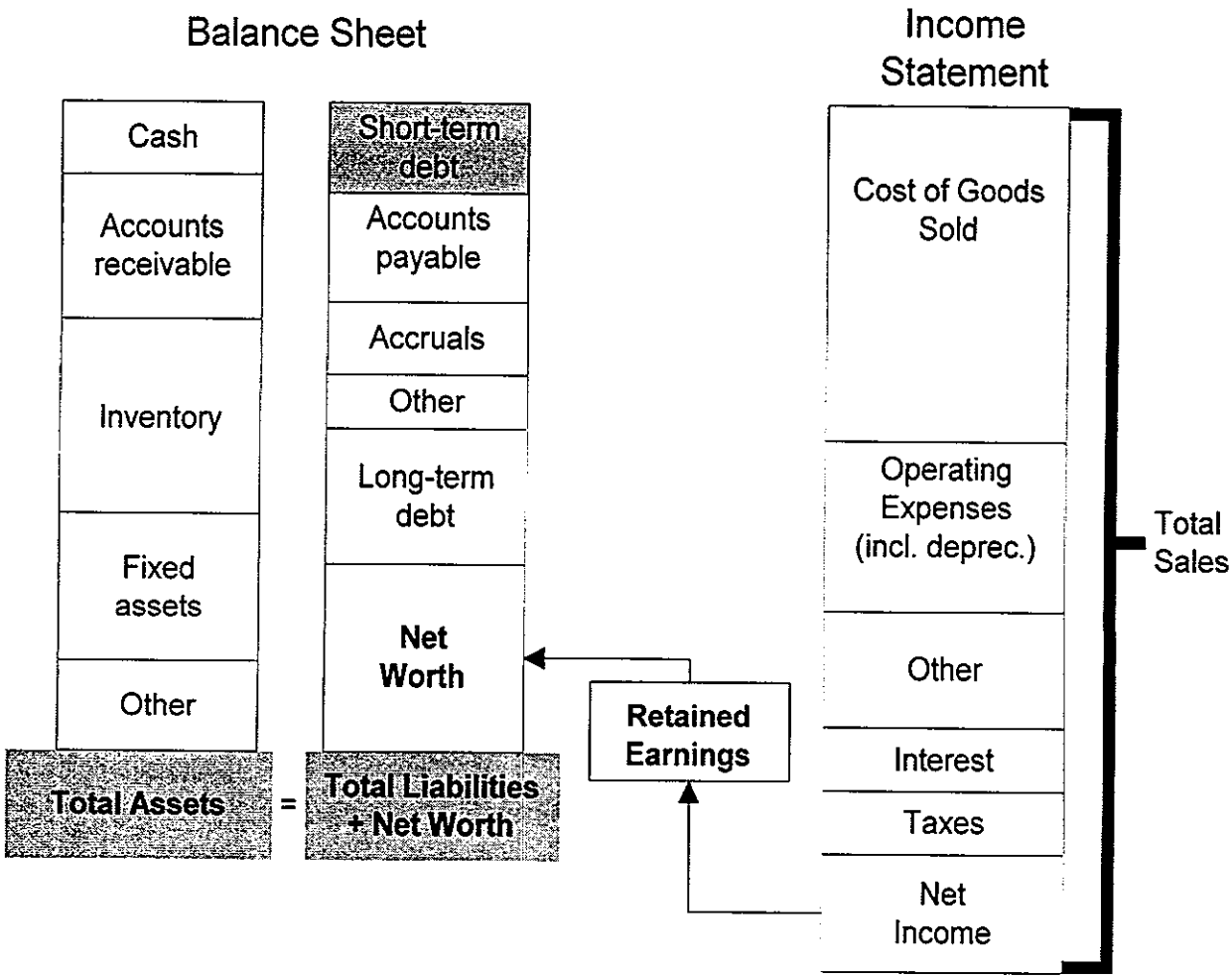


4. Estimate New Financing Required

Complete the asset side of the balance sheet. Since the accounting equation is total assets = total liabilities + net worth, then total assets –liabilities + net worth = short term debt or some other form of liability.

Check the calculations going over the model with the customer.

Figure 6. New Financing



Credit Investigation Exercise 1: Aksoy Machine Shop

Alan Aksoy runs a machine shop that performs subcontracts for various local firms. He employs eight people and always has sufficient work. Alan is interested in expanding his business and has come to you, an SME banking account officer, to request assistance in estimating the financing required to achieve his objectives.

You have checked his credit record with his suppliers and found that he pays on time. Checks around the neighborhood reveal no negative information about Aksoy or his shop.

When you go to Aksoy Machine Shop, he gives you a tour to point out his machinery, the set-up for production, and the inventory of raw material, wire, steel and parts. The shop is relatively clean and orderly, and the tools are well maintained even though most are obviously old. He introduces you to his employees and to his bookkeeper. His records are kept in steel file cases and his accounts are maintained on manual ledger cards. He has an order book that tracks business chronologically and he notes delivery deadlines on a wall calendar and on a black board on the shop floor.

Go over the records with him and his bookkeeper and begin building a financial project for the business.

Step One: Forecasting sales. During the first three months, he estimates that his sales will be baht 400,000. If he can buy another lathe, he can expand sales to 480,000 and hire another employee. This project is consistent with his historical sales levels.

Mark off on the right side of the draft pad a vertical bar representing 480,000. (Use 48 small blocks representing 10,000 each or use 24 where each block is 20,000.)

Step Two: Estimating costs of goods sold, expenses and profits. His costs of goods sold will be approximately 260,000. Aksoy estimates that salaries, expenses for marketing, sales and general administrative will be 80,000. Other expenses are 20,000. Interest Expense is 40,000. Taxes are 20,000. Profits are the remaining 60,000.

Mark a box labeled "COGS" (cost of goods sold) which will be 26/48 blocks the length of the sales bar.
"Operating Expenses" 14/48 blocks.
"Other expenses" 2/48 blocks
"Interest expense" 4/48 blocks
"Taxes" 2/48
"Profits" 6/48 remaining.

Step Three: Add retained earnings to Net Worth. Add the predicted profits, 60,000 to Aksoy Machine Shop's net worth. His net worth is total assets – total liabilities. This has not been worked out yet.

Sketch the balance sheet on the left of the pad. Leave enough space. Usually, total assets will be considerably less than a year's sales. For the time being, total assets have not yet been estimated.

Step Four: Forecast the Net Working Assets. Net working assets = [current assets (cash + accounts receivable + inventories) – current trade payables]. Using historical records, figure out the turnover of the various asset accounts. If cost of goods sold, for instance, was 260,000, and inventory turns over 4 times a year, then inventory on the asset side of the balance sheet is 260,000/4 = 66,500. Receivables have historically been around 50,000. Adjust this up to 60,000 for the growth in sales. Accounts payable have been around 40,000, adjust this to 50,000.

"Receivables" 6 blocks.
"Inventory" 6½ blocks
"Accounts payable" 5 blocks

Step Five: Forecast Other Assets and Other Liabilities. Project the value of any significant remaining assets. Aksoy will have 150,000 of equipment, current book value about 100,000. Using historical records, Aksoy has average collected bank balances of 20,000. Accrued salaries, rent and other expenses are 30,000. Other assets are about 20,000. On the liability side, other liabilities are about 10,000. Long term debt is 20,000.

"Fixed assets" 10 blocks
"Cash" 2 blocks
"Other assets" 2 blocks
"Accrued expenses" 3 blocks
"Other liabilities" 1 block
"Long term debt" 2 blocks

Step Six: Estimate new financing required. Total assets = total liabilities.

Projected Balance Sheet			
Assets		Liabilities and owners equity	
Cash	20,000	Short term debt	65,000
Receivables	60,000	Accounts payable	50,000
Inventory	65,000	Accruals	30,000
Other assets	20,000	Other liabilities	20,000
Fixed assets	100,000	Long term debt	20,000
		Retained earnings	80,000
Total assets	265,000	Total Liabilities + OE	265,000

Total assets	265,000
- Estimated liabilities + owners equity	-200,000
Short term debt required	**65,000**

Since total assets = 265,000 and estimated liabilities and owners equity = 200,000, then the amount of short term debt needed is 265,000 – 200,000 = 65,000 Zls.

Cost of Information

A note of caution. Active credit investigation and analysis is costly to the bank. The SME banker must weigh the cost of additional information about a customer against the benefits of that information. In analyzing smaller companies, administrative costs are regressive. This means that costs are proportionately higher when applied to a smaller revenue base than against a large revenue base. For example, if a credit investigation costs the bank 1000, and the size of the loan is 500,000, on which the bank will make a 3% spread, the percent cost/spread is 1000/(3% x 500,000) = 6.67%. For a corporate loan of 5,000,000, the credit investigation might cost 10,000 and the spread might be 1%, the cost/benefit would be 10,000/ (1% x 50,000,000) or 2%.

Therefore, for cost/benefit reasons, it is important to have low cost guidelines for SME investigations that do not duplicate the costs of corporate credit investigation and analysis.

Sometimes, with smaller firms, the investigation above is all the credit analysis that will be necessary, especially to finance self-liquidating contracts or fill existing work orders.

Question: Cost of Information

1. What would be the percentage cost/benefit ratio of a credit investigation costing 500 for a one year SME loan of 100,000 where the lending rate is 15% and the cost of funds is 10%?

2. Compute the cost/benefit ratio of a credit investigation costing 700 for a six month corporate loan of 1,000,000 where the lending rate is 12% and the cost of funds is 10%.

3. On the basis of this information, explain the need to develop low-cost procedures for investigating, analyzing, and structuring credit facilities to smaller companies.

Many things affect credit analysis and how it is performed. To name a few:

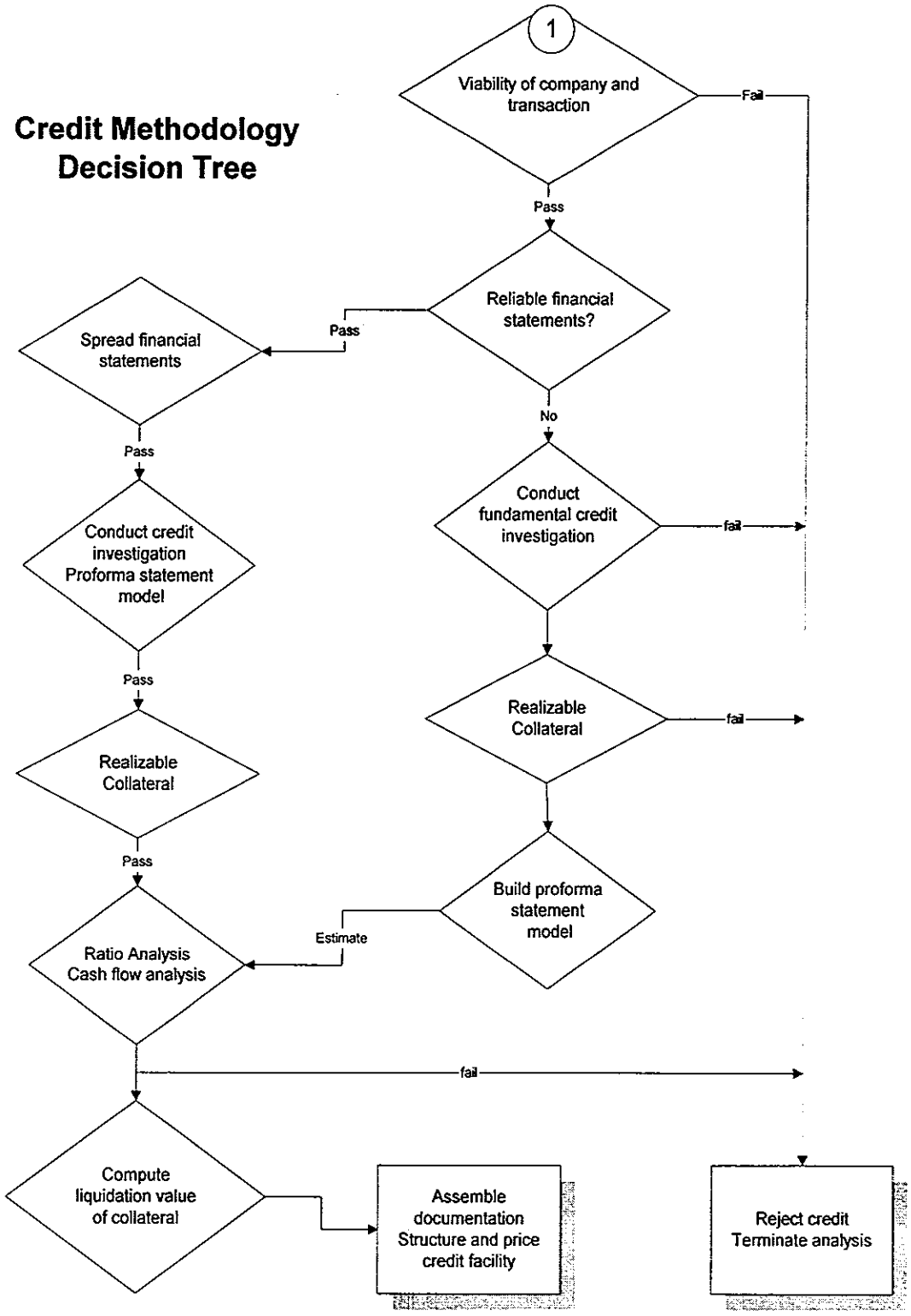
- How the funds will be employed by the borrower
- Character and reputation of the borrower
- The bank's historical experience with the borrower
- The credit applicant's credit history
- Capacity to repay
- The cash flow generated by the assets created by the loan
- The quality and liquidity of the collateral
- Other assets that can service the debt if the primary cash flow falters
- The maturity and terms of the credit
- Quality of management
- The operating condition of the company
- The competitive position of the company's products
- Economic and industry conditions
- The quality of clients to whom the borrower sells
- The borrower's capital invested in the company or in the transaction
- What the borrower has at stake in the transaction and the loan.

Classifying customers

Obviously, with so many factors present, it is necessary to have a decision tool to guide the credit analyst. The tool is presented as a decision tree. The method incorporates several tools to classify customers:

- **Stratification by size**. While the credit investigation may be the best source of information and analysis for a small firm, for larger and more sophisticated customers greater information and analysis is required.
- **Stratification by viability**. Similarly, a credit decision tool also eliminates customers who do not meet basic criteria, such as being registered, or proposing a transaction that would be illegal.
- **Stratification by type of loan required**. The purpose and tenor of the loan are important in the credit analysis process.
- **Selecting tools of analysis.** If reliable financial statements are available, and the customer passes viability tests, then the statements should be spread and analyzed according to ratio analysis and cash flow analysis. The *credit methodology decision tree* below represents a process for making these decisions

Credit Methodology Decision Tree



The Steps in the Credit Methodology Decision Tree:

1. Check on the viability of the company and the transaction.
   - Viable. Continue credit investigation and analysis
   - Not viable. Reject the credit and terminate the analysis. Report on reasons for rejection.
2. Does the company have reliable, published financial statements?
   - Yes, then spread the financial statements in a common size, IAS format.
     a) Spread the financial statements in a common size, IAS format
     b) Conduct credit investigation at the business of the customer. Verify the reason for the application of loan funds. Build a proforma financial projection of balance sheet and income statement.
     c) Check the collateral. Is it available, viable and realizable?
     d) Conduct ratio analysis and cash flow analysis. Is cash flow sufficient to repay the loan?
     e) Compute the liquidation value of the collateral under the distress conditions of a forced sale.
   - No, Conduct fundamental credit investigation as described below
     (a) Check the collateral. Is it available, viable and realizable?
     (b) Build a proforma financial projection model as in Module Two.
     (c) Conduct ratio analysis and cash flow analysis based upon management's information and projections
     (d) Compute the liquidation value of the collateral under the distress conditions of a forced sale
3. Assemble documentation, copies of financial records and bank statements, and appraisals of property and collateral. Structure and price the credit facility.

The Traditional "5 C's of Credit"	
Character	Does the borrower demonstrate a commitment to honor his transactions and keep his promises even under adverse circumstances?
Capacity	Does the business demonstrate the capacity to apply the loan funds? Does management have a business plan? Are plant and equipment sufficient? Are marketing and product delivery well developed?
Conditions	What are the economic and market conditions that could impair the company's ability to service the debt and repay the loan? Does the company recognize these risks and have plans to mitigate them?
Cash flow	Can the cash flow of the business and the transaction support the credit? Are cash flows from operations a viable primary source of repayment?
Collateral	Is the collateral sufficient as a secondary source of repayment? If the collateral must be liquidated, is the realizable value enough to repay principal, outstanding interest, and cover the bank's administrative costs of liquidation?

The character of the borrower

The most important factor in lending is the honesty and good faith of the borrower. Dishonest or criminal persons do not repay their debts and are often skilled in misrepresenting themselves in order to borrow. Part of the role of the credit officer is that of a detective: to detect fraud when it is present and distinguish between a good credit and a fraudulent one.

Not all of character judgment centers on dishonesty. The credit officer is also interested in the organizational characteristics of the borrower, whether he is overextended in his business and finance, and whether the business is on sound footing.

In developed economies, credit officers have access to public information about borrowers that is reported to credit information bureaus. For a small fee, a credit officer can find out if the credit applicant honors his financial obligations or whether there is a history of late payments, missed payments, controversy, delinquency and default. Where this information does not exist in such accessible form in developing countries, the credit officer must make direct investigations, as we discussed in Module Two: Credit Investigation. If previous creditors have experienced losses, this information is solid evidence to reject the credit application.

Capacity: Application of the loan funds

The reasons for borrowing may be obvious, but sometimes it takes skill to discover the true reason the applicant wishes to borrow. While the purpose may seem apparent, such as: "replace the product line equipment with new technology," in many cases, borrowing needs are more complicated. Understanding how the applicant intends to use the loan funds helps the analyst understand if the request is reasonable and sound.

If the borrower applies funds to working assets, such as acquiring inventory or selling on credit, or importing goods to sell, we say that these transactions are *self-liquidating*. A self-liquidating transaction will convert to cash over the course of the business process and provide the means for servicing debt.

Businesses that are requesting working capital loans to buy inventory, expand sales and other working assets, however, may actually need to use the funds to pay other creditors and deal with some extraordinary situation. These needs may not fit with the structure of the self-liquidating credit facility. Using a working capital loan, for example, to purchase machinery with a long expected lifetime would clearly be inappropriate. In a growth situation, credit facilities for seasonal purchase of working assets can quickly turn into a permanent, term loan type of facility.

Question: *How can a business be profitable and run out of cash?* One simple explanation is that when sales expand faster than collections, uses of cash exceed sources of cash and this can lead to illiquidity—running out of cash. Expanding sales entail purchases of raw materials, labor charges, and carrying costs of inventories and receivables. If the growth in the rate of the cash outflow exceeds the rate in the growth of cash inflow, the customer will be a continual borrower, constantly needing infusions of cash.

If the business is growing rapidly, cash outflows can overwhelm cash inflows. For a customer using accrual accounting, financial statements and projections can show solvency and profitability, even though the enterprise is bleeding cash.

For smaller businesses, the assets of the owners are often indistinguishable from the assets of the business. This is not an ideal situation but it is a real one, nevertheless. There is always a danger in any business that the owners or employees may divert the funds of the business to other non-planned or personal uses. Lending for speculative purposes is normally rejected as a legitimate borrowing need as it does not contribute to the economic health of the enterprise.

Knowing the borrower's purposes often requires good background credit investigation to determine if the borrower has a history of honoring obligations. Even a good borrower with a sound credit history may change behavior in the face of a family crisis or a business emergency.

Basic Classifications of Loans:

Type of Loan/ Purpose	Repayment	Analysis
Short term Seasonal working capital line of credit; letters of credit; transactional	Loan is repaid when borrower sells inventory and collects receivables	Working capital: projections should show cash-to cash cycle; the timing and reliance on inventory as support. Note expected peak loan needs, timing of drawdowns, link between bank loans and supplier credit
Bridge loans Project financing; construction	Expected longer-term refinancing or take-out event Maturities tailored to the refinancing event	Probability that refinancing event will occur (Event analysis) Analyze borrower's ability to repay if refinancing fails
Medium term loans Equipment and vehicle acquisition; lease	Repayment based upon cash flow of firm Maturities roughly match the useful lifetime of the asset or the legal tax amortization period	Incremental cash flow to firm due to the equipment Business and industry analysis: competitiveness Sensitivity analysis on cash from operations
Term loans Financing the purchase of fixed assets or broad expansion of the production lines; maturities over 1 year less than 10.	Firm must have predictable, long-term sources of cash. Cash flow (shelter) from depreciation expense Long term tenor to match the useful lifetime of the assets	Long term profitability of the firm. Business and industry analysis: competitive strength within the industry. Sensitivity analysis based upon state of the economy and other assumptions; breakeven analysis

Conditions: Evaluating Business and Industry

Below are items that should be considered in assessing the long-term profitability and survival of the business. Longer-term analysis is especially important when the bank is considering term loans and leases.

Profitability. Business survival is based on the ability to generate profits, the residual surplus of revenues over costs. Profit measures effectiveness of the business, covers the cost of doing business and provides a supply of capital for future growth.

Therefore, profitability is *a key measure of management capability.* Profitability can be compared in the same business over time and can be compared between businesses in the same industry.

Market standing. Market share is difficult to measure in smaller companies. Use an approximate measure. Position the products of the business in the following matrix.

	Low Market Share	High Market Share
High Growth	**A**	**B**
Low Growth	**C**	**D**

Newly introduced products and startup companies would be positioned in **A**. They have little market share, but the company thinks they have potential. If all goes well, the products migrate to **B** and become winners. This will require an addition to net working assets and to capital expenditures.

If products fail to sell as expected, they may fall from **A** to **C**, low growth-low market share. These products do not contribute significantly to profits or cash flow.

During the course of the product life cycle, growth slows and even winning products will migrate from **B** to **D** (low growth, high market share). These products are commonly referred to as "cash cows" because their cash flow generation is high. As growth slows, net working assets contract, production is marked by economies of scale that lower average unit costs, and capital expenditures achieve their intended purpose.

Companies can also be compared according to the same standards. Use these ratings to apply to the market position of the company's products. C products are losers that the bank would do well to avoid. D is a "cash cow" that is welcome within the bank's mix of products—it can provide the cash flow to cover financing for new products in A and growth products in B.

Innovation. Within its industry, to what extent has the company kept pace with its peers in using technology? Have competitors gained recognition and market share by introducing more technically advanced products? What is the difficulty of other companies competing in the same market with the same product?

In commodity-type markets, such as banking (money is a pure commodity), innovation (and service) is extremely important to differentiate a company from its competitors.

Resources. How does the company handle its suppliers? Is procurement concentrated with one supplier or is it diversified? Do its performance ratios reflect its efficiency?

Such as: $\frac{\text{Sales}}{\text{Total assets}}$, etc.

Human resources. What is the $\frac{\text{Sales}}{\text{No. of employees}}$ output per employee?

Does the business work according to a business plan whose goals are discussed with employees? What are the incentives for the employees to do an exceptional job? Do the employees believe that they have career development potential in the business?

Industry dynamics. In SME lending, some of the most important industry factors are:

- **The number and relative size of competitors.** An SME banker should understand the competitive standard of businesses in the major industries he serves.

- **Rate of industry growth.** Slow growth industries tend to breed rivalry where competitors saturate the market. Market share can only be gained at the expense of another competitor. In rapidly growing markets, rivalry should be less intense and there should be less pressure on pricing.

- **Level of fixed costs and overcapacity.** This phenomenon is treated in the breakeven analysis in the text and appendix. High fixed costs create strong pressures to fill capacity, which can lead to price wars.

- **Degree of diversity among competitors.** The lesser the degree of diversity, the greater the rivalry of competition (price pressure).

- **Buyer power or supplier power.** Does the business have any power with regard to negotiating prices of supplies? Is the supplier so powerful that the customer becomes a "price-taker" at the mercy of the "price-maker"?

Evaluating Management

Having conducted the examination of business and industry, the credit investigation, and the working capital and cash flow analyses, the analyst can then evaluate more fully the quality of management.

- Management quality should first be examined in terms of integrity, honesty and ethical business practices. An unethical or dishonest business owner should be rejected as a credit applicant.

- Secondly, management performance can be measured in terms of profitability. Here, the analyst should compare the customer to other businesses of the same kind that face similar conditions.

- Third, how does management plan and execute business plans?

Topic	Evaluation and Rating				Source of Information
Industry: Stage of development	**Startup**	**Growth**	**Mature**	**Decline**	
Number and size of competitors	High	Moderate		Low	
Rate of industry growth	High	Moderate		Low	
Level of fixed costs and overcapacity	High	Moderate		Low	
Degree of diversity among competitors	High	Moderate		Low	
Business: Stage of development?	Startup	Growth	Mature	Decline	
Buyer's power	Strong	Moderate		Weak	

Management:	Very Good	Good	Satisfactory	Poor	
Profitability	Very Good	Good	Satisfactory	Poor	
Resources	Very Good	Good	Satisfactory	Poor	
Human Res.	Very Good	Good	Satisfactory	Poor	
Planning capability	Very Good	Good	Satisfactory	Poor	
Innovation	Very Good	Good	Satisfactory	Poor	
Product Position	**A**	**B**	**C**	**D**	
Product No. 1					
Product No. 2					
Summary View	**Strong**	**Satisfactory**	**Needs Improvement**	**Poor**	

Cash flow is the primary source of repayment

Cash from operations is the primary source of repayment for most loans. During investigation and analysis, the banker must be persuaded that the assets of the business can be converted to sufficient cash to repay the loan and provide adequate profit for the owners.

Businesses normally repay their working capital loans through the orderly *contraction* of working assets, where receivables and inventories are converted or liquidated to cash. Typically, the borrower draws down on a loan to pay for raw material and operational expenses associated with a manufacturing and selling process. Raw materials are made into finished goods, finished goods go into inventory, inventories are sold for cash or deferred payment, and cash is received from these receivables. As the business generates cash, it repays its bankers.

Despite the apparent degree of *profitability* of the borrower, it is cash produced by operations that services a loan. The *cash cycle* is the conversion of assets into cash. A business buys raw materials and supplies, makes a product, sells a product, and collects cash.

In general, the more remote and uncertain the cash flow for repayment, the more attention an analyst must devote to finding out how (and why) a customer will repay. A pawnbroker, for example, needs to perform very little credit analysis of a customer because the loan is fully collateralized—*over-collateralized*—and the collateral is *under the control of the lender*, and the loan pricing covers all expenses including the cost of capital. Another way to look at this is that the lender (pawnbroker) is *buying* the collateral and *selling* the customer the option to buy it back.

Sources of repayment other than cash flow from operations should be viewed with caution. The sale in the future of a machine or other fixed asset is not a predictable source of cash.

Collateral: the secondary source of repayment

In SME finance, secondary sources of guarantee include:

- Perfected liens on accounts receivable, inventory, equipment, and real estate collateral
- Guarantees, standby letters of credit
- Pledges of personal property and real estate
- All forms of liquid and executable security that the banker can extract from the borrower.

Secondary sources of repayment are important in lending to small businesses for a number of reasons. Obviously, collateral provides a backup source of cash to repay a loan if the primary source fails. With small and medium-sized companies, the cost of foreclosing and liquidating security can sometimes be more expensive than writing off the loan. If so, why identify a secondary source as part of the credit approval process?

Besides serving as a secondary source of repayment, pledging collateral also *motivates* the borrower to repay. It puts the borrower in a first loss position relative to the bank. Even if the primary source of repayment fails because of a shortfall in the cash flow from operations, knowing that the bank will seize collateral or equipment necessary for the continued operations of the company means that the borrower has more at stake than the amount of the loan.

Securing the loan with collateral means making sure that the liquidation value of the collateral covers all the direct and indirect costs of the loan, and the collection process, too. In some cases, secondary sources include guarantors and co-signers, but, unless the means to liquidate these sources is clear, the procedure of collection can be a costly legal process. The best of these guarantees are represented by standby letters of credit, whereby a bank undertakes to pay on demand by the creditor, if pre-authorized collection documents are presented.

- **The purpose of credit analysis is to reduce the chance of lending to a business that cannot repay or structuring a credit inconsistent with cash flow.**
- **TYPE I Error: The False Positive**
  --An application is approved when it should have been rejected
  --Occurs frequently in times of credit expansion
- **TYPE II Error: The False Negative**
  --An application is rejected when it should have been approved.
  --Occurs frequently in times of credit contraction

Successful credit analysis reduces the probability of errors:

- **Type I error**: The bank accepts a credit application that should have been rejected. This is a "false positive" error. The cost of a false positive is a defaulted loan, computed at the cost of equity capital and includes the expenses required to exercise remedies and realize collateral.
- **Type I error**: The bank rejects an application that should have been accepted.

The cost of rejecting a good credit is the opportunity cost of foregone interest and fees. Skilled credit analysis will reduce Type II errors by discovering ways to structure credit opportunities around cash flow, security and collateral.

- ***Given the highly leveraged nature of a financial structure where assets may be 10 to 12 times the amount of core capital, it is clearly much more important to screen out possible Type 1 errors than to correct for Type II errors.***

Financial Statement Analysis

When SME bankers lend to smaller companies and startups, these companies may not have reliable financial statements, audited financial statements or statements prepared by management. In these cases, the banker or analyst must construct statements as in the exercise in Credit Investigation (Module Two). For the smaller enterprises, the construction of a model and the valuation of security may be sufficient credit analysis.

In corporate lending (as compared to *SME* lending), the principal source of information about a customer is audited financial statements, complemented with management information. One of the first sections of a formal credit report is *sources of information.* Usually, in examining corporate financial statements, a cautious reader will scan down until he sees the key phrase, *audited by....* Then he looks to verify if the auditing firm is a local or international firm of good reputation. Then he looks to see if the auditors rendered a "clean" opinion, or if it was in some way "qualified," or less than standard and ideal. The purpose of using audited statements is to benefit from the *confidence* that the external information, the financial statements, have been prepared accurately from valid information, according to generally accepted accounting standards.

In the case of SMEs, where financial statements are not audited or are prepared based on interviews with the borrower, the lender must take on both greater risk and the increased cost of acquiring additional supportive information. In these cases, collateral as a secondary source of repayment becomes crucial to the credit decision. It is appropriate to add a premium to the interest rate to compensate the bank for additional uncertainty, due to the absence of reliable financial statements. It may also be necessary to charge credit applicants a fee to gather and prepare proxy financials from structured interviews.

Module Two, *Credit Investigation*, demonstrated structured interviews with the borrower to collect balance sheet and income statement types of information. With this information, we are able to approximate financial statements, ratio analysis, and cash flow analysis. Working from financial statements or from our investigations, we should use standard tools to support our investigation of the credit application.

Standard Tools of Financial Statement Analysis:

- Spreading financial statements
- Using common-size statements
- Ratio analysis
- Working capital analysis
- Cash flow analysis
- Sensitivity analysis
  - Break even analysis
  - Valuation of the firm

Spreading Financial Statements. Spreadsheets are a way of systematically organizing financial statements of companies according to IAS standards, to enable the bank to:

- Establish common definitions of financial ratios and key income statement, balance sheet, and cash flow items.
- Facilitate the calculation of key ratios and cash flow analysis
- Identify and highlight critical information and ratios for analysis.

Format:

- Assets and liabilities/owners' equity. Assets and liabilities are organized with the most liquid and most current first, followed by less liquid and less current.
- Income statement. The income statement should be organized in an analytical format beginning with sales matched with the cost of goods sold (or cost of sales). The logical flow shows how revenues are consumed by various expenses and residual profits.
- The spreadsheet indicates % for common size statement and key ratios.
- The cash flow statement derives actual cash flow from the accrual accounting figures in the balance sheet and income statement, examines the components of cash flow and aims to reconcile the opening and closing cash balances on the balance sheets.

Spreadsheet in International Accounting Standards (IAS)/Generally Accepted Accounting Principles (GAAP) format

COMPANY NAME											
AMOUNTS IN (CURRENCY 000):											
AUDITED STATEMENT:											
STATEMENT DATE	19__		19__		19__		19__				
	AMOUNT	%	AMOUNT	%	AMOUNT	%	AMOUNT	%			
BALANCE SHEET											
CASH											
MARKETABLE SECURITIES											
NOTES RECEIVABLE											
ACCOUNTS RECEIVABLE**											
INVENTORY**											
ALLOW FOR DOUBT ACCT											
TOTAL CURRENT ASSETS											
FIXED ASSETS—NET											
NON-MARKETABLE SECURITIES											
NON-CURRENT RECEIVABLES											
PREPAID & DEFERRED EXPENSES											
INTANGIBLES											
TOTAL NON-CURRENT ASSETS											
TOTAL ASSETS											
NOTES PAYABLE											
ACCOUNTS PAYABLE**											
CURRENT MTY OF TERM DEBT											
ACCRUED EXPENSES & MISC.											
INCOME TAXES PAYABLE											
TOTAL CURRENT LIABILITIES											
SUBORDINATED DEBT											
TOTAL LIABILITIES											
MINORITY INTEREST											
DEFERRED INCOME/RESERVES											
PREFERRED STOCK											
COMMON STOCK OUTSTANDING											
ADDITIONAL PAID IN CAPITAL											
RETAINED EARNINGS (DEFICIT)											
NET WORTH											
LIABILITIES + OWNERS EQUITY											
TANGIBLE NET WORTH											
NET WORKING ASSETS											
CURRENT RATIO											
QUICK RATIO											
DAYS IN RECEIVABLES											
DAYS IN PAYABLES											
CASH CYCLE											
DEBT TO (TANGIBLE NET WORTH. + SUBORDINATED DEBT											

Spreadsheet for Income Statement

COMPANY NAME								
INCOME STATEMENT								
AMOUNTS IN (CURRENCY OOO):								
AUDITED STATEMENT:								
STATEMENT DATE	19__		19__		19__		19__	
AMOUNT	AMOUNT	%	AMOUNT	%	AMOUNT	%	AMOUNT	%
NET SALES								
COST OF GOODS								
GROSS PROFIT								
SALES, GEN & ADMIN								
INTEREST EXPENSE								
TOTAL OPERATING EXPENSES								
OPERATING INCOME								
NET OTHER INCOME								
NET INCOME BEFORE TAXES								
INCOME TAXES								
NET INCOME (LOSS) AFTER TAXES								
ADDITIONAL DATA								
CONTINGENT LIABILITIES								
LEASE OBLIGATIONS								
DIVIDENDS								

Cash Flow Summary Sheet: Indirect Method

COMPANY NAME:					
AMOUNTS IN (CURRENCY OOO):					
DATE (DAY,MONTH,YR):		19__	19__	19__	19__
NET INCOME	1				
ADD: NON CASH EXPENSES	2				
DEPRECIATION	3				
	4				
CHANGES IN OPERATING ACCTS	5				
(INCREASE) IN RECEIVABLES	6				
DECREASE IN INVENTORIES	7				
(DECREASE) IN ACCOUNTS PAYABLE	8				
INCREASE IN ACCRUED LIABILITIES	9				
INCREASE IN INTEREST PAYABLE	10				
INCREASE IN TAXES PAYABLE	11				
	12				
CASH FLOW FROM OPERATIONS (CFO)	13				
	14				
CAPITAL EXPENDITURES	15				
INVESTMENTS IN AFFILIATE	16				
	17				
CASH FLOW FROM INVESTMENTS	18				
	19				
SHORT-TERM BORROWING	20				
DIVIDENDS PAID	21				
	22				
CASH FLOW FROM FINANCING	23				
	24				
NET CASH FLOW	25				
	26				
RECONCILING:	27				
BEGINNING CASH, DATE:	28				
ENDING CASH, DATE:	29				
NET CHANGE IN CASH	30				

Illustrative exercise for financial statement analysis
-- Olympia Electronics--

(000 Zls)	31/12/96	% total assets	31/12/97	% total assets	31/12/98	% total assets	Lead Competitor
Assets							
Cash	11	6%	12	5%	16	6%	5%
Accounts receivable	22	13%	48	21%	41	14%	19%
Inventory	122	69%	147	64%	203	72%	66%
Total current assets	155	88%	207	91%	260	92%	90%
Net fixed assets	21	12%	21	9%	24	8%	10%
Total assets	176	100%	228	100%	284	100%	100%
Liability and Equity							
Accounts payable	16	9%	10	4%	8	3%	2%
Short term finance	112	64%	127	56%	149	52%	63%
Total current liabilities	128	73%	137	60%	157	55%	65%
Long term debt	23	13%	57	25%	90	32%	8%
Total equity	25	14%	34	15%	37	13%	27%
Total liabilities & equity	176	100%	228	100%	284	100%	100%

(000 Zls)	1996	% total Income	1997	% total income	1998	% total income	Lead Competitor
Sales	713.4	100%	866.2	100%	911.7	100%	100%
Less: Cost of goods	592.2	83.0	706.2	81.5	745.1	81.7	70.5
Gross margin	121.2	17.0	160.0	18.5	166.6	18.3	29.5
Operating Expenses							
Wages & salaries	46.4	6.5	60.1	6.9	54.7	6.0	17.7
Sales expense	19.6	2.7	24.3	2.8	39.7	4.4	4.2
Depreciation	10.0	1.4	11.5	1.3	11.1	1.2	---
Other operating exp	20.0	2.8	30.1	3.5	30.1	3.3	4.1
Operating Expenses	96.0	13.5	126.0	14.5	136.5	15.0	26.0
Operating Income	25.2	3.5	34.0	3.9	30.1	3.3	3.5
All other expenses	15.9	2.2	21.3	2.5	22.9	2.5	0.5
Net income before tax	9.3	1.3	12.7	1.5	7.2	0.8	3.0
Taxes	2.4	0.3	3.9	0.5	4.4	0.5	0.4
Net Income	6.9	1.0	8.8	1.0	2.8	0.3	2.6

Common-size statements. Common-size statements are a variety of ratio analysis that permits comparison of companies of different size. It also permits comparing the financial statements of one period to that of another.

Even a brief scan of the common-size balance sheet and income statement tells a story about the performance of the company. In common-size statements, balance sheet line items are a % of total assets. For the income statement, line items are a % of total revenues or sales.

Common Size Analysis:

- % changes from period to period. Are percentages increasing, decreasing or staying the same?
- Percentages compared to leading competitor or nearest comparable company (if available).
- Percentages can be compared to industry norms. If norms are not available as public information, the SME lending unit can construct its own data base from its customers.
- Common-size figures have greater power to explain financial condition and performance when they are combined, as in the DuPont System Analysis.
- Common-size balance sheets and income statements occasionally are misleading. If one asset account is very large, other assets appear small in ratio terms. A large investment in equipment, for instance, could make inventories appear insignificant.

Comparative statement analysis of Olympia Electronics:

- **Accounts receivable** only amount to 14% of total assets, compared to 19% of a local competitor. From the comparative data, the firm appears to have good control of its credit sales.
- **Inventory**. Olympia appears to be overinvested in inventory, which represents 72% of its assets, versus 66% for the local competitor. This suggests that the firm stocks slow-moving items or has a more complicated product mix, or both.
- **Fixed assets**. Less than competitor. This may allow Olympia some pricing latitude.
- **Cost of sales.** 1998 cost of sales was 81.7% of income, compared with cost of sales in the 70% range for the other comparable firm. In this retail business, an unusually high cost of sales suggests the likelihood of underpricing—using low prices as a marketing tool.
- **Operating expenses**. Wages, salaries, sales expense, and other operating expenses totaled only 15% of total income in 1998 compared with 26% for the local competitor. This indicates an exceptionally low-cost operation, capable of supporting somewhat lower product prices.
- **Non-operating expenses**. At 2.2% of sales, Olympia's "All Other Expenses" compared unfavorably with its local competitor at 0.5% and eliminated the operating income advantage.
- **Net income**. At 0.3% of income in 1998, Olympia's net income was only a fraction of its competitor's at 2.6%

Financial ratios

Financial ratios provide the basis of most technical, quantitative credit analysis. Ratios show changes in key variables that allow an analyst to compare company financial condition and performance over time and compare it to other companies and industry standards. Comparative ratios point out areas of change and allow the analyst to investigate the reasons for the change and the factors causing deterioration or improvement.

Financial ratios seek to measure and evaluate the company's ability to use, manage, and repay debt. The four principal areas of inquiry are:

- Profitability
- Liquidity
- Activity
- Leverage

Risk Area	▪ Rationale and Problems	Critical Ratios
Profitability	▪ Operating strengths, growth potential, competitive position ▪ Measures operating efficiency of management ▪ The analyst is looking for unfavorable changes in these ratios and then seeking to understand the cause for their improvement or deterioration ▪ Long term lenders are concerned with profitability ratios ≠ Numbers can be inaccurate or contrived ≠ Income recognition methods can be conservative or liberal	▪ Profit margin on sales ▪ Return on assets ROA ▪ Return on equity ROE
Liquidity	▪ Determines ability to meet obligations—to fixed expenses, employees, suppliers, creditors ▪ Banks supply liquidity to bridge the cash flow gaps between disbursements for expenses and collection of sales receivables ▪ Short-term lenders are concerned foremost with liquidity ratios ≠ Cash payables > cash receipts	▪ Current ratio ▪ Quick ratio
Activity	▪ Measures the turnover and cash conversion of assets ▪ Short-term lenders are concerned with activity ratios	▪ Inventory turnover ▪ Days in inventory ▪ Receivables turnover ▪ Days in receivables ▪ Payables turnover ▪ Days in payables ▪ Cash-to-cash cycle (days) ▪ Fixed assets turnover
Leverage	▪ Measures degree of financial risk and ability to absorb losses ▪ Reflects owners' commitment to the business—share of loss in worse case ▪ Excess leverage exposes a business to insolvency risks ▪ Long-term lenders are concerned with leverage ratios	▪ Debt/Total assets ▪ Net worth ▪ Debt/assets ▪ Interest coverage ▪ Interest rate risk

Calculating Key Ratios

Profit margin measures the profit per Zls of net sales.

$$\text{Profit margin} = \frac{\text{Net income after tax}}{\text{Net sales}}$$

Olympia: 1996, 1.0%; 1997, 1.0%; 1998, 0.3%. Profit margin declines due to rising operating expenses.

Return on assets (ROA) indicates the efficiency with which management employed the total capital resources available to it. The denominator is formed by averaging beginning and ending asset levels: [(year one + year two) /2.].

$$\text{Return on average assets} = \frac{\text{Net income after tax}}{\text{Average total assets}}$$

Return on equity (ROE) is a summary measure of how effectively common stockholders' funds have been employed, including the effectiveness of the use of financial leverage. Net worth can be substituted for equity. (Net worth = assets – liabilities).

$$\text{Return on average equity} = \frac{\text{Net income after tax}}{\text{Average common stock equity}}$$

The **current ratio** indicates the extent to which the claims of short-term creditors are covered by assets that can be readily converted into cash. High current ratios suggest a high margin of safety for short-term creditors. However, the ratios can mask quality problems in receivables and inventory.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

The **quick ("acid-test") ratio** removes the uncertainty of inventory turnover from the liquidity measure. For industries in which inventory values may be suspect, the quick ration is a more reliable measure of liquidity than the current ratio.

$$\text{Quick (acid test) ratio} = \frac{\text{Current assets - inventories}}{\text{Current liabilities}}$$

The **inventory turnover ratio** indicates the effectiveness of management's inventory controls. It measures the number of times per year that the firm rolls over its entire investment in inventory. If the turnover of inventory is too high, it may indicate a less than optimal inventory level, which would result in inventory deficiencies and lost sales. A turnover too low may indicate poor purchasing, production, and handling controls or obsolete merchandise. The cost of sales is used in the numerator, since inventory is usually valued at cost.

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold (annually)}}{\text{Average inventory}}$$

Days in inventory calculates the average number of days inventory is held until it is sold.

$$\text{Days in inventories} = \frac{365}{\text{Inventory turnover}}$$

Receivables turnover measures the effectiveness of the firm's credit policies. Days in receivables measures the average collection period.

$$\text{Receivables turnover} = \frac{\text{Sales}}{\text{Average trade receivables}}$$

$$\text{Days in receivables} = \frac{365}{\text{Receivables turnover}}$$

$$\text{Average collection period} = \frac{\text{Accounts receivables}}{\text{Sales per day}}$$

Payables turnover measures the average time between billing and paying suppliers. Payables are an important source of financing for operating activities.

$$\text{Payables turnover} = \frac{\text{Sales}}{\text{Average accounts payable}}$$

$$\text{Days in Payables} = \frac{365}{\text{Payables turnover}}$$

Working capital turnover attempts to measure the amount of cash needed to finance current assets. Commercial banks typically finance accounts receivable and inventory, non-permanent assets conventionally referred to as *working assets*. This analysis was approximated during credit investigation. Where reliable financial statements are available, an analyst can see historical levels and trends. In this ratio, the analyst should exclude short term debt, marketable securities and excess cash as they are not required for operating activities.

$$\text{Working capital turnover} = \frac{\text{Sales}}{\text{Average working capital}}$$

The cash-to-cash cycle measures the turnover rate of working capital. It represents the time required for a single Zls to move through the working capital cycle. Funds are first invested in operating cash balances, then converted to inventories by means of purchases of labor and material, then transformed into receivables as inventory is sold on credit and, finally, returned to cash when receivables are collected.

Cash-to-cash cycle = Days in cash + days in inventory + days in receivables

The fixed asset turnover ratio measures the efficiency of (long-term) capital investment. The ratio measures the rate at which the product value flows through the firm's plant and equipment. Low rates of flow or turnover indicate below-capacity operations. A high rate of flow may reflect inadequate investment in plant and equipment.

$$\text{Fixed assets turnover} = \frac{\text{Sales}}{\text{Average fixed assets}}$$

The **debt ratio** represents the portion of assets financed by creditors. It is a measure of the financial risk and vulnerability of the firm. Generally, the more debt in the firm's financial structure, the more volatile its earnings and the greater the risk to owners and creditors. From a lender's point of view, equity represents a cushion against operating losses or a decline in the value of assets. From the owner's point of view, leverage permits owners to control a firm with less personal investment at stake. Assuming that borrowed funds can be invested to earn a rate of return greater than their cost owners are motivated to increase financial leverage.

$$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}}$$

The **interest coverage ratio** indicates the margin of safety that earnings provide creditors in relation to interest charges. A more liberal measure that is sometimes of value includes depreciation in the numerator to reflect the coverage provided by total cash flow.

$$\text{Interest coverage ratio} = \frac{\text{Pretax income plus interest}}{\text{Interest expenses}}$$

The **fixed-charge coverage ratio** includes lease payments along with interest expenses.

$$\text{Fixed - charge coverage ratio} = \frac{\text{Pretax income} + \text{interest} + \text{lease payments}}{\text{Interest expenses} + \text{lease expenses}}$$

Exercise: Ratio Analysis: Olympia Electronics

Instructions: Using the common size statements for Olympia Electronics, compute the financial ratios below (the results for the *local competitor* are given):

Olympia Electronics	1996	1997	1998	**Local competitor** 1998
Profitability				
Profit margin	%	%	%	2.6%
ROA	%	%	%	6.8%
ROE	%	%	%	26.2%
Liquidity				
Current ratio				1.7
Quick ratio				0.7
Activity				
Inventory turnover				4.9X
Average collection period (days)				20
Fixed asset turnover				30X
Cash-to-cash cycle (days)				101
Leverage				
Debt/total assets				0.72
Interest cover				2.6
Fixed charge coverage				2.3

Questions: Ratio Analysis

1. How does profitability compare in 1998 with the competitor?

2. Analyzing the common-size statements, what is the cause for this performance?

3. What do the liquidity ratios indicate about Olympia's ability to meet its short-term obligations?

4. How do activity ratios compare to the competitor?

5. What has been the trend of activity ratios over three years?

6. What do these ratios indicate with regard to receivables? With regard to inventories?

7. What other interpretations are supported by the ratios?

Cash Flow Analysis

Cash flow analysis. Cash flow analysis adjusts data from the income statement and the balance sheet to determine the sources and uses of cash. Accounting income is not a measure of cash due to non-cash expenses, such as depreciation, and because of leads and lags of cash due to the timing of accrual accounting practices. The derived cash flow statement conventionally breaks down into several categories:

- **Cash from operations (CFO).** CFO measures the cash generated by the production and sale of goods and services. CFO is income adjusted for non-cash income statement items and for the expansion and contraction of working assets. When assets grow, they absorb cash—*they are uses of cash.* When assets contract, they generate cash and become *sources of cash.* Similarly, when liabilities grow, they shelter or postpone disbursement and are *sources of cash.* When liabilities contract, they are paid and are therefore *uses of cash.*

  Cash is sometimes hidden in financial statements due to non-cash expenses such as depreciation, or magnified due to non-cash revenue recognition methods of accrual accounting.

  Besides CFO, the analyst may also investigate other sources and uses of cash and use this information, along with the CFO to reconcile increases or decreases in cash in the balance sheet.

- **Cash from investments.** This includes purchases and sales of plant and equipment and investments in affiliated businesses. These are functions necessary to maintain the firm's operating capacity and to build capacity for growth. Increases in investments use cash. Sales or divestment of fixed assets generate cash.

- **Cash from financing.** This includes borrowings and stock sales, dividends paid, stock buy-backs and repayment of debt. Issuance of securities or borrowing generates cash. Repayment of principal, retirement of debt and repurchase of shares ("treasury shares") use cash.

- **Net cash flow.** The sum of CFO, cash from investments and cash from financing.

- **Net change.** The net cash flow is then added to the opening cash balance on the balance sheet to reconcile with the closing cash balance. If we are looking at two years, the cash balance in the earlier year, say 1997, becomes the opening cash, and the cash balance in 1998 becomes the closing cash balance.

Cash flow analysis can be done in two ways: ***direct*** and ***indirect***. The methods differ according to the method used to derive CFO. The *indirect method* starts with net income, which it adjusts for non-cash items and changes in net working assets. The *direct method* of calculating cash flow builds CFO from cash sales, which it adjusts for sources and uses of cash in the production-sales cycle of the business. Where information is available, the indirect method is preferred as the revenue and expense activities can be compared from period to period, versus the direct method, which does not break out these income statement flows.

COMPANY NAME: **Olympia Electronics**					
AMOUNTS IN: Zls (000)					
DATE (DAY,MONTH,YR): 14 Dec 1999		1998	1997	1996	19__
SALES—NET	1	911.7	866.2	713.4	
COST OF SALES		(745.1)	(706.2)	(592.2)	
OPERATING EXPENSES		(136.5)	(126.0)	(96.0)	
OTHER EXPENSES		(22.9)	(21.3)	(15.9)	
TAXES		(4.4)	(3.9)	(2.4)	
NET INCOME		2.8	8.8	6.9	
ADD: DEPRECIATION	2	11.1	11.5	10.0	
NET INCOME + DEPRECIATION		13.9	20.3	16.9	
CHANGES IN OPERATING ACCTS	5				
(INCREASE) IN RECEIVABLES	6	(20.0)	(36.0)		
(INCREASE) IN INVENTORIES	7	(56.0)	(25.0)		
(DECREASE) IN ACCOUNTS PAYABLES	8	(6.0)	(2.0)		
CASH FLOW FROM OPERATIONS (CFO)	13	(68.1)	(42.7)		
CAPITAL (EXPENDITURES) SALES	15	0	3.0		
CASH FLOW FROM INVESTMENTS	18	0	3.0		
SHORT TERM BORROWING	20	22.0	15.0		
CASH FLOW FROM FINANCING	23	22.0	15.0		
	24				
NET CASH FLOW	25	(46.1)	(24.7)		

Interpreting the cash flow statement.

Olympia's cash flow from operations (CFO) declined from negative (42,700 Zls) in 1987 to negative (68,100 Zls) in 1998. Despite improvements in gross margin, rising operating and non-operating expenses reduced net income 65% from 8,000 Zls in 1987 to 2,800 in 1998. Although depreciation contributed to CFO, the increase in inventories outpaced the growth in receivables. Simultaneously, payables contracted further—another use of cash.

It is not clear from the information available how Olympia financed its growth in inventories. Short-term financing expanded 22,000 Zls which was 39% of the 56,000 Zls expansion in inventory.

Olympia's declining cash flow from operations is cause for concern. It cannot finance the growth of its working assets with internal funds. Together with the decline in profitability, weak liquidity, and declining leverage ratios, Olympia appears to be in a deteriorating situation.

Testing assumptions

The analyst will test assumptions about price and volume of sales, based upon conversations with the owners, historical levels of sales and prices, and current industry information.

Scenario analysis. Scenario analysis combines several states of nature that represent optimistic, pessimistic and most likely levels of sales. Each state of nature is weighted by its likelihood of occurrence or probability. *Beta distribution* takes consensus opinions and groups them into three categories:

- Optimistic. Often the view of management. The optimistic view represents the "best case" for sales and price, based on the highest historical results.
- Most likely. Usually based upon historical data and adjusted for obvious positive or negative market trends. Can be the average of historical sales.
- Pessimistic. The pessimistic view frequently depends on the judgement of the analyst and represents a very conservative view of sales that represents the lower level of historical sales, again adjusted for market trends. Otherwise called "the worst case" scenario.

***Expected Value* Calculations:**

1. Weight the categories. Give "optimistic" and "pessimistic" forecasts a weighting of 1. Give "most likely" forecast a rating of 4.
2. Add the three, weighted categories and divide the sum by 6. The is the "expected value."

$$\text{Expected value} = \frac{(\text{Optimistic} \times 1 + \text{Most Likely} \times 4 + \text{Pessimistic} \times 1)}{6}$$

3. Adjust financial analysis, key ratios and cash flow analysis by the "expected value" and the "pessimistic value."

Question: Scenario Analysis

During the visit with Olympia Electronics' management during the credit investigation, management indicated that it can increase sales by 10% in 1999. The retail electronics industry consensus is 5% growth during the same period. The analyst takes the pessimistic view that sales could actually *decrease* by 10%.

1. What is the *Expected value* increase or decrease in Olympia's sales in 1999?

Break-even analysis. Break-even analysis examines the sensitivity of profits to the level of sales. The break-even level of sales is the unit volume sales that will cause profits equal to 0. The company's sensitivity to sales volume is determined by the *operating leverage* and *financial leverage* of the company. *Operating leverage* is basically the proportion of fixed costs in the financial structure that do not vary with the level of sales. Variable costs are those costs, such as cost of goods sold, that vary directly with the level of sales. Companies that are capital intensive have greater *operating leverage* than companies that are labor-intensive and use more manpower than machines.[3]

The setup of a breakeven analysis table in the format of contribution analysis is given below:

Total		%	Sales increase 10%	Sales decrease 10%	Break Even
Sales	912	100.0	1,003	821	899
(Variable costs)	(750)	82.2	(825)	(675)	(739)
= Contribution margin	162	17.8	178	146	160
(Fixed expenses)	(160)	(17.5)	(160)	(160)	(160)
= Net income	3	0.3	18	(14)	0

[3] Read appendix on breakeven analysis and accompanying article.

Solving for breakeven.

For every 100 Zls of sales, contribution margin will increase 17.8 Zls. Olympia's contribution margin ratio (C/M ratio) is 17.8%. The breakeven sales, where contribution margin will exactly equal fixed expenses, is calculated from the equation:

Sales = Variable expenses + Fixed expenses + Profits

Breakeven formula:

$$X = 0.822X + 160\ xls + 0$$

$$0.178X = 160\ xls$$

$$X = \frac{160\ xls}{0.178} = 899\ xls\ of\ sales = breakeven\ volume\ of\ sales$$

Break-even analysis is another way to test the sensitivity of a firm to changes in sales levels. Companies with high fixed costs are said to have high "operating leverage" and will experience greater changes in profitability for increases in sales, but also greater sensitivity to losses if sales decline.

Question: Break-even Analysis

1. If you use the *Expected Value* increase or (decrease) in sales for 1999, what will be Olympia's profit (loss)?

DuPont Analysis. The DuPont system of analysis integrates ratios to analyze the sources of a company's performance. No single ratio is sufficient to explain more than one aspect of performance but, in combination, the interrelationship of the various ratios provides a robust analysis. Very simply, ROE (return on equity) can be easily derived by dividing net income after taxes by equity. The analysis consists of examining the sources of ROE.

The DuPont system of analysis breaks the return on equity (ROE) into parts:

1. Leverage
2. Profit margin
3. Asset utilization
4. Common size ratios

ROE may be calculated as:

$$\text{ROE} = \frac{\text{Total assets}}{\text{Equity}} \; x \; \frac{\text{Net income after taxes}}{\text{Total assets}}$$

Breaking it down, ROE can be viewed as return on assets (ROA) multiplied by the leverage of the company as defined by the ratio of total assets supported by equity.

$$\text{ROA} = \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Net income after taxes}}{\text{Sales}}$$

So, ROE can also be represented by:

ROE = Profitability x Activity x Solvency

or,

$$\text{ROE} = \frac{\text{Net income after taxes}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

The term sales/total assets is the activity ratio called *total assets turnover*, and the term net income after taxes/sales is the profitability ratio called *profit margin*.

$$\frac{\text{Net Income}}{\text{Sales}} = \frac{\text{Net Income}}{\text{Earnings before taxes (EBT)}} \times \frac{\text{EBT}}{\text{Sales}}$$

Substituting these terms in the ROE equation above:

$$\text{ROE} = \frac{\text{Net income}}{EBT} \times \frac{\text{EBT}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

A three-component disaggregation of ROE begins with:

ROE = Profitability x Turnover x Solvency

Exercise: Using DuPont Analysis

1. In the table below, compute a DuPont analysis for Olympia Electronics using numbers from the balance sheet and income statement (page 310)). (Hint: although averages for assets and equities are the standard practice, use the balance sheet numbers for the single year.)

2. Interpret the causes of Olympia's current financial condition as revealed by the DuPont analysis.

Three-component disaggregation of ROE

	$\frac{\text{Net income}}{\text{Sales}}$	x	$\frac{\text{Sales}}{\text{Total assets}}$	=	$\frac{\text{Net income}}{\text{Total assets}}$	x	$\frac{\text{Assets}}{\text{Equity}}$	=	$\frac{\text{Net income}}{\text{Equity}}$
1996									
1997									
1998									

Evaluating Security and Collateral: The Secondary Source of Repayment

Analyzing collateral is extremely important in credit analysis. Despite the prospects of strong cash flow from operations, unexpected and unforeseen events can impair the primary source of repayment.

When a bank takes a security interest in collateral of the borrower, the bank obtains the right to sell the collateral assets and apply the proceeds to the loan, if the borrower cannot repay the loan as agreed. Most bank loans to businesses are made on this basis. Although short-term loans to high-quality borrowers are not secured, most long-term loans are secured, even to best customers. With respect to loans to SMEs, collateral is generally required on loans of almost every tenor.

Banks follow precise procedures to establish and document their legal claim to the proceeds of collateral assets in the event of default. Different procedures and documents are required for real, as opposed to personal, property. There is also a difference in the procedures for securing personal property, depending on whether the property remains in the possession of the bank or the borrower.

Real property. To perfect security interests in property, it must be recorded at an official agency. Real estate collateral is usually recorded with a public agency. This recording or filing protects the bank against subsequent claims by third parties. A title search establishes the existence of defects in the title in the form of other possible claims on the real estate. While a professionally prepared appraisal is necessary to document the real estate's value, it must be remembered that liquidation will occur in distress situations, which often will cause the property to be sold for less than appraised value. Secondly, foreclosure, liquidation or workout with the borrower require additional legal and administrative expenses for the bank and these should be netted from the expected value.

Property in the bank's possession. A security interest in the property of the borrower is perfected when the bank, or its agent, actually takes physical possession of it. The borrower completes a pledge agreement, which authorizes the bank to hold the collateral and to derive cash from it in the event of default. Because the asset is already in the bank's possession, it is not necessary to file a pledge agreement publicly. In the simplest case, the pawnbroker has the borrower's property in his possession.

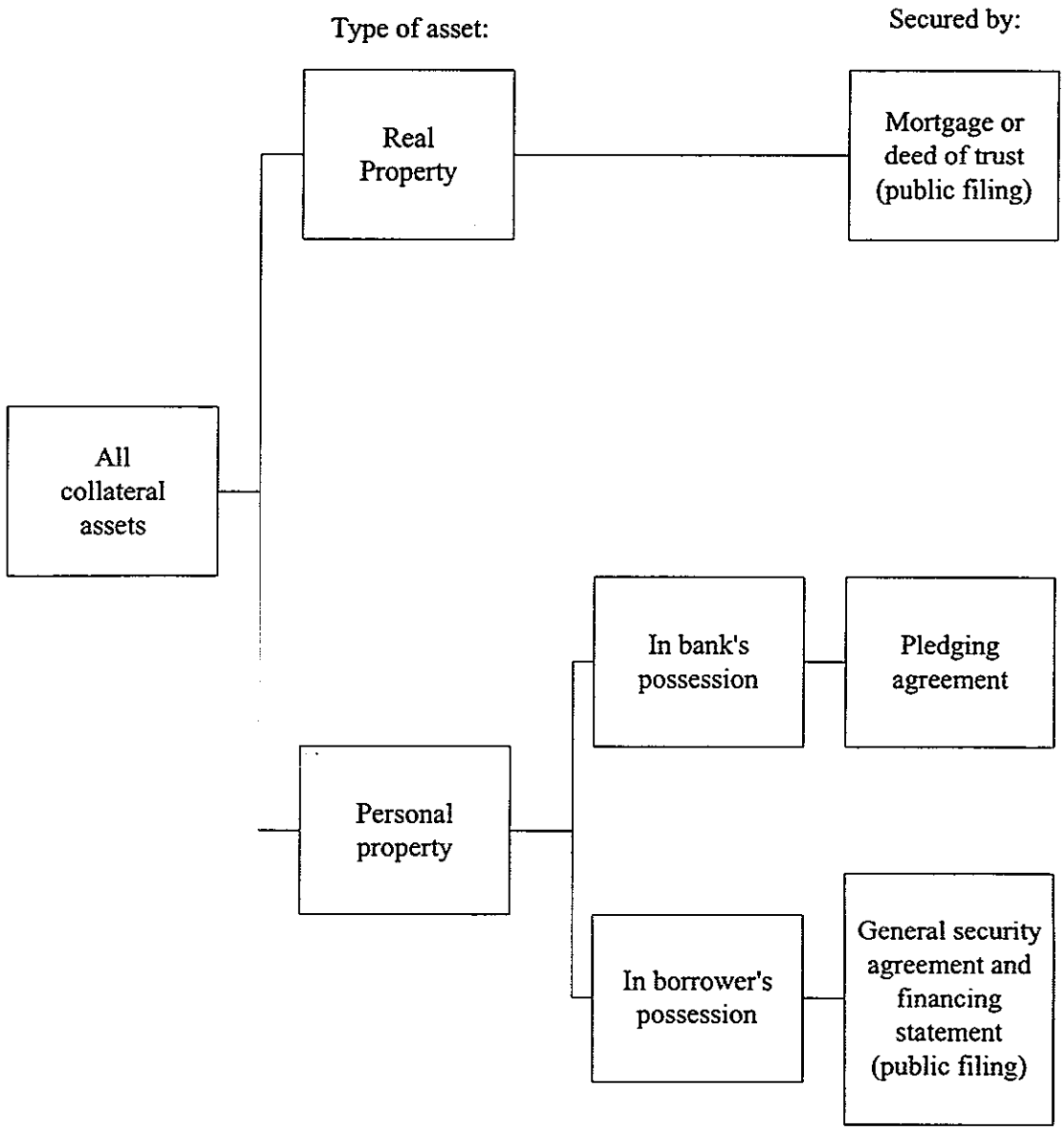
A bank can take a security interest in a savings account belonging to an owner or stockholder of a borrowing firm. If the borrower's deposit is in another financial institution, that institution must formally acknowledge the assignment. This third-party notice perfects the lending bank's claim. Within the lending bank, a pledge agreement blocks the possible withdrawal of the cash collateral. In warehouse lending, inventory or goods for the customer are kept in a bonded warehouse, which issues *warehouse receipts* that are delivered to the bank. In this way, the bank has control as well as legal rights.

Property in the Possession of the Borrower. Under a Commercial Code, a bank can perfect its security interest in collateral property held by the borrower with a public registry of a general security agreement. A public statement describes the collateral and provides public notice that the unique collateral has been pledged to the lender.

Guarantees. It strengthens the credit if the guarantor signs the loan as a co-maker. The obligation of a co-maker (co-signer) is stronger than a guarantor. This can help to prevent lawsuits if the loan is restructured later.

Accounts receivable. Borrowing against accounts receivable helps a weaker customer access credit he might not be extended on an unsecured basis. Usually, the bank will lend a percentage of the accounts receivable assigned to it.

Methods and Documents for Taking Security Interests



Collateral should be consistent with types of loans.

Type of loan	Collateral	Collateral Analysis
Short term	Inventories	Inventory quality, salability
	Accounts receivable	Credit policy, aging of receivables, servicing of accounts, collections
	Fixed assets	
	Guarantees	Liquidity of guarantees
	Liens on salaries of family members (small business, microfinance)	Employer compliance
Bridge loans	Perfected security interest in the asset	Fair market value of the asset (under forced sale)
	Assignment of contract proceeds	(Backup: cash from operations)
Medium term loans	Title of equipment (lease)	Resale possibilities
	Perfected security interest in the asset	
Term loans	Mortgage on physical structures and land	Liquidation value (under forced sale or distress sale conditions, net of costs)
	Perfected security interest in equipment	

Summary

The credit function is the usually the most important and most visible function within the SME banking unit. Therefore, it is important to conduct a credit analysis to determine the risk of lending to a customer or a class of customers. In terms of profitability, credit analysis can help determine the value of the credit facility to the customer in order to help understand how to price the facility.

Management and industry analysis seeks to understand the business conditions and risks that can affect the profitability of the business.

Understanding the cash conversion cycle, whereby working assets are transformed into cash, is necessary to calculate the magnitude and timing of cash.

Sensitivity analysis, breakeven analysis and DuPont integrated ratio analysis can provide insight into the strengths and weaknesses of the company.

Collateral analysis is an important part of the credit analysis function.

Duration of an Asset

Calculating Duration: $D_{asset} =$

$$\frac{\sum_{t=1}^{n} \frac{CF_t}{(1+R)^t} \cdot t}{\sum_{t=1}^{n} \frac{CF_t}{(1+R)^t}} = \frac{\sum_{t=1}^{n} \frac{CF_t}{(1+R)^t} \cdot t}{PV_{asset,t=0}}$$

where:

CF	=	cash flow at end of period t
n	=	the last period in which a cash flow is received
PV	=	present value of the asset at t=0, or its price
R	=	market yield to maturity on the asset
t	=	number of periods from the present

In effect, duration is the weighted-average time to maturity, using the relative present values of cash flows as a fraction of the price.

Calculating Duration: Example 1

- Six-year Eurobond

  Face value = $1,000, annual coupon = 10%, current yield to maturity (R) = 10%,
  current price = $1,000

t	CF_t	$\frac{CF_t}{(1+R)^t}$	$\frac{CF_t}{(1+R)^t} \div$ Price	weight x t
1	$100	$90.91	.0909	.091
2	$100	$82.64	.08267	.165
3	$100	$75.12	.0751	.225
4	$100	$68.30	.0683	.273
5	$100	$62.08	.0621	.311
6	$1100	$620.95	.621	3.72
		$1,000	1.0	4.791

Therefore,

Duration = 4.791 years

- For purposes of managing interest rate risk, this bond has a life 4.79 years (approximately 4.8 years).

- For most fixed-income assets, duration will be less than the maturity of the asset ($D_{asset} < M_{asset}$)

Example Two

Two-year coupon bearing Treasury bond with semiannual payments.

- Face value = $1,000; annual coupon = 10% (with a semiannual coupon rate of 5%); current yield to maturity = 12% (6% semiannually); current price = $965.36

t	CF_t	$\frac{CF_t}{(1+R)^t}$	$\frac{CF_t}{(1+R)^t} \div$ Price	weight x t
1/2	$50	$47.17	.0489	.0245
1	$50	$44.50	.0461	.0461
1 1/2	$50	$41.98	.0435	.0653
2	$1,050	$831.71	.8615	1.7231
		$965.36	1.0	1.8590

Therefore,

Duration = 1.86 years

For purposes of managing interest rate risk, this bond has a life of 1.86 years. Time is measured in years, as is duration.

Example 3

Two- year zero coupon Treasury bond with semiannual interest compounding.

- Face value = $1,000; current yield to maturity = 12%, or 6% with semiannual compounding. The current price = $792.09.

$$\text{Duration} = \frac{\$1{,}000}{\$792.0} \Big/ (1+.06)^4 * 4 = 4 \text{ semiannual periods}$$

$$= 2 \text{ years}$$

Duration of a zero equals final maturity.

Example 4

Consol bond that pays a fixed coupon to perpetuity.

$$\text{Duration of a consol} = 1 + 1/R$$

Chapter 1 – Introduction and Overview

Overview

Introduce the purpose of the Workshop, logistics and any administrative issues.

This Chapter introduces the concept of integrated risk management, including the objectives of risk management, how it has evolved from primarily risk control, and the benefits of an integrated risk management system.

A risk management structure is described with the elements of a risk management culture.

The basic trade-off between risk and return can be quantified and managed to optimize the risk-adjusted earnings of the bank. A model is introduced to illustrate the decomposition of the earnings of SCB and individual branched to illustrate how interest margin or other targets can be determined.

Estimated Teaching Time

This Chapter should take 3 hours to complete.

Important Notes About This Chapter

- Use OH 1-1, 1-2 and 1-3 to illustrate different approaches to risk management.
- Define integrated risk management and the building blocks: identification of risk; measurement of risk; management of risk; and monitoring and controlling risk.
- Define risk as uncertainty or volatility. Depending on the audience, you can develop the concept of volatility further using frequency distributions and statistical measures of variance and standard deviation. For a bank like SCB risk can be defined as volatility in earnings or capital. Illustrate volatility with OH 1-4.
- Describe how the market prices risk by requiring a higher expected return from investments that have a higher perceived risk. This is the basic trade-off between risk and return. Different models can be used to express this trade-off, including the capital asset pricing model, dividend discount model, cost of capital or efficient frontier.
- The capital asset pricing model assumes an investment's required rate of return is composed of the risk-free rate (usually the government's short-term borrowing rate) plus a risk premium for specific risk (diversifiable) and market risk. The specific risk can be diversified away, leaving only the systematic risk premium that is the investment's relative volatility (beta) times the general market's risk premium over the risk free rate.
- The dividend discount model determines the fair market value or present value of a share of common stock by discounting the future dividend stream by a given required rate of return.
- The cost of capital is the required rate of return or hurdle rate for making capital investments. It varies from firm to firm depending on the firm's sources of capital and the riskiness of the investment.
- The efficient frontier is the portfolio of assets (or liabilities) with the lowest risk for any given level of return (cost) using Modern Portfolio Theory.
- Explain that the trade-offs are based on premise that a rational investor will attempt to maximize return at any given level of risk, or minimize risk at any given level of return.
- Use Bank A and Bank B(OH 1-5) to differentiate strategies. Ask participants how they can maximize net interest income. The answer is to borrow short at lower rates and lend fixed long-term at higher rates to the least creditworthy clients. But what has been the result? The bank has increased is liquidity risk, interest rate risk, credit risk and market risk.

- Ask participants how they can minimize liquidity risk? By holding cash, but there is an opportunity cost.
- Emphasize that effective risk management is not avoidance of risk, but rather the prudent taking of risk for profit. It involves making informed decisions about the trade-offs between risk and return in order to maximize shareholder wealth.
- Highlight and define the key measurement factors: ROE, ROA, NII, Growth, Predictability of income; NIM. Discuss how a bank can grow no faster than its ROE without increasing leverage and/or raising additional capital. Illustrate with OH 1-6.
- Risk assessment and risk management begins at the businesses, those people on the "front line."

Exercise: What is Risk?

This is an exercise to be completed at the beginning of the workshop to get a sense of how the participants perceive risk and in particular, SCB's risks today.

Instructions:

After the overview of the workshop, ask participants to introduce themselves and articulate what risk management means to them, what they see as SCB's major risks today and what they want to get out of the workshop, ie., "why are you here?" Write answers on flip chart so that you can review at the end of the workshop to see if there is more consensus of what risk and risk management is.

Results:

There are no right answers to the question. Rather, the exercise is to get the participants thinking about what they see as risk. At the end of the workshop, revisit the issues and see if there are any changes.

Case Study: Earnings Analysis for SCB

Use the earnings analysis model to analyze SCB's most recent annual results or the plan for the current year. Hand out financial statements/annual plan of SCB and highlight where the numbers are derived.

For Branch Managers, use the financial statements of different branches to highlight differences.

Instructions:

Review the adaptation of the "DuPont Model" to a bank:

- ROE = ROA x Leverage multiplier (Total Assets/Equity)
- ROA = (NII + Non-Interest Income – Non-Interest expense – taxes)/TA
- Net interest Margin = NII/TA or NII/Earning Assets x Earning Assets/ TA
- NIM on EA = Net interest Spread + the degree EA are financed by non-interest bearing liabilities or – the degree non-earning assets are financed by interest-bearing liabilities. You can calculate the gain/loss using the following formula: ((EA-Interest-bearing liabilities) x Cost of funds)/EA
- Net interest spread =(Interest Income/EA) – (Interest Expense/Interest-bearing Liabilities)
- Add SCB's numbers for current year and previous year(s) to see how it has changed

- Ask participants to explain changes, areas of improvement and areas where risk is managed

Results:

See Handout 1 (HO 1-1) for answers to SCB's 1999 annual statement. Use HO 1-2 for branches. (To be developed by Khun Charoon)

Continued on next page

Chapter 2 – Risk Management System

Overview

The purpose of Chapter 2 is to describe the components of a Risk Management System: Risk Identification; Risk Measurement; Risk Management; and Risk Monitoring/Controlling.

A knowledge check is used at the end of the session to test the level of understanding of the participants.

Estimated Teaching Time

This chapter should take 90 minutes to complete.

Important Notes About This Chapter

- Describe the four components of a Risk Management System
- Risk Identification is an awareness of the exposure to potential volatility and loss
- Risk Measurement is the process of quantifying that potential loss in terms of expected loss or volatility in earnings and/or capital. Risk can be measured in terms of expected loss such as credit losses according to loan ratings; and unexpected loss, or the potential loss due to unexpected events.
- Risk Management is the active management of the identified risk. Risk management includes policies to manage the risk (ALM Policy, Liquidity Policy, Investment Policy, Capital Policy, Credit Policy), reporting procedures, hedging, portfolio diversification, insurance, and credit provisioning, among others.
- Risk monitoring and control includes active independent oversight of risk and the adequacy of risk management. It includes preventive controls, detective controls and corrective controls.
- Identify the major risk areas: Operational; Market (Interest rate, FX, Price, Liquidity) and Credit risk.
- Refer participants to Risk Glossary in Annex 1 for a summary of other types of risks and general Risk Management terminology. Note that Annex 1 also includes a Glossary of bank financial terms.
- The Board of Directors is ultimately responsible for risk management, but delegates authority through the Executive Committee to the day-to-day managers of the business lines who actually manage SCB's risks.
- Use the branch schematic in OH 2-3 (to be developed by Dr. Pol) to demonstrate how risk is incurred by the branches on behalf of SCB.

Exercise: Categorization of RM Components

In this exercise the participants will think about the existing risk management system in place and to fill in the building blocks: Risk Identification; Risk Measurement; Risk Management; Risk Monitoring/Control. The purpose is to have them identify the components.

Instructions:

For Branch Managers: In this exercise the participants are asked to think about the risk management systems that are in place now. Hand out HO 2-1 and ask participants to fill in each of the blocks. For Team Leaders and other participants, you can use the branches or SCB as a whole. Allow 15-20 minutes. Using flip chart or transparency (OH 2-1), summarize results as participants discuss their findings.

Results:

There are no right answers. The discussion should demonstrate any differences of opinion and highlight areas that should be developed in more detail in the workshop.

Case Study: Self Assessment

Using HO 2-2 the participants rate the quality of the risk management systems in place at their branch (or SCB as a whole for other participants). The purpose of the case study is to have the participants think about what management techniques are being used and whether they are satisfactory or not.

Instructions:

Hand out HO 2-2. Ask participants to rate themselves as Superior, Satisfactory or Needs Improvement. The participants should define what they consider to warrant each of the ratings. Refer participants to Annex 2 for examples of factors and standards. Allow 30 minutes for participants to complete the assessment. Using flip chart or transparency, summarize results as participants discuss their findings.

Sample Evaluation Factors of General Business Risks:

Organizational Structure: Reporting relationships; responsibilities and accountabilities.

Planning: Business planning and budgeting

Policies and Procedures: Completeness of policies; clarity; how current; enforcement; documented.

Process and controls: Process coordination; checks and balances; adherence to policies.

Measurement and Monitoring: Relevance and integrity; completeness.

MIS and reporting: Availability; effectiveness; prognostic capability; consistent with risks; reporting requirements

Communication: Effectiveness; timeliness; comprehensive.

Staff and training: Adequacy of staffing; turnover; risk management training.

Quality management: Response to risk review and monitoring; service quality; contingency planning.

Sample Evaluation Factors of Specific Risks

Credit risk

Identification: Counterparty; country; concentrations; portfolio; collateral

Credit underwriting: Loan structuring; credit information; credit analysis.

Credit Documentation: Completeness; actionability review.

Credit Accounting: Timeliness; accuracy; comprehensiveness; reconciliations.

Collateral Management: Evaluation; protection

Problem Asset Administration: Problem identification; strategy and action; referral to credit support; reserves, accruals and charge-offs

Market Risk

Identification: Exposures to interest rate risk, price risk, liquidity risk, FX risk, commodity price risk are identified and measured using realistic assumptions/scenarios.

Risk Policy and limits: Written policies approved by Board/Executive Committee; prudent limits relative to earnings and capital

Risk Measurement and validation: Adequacy; independent monitoring and measurement; timely information and regular reviews

Responsiveness to change: Regular monitoring and adjustment to market changes.

Compliance Risk

Identification: Level of understanding of risks in business.

Measurement and management: Policies and procedures established and enforced; clear lines of communications and accountabilities; adequate and timely information.

Product Risk

Identification: Level of evaluation of risks of transactional and other products.

Measurement and management: Established accountabilities; established process of review of products against changes in market conditions, volumes, operational and technological environments.

Operational Risk

Identification: Level of defined objectives and accountabilities; level of meaningful data from operating and information systems

Measurement: Information systems collect timely, accurate and meaningful information

Results:

There are no right answers. There should be differences in opinions that result in a good discussion of what is in place how, what works effectively and what does not work, and how different officers perceive the risks.

Using OH 2-3 illustrate how the branches incur risk on behalf of SCB. Discuss how and where the risk is being identified, measured, managed and monitored.

Knowledge Check: In order to test the level of understanding of Chapters 1 and 2, you can distribute HO 2-4 that are Review Questions and ask participants to answer the multiple choice questions. They can use their notes and manuals, but should not discuss the questions with other participants. You may want to use the Review Questions to lead a review discussion of the material in Chapters 1 and 2. Alternatively, you can use the following questions. Allow 30 minutes for participants to complete their answers.

Questions:

(1) How do you define risk?
(2) Describe risk management and the components of a risk management system.
(3) Why is risk management important to SCB?

(4) What are the most important areas of risk management for SCB? Describe your answer in terms of specific risks and components.
(5) What are SCB's present strengths and weaknesses in terms of a risk management culture?

Answers:
There are no wrong answers to the questions. However, the following are indicated answers:
(1) Risk should be defined a volatility, uncertainty or probability.
(2) Risk management is the deliberate acceptance of risk for a profit and the components are the building blocks (Identification; Measurement; Management; Monitoring).
(3) Risk management is important so that SCB can maximize risk-adjusted returns and maximize shareholder value.
(4) No right answers.
(5) No right answers.

The Leader can determine the level of understanding by the seriousness and thoughtfulness of the answers.

Chapter 3 – Operational Risk

Overview

The purpose of Chapter 3 is to define operational risk, the objectives of operational risk management, and ways to measure operational risk. Participants are asked to identify SCB's operational risks and to prioritize them in terms of level of risk, ie., frequency, and impact.

Estimated Teaching Time

This Chapter should take 90 – 120 minutes to complete.

Important Notes About This Chapter

- Differentiate between operational risk, operating inefficiency and operating risk.
- Differentiate between business risk (volume variances, revenue or price variances, cost variances) and event risk (computer virus or breakdown, errors and omissions)
- Identify challenges of measuring and managing operational risk. Use skewed distribution to illustrate operational risk as high frequency of small risks or losses that may not be observable, and low frequency of high impact risks(OH 3-1)
- Illustrate with SCB examples: documentary risk; wire transfer; proper authorizations. Ask participants to describe operational risk from their perspective.
- Describe two approaches for identifying and measuring operational risk: Process vs Asset/Liability.
- Perform exercise to prioritize SCB operational risks.
- Identify controls, existing or possible. Note that the discussion should also focus on those controls that do exist but may merely increase processing cost in terms of time but not result in a measureable decrease in risk. In other words, by eliminating the control, you may be able to decrease costs and not increase risk.

Exercise: SCB Operational Risks

This exercise identifies and prioritizes SCB's operational risks. The objectives of the exercise are to determine what the participants see as SCB's risks and how they rank them.

Instructions:

Break participants into groups of 4 or 5. Prearrange groups to have cross-section of participants in terms of specialty, department, branch, etc. Ask groups to brainstorm, discuss and rank risks using the four quadrants on HO 3-2. Groups should also define what they deem to be "high risk" or high frequency and "high impact" or volatility in earnings and/or capital. Each group should present results and leader/instructor should keep a combined list on flip charts or slide.

Results:

There are no "right answers" to the exercise. It is intended to elicit participants' thoughts about operational risk from their perspective. In cases where the same risk is placed in more than one quadrant, the participants should discuss further to come to consensus.

Case Study: Product Risk Assessment

This case looks at the individual products, particularly transaction products, and identifies the operational risk of each.

Instructions:

Ask participants to discuss each SCB product, its processing flow, and the operating risk associated with each step. (Note: Use Khun Kovit's grid and add liability products such as deposit products.)

Results:

There are no right answers to the case study. It is important to generate ideas.

Knowledge Check: In order to test the level of understanding of Chapter 3, ask the participants to answer the following questions. Allow 30 minutes for participants to complete their answers.

Questions:

(1) How do you define operational risk?
(2) Describe operational risk management.
(3) How can SCB benefit from better operational risk management?
(4) What are the most important areas of operational risk management for SCB?
(5) What are SCB's present strengths and weaknesses in terms of a risk management culture?

There are no right answers to the questions. Rather, the Leader can determine the level of understanding of the participants by the thoughtfulness of the answers.

Chapter 4 – Market Risk

Overview

Chapter Four defines, describes and illustrates market risk that includes interest rate risk, liquidity risk and foreign exchange risk. The objectives of the Chapter are to define different market risks and discuss different measurement and management techniques.

Estimated Teaching Time

This Chapter should take 4 hours to complete.

Important Notes About This Chapter

- Define market risk as the volatility in earnings or capital arising from a change in market prices or rates.
- An interest rate is the rental price of money. Discuss how interest rate risk arises due to a yield curve where interest rates are different for different maturities and differences in credit risk. Illustrate the different shapes of a yield curve using Slides 57-64, and/or use a slide with the current yield curve in Thailand.
- Ask participants how to fund and price a loan to maximize net interest income. Note: this is to borrow short and lend long at a fixed rate assuming an upward sloping yield curve. But what risks are you then exposed to? Describe different yield curve strategies and risks. Briefly illustrate how to calculate an implied forward interest rate.
- Differentiate the different kinds of interest rate risk (repricing; option or prepayment risk; basis or the index used for a variable rate; and the inverse relationship between interest rates and prices of fixed income securities.
- Describe different ways to identify interest rate risk: repricing gaps; spread analysis; duration analysis and gap. Refer participants to Annex 4 for information on Duration and illustrations on how to calculate it. Differentiate between repricing gap which has and impact on earnings; and duration gap which has an impact on economic value of equity (EVE) which is the market value of portfolio equity assuming all assets and liabilities are marked to market. Note this may be different from the market value of the bank's stock if investors require a different rate of return for the bank's equity.
- Emphasize that gap analysis alone only identifies interest rate risk. In order to measure interest rate risk, it is necessary to analyze the changes in earnings or capital given a change in interest rates using sensitivity analysis, scenario forecasting or simulation analysis (Slide 69).
- Discuss the various interest rate risk management tools and strategies with the objective of managing the volatility in net income, net interest income, net interest margin, capital or other target. Limits can be based on "value at risk" or the expected loss on a given asset or liability over a given time period at a given confidence level. Note that VaR is **not** the **most** that can be lost. Illustrate VaR with OH 4-1.
- Describe liquidity risk and illustrate the trade-off between liquidity and return. Describe ways to identify, measure and manage liquidity risk. Describe SCB's liquidity limits currently in place. Illustrate liquidity risk identification with OH 4-2 and liquidity risk management with OH 4-3. Discuss the relationship between liquidity and other risks using OH 4-4.
- Describe foreign exchange risk. Describe the different way that FX rates are quoted using OH 4-5. Demonstrate how to calculate an implied forward exchange rate assuming interest rate parity using OH 4-6. Illustrate the trade-off between FX risk and return using JPY example in OH 4-7. Discuss FX risk management techniques. Covering is equivalent to matching assets and liabilities to create a natural hedge.

Monitoring and controlling activities are comparable to other market risks: Reporting procedures including independent risk review; internal controls; internal audits.

- Emphasize how the same risk measurement techniques can be used to evaluate a borrower's FX risk that can affect the credit quality of any loan to that borrower.
- Describe derivatives using OH 4-7 and OH 4-8.
- Refer to the Glossary of Terms in Annex 1 for definitions of the derivatives listed in Slide 86.
- Discuss the risks inherent in derivatives: credit; market; operational; legal.

Discuss other market risks such as equity price risk and commodity price risk that can affect the volatility of earnings or capital.

Exercise: Interest Rate Risk

The purpose of the interest rate risk exercise is to demonstrate the impact of changes in interest rates on net interest income and net interest margin if assets and liabilities have different interest rate sensitivity.

Instructions:

Using OH 4-9, demonstrate how interest rate revenue and expense varies with a 10% increase in the general level of interest rates depending on the rate sensitivity of assets and liabilities. Ask participants to calculate the change in net interest income under the following conditions:

(1) Earning assets are 100% rate sensitive and liabilities are 50% rate sensitive

(2) Earning assets are 50% rate sensitive and liabilities are 100% rate sensitive

(3) Earning assets are 100% rate sensitive and liabilities are 100% rate sensitive

What are the conclusions?

Ask participants to assume the level of interest rates decrease 20% and calculate the change in net interest income under the same conditions (1) – (3) above.
What are the conclusions?

Results:
Show answers on OH 1-10

Case Study: Examples of Market Risk

The purpose of the case study is to have participants discuss examples of market risk identification, measurement, management and monitoring from their perspective.

Instructions:

Ask participants to break into groups and select at least 5 examples of where SCB is exposed to market risk that arises from their (the participants') actions. This can be exposure resulting from assuming FX deposits, selling fixed rate deposit products, taking collateral that is subject to commodity prices (eg., gold, agricultural products, etc.), or providing a loan to a borrower that has significant market risk.

Results:

There are no right answers to the case. The purpose is to illustrate how market risk arises for SCB from "non-traditional" sources. This case serves as a "knowledge check" to determine the level of understanding of the participants.

Chapter 5 – Credit Risk Section A

Overview

Chapter 5 on Credit Risk covers five key topics on the credit risk management process that are discussed in each individual sub-section as follows:

A) Strategic Policy, Credit Policy and Credit Culture

B) Credit Initiation, Analysis and Assessment

C) Credit Risk Management

D) Loan Review and Administration

E) Problem Loan Workouts

The focus of Section A "Strategic Policy, Credit Policy and Credit Culture" is to ensure the participants are familiar with SCB's strategic plan, what are the bank's strategic goals and objectives and how does that translate down to the individual officer's level in terms of performance and output. (What is required of each and every staff member in order to assist Bank management in achieving its overall objectives?)

It is important to emphasize that the planning process and the strategic plan is a bank-wide project that requires the approval of the Board of Directors and senior management. The objectives of the strategic plan are implemented through the various major business groups' policies, (i.e., Credit Policy, ALM Policy, Human Resources Policy, Marketing Plan, etc.) A critical phase in the successful implementation of the strategic plan is the formulation of a credit policy. This section discusses the distinction between the strategic plan, credit policies and credit procedures. This section also emphasizes the importance and value of SCB creating its own unique credit culture, which is embodied in and is an outgrowth of its credit policy.

Estimated Teaching Time

This section should take approximately two hours to complete.

The allocation of time also includes the two exercises:

1) Loan Policy Questionnaire exercise.
2) An exercise asking the participants to describe SCB's current credit culture and recommending changes, if necessary, on how to enhance and improve the Bank's credit culture.

Important Notes About This Chapter

Ask the participants what credit risk means to them and what do they do on an individual basis to mitigate this risk. Define credit risk from the overheads and discuss further how customers, markets, industries, geography, etc., affect credit risk. As most classes are various levels of experience, the instructor can use and expand on the materials in the text using their own experiences to relate to the subject matter.

Discuss a strategic plan and show the overhead on a bank's planning process and who is responsible for what stage in the process. I would recommend the instructor copy and handout relevant sections of SCB's strategic plan and credit policy for discussion purposes. What risk parameters has the bank identified and how will credit and the other business units work to minimize

these risks? In addition, discuss how each business unit should achieve its objectives within these risk guidelines. Ask why does a bank plan: to increase profitability, determine bank's future direction, do a SWOT analysis, etc. Highlight the distinction between a mission statement/vision and credit/corporate culture. For example, a vision might be: "Winners not only talk about a vision, they implement it." A culture statement might be: "Decision making is easier and more effective when the organization's values are clear. It is acceptable to bend the rules if you do not violate the company's values."

Discuss the key attributes of a credit policy and lead into a discussion of SCB's credit policy. Discuss the components of a credit policy. This would be a good opportunity to introduce the exercise on the Loan Policy Questionnaire. The results of the exercise should generate ample discussion. Following this discussion, the instructor should explain the difference between policies and procedures. Credit policy is "the way we do things around here" and credit procedures are the operational detailed instructions for disbursing and booking the loans. Emphasize that sound, prudent and well-designed credit policies will create a credit culture over time and, as a result, a credit culture cannot be implemented by a memo from senior management. A credit policy should be understandable, defined and communicated to all. Why have a credit policy? Because:

- Policies are made to be broken
- A guide approved from senior management
- Assists management in adopting credit standards
- Identifies needs of the bank
- Must reflect current management thinking
- Must fit marketplace and competition
- Must meet regulatory requirements
- Creates a framework for lending

The objectives of a credit policy:

- Market to be served
- Establishes limitations of risk to be taken
- Determines availability of funds to lend
- Adapts to changing economy

What are the lending authorities:

- Determines size and composition of credit committee
- Names senior credit officer
- Establishes approval limits
- Establishes a "house limit" and a legal limit

Last, a credit policy should address approval criteria, types of loans to be offered, exception loans, collateral, loan review process and problem loan administration and workouts.

Provide the four descriptions of a bank's credit policy:

1) Immediate Performance Driven: quality, loan volume, balanced, aggressive, conservative and growth-oriented.

2) Market Share/Production Driven: market share, growth-oriented, aggressive and loan volume.

3) Values Driven: quality, conservative, ownership, soundness and balance.

4) Unfocused/Current Priority Driven: no strong focus of priorities.

Discuss these in detail. The instructor should then discuss credit culture and, in particular, SCB's credit culture. Continue the discussion focusing on Credit Culture: Key causes of Credit Problems. Here, it is crucial for the instructor to incorporate his/her own experiences on the 11 reasons for loan failures due to credit culture. In the context of a credit culture, discuss the overheads on Portfolio Management/Relationship Management/Control Management in greater detail to highlight who are the participants in this process and what are their roles and responsibilities.

Last, summarize that banking in general and SCB, in particular, is in the business of risk. Explain the importance of establishing proper, prudent and workable credit policies that identify and minimize risk.

Exercises:

There are two exercises in this section. The first is the Loan Policy Questionnaire. Divide the class into groups, mixing the participants to get a cross-section of answers. Give them 30 minutes and then discuss the results of their findings. Use the answers as a basis for further discussions with Human Resources, Planning Department, etc., to implement improvements and ensure that all staff, regardless of their level of involvement in the credit process, is familiar with all aspects of credit policies and procedures.

The second exercise asks the same participants to describe SCB's current credit culture. How does it compare to other banks, both local and foreign, and what changes, if any, should be made. The exercise should take approximately 15 minutes.

Chapter 5 – Credit Risk Section B

Overview

Section B on "Credit Analysis and Assessment" focuses on key elements of the Credit analysis process and, depending on the knowledge and skills level of the participants, the instructor needs to determine how much time to devote to credit analysis.

Ratio analysis is discussed in-depth, providing definitions of the most often used financial ratios to analyze a borrower's ability to repay a loan. Likewise, cash flow analysis is discussed in detail, highlighting the distinctions between constructing a monthly cash budget vs. traditional cash flow models. In addition, sensitivity analysis and breakeven analysis should be discussed within the context of best, worst and most likely case scenarios in order to project the cash needs of a borrower.

The four foundations of sound credit analysis: industry analysis, financial condition, management quality and collateral realization are discussed in great detail. The emphasis within each of the four topics is on the identification of areas of risk, the measurements of financial strength, the methodology used to measure them and problem areas as part of credit risk, along with the analysis required and the unique issues and characteristics that result in these risks.

Estimated Teaching Time

This section should take approximately three-four hours to complete, depending on the level of the participants and how many case studies are used as teaching tools.

There is one case study for this section on constructing a pro-forma six-month cash budget balance sheet and income statement.

Important Notes About This Chapter

The chapter begins by using a typical organizational chart, showing the three functions of a credit management operation. Ask the participants for their comments regarding SCB's organizational structure as it relates to the credit risk process: Who is responsible at what stage in the management of credit risk. The instructor should stress the importance and value of SCB's standardized spreadsheet and cash flow formats. The instructor should provide and review SCB's standardized spreadsheets, particularly SCB's cash flow statement. Review the bank's standardized formats in order to ensure everyone is well-acquainted with each line item. This is valuable particularly when the borrower provides inadequate financial statements and the lending officer is required to transfer and/or reconstruct such figures onto the bank's standardized spreadsheets.

It is critical the participants understand that ratio analysis is a tool in the credit approval system and, by themselves, ratios are meaningless. Ratio analysis helps to identify trends and potential risks, especially through the identification of financial early warning signs. The participants should understand that the balance sheet is a fixed point in time whereas the income statement is over a certain period of time. It is useful to point out the balance sheet can change in one day and that the ratios may also reflect drastic changes. It is recommended that increases and decreases in the current working assets be discussed in great detail to highlight how a borrower can

manipulate these to an advantage. For example, a decrease in the accounts payable day's turnover ratio may not be a positive factor. Perhaps the borrower is not taking advantage of additional free financing. Likewise, an increase in the accounts receivable day's turnover represents a use of cash, buy may be of benefit to the borrower because a new strong creditworthy company has become a new customer. This focus, both positive and negative, will help the participants understand that they must analyze all aspects of ratios to better understand their borrowers. It is also helpful to discuss the Dupont theory and the inter-relationships between key ratios, such as ROE.

Strong emphasis needs to be placed on cash flow analysis and projections. Cash repays a loan and the identification of positive flow is obtained through an analysis of cash flow. It is imperative the bank to educate its borrowers as to the minimum level of financial information needed by the bank in order to make an intelligent credit decision. Suggest and/or organize seminars for the bank's customers to explain cash flow?

Review the four fundamentals of sound credit analysis: industry, financial condition, management quality and collateral valuation. It is highly recommended the instructor devote most of the lecture to an in-depth analysis of these four key areas along with the risks that are common to them. Stress that the lender is first a business person, then a lender. This means that the banker should know as much about the customer as possible in order to make a credit decision. This section goes into detail on that topic. It is important to identify the risks in these four factors and to mitigate those risks either through proper structuring, additional collateral, etc.

The cash flow analysis focuses on the importance of sensitivity analysis and break-even analysis. Cash flow analysis and projections is a range of possibilities that may occur with a borrower. It is imperative the lending officer understand where is the borrower in the range from best to worst case scenarios. It is always better to minimize a borrower's overly optimistic projections.

The instructor should distribute Section B Handout 1 on a recommended "Credit Memorandum" for review and discussion.

Exercises:

There are no exercises for this section.

Case Studies:

Bangkok Ideas, Inc., case study. The lending officer, in particular those involved in SME lending, must understand the use of a cash budget and why a cash budget is different than a cash flow statement. The students are to construct the income statement first, then the cash budget and last, the balance sheet. The ending cumulative bank loan should equal the Baht amount shown as bank debt on the completed balance sheet. After the participants have completed the income statement, review it with them on the overhead. It may be necessary to review the cash budget, as the first month is difficult and must be correct in order to proceed. This case study helps the participants understand how to forecast the needs of the borrower and assist the bank in determining the amount of financing required.

Chapter 5 – Credit Risk Section C

Overview

Section C on "Credit Risk Management" focuses on the process, underwriting standards and supporting documents, including loan structure, collateral valuation, loan agreements and SCB's credit approval package. The credit decision should be based on the four foundations of a sound credit analysis that were discussed in the previous chapter and in the context of SCB's credit decision-making process. Understanding the purpose of a loan request allows the SCB lender to properly structure a credit. Each type of major loan structure is discussed indicating the reasons for making the loan, the primary and secondary sources of repayment, the typical risks and common lending errors. Collateral should be discussed as to the characteristics important in the valuation methods and the bank's ability to liquidate. To assist in the risk management process, loan agreements are discussed regarding affirmative and negative covenants and using the loan agreement as a warning signal to weaknesses in the financial condition of the borrower. A copy of SCB's credit approval package, with key loan documentation and a list of affirmative and negative covenants, should be provided for discussion..

Estimated Teaching Time

This section should take approximately three hours to complete.

There is one case study of a borrower requiring multiple loan facilities with the emphasis on the risks associated with each loan facility.

Important Notes About This Chapter

There are several very important key concepts to stress throughout this section. The credit decision process and the credit methodology tree should be revised, if required, according to SCB procedures, and discussed in greater detail in terms of SCB's risk management process: Who is responsible for each decision at each stage in the process? SCB's credit approval and exposure control should be reviewed and discussed in terms of ease, accessibility, difficulty, etc. The credit approval process is important in that the participants must understand that knowing the industry and management may be more important than reviewing the financial statements. Lack of adequate financial statements and a prior credit history, if obtainable, are the primary reasons bankers are forced to rely more on collateral.

Discuss the obstacles and risks the customers of SCB encounter since the bank cannot lend beyond seven years. Is there currently a mismatching of funds with customers' needs?

How collateral is valued is important since many banks rely on collateral as a source of repayment. Most real estate is valued using the market approach, rather than the income approach. Collateral should always be valued on a liquidation basis, since it is the secondary source of repayment. Thus, collateral is valued at cost or replacement value, liquidation, market, income as a going concern. A sample collateral valuation worksheet is enclosed to assist in the overall valuation of a borrower's ability to repay in the event cash flow is not available. A guarantor's willingness to pay is tested when the loan goes into default. Guarantor support is important, but guarantors seldom volunteer to pay the debt. When looking to a guarantor for repayment,

emphasize only the net worth outside his primary business should be considered.

A loan agreement is the formal closing of a loan as the covenants describe the positive and negative conditions required of the borrower. An important function of the loan agreement is the monitoring process, a key component of the credit risk management process, to follow compliance with the conditions. The agreement acts as a warning signal of financial weakness if the covenants are violated. Minimum ratio requirements for debt and interest coverage, current and quick ratios and debt to net worth should be standardized as part of the credit approval. Refer to the "Additional Instructors' Notes for Loan Agreements."

The following is a recommended summary approach to the Credit Risk Management process:

- Credit Analysis has four objectives: 1) identify sound, prospective customers, 2) fully understand customers' creditworthiness, 3) determine the risks associated with each customer and the monitoring process required, and 4) structure the facility to mitigate the risks identified.
- To achieve these objectives, a standard credit analysis process should be followed **throughout** the bank to actively screen the most creditworthy customers, to gather necessary and reliable data to analyze the risks, to analyze customer risks and to structure facilities to maximize return and minimize losses.
- Propose a well-supported credit analysis package.
- Analyze the four foundations of credit worthiness: industry, financial condition and performance, management quality and collateral valuation and realization.
- Loan agreements must achieve the following: to communicate expectations between the borrower and bank, to protect the primary and secondary sources of repayment, to provide an early warning signal, to provide minimum financial expectations, to identify purposes and repayment sources and to identify minimum level for key financial ratios.
- Credit Approval package.
- Credit application-discuss SCB's format and requirements.

Collateral valuation and realization.

Exercises:

There are no exercises for this section.

Case Studies:

Royal Siam Manufacturing case study.

The purpose of this case study is to apply the concepts developed in the loan structuring discussion. Elements of loan structure developed addressed in this case include amount to be loaned, types of loans, collateral required, guaranties and covenants.

A suggested answer:

1) Asset-based line of $3,500,000 with additional advances of $2,700,000. Loan rate at LIBOR + 2%.

2) Bridge loan. Confirm existence of contract, verify earnest money and confirm purchaser is creditworthy. Bank would give a bridge loan of $500,000 secured by a mortgage on building to close in 120 days and at LIBOR =1%. If building does not close, then balance added to term loan secured by buildings and land.

3) Term loans. The first of $1,950,000 (65% LTV) secured by first on plant. Amortize over 15 years at floating +1%. The second in amount of $750,000 (50% LTV) secured by equipment. Amortizing over five years at floating =@5.

To meet total financing requirements, borrowers have to contribute 3,700,000 in new capital.

To provide additional protection, debt should be jointly and severally guaranteed by all principals. Covenants should define minimum net worth, working capital, cash flow coverage and restrictions on dividends, management salaries, sales growth and fixed asset additions.

Chapter 5 – Credit Risk Section D

Overview

Section D on "Credit Monitoring and Loan Administration" focuses on managing credit risk. Considerable time should be devoted to risk grades and discussing the distinction between credit monitoring, credit administration and credit or loan review. Credit monitoring is essential because early warning signs may save the bank from loss of principal and/or interest. A loan classification or risk rating, which SC13 has implemented and that is independent of that required by BOT, should be discussed in great detail. It is important the participants understand the links between risk rating and the loan agreement as the basis for credit monitoring. Handout and review SCB's current Risk Rating System.

It is critical the participants understand the purpose and objectives of the loan review function, as well as the variety and breadth of task that loan review should execute. The loan review function should be discussed in relation to SCB's current internal audit. What are the distinctions and similarities between the two? It is essential the participants grasp how important it is that loan review be independent of the credit department and report directly either to the Board of Directors or SCB's Executive Management Committee.

This section also discusses the three basic components of loan asset allocation: loan portfolio limits, priority segments, and risk acceptance guidelines. The participants should be asked to relate the asset allocation concepts in this section to SCB's own loan portfolios.

Estimated Teaching Time

This section should take approximately three hours to complete, including the exercises.

There is one exercise, but no case study for this section. The exercise is on asset allocation.

Important Notes About This Chapter

One of the key concepts to emphasize in this section is the link between the initial credit analysis performed and the subsequent credit monitoring. Who is responsible within SCB's current credit culture for monitoring what components in the credit process? The connection between the four foundations of creditworthiness discussed already at length (industry analysis, financial condition, management quality and collateral realization) and used as a framework for completing the initial credit analysis and the subsequent monitoring of the loan should be emphasized. It should be stressed that loan agreement covenants ought to be based on the borrower's strengths and weaknesses identified in the credit analysis. The covenants preserve the strengths and guard against the weaknesses identified in the credit analysis.

Encourage participation by asking the participants how their outstanding loans are currently monitored? On the basis of what criteria and by whom? What is monitored and how frequently? Is there any connection between SCB's risk rating system and the overall monitoring performed by the bank? Examples

of early financial warning signs could serve as a basis for discussion of the participants' experience with problem loans to date and what signs were available to SCB of an impending problem.

The next sub-section focuses on loan pricing. It is important the participants are aware of the factors present in SCB's loan pricing methodology. Likewise, ask the participants if they understand and know how to calculate borrower profitability. Discuss the connection between the risks identified with a loan and its comparable pricing. The instructor can use this opportunity to discuss the importance of setting profit objectives, and the role of SCB's credit policy and ALM policy in establishing loan pricing guidelines for all branches that will help the bank to meet its profitability targets. When discussing cost of funds, discuss the concept of marginal cost of funds.

Refer to the "Additional Instructors' Notes on Loan Pricing."

The instructor should also use the overhead on peer analysis on industries in general to generate further discussion on industries that exist in the marketplace of the branch managers.

It is also important to stress that the risk rating applied to each loan is reflected in the pricing of the loan. Possibilities for the different risk ratings for various types of loans and borrowers, which then would result in a range of loan pricings, should be discussed. Distribute and review SCB's current Risk Rating System and guidelines.

The final sub-section focuses on the basic components of asset allocation: loan portfolio limits, priority segments and risk acceptance guidelines. The instructor should begin with a discussion on what kind of asset allocation process exists now in SCB to reduce concentration risk. Draw the participants' attention to the procedures for setting risk ratings for each industry. Discuss SCB's risk acceptance guidelines and risk acceptance criteria. Ask if the participants know SCB's guidelines/threshold criteria for their potential borrowers. Is it part of the banks' strategic policy, credit policy, department guidelines or none of the above? This is an opportunity to reinforce the idea of establishing a credit culture throughout the bank by establishing new guidelines for all lenders.

The instructor should introduce the asset allocation exercise.

Exercises:

Instructions:

Asset Allocation Exercise: Ask the participants to list all the major industries in their marketplace. Write the comments on a flipchart. Divide the participants into groups and ask each group to determine which industries are most attractive as potential customers and which are least attractive. Justifications for the decisions should be provided. Ask each group to report on its industry attractiveness ratings. Rate each industry for risk based on SCB's risk rating guidelines. Ask each group how and why they would apply a risk rating to each industry on the list.

Case Studies: There are no case studies in this section.

Chapter 5 – Credit Risk Section E

Overview	Section E on "Problem Loan Administration, Workouts and Strategies" discusses the various warning signals for problem loans, including common mistakes bankers make that can lead to problem loans, early warning signals of borrower's management and early financial warning signs. There is a suggested nine-step methodology for managing problem loans. In addition, various workout options and strategies are provided.
Estimated Teaching Time	This section should take approximately four hours to complete. There are no exercises; however, a problem loan case study should be inserted to highlight the points outlined in this section. Golden Homes case study may be used in this section to identify risks resulting from negative cash flow.
Important Notes About This Chapter	Ask the participants to define a problem loan and what they think are the major causes of loans becoming delinquent. Stress that the fundamental analytical skills of ratio analysis, financial statement and cash flow analysis, quality of management evaluation, industry and market analyses are used to correct and reduce the risk of loss of principal and interest. Review the early financial warning signs, the list of common mistakes and early management and operational warning signs. Refer to the "Additional Instructors' Notes on Early Financial Warning Signs" for further discussion of this topic. Review the stages of the problem loan management process. When the bank recognizes a problem, who should handle the collection is an important decision. Usually, a workout loan should be transferred to the group that is familiar with legal and bankruptcy requirements. Moreover, a workout group can provide a third-party objective decision. The section discusses a suggested loan recovery process and options dealing with the customer and collateral. The four foundations of creditworthiness should be discussed to emphasize the need to review all factors that affect a loan decision. The instructor should stress the importance of developing an action plan and setting a time limit. A recommended plan to survive a downturn for the borrower is to devise a business plan and to monitor cash flow. Knowing your borrower, reducing debt, reviewing operations on a zero budget basis and delaying fixed and capital outlays will assist the borrower in returning to a positive cash flow position. A sample outline of the components of a business plan are included.
Exercises:	There are no exercises.
Case Studies:	There is no specific case study for this section, unless the instructor determines the participants' level of understanding is sufficient to resolve the Golden Homes case study.

Chapter 6 – Summary

Overview	The purpose of Chapter 5 is to summarize the workshop, to answer any questions and to test the overall understanding of the participants.
Estimated Teaching Time	This Chapter should take 45-60 minutes to complete.
Important Notes About This Chapter	• Review summary slides and ask if there are any questions. • It is important to stress that an integrated risk management system requires a comprehensive set of initiatives: Measure volatility in earnings/capital and translate to a capital allocation that takes into account expected and unexpected losses; Drive policies and procedures using volatility and capital-based measurements and methodologies; Embed a risk management culture through development of systems, measurements and incentives. • Introduce SCB's capital allocation initiative (in development). • The final exercise is a knowledge check to determine the level of understanding by the participants.
Exercise: The Ten Questions	This exercise asks the participants to answer questions about risk management at SCB. The objective of the exercise is to determine the level of understanding of risk management. ***Instructions:*** Ask participants to answer the questions on Slide 92 (Note to KPMG translator: adjust to correct slide number after Credit Risk is added to file). ***Results:*** There are no "right answers" to the exercise. It is intended to elicit participants' thoughts to determine. HO 6-1 illustrates sample answers that should be discussed with the participants after they have submitted their answers. It provides a review of the workshop.

CREDIT POLICY QUESTIONNAIRE

	Evaluation	Priority for Change	
	1 to 5	High	Indefinite
1. All lending personnel have copies?			
2. Is there adherence to the policy?			
3. Does the Board of Directors review periodically adherence of policy?			
4. Is there training about the policy?			
5. Is the policy updated?			
6. Does the policy give real guidance to the lending personnel?			
7. Are lending officers involved in the development and review of policy?			
8. Does the Board of Directors understand the contents of the policy?			
9. Does reporting to the Board of Directors indicate broad trends indicating adherence to the policy?			
10. Discuss concentrations of loans and periodic reporting to adherence?			
11. Establish responsibility for loan collections?			

12. Outline problem loan identification and administrative procedures?			
13. Establish a sample credit file maintenance?			
14. Outline a pricing policy?			
15. Designate types of loan commitments?			
16. Describe an approval system?			
17. Establish guidelines for loan mixes?			
18. Establish guidelines for desirable and undesirable loans?			
19. Establish guidelines for collateral valuation and foreclosure?			
20. Fix any system for loan officers to report problems?			
21. List objectives for loan review?			
22. Establish the frequency of loan loss reserve adequacy?			
23. Present guidelines for foreclosures, non-accruals and charge-offs?			
24. Set up policies for letters of credit?			
25. Outline the general lending policies?			
26. Establish a market area?			
27. Set maximum maturates?			
28. Grant loan committee limits?			

29. Designate a compliance officer?	_____	_____	_____
30. Cover loans to directors and other insiders?	_____	_____	_____
31. Assign individual to update, review and implement loan policy?	_____	_____	_____
32. Establish approval criteria, including purpose and repayment?	_____	_____	_____

SAMPLE CREDIT MEMORANDUM

The Credit Memorandum should cover the following points and should be an integral part of the credit approval package.

1) Environment

A description of economic, financial, political and social situation of the country.

2) Background Information

A general background of the borrower, (i.e., date of establishment, information about the business, the owner(s), their experience and education.)

3) Industry

This should describe the actual situation and the outlook for the specific industry in which the client is operating or going to operate. Existing products, the application of new technology or expansion of the market and the products should be carefully analyzed by using different sources of information. An assessment of actual trends should also be included. Statistics, if available and reliable, may assist in making a better assessment of the industry and a comparison of average figures of statistics may help to decide if a client's figures are realistic or not.

Look at the specifics of each industry:

- Seasonal business
- Market segments (price/quality)
- Trend industries

Last, identify if the customer is or will be active in a niche business where no figures for comparison are available.

4) Markets

An opinion of the strengths and weaknesses of the customers' markets and clients by comparing prior years and assessing future developments. The analysis should cover:

- Potential and growth of local and foreign markets
- New economic or technical developments
- Costs of entering and/or maintaining market access
- Expected change of regulations
- Changing consumer habits and patterns
- Major client developments (growth, losses, etc.)
- Terms of sale (L/C's, cash, open accounts)

5) Competition

Form an opinion on the competitive position of the client relative to its key competitors. The activities of the competitors will influence the future market position of your borrower, his market share and profitability.

The following example may illustrate the requirements:

- Names of national/international competitors
- Strengths of their product range, pricing and market position
- Strengths of these companies with respect to their sales organization, new technologies, production costs, etc.
- Market share
- Mergers/market concentration
- Substitutes of products and technologies

6) Suppliers

Determine the reliability of suppliers and the availability of supplies. The requirements for supply markets are:

- Amounts, local or imported
- Economic or technical developments
- Costs of access to the supply markets
- Names of key local/foreign suppliers
- Annual costs of goods supplied
- Costs of spare parts, machinery, services
- Degree of dependency
- Strategic supply, including electricity, oil, steam, heat, air conditioning, etc.
- Price

7) Management/Organization

Determine management capability and the organization of the borrower by assessing:

- Key responsibilities
- Depth of management
- Succession issues
- Qualifications and professional background
- Established accounting and control tools
- Reporting procedures
- Knowledge transfer
- Application of modem management techniques, (i.e., business plans, marketing concepts, etc.)
- Effective organization
- Personal planning
- Sales organization
- Flexibility in adopting new technologies

8) Premises

The bank should inspect the borrower's facilities and determine the quality of the premises. It is also essential to understand repair costs, the frequency of break-downs, new capital purchase requirements, useful life of an asset, etc.

For example, a Bank: office building, computers, lease/own, etc.

For example, a Meat Company: factory building, machinery (cookers, fryers, mixing ovens, etc.) cooling unit, receiving and loading bay, trucks for distribution, etc.

9) Requirements for Facilities

Land and Buildings

- Own or rent
- Access
- Areas in sq. m. (warehouses, offices, land, buildings, etc.)
- Year built
- Condition (good, needs repairs, etc.)
- Book value, sales value, replacement value

Machinery and Equipment

- Types, automated, supplier
- Average age
- Condition
- Modernization: possible, replace
- Book value, replacement value, modernization value

10) Financial Analysis

Analyze the balance sheet, profit and loss statement, and cash flow projections of the borrower. The borrower's financial statements must be transferred into the bank's spreadsheet format in order to better provide a realistic picture of the borrower's financial situation. Assets must be valued at the original cost and over time the value decreases by the accumulated depreciation. Liabilities derive from two sources: they can be placed in a business through a loan or they can be unpaid expenses incurred during business operations.

Some aspects of Balance Sheet spreadsheet analysis:

- Balance sheets show historical figures
- Balance sheet is prepared for external purposes-analysts, tax authorities, etc.
- Balance sheets do not give details concerning financial planning, liquidity forecasts, dependencies on customers, suppliers, etc.
- The most important questions should be: What is not included in the balance sheet? What is of further importance for the risk assessment?

The analysis should concentrate on the structure of the balance sheet, comparing ratios and analyzing trends. The assessment should cover at least the last three years and a comparison of similar companies in the same industry.

Strengths and Weaknesses of Balance Sheets

Strengths:

- The only instrument for analyzing the financial situation of a company over a certain period
- By adjusting the private capital of the owner, it is possible to have an overall estimation of the total net worth of the company
- By comparing figures over a certain period and with similar companies (ratios), the risk becomes more transparent

Weaknesses:

- Figures are historical
- Assessment of assets is usually overstated
- Possibility of manipulation or window-dressing

In the financial analysis, the credit officer must be concerned with the company's true needs for funds, its financial condition and performance and business risk. Financial ratios are tools to analyze financial condition and must be analyzed on a comparative basis. Such comparisons uncover clues in evaluating changes and trends in the company's financial condition and profitability.

A statement of cash flow reports a company's cash inflows/outflows during a period of time segregated into three categories: operating, investing and financing activities. Cash flow analysis helps to assess the company's ability to generate cash for dividends and investments, to identify the company's needs for external financing and to understand the differences between net income and net cash flow from operating activities.

The bank must establish an opinion on the overall business environment of the client in order to make a judgment on the potential future business risk. These should include considerations of the type of ownership, market attractiveness and the competitive position of the client compared to its competitors.

11) Risk Assessment

Establish an opinion on the particular strengths and weaknesses of the borrower. A company must have built its business on particular strengths in order to achieve a competitive advantage. Likewise, certain weaknesses may interfere with capitalizing on these advantages and therefore, management must take appropriate action to eliminate or reduce these weaknesses.

For example, strengths:

- Well-known, respected company name, product, trademarks
- Products/services with good future market potential
- Experienced and/or dedicated employees
- Income in convertible currency
- Modern equipment/technology
- Competitive prices
- Tradition of high quality products
- Well-established marketing and sales network

For example, weaknesses:

- Market prospects for products/services weak
- Tough competition/low pricing
- Difficulties/dependency on procurement of raw materials
- Dependence/concentration on few customers
- Poorly established network of client relations, marketing and sales
- Cyclical product lines
- Capital intensive with high replacement costs

Bangkok Ideas, Inc.

Bangkok Ideas Inc., is a new electronics manufacturing and research firm founded by a group of graduates of well-known schools of engineering and business administration. Initial capitalization consisted of baht 55,000, contributed by the founders, and baht 45,000 contributed by outside investors. Initial expenditures consisted of baht 60,000 for equipment and baht 5,000 for patents and organization expense, which were capitalized.

Management projects initial sales to be baht 100,000 per month and has firm orders in hand for baht 500,000. Monthly production will be limited to baht 110,000 (at sales prices).

Manufacturing expenses will be incurred monthly (in baht):

- Labor - 20,000
- Rent - 3,000
- Manufacturing overhead - 25,000
- Depreciation - 2,000
- Raw materials purchases - 40,000

Sales and administrative expenses are expected to run about baht 18,000 per month.

Collections will average 40 days sales, while purchases are to be made mostly on terms of net 30 days. Inventories on hand are expected to average about bath 20,000 in raw materials and baht 60,000 in goods in process and finished goods. Accrued wages will represent about one week's operations. Income taxes (34 percent of profits) will be accrued. The minimum cash balance needed for operations will be baht 15,000.

Construct a pro forma income statement and balance sheet for the first six months of operation. Prepare a monthly cash budget for each of the first six months of operation.

Bangkok Ideas, Inc.

Income Statement

SALES		_____
Cost of Goods Sold		
Beginning Inventory	_____	
+ Raw Materials Purchases	_____	
+ Manufacturing Labor	_____	
+ Manufacturing Overhead	_____	
+ Rent Manufacturing	_____	
+ Depreciation Manufacturing	_____	
— Ending Inventory	_____	
Cost of Goods Sold		_____
Gross Profit		_____
— Sales, General & Administrative Expense		_____
Operating Profit		_____
— Taxes		_____
Net Profit		_____

Bangkok Ideas, Inc.

Balance Sheet

Assets		**Liabilities**	
Cash	_____	Notes Payable	_____
Accounts Receivable	_____	Accounts Payable	_____
Inventory	_____	Accruals (Wages)	_____
Fixed Assets	_____	Accrued Taxes	_____
Miscellaneous Assets	_____		
		Total Liabilities	_____
		Common Stock	_____
		Retained Earnings	_____
Total Assets	_____	Total Liabilities and Owners' Equity	_____

Bangkok Ideas, Inc.

Cash Budget

	1	2	3	4	5	6
Beginning Cash						
Receipts						
Total Cash Available						
Disbursements						
Raw Materials Purchases						
Labor						
Overhead						
Rent						
Sales, General and Administrative						
Total Disbursements						
Net Receivables or (Disbursements)						
Minimum Cash						
Cash Need						
Cumulative Borrowing						

Bangkok Ideas, Inc.

Balance Sheet

Assets		**Liabilities**	
Cash	15	Notes Payable	
Accounts Receivable	133	Accounts Payable	40
Inventory	80	Accruals (Wages)	5
Fixed Assets	48	Accrued Taxes	11
Miscellaneous Assets	5	Current Total Liabilities	56
		Common Stock	100
		Retained Earnings	21
		Additional Needs	104
Total Assets	281	Total Liabilities and Owners' Equity	281

Bangkok Ideas, Inc.

Income Statement

SALES		600
Cost of Goods Sold		
Beginning Inventory	0	
+ Raw Materials Purchases	240	
+ Manufacturing Labor	120	
+ Manufacturing Overhead	150	
+ Rent Manufacturing	18	
+ Depreciation Manufacturing	12	
— Ending Inventory	(80)	
Cost of Goods Sold		460
Gross Profit		140
— Sales, General and Administrative Expense		108
Operating Profit		32
— Taxes		11
Net Profit		21

Bangkok Ideas, Inc.

Cash Budget

	1	2	3	4	5	6
Beginning Cash	35	15	15	15	15	15
Receipts	0	67	100	100	100	100
Total Cash Available	35	82	115	115	115	115
Disbursements	0					
Raw Materials Purchases		40	40	40	40	40
Labor	15	20	20	20	20	20
Overhead	25	25	25	25	25	25
Rent	3	3	3	3	3	3
Sales, General and Administrative	18	18	18	18	18	18
Total Disbursements	61	106	106	106	106	106
Net Receivables or (Disbursements)	(26)	(24)	9	9	9	9
Minimum Cash	15	15	15	15	15	15
Cash Need	41	39	6	6	6	6
Cumulative Borrowing	41	80	86	92	98	104

LOAN STRUCTURE

CASE STUDY

Royal Siam Manufacturing is a government-owned enterprise that is being privatized. The company manufactures electronic components and has always been profitable with exceptionally low debt levels. Royal Siam is being offered for sale at net book value. The prospective purchasers want to borrow as much of the purchase price as the bank is willing to lend.

The company has recently added capacity to its facility consolidating all operations in one location. Equipment has been updated to incorporate the latest technological advances. A sales contract has been negotiated on a surplus warehouse.

Fundamentally nothing will change with the company's customer base, operations or management. However, the purchase will require a large infusion of capital as the pro forma balance sheet indicates:

Cash	100	Trade Payables and Accruals	1,550
Receivables	2,975	Capital Required	8,650
Inventory	2,375		
Land, Building and Equipment	4,250		
Old Warehouse	500		
Total	10,200		10,200

	12/31/96	12/31/97	12/31/98
Sales (000's)	15,600	15,700	18,900
Cost of Goods	10,170	10,330	11,890
Gross Profit	5,430	5,370	7,010
Operating Exp.	4,620	4,650	6,050
Operating Profit	810	720	960
All Other	60	50	80
Profit Before Tax	750	670	880
Depreciation	225	275	335

Projected 12/31/00: *

Sales (000's)	19,800
Cost of Goods	12,160
Gross Profit	7,640
Operating Expense	6,450
Operating Profit	1,190
All Other	80
Profit Before Tax	1,110

*Does not include interest on new debt

Assumptions:

1. The bank has performed a comprehensive review of inventory and receivables. Loan policy guidelines will allow a 75% advance rate on 60 day eligible receivables and a 40% advance rate on specific raw material items with an inventory cap of 750,000. The raw materials are of a commodity nature with a ready market. If the recommended formula were utilized, the receivables and inventory on the pro forma balance sheet would provide an initial advance of 2,750,000. There is limited seasonality in the business and management feels that a line of 3,250,000 would be ample for the foreseeable future.

2. No dividends are contemplated.

3. Competent appraisers have given a 4,500,000 orderly liquidation value to the buildings and equipment. The appraisal values the land and buildings at 3,000,000. The equipment is valued at 1,500,000. Estimated remaining average depreciable life is five years. Annual depreciation is 375,000.

4. A purchase contract has been signed for the old warehouse with a cash deposit. Closing will be in 120 days and the company will net 500,000.

5. To maintain its competitive position, the company must invest a minimum of 200,000 in new fixed assets annually.

6. Assume that you have completed your analysis and investigations and are willing to make a financial proposal.

Assignment:

1. Break down the bank financing by amount, repayment type (i.e., seasonal, term, bridge and permanent capital), and maturity or amortization as appropriate. If part of your proposal is a permanent working capital loan, state the amount of the initial advance and the line you would offer?

2. What would be the required equity contribution by the prospective purchasers?

3. Define the elements of required loan support including collateral, guaranties, and covenants in the loan agreement and terms.

PROJECTED CASH FLOW:

(Day's Sales)	Current	Projected	Worst Case
Accounts receivable	57	57	57
Inventory	45	45	45
Payables and Accruals	30	30	30
Sales (000's)		19,800	19,800
x Operating Profit		5.6%	4.3%
= Pretax Income		1,109	851
- Incremental Interest		521	521
= Adjusted Pretax Income		588	330
- Income Tax @ 34%		200	112
= After Tax Income		388	218
+ Depreciation		375	375
= Gross Operating Cash Flow		763	593
- Increase Working Investment			
- Addition to Fixed Assets			
- Scheduled Debt Service			
- Dividends			
= Excess (Deficit) Cash Flow			

INDUSTRY RISK PREMIUM

Average total risk is about 2% to 5%.

Bank's assessment of current and future industry viability varies by each bank. Therefore:

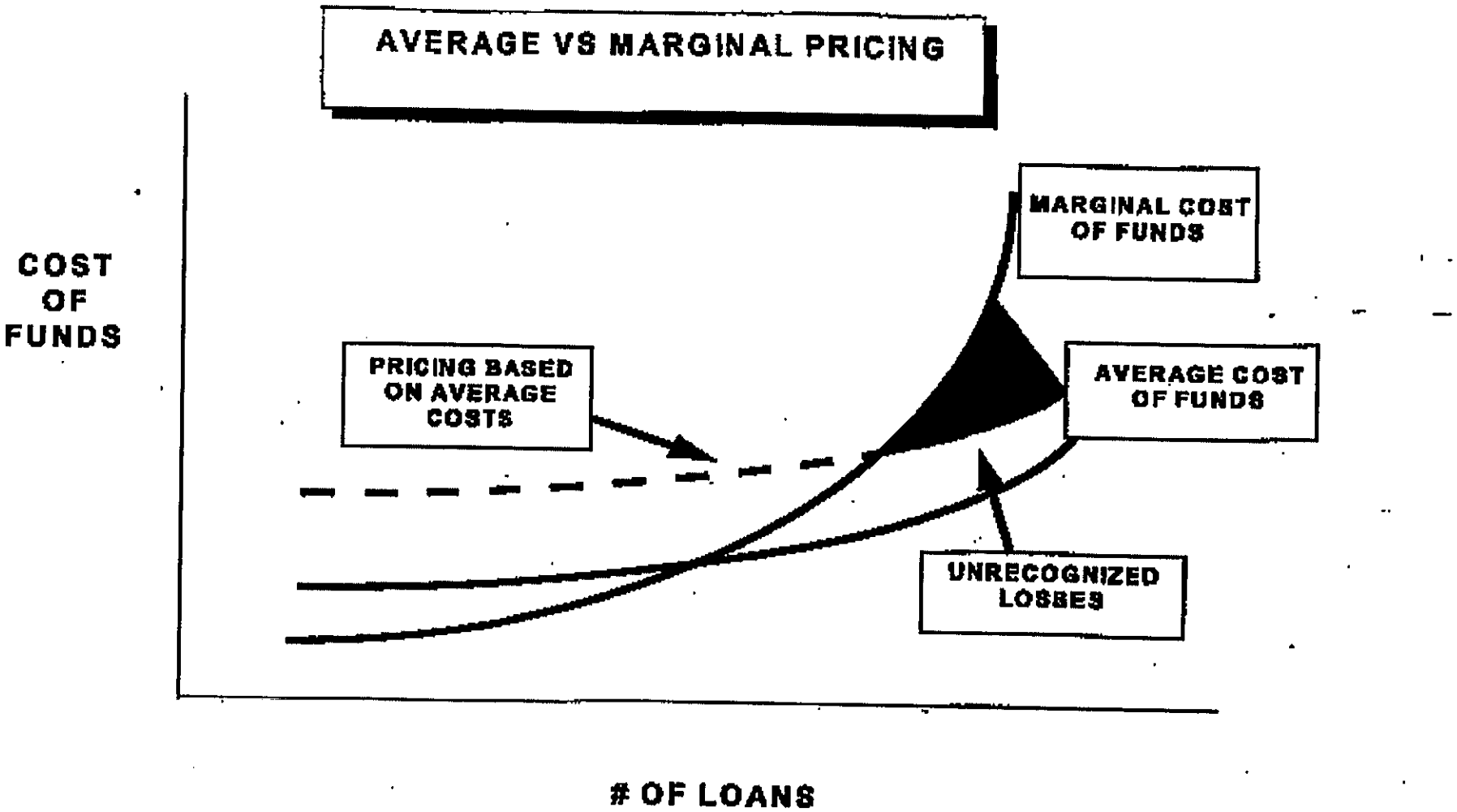
- Of primary importance is the bank's assessment of the likely future health/economic viability of the industry.
- Of high, but secondary importance, is the bank's current view of the industry and actual loan performance/collectability data.
- Of relatively low tertiary importance is the bank's past collectability/write-off experience for the industry.

COMPANY RISK ADJUSTMENT FROM THE STANDARD INDUSTRY RISK

- Average risk = 0.
- Above-average levels of risk, with multipliers greater than 00, increase the Industry Risk Premium.
- Below-average levels of risk, with multipliers less than 00, reduce the Industry Risk Premium.

MARKET CONSTRAINTS

- Competition
- Processing time
- Public relations and business
    - ◊ Good customers could leave and obtain credit elsewhere
    - ◊ Reputation could suffer
- Training—many banks lack proper skills and MIS to properly reprice


AVERAGE VS MARGINAL PRICING
COST OF FUNDS
MARGINAL COST OF FUNDS
PRICING BASED ON AVERAGE COSTS
AVERAGE COST OF FUNDS
UNRECOGNIZED LOSSES
OF LOANS

Loan agreements are a valuable tool to establish open communication between the banker and borrower. As the legal contractual agreement governing the lending arrangement, the bank creates a clear understanding with the borrower as to what the bank expects of the lending relationship and provides mechanisms to effect those expectations.

When to Use a Loan Agreement

It is recommended that some form of loan agreement be used in almost every lending situation. Simple transactions (maturities less than _____ can be documented with a Letter of Understanding, which spells out the transaction and the bank's expectations of the borrower. Most common lending arrangements can be documented with a simple loan agreement. Complex loan agreements of any amount, which usually involve extensive negotiation and redrafting, are feasible only in certain circumstances and should be drafted by an attorney. These circumstances include:

- A loan for a large amount and/or with a long-term payout;
- A loan for working capital purposes and a need to monitor the company's receivables and inventory;
- An unsecured loan and a need to restrict the purchase, pledge, or sale of assets; and
- A loan based on projections and a need to protect against uncertain performance.

The complexity of the loan agreement should be tailored to the situation. The banker should not make management decisions for or over-restrict the borrower. Minimum acceptable levels of performance should be agreed on that allow the borrower to operate without interference from the bank, and provide the bank with satisfactory protections. If it is necessary to draft a loan agreement that is very complex and involves extensive restrictions, the banker should question the advisability of making the loan.

Drafting the Loan Agreement

The complexity of the loan transaction and the experience of the account officer often determine who will write the loan agreement. Very simple agreements can be written by experienced loan officers who thoroughly understand the legal aspects involved. If inexperienced lenders are allowed to draft their own documentation, a lawyer, senior lender, or credit officer should review it. In more complex transactions, legal counsel should review even the documentation of experienced lenders. Another alternative is to allow the entire documentation package, including the loan agreement, to be prepared by counsel. The danger is that the banker may not communicate to the lawyer exactly what the agreement is intended to accomplish.

One of the first obstacles in negotiating the loan agreement is convincing the borrower that such a document is necessary. The borrower can usually be convinced that the agreement is to his or her advantage when it is understood that a clearly written

COMPONENTS OF THE LOAN AGREEMENT

There are seven basic sections in standard loan agreements, modified, depending on the purpose of the loan.

The Loan

This section of the agreement describes the loan by type, size of commitment, interest rate, repayment schedule, and security taken, if any. It also specifies all participants and their roles, plus terms of participation if more than one lender is involved. Any definitions of financial, accounting, or legal terminology to be used in the agreement are stated here.

Representations and Warranties of the Borrower

This section attests to the lender that certain statements are true. For instance, the borrower may warrant that it is a corporation, that it is entering into the agreement legally, that financial statements supplied to the bank are true, and that no material change has occurred since their preparation. The company may attest to the nature of its business, that it owns its assets as represented, and that it currently is not involved in material litigation. In other words, the company reaffirms in writing all the facts about its current state of existence that have been known or assumed throughout the negotiations and relied upon by the bank.

Conditions of Lending

This section states that before any loan is made, all documents and notes must be in proper form, both the borrower's and the bank's counsel must approve the entire arrangement, and the borrower's auditor, or at least its chief financial officer, must certify current compliance with all conditions of the loan agreement.

Affirmative Covenants

In contrast to the warranties that attest to existing facts, affirmative covenants state what action or event the borrower must cause to occur or exist in the future. For example, the borrower may be required to provide quarterly financial statements or maintain a current ratio of 1:1.

Negative covenants state what action or event the borrower must prevent from occurring or existing. For example, it might be restricted from additional borrowings without the bank's consent.

Events of Default

Conditions that will be considered events of default are specifically stated. These conditions might include delinquent payment, violation of loan covenants, misrepresentation, insolvency proceedings, change in ownership, or other occurrences that could jeopardize the borrower's ability to repay. Many events of default are designed to be used to correct a situation rather than declare the loan in default.

Remedies

The remedies section spells out what the bank may do in the event of default. Although the bank's rights may include several potential actions, they always include the right to accelerate payments, which means to call the loan.

Miscellaneous

This section deals with issues related to the administration of the agreement, such as:

- Where notices are to be sent;
- Who is responsible for expenses;
- The governing law under which the agreement is to be interpreted; and
- The procedure for waivers and consent.

At minimum a term loan agreement should contain sections on the loan, covenants, events of default, and remedies. Most of the effort must be concentrated on the sections on covenants and events of default. These are the primary sources of lender protection and the portions of the agreement most strenuously negotiated.

Loan Covenants

The covenants should be simple, well-defined, and measurable. To be effective, the covenants must be risk-reducing and reasonable. Most importantly, the borrower must be able to comply with the covenants and the lender must be willing to enforce the covenants.

The covenants are designed to accomplish eight basic functional objectives:

1. **Full Disclosure of Information** - To make competent, ongoing lending decisions, the account officer must have an intimate understanding of the borrower. Full disclosure also aids the lender in maintaining regular contact with the borrower and supervision over the lending relationship.

2. **Preservation of Net Worth** - The borrower's basic financial strength and ability to support debt and absorb downturns lie in its net worth. The purpose of related covenants is to assure the growth and continued strength of that net worth.

3. **Maintenance of Asset Quality** - Asset quality represents two major factors of importance to the lender-earning power and liquidation value. In either case, it is to the bank's advantage to require high standards of asset quality.

4. **Maintenance of Adequate Cash Flow** - In the case of normal repayment of a loan, the lender is repaid from the borrower's cash flow. In such cases, it is imperative that the lender closely monitor the cash flow and attempt to maintain its quality.

5. **Maintenance of Orderly Growth** - As a definite drain upon cash flow, working capital, fixed assets, management energies, and capital funds; excessive growth has been recognized as the cause of numerous charge-offs on this matter. The bank's objective is to reach a clear understanding with the borrower on the limits of its growth.

6. **Continuance of Quality Management** - In any loan situation, but particularly if the loan is unsecured, the success of the total relationship depends heavily upon the borrower's management. The bank, then, hopes to ensure the continuing quality of management.

7. **Assurance of Legal Existence and Concept of Going Concern** - The purpose of devising covenants such as these is to ensure the bank of a viable entity, which may produce the operating results necessary to repay its loan.

8. **Provision for Bank Profit** - Banks lend money in return for an expected profit and, therefore, are interested not only in protecting the principal amount of the loan, but also in the profit, whether it be interest, servicing income, or other sources of income.

Events of Default

There are instances when these covenants might be breached. The existence of the covenant ensures that either the bank will be consulted for approval or the loan will be in default.

The most common events of default include:

- Breach of loan agreement covenants;
- Insolvency-bankruptcy;
- Failure to pay in accordance with terms;
- Material misrepresentation, such as untrue "warranty";
- Seizure of property—for example, if tax authorities seize the bank's collateral; and
- Deemed insecure—an unforeseen occurrence that endangers the company's ability to repay the loan.

Remedies

The banker has several courses of action in default. The note can be accelerated, which calls the loan due; the default can be waived; or the agreement can be renegotiated possibly to improve the lender's position. Any waiver should be in writing and should stipulate whether the waiver is temporary or permanent.

If a permanent waiver is chosen, the agreement should also be amended. Acquiescence is not a viable alternative, because it may undermine the future effectiveness of the covenant.

The banker's action depends on his or her assessment of the cause and gravity of the default, whether it could or should have been avoided, and the company's ability to cure it. If the cause of the default is temporary and of minor importance, such as a required ratio that is barely missed, waiver may be reasonable. If the default is more serious-for example, if a company's performance has failed to meet minimum standards-the choice might be to foreclose or renegotiate and obtain more collateral. Whatever the action, it is very important that the lender react promptly to a default to maintain the integrity of the agreement.

Summary

A loan agreement is often a complex document that must be tailored to fit the particular company and its circumstances. It must be understood and agreed to by the banker and borrower. Mutual consent ensures its effectiveness. In substance, the loan agreement outlines the expectations of each party and attempts to specify and quantify acceptable standards of performance to govern their actions. If the borrower fails to perform as specified in the covenants, the loan goes into default and the bank exercises its options (remedies), as set out in the agreement. Because the art of forecasting and predicting is imperfect, the agreement must possess a reasonable amount of flexibility. It must be administered diligently to retain its effectiveness, and it must be altered or amended as circumstances change.

Workout Loan Agreements

Workout loans present a unique opportunity to employ a loan agreement. Because of the nature of the situation and the necessity that the bank exercise greater influence over the borrower's activities, a workout loan agreement is a necessity when additional funds are advanced or the bank decides to continue with the borrower rather than liquidate. In addition to the elements of a loan agreement outlined previously, the workout loan agreement should contain mutually agreeable performance standards and an agreement on the part of the borrower to voluntarily liquidate the performance standards and an agreement on the part of the borrower is unable to meet the repayment agreement. For consideration in the form of the bank's forbearance or agreement to continue to provide financing, the borrower consents to a judgment and may not contest entry of the judgment should he or she fail to meet the agreed-upon, clearly defined repayment objectives.

Compliance Agreement Check Sheet

To facilitate administration of the loan agreement, a compliance check sheet should be prepared and placed in the file. The check sheet can be used to ascertain whether covenants defining affirmative as well as negative actions on the part of the borrower are being complied with and that no events of default exist. This check sheet must be customized to the unique monitoring requirements of each loan agreement.

BASE RATE LENDING COST COMPONENTS

EXAMPLE OF RUSSIAN BANK WITH HIGH COST OF FUNDS

Base Rate Components	Rationale/Comments	Estimated Cost	Participants
Marginal Cost of Funds	♦ The cost of funding a new loan is, to a large extent, the cost of deposit which must be generated to fund the loan. ♦ At present, variable deposits can be considered most banks' marginal funding source—demand and savings deposits take time to accumulate; many banks have increasingly relied on variable deposits as their major funding source during the past four years. ♦ The actual cost should be based on the most liquid portion of the variable deposit market. ♦ Ideally, the cost should be varied to match loan maturity.	30% (Present cost of one-year fixed deposit)	
Reserve Adjustment	♦ Reserves must be maintained for all deposits. ♦ No interest is earned on these reserves. ♦ Actual adjustment should be more than the actual reserve requirement to reflect the difficulties of reserve management. ♦ Reserve adjustment formual is: deposit price x % reserves required.	3.6%	
Loan and Deposit Servicing Cost	♦ The average cost of servicing fixed deposits and loans. ♦ Determining the exact calculations is a complex cost accounting exercise involving cost allocation exercises. ♦ We have estimated the cost to be 2.0% below total admin. Cost of 4% given that this is a wholesale business.	2.0%	
	Subtotal	**35.6%**	

Chapter 5 Credit Risk "Section D" Additional Instructors' Notes on Loan/Pricing

BASE RATE PROFITABILITY COMPONENTS

Base Rate Components	Rationale/Comments	Estimated Cost	Participants
Taxes	♦ Taxes must be paid before any profits are available for retention or distribution.	Other margins must be adjusted	
Fund Growth	♦ The bank must retain sufficient earnings to support new growth—at a minimum, Tier 1 capital to risk-weighted assets must be 4%.	0.40% - 0.60% (10 – 15% growth)	
Additional Profits	♦ Additional profits to meet shareholders' objectives above capital appreciation from retained profits. ♦ Should depend on risk-free rate adjusted for a reasonable risk margin; initially, the bank should attempt to meet first three objectives before seeking additional profits.	0.6% - 1-0% after tax, 0.8% - 1-35% before tax	
	Subtotal	**1 – 1.6%**	
	Total	**36.6 – 37.2%**	

LOAN PRICING

It has been stated frequently, and always forcefully, that the business of banking is lending. Loans absorb most of the bank's funds and account for most of its revenue. The actual amount of loan revenue, and ultimately bank profits, is determined essentially by two decisions: (1) the allocation of funds among various types of loans and (2) the pricing of those loans.

When certain types of loans can be priced more profitably than other types, they should gain increased allocations, assuming the loans come from creditworthy borrowers. In reality, therefore, the loan pricing decision partly precedes the loan allocation decision. Ideally, the relative profitability of loans determines the loan portfolio mix.

This section focuses on a technique called *borrower profitability analysis*. This technique is, in reality, a conceptual framework which induces loan officers to consider the whole customer relationship in pricing a loan. Although detailed application of the borrower profitability technique may not be practical for some smaller banks, its concepts should nevertheless condition the loan officer's whole approach to loan negotiations.

Borrower Profitability Analysis

Banks traditionally have based the pricing of business loans on an interest rate tied to a central bank rate. This method of pricing implicitly attempts to cover the cost of other bank activities such as computerized payroll services, fund wire transfers, and investment advice. In other words, the bank more or less depends upon intuitive rule of thumb pricing of loans to reimburse it for costly and sometimes unrelated customer services.

Banks are increasingly analyzing and pricing their business loans in such a way as to ensure that the *profitability of their total relationship* with the borrower is adequate. We call this technique *borrower profitability analysis*.

The concept of borrower profitability analysis is not complicated. Profits are computed from interest and fee service revenue minus the expenses associated with meeting all of the borrower's demand for net funds and bank services. This difference then is compared with a quantity such as the average net funds used by the borrower to compute net yield. That is,

$$\text{Yield} = \frac{\text{Revenues - Expenses}}{\text{Net Funds Used}}$$

Common Banking Mistakes
That Can Lead to Problem Loans

In the Beginning

- Allowing customer to intimidate, coerce into, or sell the banker on making the loan
- Failure to ask pertinent questions for fear of angering or losing the customer
- Making difficult loans that should be handled by a more experienced officer
- Basing the lending decision on pressure from other parties, especially the competition
- Trying to be an entrepreneur/businessman through the customer using the bank's money
- Inadequate analysis of the borrower
- Inadequate analysis of financial statements
- Inadequate analysis of loan purpose, source of repayment, and excess cash flow
- Improper loan structure-amount, source of repayment, timing of repayment (terms)
- Improper collateralization.
- Failure to properly identify entity bank is dealing with
- Failure to supervise utilization of loan proceeds
- Failure to obtain and perfect valid security interest

After the Loan Was Made

- Did not effectively follow loan
  - Request and review financial information
  - Make periodic visits to company
  - Perform periodic trade and industry checks
  - Monitor impact of changing economic conditions on company
- Did not control expansion
- Let customer borrow in small amounts until he/she had too much debt or bank placed in forced lending situation
- Inappropriate management of the lending function

When the Problem is Recognized

- Afraid to look into credit-ask tough questions
- Afraid to admit made a mistake or have a problem
- Cut off communication with customer, resort to pressure/threats to collect loan
- Inaction-hoping situation will improve—"miracle approach"

Early Management Warning Signals

- Change in behavior/personal habits/lifestyle of key People
- Inability to articulate strategic direction or competitive strategy
- Marital problems
- Change in attitude toward bank or banker, especially a seeming lack of cooperation
- Failure to perform personal obligations
- Lack of experience in this industry or line of business
- Changes in management, ownership, or key personnel
- Illness or death of key personnel
- Inability to meet commitments on schedule
- Recurrence of problems presumed to have been solved
- Inability to plan
- Poor financial. reporting and controls
- Fragmented functions
- Venturing into acquisitions, new business, new geographic area, or new product line
- Desire and insistence to take business gambles and undue risk
- Unrealistic pricing of goods and services
- Neglect or discontinuance of profitable standard lines
- Delay in reacting to declining markets or economic conditions
- Lack of visible management succession
- One-person operations showing growth patterns that staining the capacity of the owner to manage and control
- Change in the business, economy or industry
- Labor problems
- Unusual or unrealistic plans for the future
- Litigation against borrower
- Primary operations outside bank's normal business area
- Negative publicity

Early Operations Warning Signals

- Change in the nature of the company's business
- Sale of assets outside the ordinary course of business
- Poor financial records and operating controls
- Poor use of personnel
- Concentration of sales
- Loss of key customers, product lines, franchises, distribution rights, or source of supply
- Loss of one or more major, financially sound customers
- Substantial jumps in size of single orders or contracts that would strain existing productive capacity
- Speculative inventory purchases that are out of line with normal purchasing practices
- Failure to take purchase discounts
- Poor maintenance of plant and equipment
- Deferred replacement of outmoded or inefficient plant and equipment
- Evidence of stale inventory, large levels of inventory, or inappropriate mix of inventory
- Overstocked, damaged, or obsolete inventory
- Poor employee attitude and morale
- Excessive downtime for repairs
- Difficulty scheduling plant visits

Early Financial Warning Signals

Balance Sheet

- Failure to get statements in a timely fashion
- Slowdown in receivables collection period
- Deterioration in customer's cash position
- Sharp increases in dollar amounts or percentage of accounts receivable
- Sharp increase in dollar amounts or percentage of accounts receivable
- Sharp increase in dollar amounts or percentage of inventory
- Slowdown in inventory turnover
- Decline in current assets as a percentage of total assets
- Deterioration of the liquidity/working capital position
- Marked changes in mix of trading assets
- Rapidly changing concentrations in fixed assets
- Large increase in reserves
- Concentrations in noncurrent assets, other than fixed assets
- Significant increases in loans to officers or affiliates
- High concentration of assets in intangibles
- Disproportionate increases in current debt or a decline in the current ratio
- Substantial increases in long-term debt
- Increasing debt to worth ratio
- Significant changes in balance sheet structure
- Presence of debt due to/due from officer/stockholders
- Qualified audit or adverse opinion
- Refusal to provide audited statements
- Changes in accounting methods or accountants

Income Statement

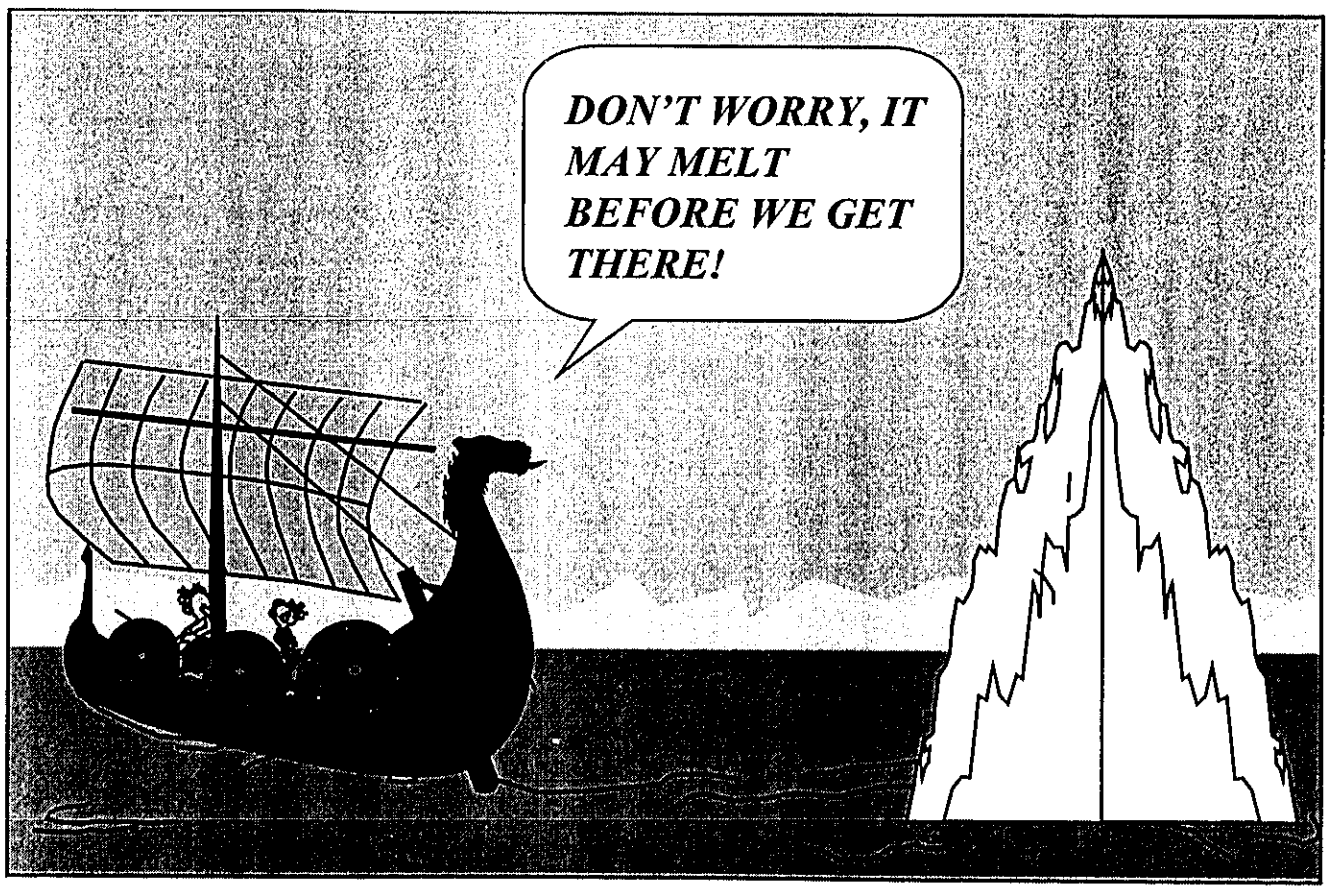
- Declining sales
- Rapidly expanding sales especially if profits are stagnant
- Major gap between gross and net sales including increases in returns
- Declining gross profit margin
- Rising sales, general, and administrative expenses accompanied by narrowing margins
- Rising sales and falling profits
- Rising levels of bad debt losses
- Disproportionate increases in overhead, relative to sales
- Rising levels of total assets, relative to sales/profits

- Operating losses

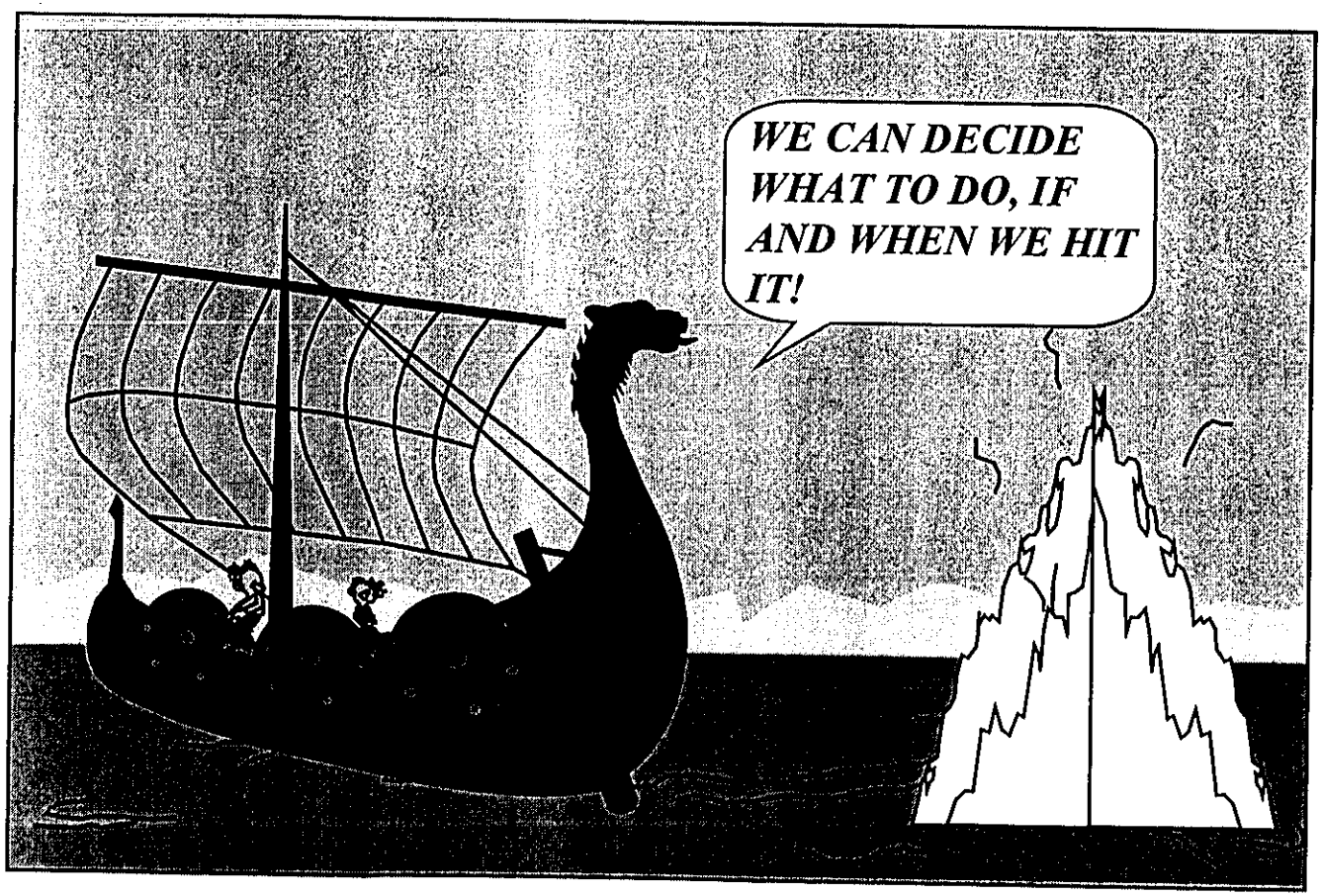
Receivables Aging

- Extended average age of receivables
- Change in credit policies
- Extended terms
- Replacement of accounts receivable with notes receivable
- Concentration of sales
- Compromise of accounts receivable
- Concentration of seriously past due accounts
- Receivables from affiliated companies
- Inability to obtain projections
- Overly optimistic projections
- Wide disparities between projected and actual results

Successful Risk Management



Successful Risk Management (cont.)



Successful Risk Management (cont.)

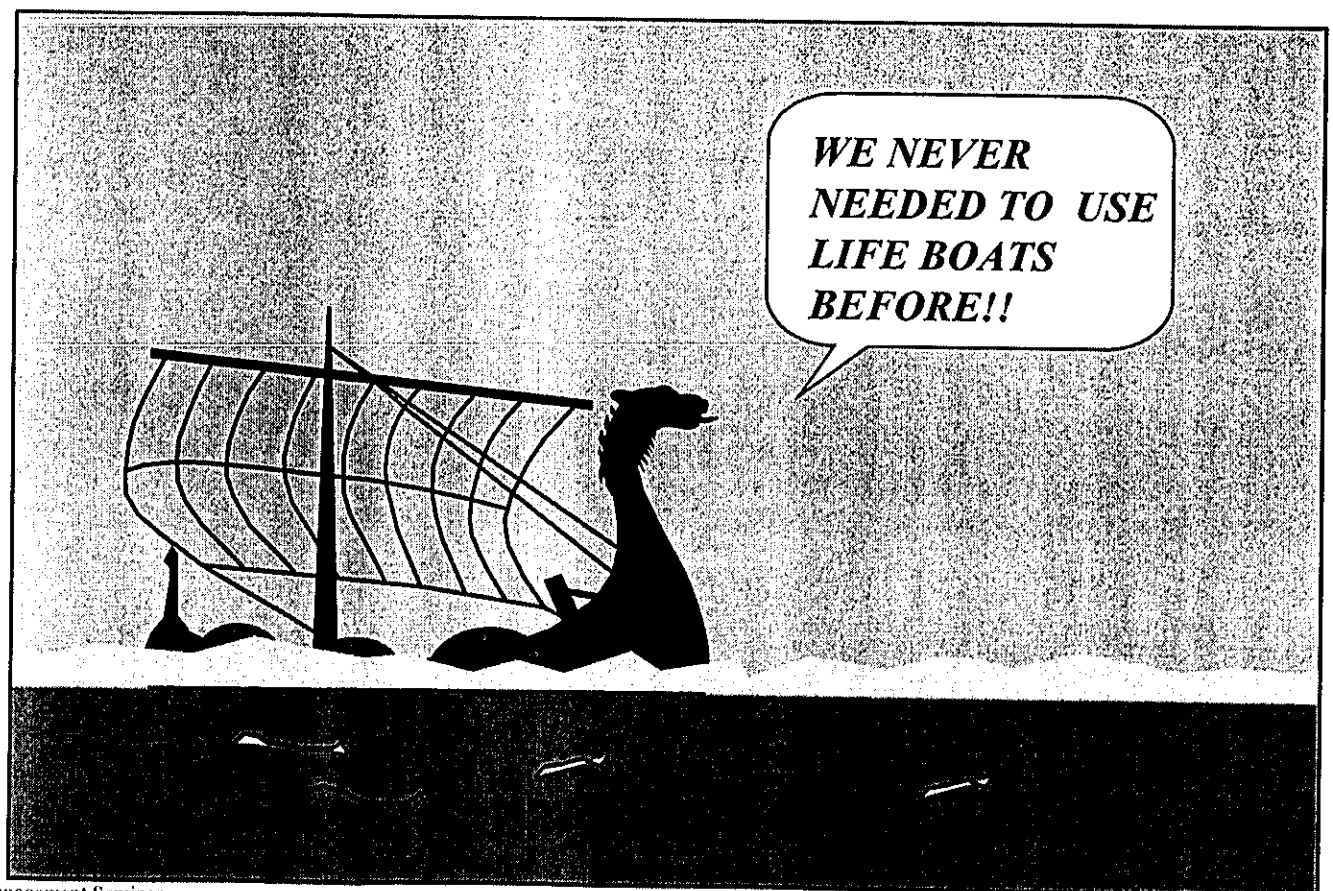
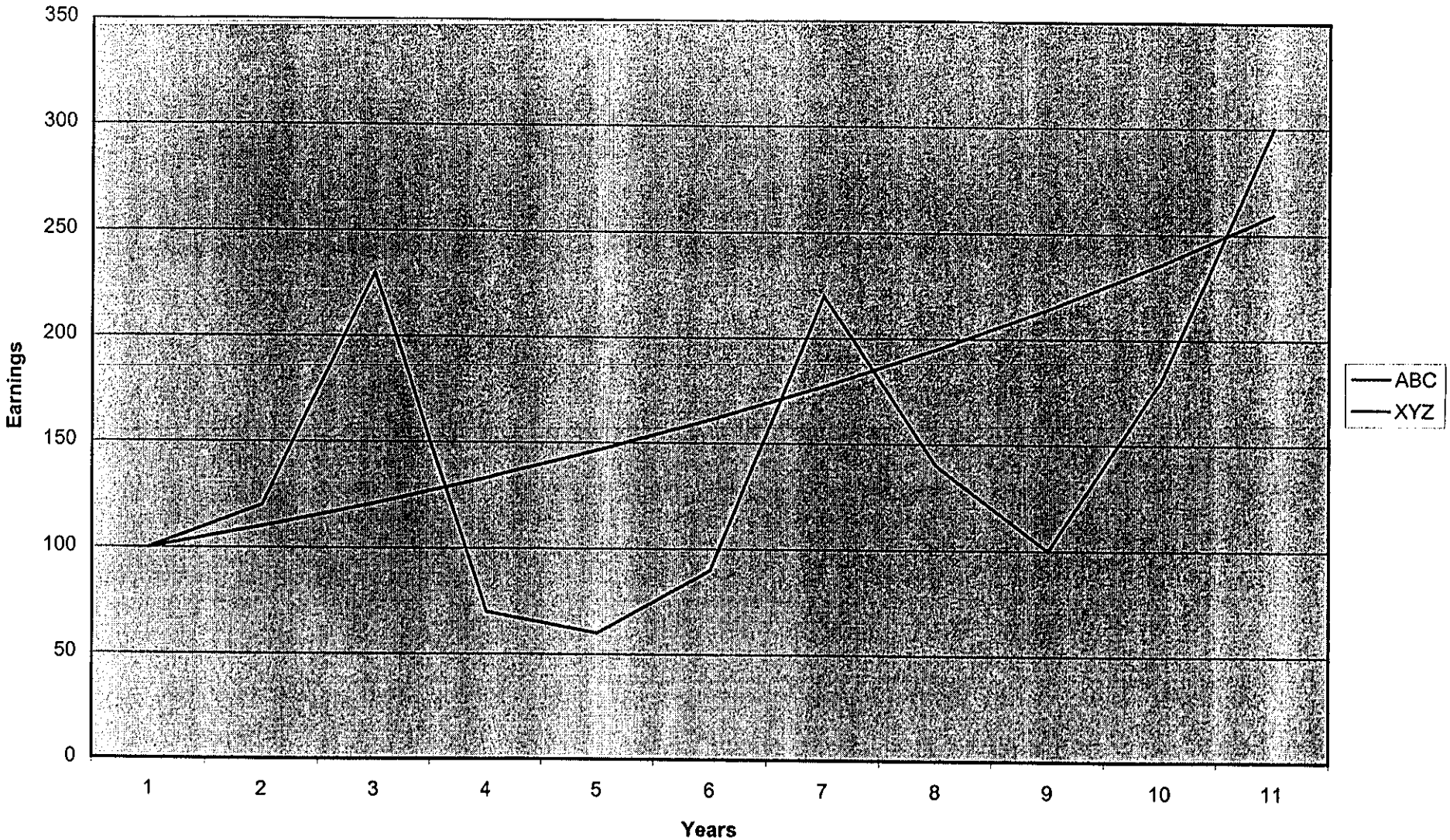


Illustration of Volatility



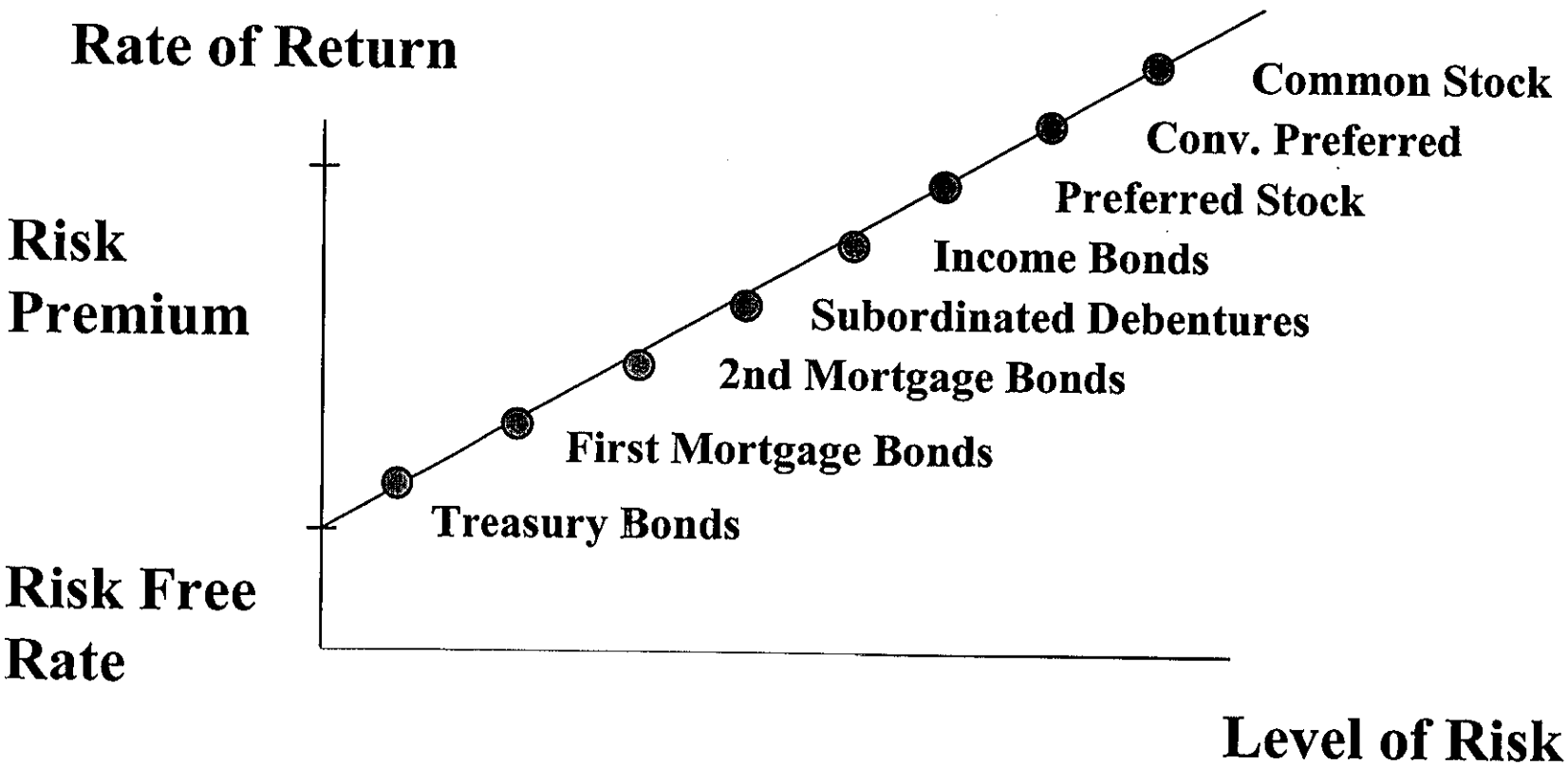
BALANCE SHEETS

	Bank A		Bank B	
Assets				
	Billions	**%**	**Billions**	**%**
Earning Assets	500	50%	900	90%
Other assets	500	50%	100	10%
Total	1000	100%	1000	100%
Liabilities				
Interest Bearing Deposits	666	67%	749	75%
Other	234	23%	201	20%
Capital	100	10%	50	5%
Total	1000	100%	1000	100%
INCOME STATEMENTS				
Interest Income	60		90	
Non-interest income	60		10	
Total Revenues	120		100	
Interest Expense	40		30	
Provisions	20		20	
Operating expenses	20		30	
Pretax Income	40		20	
Taxes	20		10	
Net Income	20		10	
EARNINGS ANALYSIS				
ROE	20%		20%	
ROA	2%		1%	
Net interest income/TA	2%		6%	
NII after provisions	0%		4%	
Non-interest margin	6%		1%	
Operating margin	2%		3%	
Taxes	2%		1%	
Earning Asset ratio	50%		90%	
Earning Asset Yield	12%		10%	
Cost of funds	6%		4%	
Spread	6%		6%	
Net Interest Margin on EA	4%		7%	
NIM after Provisions	0%		4%	

Capital Planning

	1999	2000	2001	2002	2003
Maintain historical growth at 10% per year and pay $250,000 in Dividends:					
Total assets	$80.00	$88.00	$96.80	$106.48	$117.13
Net interest margin	4.40%	4.40%	4.50%	4.60%	4.70%
ROA	0.45%	0.45%	0.60%	0.65%	0.75%
Total capital	$5.60	$5.75	$6.08	$6.52	$7.15
Capital ratio declines	7.00%	6.53%	6.28%	6.13%	6.10%
Shrink the Bank and pay $250,000 in Dividends to improve capital ratio					
Total assets	$80.00	$79.00	$78.00	$77.00	$76.00
Net interest margin	4.40%	4.40%	4.50%	4.60%	4.70%
ROA	0.45%	0.45%	0.60%	0.65%	0.75%
Total capital	$5.60	$5.71	$5.93	$6.18	$6.50
Capital ratio	7.00%	7.22%	7.60%	8.03%	8.55%
Reduce Growth and pay no Dividends to improve capital ratio					
Total assets	$80.00	$82.00	$84.00	$86.00	$ 88.00
Net interest margin	4.40%	4.40%	4.50%	4.60%	4.70%
ROA	0.45%	0.45%	0.60%	0.65%	0.75%
Total capital	$5.60	$5.97	$6.47	$7.03	$ 7.69
Capital ratio	7.00%	7.28%	7.71%	8.17%	8.74%
Reduce Growth, pay $250,000 in Dividends with $800,000 external capital injection					
Total assets	$80.00	$82.00	$84.00	$86.00	$88.00
Net interest margin	4.40%	4.40%	4.50%	4.60%	4.70%
ROA	0.45%	0.45%	0.60%	0.65%	0.75%
Total capital	$5.60	$5.72	$5.97	$7.08	$7.49
Capital ratio	7.00%	6.97%	7.11%	8.23%	8.51%

The Concept of Risk

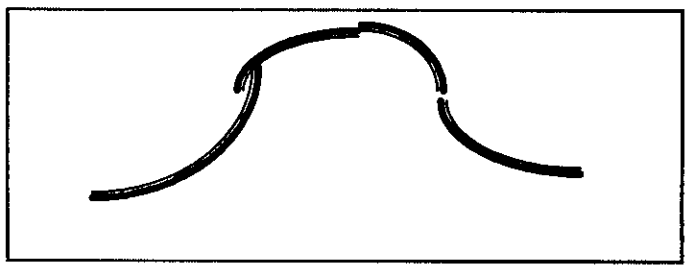


Risk Management System at SCB

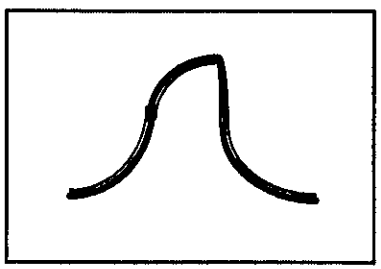
Risk Identification	Risk Measurement
Risk Management	Risk Monitoring

Risk Type	Evaluation Factors		Standards		Changes in	Changes in
		Superior	Satisfactory	Needs Improvement	Risk environment	Risk management
A. General Business Risks	Organizational Structure					
	Planning					
	Policies and Procedures					
	Processes and Controls					
	Measurement and Monitoring					
	MIS and Reporting					
	Communication					
	Staff and Training					
	Quality Management					
B. Specific Risks	Credit Risk—Identification					
	Credit Underwriting					
	Credit Documentation					
	Credit Accounting					
	Collateral Management					
	Problem Asset Mgt					
	Market Risk—Identification					
	Measurement & validation					
	Responsiveness to change					
	Compliance					
	Product					
	Operational					
	Others					

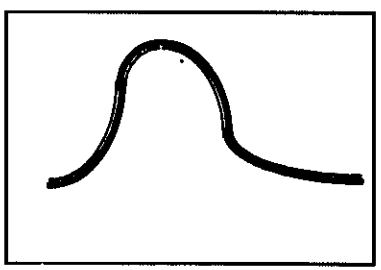
Integrated Portfolio



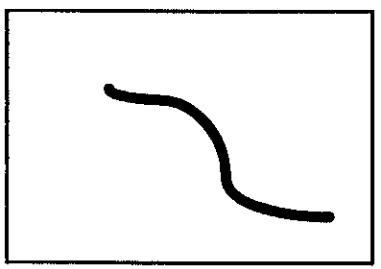
Market



Credit



Operational



Operational Risk Assessment at SCB

High Frequency/Low Impact	High Frequency/High Impact
Low Frequency/Low Impact	Low Frequency/High Impact

Calculating an Implied Forward Interest Rate

Assume: One year USD interest rate = 8%

Two year USD interest rate is 9%

An investor should be indifferent to either:

(1) Investing for two years at a 9% annual rate, or

(2) Investing for one year at 8% and reinvesting at the one year rate available in one year which is the one year forward rate

Mathematically, $(1.09)(1.09) = (1.07)\,x$

$$x = 1.1104$$

Forward rate = x-1 = 11.04%

LIQUIDITY RISK IDENTIFICATION BY GAP ANALYSIS

Assets	Overnight	2-30 days	31-90	91-180	181-360	Over	Total
Cash	35						35
Correspondent	123						123
Interbank loans	97	70				43	210
Gov. Securities		118	257	100	108	219	802
Investments		60	5	31			96
Loans	62	158	275		288	102	885
REPOs	4	126	77	105			312
Other assets	20	194	30			131	375
Total	341	726	644	236	396	495	2838
Liabilities							
Deposits	327						327
Correspondent	33						33
Term Deposits	4	109	16	217	142	14	502
Notes	20	75	101	31	14		241
Interbank Loans	214	89	183	153	71	4	714
REPOs/Loans	43	391	187		151		772
Other	85	46				16	147
Capital						102	102
Total	726	710	487	401	378	136	2838
GAP (A-L)	-385	16	157	-165	18	359	
Cumulative GAP	-385	-369	-212	-377	-359		
Cum. GAP Ratio(A/L	0.47	0.74	0.89	0.84	0.87	1.00	

Limits Formulas	Board Limits	Actual
30 day Assets/overnight liabilities	> .7	1.47
90 day Assets/overnight liabilities	>1	2.36
90 day Assets/90 day liabilities	>=1	0.89
14 day Assets/14 day liabilities	>=.85	0.66

Liquidity Planning (Billions of Baht)

	0-30 Days	31-90 Days	91-365 Days
Potential Uses of Funds			
Add: Maturing time deposits			
Small time deposits	5.5	8.0	34.0
Certificates of deposit over $100,000	40.0	70.0	100.0
Eurodollar deposits	10.0	10.0	30.0
Plus: Forecast new loans			
Commercial loans	60.0	112.0	686.0
Consumer loans	22.0	46.0	210.0
Real estate and other loans	31.0	23.0	223.0
Minus: Forecast net change in transactional accounts[a]			
Demand deposits	6.5	105.5	10.0
NOW accounts	0.3	4.5	5.0
Super NOW accounts	0.1	1.0	2.0
Money market deposit accounts	1.6	3.0	6.0
Total uses	173.0	155.0	1,260.0
Potential Sources of Funds			
Add: Maturing investments			
Money market instruments	8.0	16.5	36.5
Government securities	7.5	10.5	40.0
Municipal securities	2.5	1.0	12.5
Plus: Principal payments on loans	80.0	262.0	903.0
Total sources	98.0	290.0	992.0
Periodic Liquidity Gap[b]	75.0	-135.0	268.0
Cumulative Liquidity Gap	75.0	-60.0	208.0
Purchased Funds Capacity			
Federal funds purchased (overnight and term)	20.0	20.0	30.0
Repurchase agreements	80.0	80.0	95.0
Eurodollar certificates of deposit	20.0	20.0	20.0
Total	120.0	120.0	145.0
Additional Funding Sources			
Reductions in federal funds sold	15	15	15
Loan participants	20	20	20
Sale of money market securities	5	5	5
Sale of unpledged securities	10	10	10
Total	50	50	50
*Potential Funding Sources**	170	170	195
Potential Extraordinary Funding Needs			
50% of outstanding letters of credit	5	10	15
20% of unfunded loan commitments	25	30	35
Total	30	40	50
Excess Potential Funding Sources	140	130	145

a Net of required reserves.
b Potential uses of funds minus potential sources of funds.
*Purchased funds capacity plus additional funding sources.

Liquidity Management

- Monitor balance sheet trends
- Forecast funding needs
- Identify alternative sources of funds
- Asset liquidity vs liability liquidity
- Stress testing
- Peer analysis

Bank Risks and Liquidity Risks

- Liquidity risk for a poorly managed bank closely follows credit and interest rate risk
  1. Bank management assumes substantial risk by asset and liability maturities and durations or by extending credit to high-risk borrowers
  2. Bank reports reduce earnings
  3. Market hears about credit and interest rate difficulties
  4. Bank must pay higher rates to attract and keep deposits
  5. Bank earnings decline further with reduced interest margins
  6. Uninsured depositors move their funds, forcing bank to sell assets

Foreign Exchange Rate Quotations

Direct : Price of foreign currency in domestic units, ie. 39.5 Baht/USD is a direct quote in Thailand and an indirect quote in USA

Indirect: Value of a domestic currency in foreign units, ie., $. 023/Baht is an indirect quote in Thailand and a direct quote in USA

European terms: currency per USD (or indirect for USA)

American terms: USD value of a currency (or direct for USA)

Calculating an Implied Forward Exchange Rate

Assume: USD interest rate = 8%

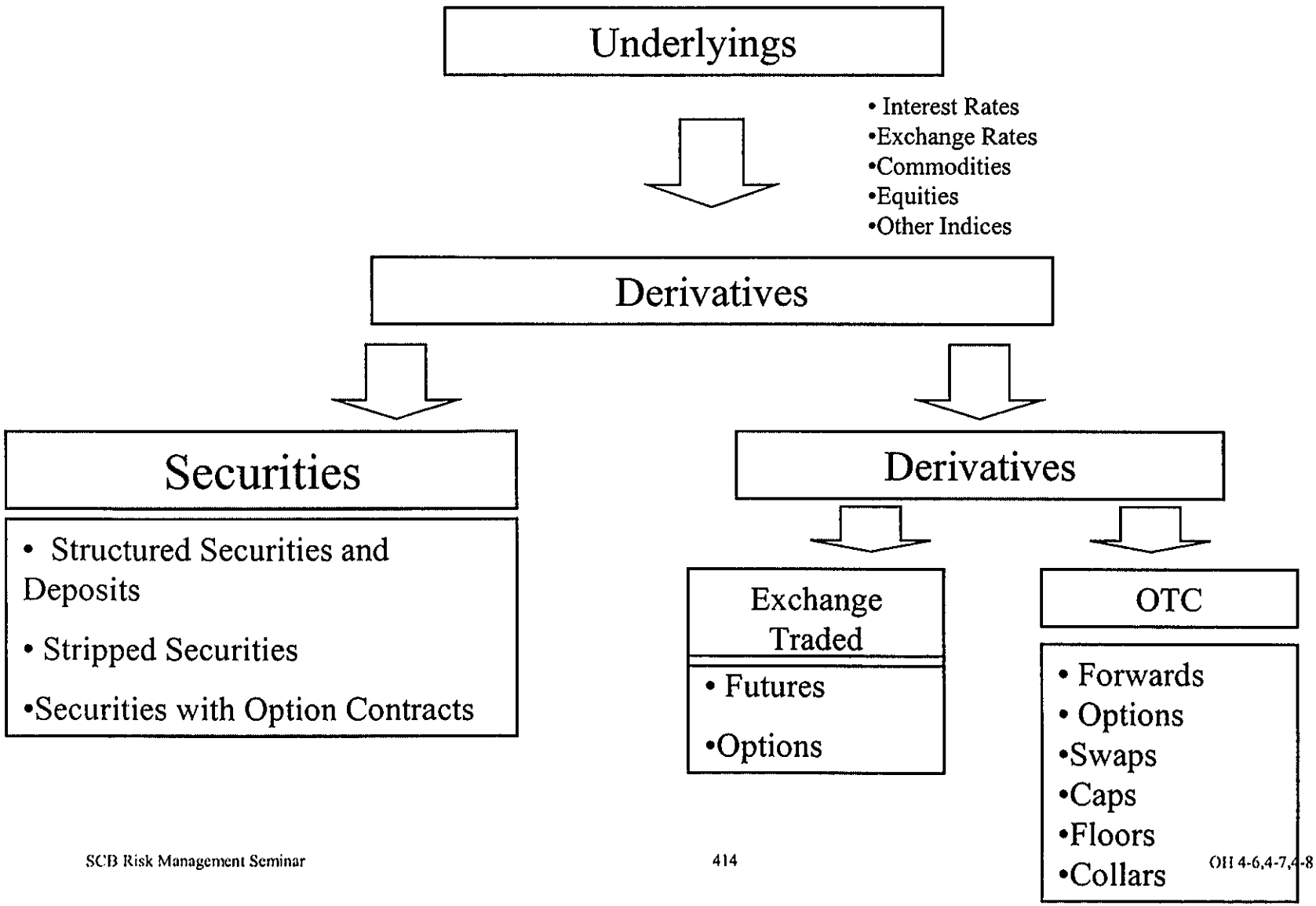
Thai Baht interest rate = 4%

Current spot rate = 40 Baht/USD

	Now		In 1 year	
	Bt	$	Bt	$
Borrow 1MM Baht @ 4%	+1MM		-1040M	
Exchange Baht into USD	- 1MM	+25M		
Lend @ 8%		- 25M		+27M
	0	0	-1040M	27M

Receive $27,000 which must convert to 1,040,000 Baht
Implied forward rate = 1,040,000/$27,000 or 38.5185 Bt/USD

Derivatives



Uses of Derivatives

TRADING / SPECULATION	HEDGING	ARBITRAGE
A trader takes additional risks in order to make profits from expected price or volatility movements in derivatives	A hedger tries to reduce or eliminate risks of a specific position or portfolio by taking an adverse position in derivatives	An arbitrageur tries to use advantageous price differences between the same or similar instruments traded at the same time at different markets by a simultaneous purchase and sale of these instruments

Exercise: Interest Rate Risk Measurement

Impact of % Sensitive Assets on Interest Revenue with an Increase in the General Level of Interest Rates:

% Change in Interest Rates	Earning Assets	Sensitive %	Interest Revenue Beginning	Ending	% Change
20	15509	100	129	155	20%
20	15509	50	129	142	10%
20	15509	25	129	136	5%

Impact of % Sensitive Liabilities on Interest Expense with an Increase in the General Level of Interest Rates:

% Change in Interest Rates	Interest Bearing Liabilities	Sensitive %	Interest Expense Beginning	Ending	% Change
20	14011	100	117	140	20%
20	14011	50	117	129	10%
20	14011	25	117	123	5%

Exercise: Interest Rate Risk Measurement

Impact of % Sensitive Assets on Interest Revenue with an Decrease in the General Level of Interest Rates:

		Sensitive	Interest Revenue		
% Change in Interest Rates	Earning Assets	%	Beginning	Ending	% Change
-20	15509	100	129	103	-20%
-20	15509	50	129	116	-10%
-20	15509	25	129	123	-5%

Impact of % Sensitive Liabilities on Interest Expense with an Decrease in the General Level of Interest Rates:

	Interest Bearing	Sensitive	Interest Expense		
% Change in Interest Rates	Liabilities	%	Beginning	Ending	% Change
-20	14011	100	117	94	-20%
-20	14011	50	117	105	-10%
-20	14011	25	117	111	-5%

Answers

Earning Assets are 100% rate sensitive and Liabilities are 50% rate sensitive
Net interest income 103-105= -2
Change -2-12= -14

Earning Assets are 50% rate sensitive and Liabilities are 100% rate sensitive
Net interest income 116 - 94= 22
Change 22 - 12 = +10

Earning Assets are 100% rate sensitive and Liabilities are 100% rate sensitive
Net interest income 103 -94 = 9
Change 9 - 12 = -3

Exercise: Interest Rate Risk Measurement

Impact of % Sensitive Assets on Interest Revenue with an Increase in the General Level of Interest Rates:

% Change in Interest Rates	Earning Assets	Sensitive %	Interest Revenue Beginning	Ending	% Change
20	15509	100	129	155	20%
20	15509	50	129	142	10%
20	15509	25	129	136	5%

Impact of % Sensitive Liabilities on Interest Expense with an Increase in the General Level of Interest Rates:

% Change in Interest Rates	Interest Bearing Liabilities	Sensitive %	Interest Expense Beginning	Ending	% Change
20	14011	100	117	140	20%
20	14011	50	117	129	10%
20	14011	25	117	123	5%

Exercise: Interest Rate Risk Measurement Answers

Impact of % Sensitive Assets on Interest Revenue with an Increase in the General Level of Interest Rates:

		Sensitive	Interest Revenue		
% Change in Interest Rates	Earning Assets	%	Beginning	Ending	% Change
20	15509	100	129	155	20%
20	15509	50	129	142	10%
20	15509	25	129	136	5%

Impact of % Sensitive Liabilities on Interest Expense with an Increase in the General Level of Interest Rates:

	Interest Bearing	Sensitive	Interest Expense		
% Change in Interest Rates	Liabilities	%	Beginning	Ending	% Change
20	14011	100	117	140	20%
20	14011	50	117	129	10%
20	14011	25	117	123	5%

Answers

Earning Assets are 100% rate sensitive and Liabilities are 50% rate sensitive
- Net interest income 155-128= 27
- Change 27-12= +15

Earning Assets are 50% rate sensitive and Liabilities are 100% rate sensitive
- Net interest income 142-140=2
- Change 2-12= -14

Earning Assets are 100% rate sensitive and Liabilities are 100% rate sensitive
- Net interest income 155-140=15
- Change 15-12= + 3

Exercise: Interest Rate Risk Measurement

Impact of % Sensitive Assets on Interest Revenue with an Increase in the General Level of Interest Rates:

% Change in Interest Rates	Earning Assets	Sensitive %	Interest Revenue Beginning	Ending	% Change
20	15509	100	129	155	20%
20	15509	50	129	142	10%
20	15509	25	129	136	5%

Impact of % Sensitive Liabilities on Interest Expense with an Increase in the General Level of Interest Rates:

% Change in Interest Rates	Interest Bearing Liabilities	Sensitive %	Interest Expense Beginning	Ending	% Change
20	14011	100	117	140	20%
20	14011	50	117	129	10%
20	14011	25	117	123	5%

Exercise: Interest Rate Risk Measurement

Impact of % Sensitive Assets on Interest Revenue with an Decrease in the General Level of Interest Rates:

% Change in Interest Rates	Earning Assets	Sensitive %	Interest Revenue Beginning	Ending	% Change
-20	15509	100	129	103	-20%
-20	15509	50	129	116	-10%
-20	15509	25	129	123	-5%

Impact of % Sensitive Liabilities on Interest Expense with an Decrease in the General Level of Interest Rates:

% Change in Interest Rates	Interest Bearing Liabilities	Sensitive %	Interest Expense Beginning	Ending	% Change
-20	14011	100	117	94	-20%
-20	14011	50	117	105	-10%
-20	14011	25	117	111	-5%

Answers

Earning Assets are 100% rate sensitive and Liabilities are 50% rate sensitive
- Net interest income 103-105= -2
- Change -2-12= -14

Earning Assets are 50% rate sensitive and Liabilities are 100% rate sensitive
- Net interest income 116 - 94= 22
- Change 22 - 12 = +10

Earning Assets are 100% rate sensitive and Liabilities are 100% rate sensitive
- Net interest income 103 -94 = 9
- Change 9 - 12 = -3

Chapter 5 review questions

1. What are the objectives of a credit policy?
2. What are some reasons why a bank should establish good, prudent credit policies?
3. How can SCB establish a better-managed credit culture?
4. What is the relationship between a strategic policy and a credit policy?
5. Select one of the four foundations of credit worthiness and identify two key risks and ways to mitigate them.
6. In loan structuring, what are 2 important affirmative and 2 important negative covenants?
7. What are two risks to consider when taking any asset as collateral?
8. Name three assets in order of preference that SCB as present takes as collateral?
9. What loan-to-value ratios should be applied to the following assets: raw land, commercial land, farm land, secondary residence, inventory equipment.
10. What is the function of loan review?
11. How is loan review different from credit administration?
12. Name the steps in the problem loan administration process?

SCB

BALANCE SHEET	1999 B Millions	1999 %	1999 Base	1998 B Millions	1998 %	1998 Index
Assets						
Cash	10630	1.6%	142	7474	1.1%	100
Noninterest Interbank	10592	1.5%	64	16631	2.4%	100
Trading Account	19453	2.8%	95	20560	2.9%	100
Interbank and MM	37963	5.5%	137	27728	3.9%	100
Repos	3095	0.5%	9	35510	5.1%	100
Investment Portfolio	86754	12.7%	290	29959	4.3%	100
Gross Loans to Customers	492468	71.9%	88	559690	79.6%	100
Loan Loss Provision*	18713	2.7%	60	31422	4.5%	100
Net Loans to Customers	473755	69.2%	90	528268	75.2%	100
OREO	9063	1.3%	242	3739	0.5%	100
Acceptances	2823	0.4%	84	3367	0.5%	100
Net Equity Invesments	0	0.0%		0	0.0%	100
Tangible Fixed Assets	17363	2.5%	95	18326	2.6%	100
Net Interaccount	4360	0.6%	101	4337	0.6%	100
Other Assets	9166	1.3%	132	6945	1.0%	100
						100
Total Assets	685017	100.0%	97	702844	100.0%	100
Liabilities						
Customer Deposits--Baht	535086	78.1%	96	554639	78.9%	100
Customer Deposits--FX	27556	4.0%	75	36510	5.2%	100
Interbank Deposits-FX	15204	2.2%	64	23777	3.4%	100
Interbank Deposits-FX (non-I)	321	0.0%	24	1350	0.2%	100
Interbank Deposits--Interest B	7592	1.1%	67	11347	1.6%	100
Interbank Deposits--Non-I	1008	0.1%	221	456	0.1%	100
Demand Liability	4471	0.7%	164	2720	0.4%	100
Borrowings	22103	3.2%	131	16906	2.4%	100
Interest Payable	5032	0.7%	55	9128	1.3%	100
Other	9049	1.3%	82	11083	1.6%	100
Total Liabil.	627422	91.6%	94	667916	95.0%	100
Stockholders' Equity	57595	8.4%	165	34928	5.0%	100
Total Liabilities & NW	685017	100.0%	97	702844	100.0%	100

Income Statements

Profit and Loss Statement	1999			1998		
	Baht	%Int. Inc.	%Assets	Baht	%Int. Inc.	%Assets
Interest Income	3475	100%	0.5%	3298	100%	0.5%
Interest Expense	1308	38%	0.2%	1156	35%	0.2%
Net Interest Income	2167	62%	0.3%	2142	65%	0.3%
Provision for credit losses	144	4%	0.0%	229	7%	0.0%
Net Interest after provision	2023	58%	0.3%	1913	58%	0.3%
Fee and commission income	767	22%	0.1%	920	28%	0.1%
Fee and commission expense	103	3%	0.0%	204	6%	0.0%
Net Fees and commissions	664	19%	0.1%	716	22%	0.1%
Dealing Profits	46	1%	0.0%	55	2%	0.0%
Foreign exchange gains (losses)	18	1%	0.0%	20	1%	0.0%
Other income	154	4%	0.0%	108	3%	0.0%
Total Non-interest Income	882	25%	0.1%	899	27%	0.1%
Overhead	1885	54%	0.3%	1777	54%	0.3%
Pre-Tax Profit	1020	29%	0.1%	1035	31%	0.1%
Taxes	365	11%	0.1%	386	12%	0.1%
Net Profit	655	19%	0.1%	649	20%	0.1%
Average Assets*	693931			710003		
Average Equity*	46262			38322		
Avg. Earning Assets*	631523			642025		
Avg Interest Bearing Liabilities*	628956			645899		
ROA	0.1%			0.1%		
ROE	1.4%			1.7%		
Leverage	15.00			18.53		
Spread	0.34%			0.33%		
Net interest margin	0.3%			0.3%		
Other operating margin	0.1%			0.1%		
Efficiency Ratio	64.9%			63.2%		

Risk Management System at SCB

Risk Identification	Risk Measurement
Risk Management	Risk Monitoring

Risk Type	Evaluation Factors		Standards		Changes in	Changes in
		Superior	Satisfactory	Needs Improvement	Risk environment	Risk management
A. General Business Risks	Organizational Structure					
	Planning					
	Policies and Procedures					
	Processes and Controls					
	Measurement and Monitoring					
	MIS and Reporting					
	Communication					
	Staff and Training					
	Quality Management					
B. Specific Risks	Credit Risk—Identification					
	Credit Underwriting					
	Credit Documentation					
	Credit Accounting					
	Collateral Management					
	Problem Asset Mgt					
	Market Risk—Identification					
	Measurement & validation					
	Responsiveness to change					
	Compliance					
	Product					
	Operational Others					

Chapter 1 Review Questions

1. The goal of Risk Management is to
   a. Maximize shareholder wealth
   b. Comply with regulatory requirements
   c. Minimize risk for any given level of return
   d. Pay management well
   e. A., b, c
   f. None of the above

2. Risk management means
   a. Avoidance of risk
   b. Making risky investments
   c. Controlling risk
   d. The deliberate acceptance of risk for a profit
   e. All of the above
   f. None of the above

3. Risk is measured in terms of
   a. Volatility
   b. Exposure to earnings or capital
   c. How much income or market value of capital will change if rates increase or decrease
   d. Value at risk
   e. All of the above
   f. None of the above

4. Risk Management involves
   a. Asset and liability management
   b. Strategic planning
   c. Budgeting
   d. Controlling, reporting and monitoring financial results
   e. All of the above
   f. None of the above

Target results of Risk Management include:
Protection of depositors
Sufficient liquidity
Stable interest rate margin
Attractive FX earnings
Sufficient capital to absorb potential losses
f. All of the above
g. None of the above

What is the most important and usually predictable component of a bank's income?
a. Net interest margin
b. Non-interest income
c. Taxes
d. Overhead

e. Capital gains
f. All of the above
g. None of the above

What is a rational investor?
One who avoids risk
One who assumes risk at any cost
One who maximizes risk at any given level of return
One who minimizes return at any given level of risk
One who maximizes return ant any given level of risk
One who minimizes risk at any given level of return
e. and f

What is the risk/reward trade-off associated with higher liquidity?
a. Shorter average life of assets
b. Shorter average life of liabilities
c. Lower net interest income
d. Less interest rate risk
e. a. and b.
f. All of the above
g. None of the above

What is the risk/reward trade-off associated with higher yield on assets?
a. Increased credit risk
b. Reduced average life of assets
c. Increased marketability of assets
d. Increased interest rate risk
e. a. and d.
f. All of the above
g. None of the above

13. A high net interest margin could be indicative of the following:
    a. Increased credit risk
    b. Decreased liquidity
    c. A low cost of funds
    d. A high interest spread
    e. c. and d.
    f. All of the above
    g. None of the above

14. A low interest spread could be indicative of the following:
    a. Increased cost of funds
    b. High credit risk
    c. Low yield on earning assets
    d. Low liquidity
    e. a. and c.
    f. All of the above
    g. None of the above

15. How can a bank expand the spread between the yield on assets and cost of funding?
    a. Increase credit risk
    b. Lower rates paid on deposits
    c. Buy longer-term securities
    d. Fund earning assets with capital
    e. Minimize non-earning assets
    f. All of the above
    g. None of the above

Chapter 2: Risk Management System

1. What are the building blocks of a Risk Management System?
   a. Risk Identification
   b. Risk Measurement
   c. Risk Management
   d. Risk Monitoring/Controlling
   e. All of the above
   f. None of the above

2. What are the major risks faced by banks?
a. Interest rate risk
b. Credit risk
c. Market risk
d. Liquidity risk
e. Operational risk
f. All of the above
None of the above

Good risk policies
Are necessary to manage bank risks
Establish risk measures and limits
Assign responsibility and duties
Allow for exceptions
Provide for reporting, auditing and review
Are approved by the Board of Directors
All of the above
None of the above

Example of management policies at SCB are (check all that apply)
CPG
CAM
ALCO
Treasury policy
None of the above

Risk measurement tools include
GAP analysis
Liquidity planning
Simulation
Duration analysis
Value at Risk ("VaR")
None of the above

Management tools include
Matching assets and liabilities
Natural hedges
Hedging with derivatives
Insurance
Diversification

All of the above
None of the above

Monitoring and Control includes
Policies and procedures
Organizational segregation of duties
Dual controls
Internal audit
Management reporting and review
All of the above
None of the above

Preventive controls include
Proper authorization of transactions
Segregation of duties (eg., front office from back office)
Restricted access to accounting records and secured facilities
Disbursement controls
All of the above
None of the above

Detective controls include
Rotation of personnel in key control areas
Physical inventory of pre-numbered documents such as cashier checks
Review of balances daily activity reports and for budget reports
Back testing models
Internal checks such as clerical proofs and reconciliations, comparison of assets and liabilities with recorded amounts
Management review of reports
All of the above
None of the above

Corrective controls
Confirmations sent separately by back office
Exception reporting such as overdrawn accounts, old outstanding reconciliation items or computer processed exception reports
Enforcement of policies and procedures
Automation controls
All of the above
None of the above

The responsibility for managing the day-to-day risk is the responsibility of
Risk Management Department
Board of Directors
Individual line officer
Internal auditor
All of the above
None of the above

Operational Risk Assessment at SCB

High Frequency/Low Impact	High Frequency/High Impact
Low Frequency/Low Impact	Low Frequency/High Impact

RISK MANAGEMENT

The Ten Questions

Risks — What are the risks the Bank faces?

There is a range of different risks, including but not limited to interest rate risk, credit risk, market (price) risk, FX risk, liquidity risk, commodity price risk, regulatory risk, reporting/accounting risk, reputation risk, operational risk, legal risk, technology risk, etc.—all risks that can cause volatility in a bank's earnings or capital (market value of equity).

Policies — What policies can control the risks?

Good risk policies assign responsibility and duties; define measures of the different risks; set risk limits and controls; specify how to handle exceptions to limits; set times for review (how often and to whom reports are made) and revisions of policies to reflect changing market needs and if the policies have not been effective in controlling risk; set how and when the process should be audited; and most important, receive Board of Directors approval.

ALM Policy: Authority for ALCO; purpose, function, membership and duties. Sets balance sheet targets and limits. Interest rate parameters, liquidity ratios, funding policy, and exceptions procedures.

Liquidity Policy: Include appropriate measures; limits on funding sources for diversification; contingent sources of funds; planning (projections of balance sheet and liquidity needs); stress testing; relationship to leverage, interest rate risk and bank earnings; periodic review of objectives and performance; policy administration.

Credit Policy: Aggregated maximum exposure limits to individual credits, related groups, industries, etc. Internal rating system, provisioning policy, collateral policy, workout strategies, credit review, credit file checklist, and other policies to assure asset diversification and safeguarding of assets.

Investment Policy: Objectives of investment portfolio; policy administration; quality standards and eligible securities; eligible maturity structure; periodic review of objectives and performance; exceptions procedures.

Treasury and Trading Policy: Objectives of trading account; trading parameters for interbank placements, foreign exchange; Eurodeposits, repos, and trading securities. Reporting transactions and settlement procedures; mark to market procedures, periodic review of objectives and performance. Limits on positions; eligible investments; eligible counterparties; stop-loss limits. Limits a function of skill level of traders, nature of instruments, etc.

Hedging Policy: Objectives of hedging activities; permissible instruments, permissible strategies. Limits on positions in terms of tenor, amount, etc.

Measurement	How should the risks be measured?
	All measurement should be in terms of change in or exposure to earnings or capital. Market related measures can be value at risk or earnings at risk. Interest rate sensitivity can be measured by simulation using an increase or decrease of interest rates. Methodologies to include capital attribution.
Pricing	What information is needed to set pricing policy?
	Pricing can be based on an all-in cost of the loan or service, including transfer pricing of funds or administrative support. Capital should be allocated to the loan or product (or line of business) to derive the risk-adjusted return on capital (RAROC).
Capital	What information is needed to establish capital policy?
	The bank's required level of capital is a function of the risk assets, funding sources and growth, in addition to regulatory minimums. Loan growth, asset quality, earnings predictions and dividend requirements all affect capital policy.
Information	What information is needed to measure these risks?
	Historical volatility of FX rates, interest rates, securities prices; longer term interest rate trends; seasonal deposit flows; rate sensitivity position; asset yields and liability costs; variances from prior month, previous year and budget; allocation of capital.
Systems	What systems are needed to provide information?
	Data warehouse or other compilation of historical and current information of customer base in a real time basis. Includes data extraction, data mapping, data transfer links, and MIS support.
Process	How should the risks be managed?
	Match fund loans; hedge gaps; liquidity planning; spread analysis; loan provisioning are all management tools.
Organization	How should the functions be organized for reporting and monitoring?
	Risk review and control should be separate from risk taking functions. Reporting should be separate from risk review and control.
Control	What internal controls are needed to safeguard Bank assets, earnings and reputation?
	Organizational separation, segregation of duties and independence in review. Dual controls; approval authorities; documented policies and procedures; reasonableness of scenarios; individual risk monitoring validation; reconciliation between back office and accounting.