

NPTEL ONLINE CERTIFICATION COURSES

MANAGEMENT OF COMMERCIAL BANKING

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Module 04: Management of Lending Activities of Commercial Banks

Lecture 36:Management of Lending Activities-VI

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CONCEPTS COVERED

- Profitability Indicators
- Financial Leverage Factor
- Historical analysis of all financial ratios

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Financial Ratio Analysis: Profitability Indicator

- How much net income remains for the owners of a business firm after all expenses (except dividends) are charged against revenue?
- Popular bottom line indicators include:
  i. Before-tax net income / total assets, net worth, or total sales
  ii. After-tax net income / total assets (or ROA)
  iii. After-tax net income / net worth (or ROE)
  iv. After-tax net income / total sales (or ROS) or profit margin

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Financial Ratio Analysis: Financial Leverage Factor

- It is the barometer of a business firm's capital structure
- Any lender is concerned about how much debt a borrower has taken on in addition to the loan being sought
- Financial leverage: use of debt in the hope the borrower will generate earnings that exceeds the cost of debt, thereby increasing returns to a business firm's owners

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Financial Ratio Analysis: Financial Leverage Factor

- **Key financial ratios used to analyze any borrowing business's credit standing and use of financial leverage include**

$$\text{Leverage ratio} = \frac{\text{Total liabilities}}{\text{Total assets}}$$

$$\text{Capitalization ratio} = \frac{\text{Long-term debt}}{\text{Total long-term liabilities and net worth}}$$

$$\text{Debt-to-sales ratio} = \frac{\text{Total liabilities}}{\text{Net sales}}$$

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Historical analysis of financial statement

Balance sheet for a Company								
	Most recent year		One year ago		Two years ago		Three years ago	
Balance sheet items	Dollar Value	Percentage of Total	Dollar Value	Percentage of Total	Dollar Value	Percentage of Total	Dollar Value	Percentage of Total
Assets								
Cash	2.0	6.1%	2.3	6.8%	2.7	7.7%	3.2	8.6%
Marketable securities	1.5	4.5%	1.8	5.3%	2.0	5.7%	1.0	2.7%
Accounts receivable	9.3	28.2%	8.4	24.7%	7.2	20.6%	5.1	13.8%
Inventories	6.2	18.8%	5.5	16.2%	4.4	12.6%	3.3	8.9%
Total Current Assets	19.0	57.6%	18.0	52.9%	16.3	46.6%	12.6	34.1%
Fixed asset, gross	20.4	61.8%	21.2	62.4%	22.5	64.3%	23.4	63.2%
Less: Accumulated Depriciation	11.1	33.6%	10.2	30.0%	9.0	25.7%	6.1	16.5%
Fixed asset, net	9.3	28.2%	11.0	32.4%	13.5	38.6%	17.3	46.8%
Other asset	4.7	14.2%	5.0	14.7%	5.2	14.9%	7.1	19.2%
Total Asset	33.0	100.0%	34.0	100.0%	35.0	100.0%	37.0	100.0%
Liabilities and Equity								
Accounts payable	2.3	7.0%	2.2	6.5%	1.8	5.1%	2.0	5.4%
Notes payable	4.9	14.8%	4.4	12.9%	4.2	12.0%	3.7	10.0%
Taxes payable	0.1	0.3%	0.2	0.6%	0.1	0.3%	0.8	2.2%
Total current liabilities	7.3	22.1%	6.8	20.0%	6.1	17.4%	6.5	17.6%
Long-term debt	13.2	40.0%	13.2	38.8%	13.5	38.6%	12.4	33.5%
Other liabilities	1.0	3.0%	1.4	4.1%	4.5	12.9%	7.1	19.2%
Total Liabilites	21.5	65.2%	21.4	62.9%	24.1	68.9%	26.0	70.3%
Common stock	2.0	6.1%	2.0	5.9%	1.0	2.9%	1.0	2.7%
Paid-in surplus	3.0	9.1%	3.0	8.8%	3.0	8.6%	3.0	8.1%
Retained earnings	6.5	19.7%	7.6	22.4%	6.9	19.7%	7.0	18.9%
Total net worth	11.5	34.8%	12.6	37.1%	10.9	31.1%	11.0	29.7%

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Income statement

Net sales	33.0	100.0%	31.0	100.0%	29.0	100.0%	32.0	100.0%
Less: Cost of goods sold	19.0	57.6%	17.0	54.8%	16.0	55.2%	15.0	46.9%
Gross Profit	14.0	42.4%	14.0	45.2%	13.0	44.8%	17.0	53.1%
Less: Selling, administrative and other expenses	9.0	27.3%	9.0	29.0%	8.0	27.6%	11.0	34.4%
Less: Depriciation expense	3.0	9.1%	3.0	9.7%	3.0	10.3%	2.0	6.3%
Net Operating Income	2.0	6.1%	2.0	6.5%	2.0	6.9%	4.0	12.5%
Less: Interest Expense on borrowed funds	2.0	6.1%	1.0	3.2%	2.0	6.9%	2.0	6.3%
Net income before taxes	0.0	0.0%	1.0	3.2%	0.0	0.0%	2.0	6.3%
Less: Income taxes	0.1	0.3%	0.3	1.0%	0.1	0.3%	0.2	0.6%
Net income after taxes	-0.1	-0.3%	0.7	2.3%	-0.1	-0.3%	1.8	5.6%

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Historical Analysis of Financial Statement: Expense Control

Cost of goods sold/net sales	57.6%	54.8%	55.2%	46.9%
Selling, administrative and other expenses/ net sales	27.3%	29.0%	27.6%	34.4%
Depriciation expenses/net sales	9.1%	9.7%	10.3%	6.3%
Interest expense on borrowed funds/net sales	6.1%	3.2%	6.9%	6.3%
Taxes/net sales	0.3%	1.0%	0.3%	0.6%

- **Selling, administrative and other expenses, and taxes relative to net sales have declined; rest have either remained steady or risen as a percentage of net sales**
- **The inability to reduce the overall expense in the face of a relatively flat sales has caused net earnings to decline over the past four years**
- **Highly convincing arguments are needed to convince that the firm's expense and earning picture will improve**

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Historical Analysis of Financial Statement: Operating Efficiency

Inventory turnover ratio: Annual cost of goods and services sold/average inventory	3.06	3.09	3.64	4.55
Average collection period: Accounts receivable /(annual sales/360) in days	101.5	97.5	89.4	57.4
Turnover of fixed assets:				
Net sales/net fixed assets	3.55	2.82	2.15	1.85
Turnover of total assets:				
Net sales/total assets	1.00	0.91	0.83	0.86

- Inventory turnover-indicator of managements efficiency in controlling size of firms inventory – has declining trend
- Average collection period is increasing; suggests rise in past due accounts and poor collection
- Although fixed asset turnover is rising, (refer B/S) primary reason is decline of plant and equipment – firm either selling assets to raise cash or simply not replacing worn out capital

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Historical Analysis of Financial Statement: Marketability of Product Line

	Most recent year	One year ago	Two years ago	Three years ago
Gross Profit Margin	42.4%	45.2%	44.8%	53.1%
Net Profit Margin	-0.3%	2.3%	-0.4%	5.8%

- **Both Gross profit margin and net profit margin are on a downward trend**
- **There might be potential problems, including potentially inappropriate pricing policies, expense control problems, and market deterioration**

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Coverage Ratio Analysis

- Interest coverage is weak
- Its earnings are barely adequate to cover the interest payments, and once repayment of principal is included, earnings are simply inadequate to cover interest and principal payments
- Firm must use less debt to finance itself and boost its earnings
- Lengthen its dent repayment through restructuring, so that current debt service payments are reduced

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Historical Analysis of Financial Statement: Liquidity

Liquidity							
Current ratio: Current asset/current liabilities	2.60		2.65		2.67		1.94
Acid-test: (current asset-inventories)/current liabilities	1.75		1.84		1.95		1.43
Working capital= current asset-current liabilities	11.70		11.20		10.20		6.10
Net liquid asset= current asset-inventories-current liabilities	5.50		5.70		5.80		2.80

Firm made substantial progress in building up its liquidity two years ago: current asset 3 times over current liabilities

Current and acid test ratios have dipped significantly in the recent year

Good thing: recent expansion of working capital of $9.7 million and its relatively stable net liquid asset

However, large part of working capital increase is from selling off the firm's plant and equipment and through use of debt

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Historical Analysis of Financial Statement: Profitability

Profitability							
Before tax net income/total asset	0.00%		2.94%		0.00%		5.41%
After tax net income/total asset	-0.30%		2.06%		-0.29%		4.86%
Before tax net income/net worth	0.00%		7.94%		0.00%		18.18%
After tax net income/net worth	-0.87%		5.56%		-0.92%		16.36%

Long term decline in profitability

Little evidence to suggest a turn around

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Historical Analysis of Financial Statement: Leverage

Leverage:							
Leverage ratio: Total liabilities/total asstes	65.2%		62.9%		68.9%		70.3%
Total liabilities/net worth	1.87		1.70		2.21		2.36
Capitalization ratio: Long term debt /long term debt plus net worth	53.4%		51.2%		55.3%		53.0%
Debt-to-sales ratio:Total liabilities/net sales	65.2%		69.0%		83.1%		81.3%

Leverage ratio has improved, with assets and net worth generally growing faster than debt

Its mix of funding sources: debt and equity capital has been relatively constant while total liabilities have declined relative to sales

Much of firms asset has come from sources other than debt, such as depletion of fixed assets and a buildup on current assets like accounts receivable and inventories

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CONCLUSION

- Major profitability indicators are ROA, ROE and Profit Margin
- Leverage measures the financial risk of the company
- Historical analysis of the financial ratios are very much important to provide loan to any business units

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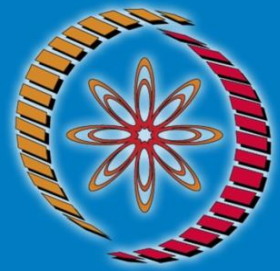
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Lecture 37: Management of Lending Activities-VII

CONCEPTS COVERED

- Industry comparison
- Contingent liabilities
- Analysis of cash flow statement

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Industry comparison

- It is standard practice to compare each business customer's performance to the performance of the customer's entire industry
- It gives the idea about the sustainability and successful business strategy of the companies in comparison with industry average

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Contingent Liabilities

Usually not shown on customer balance sheets are other potential claims against the borrower:

1. Guarantees and warranties behind the business firm's products
2. Litigation or pending lawsuits against the firm
3. Unfunded pension liabilities
4. Taxes owed but unpaid
5. Limiting regulations

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Contingent Liabilities …

- These contingent liabilities can turn into actual claims against the firm's assets and earnings at a future date
- The loan officer must ask the customer about pending or potential claims against the firm
- Following up the own investigation by the bank from government records, public notices and news papers

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Environmental liabilities

- Environmental clearance
- Hazardous activities which are debarred by the environmental laws
- Possible lender liability of environmental damage as per regulation
- Lenders' environmental risk assessment programme

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Underfunded Pension Liabilities

- Borrowing customers should record employee pension plan surpluses and deficits on their balance sheets
- If projected pension-plan liabilities exceed expected funds sources, the result may be an increase in liabilities
- Increases the price of loan

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Analysis of Cash Flow Statement

- The Statement of Cash Flows illustrates how cash receipts and disbursements are generated by operating, investing, and financing activities
- Will the borrower be able to generate sufficient cash to support its production and sales activities and still be able to repay the lender?
- Why is the cash position of the borrower changing over time and what are the implications of these changes?

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Analysis of Cash Flow Statement

Cash Flow by Origin	=	Net Cash Flow from Operations (focusing upon the normal flow of production, inventories, and sales) + Net Cash Flow from Investing Activities (focusing upon the purchase and sale of assets) + Net Cash Flow from Financing Activities (including the issuance of debt)
Traditional (Direct) Operating Cash Flow Measure	=	Net Cash Flow from Operations + Noncash Expenses (measured on a cash, not an accrual, basis)
	=	Net Sales Revenue − Cost of Goods Sold − Selling, General and Administrative Expenses − Taxes Paid in Cash + Noncash Expenses (especially depreciation)

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Analysis of Cash Flow Statement

$$\text{Indirect Operating Cash Flow Measure} = \text{Net Income} + \text{Noncash Expenses} + \text{Losses from the Sale of Assets} - \text{Gains from the Sale of Assets} - \text{Increases in Assets Associated with Operations} + \text{Increases in Current Liabilities Associated with Operations} - \text{Decreases in Current Liabilities Associated with Operations} + \text{Decreases in Current Assets Associated with Operations}$$

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Cash flow from investment activities

- Purchase of new machinery
- Redemption of marketable securities

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Cash flow from financing activities

- Increase in notes payable
- Repayment of long-term debt
- Repayment of other liabilities
- Dividends paid

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Other Factors

- Broader, long-term relationship
- Denial of loans affects the deposit base, personal accounts of stock holders and employees
- Longer-term loan policy
- Relaxing the requirements

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CONCLUSION

- A comparison of business unit's performance with the performance of the industry is required while assessing the loan applications.
- A part from financial ratios, the position of contingent liabilities should be analyzed
- Analysis of cash flow statement is also helpful to examine the loan proposal

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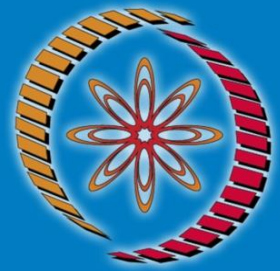
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Module 04: Management of Lending Activities of Commercial Banks

Lecture 38:Management of Lending Activities-VIII

CONCEPTS COVERED

- Loan Pricing models
- Cost-plus loan pricing model

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Objectives of loan pricing

- Maintain Margins
- Balance risk-return profile
- Ensure market rates

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Margin Maintenance

- Average cost of funds vs. marginal cost of funds
- Deployment of excess deposit: Average cost of funds
- If banks does not have any surplus fund and credit requirements are funded using the incremental deposits: Marginal cost of funds

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Risk-return profile

- Tenor of loan
  - Long term loans are riskier than short-term loan
  - Mismatch between maturity of assets and liabilities
  - Maximum tenor should be fixed accordingly
- Credit risk
  - Probability of default of loans
- Size of loan
  - It affects servicing cost

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Market rates

- Loan price should be based on market rate structure prevailed in the market at that point of time
- Marginal cost of lending Rate (MCLR)
  - It is an internal reference rate for banks to determine the interest they can charge on loans.
  - Additional or incremental cost of arranging additional rupee for a prospective buyer has been taken into account
  - Factors considered for MCLR: Tenor of loan, marginal cost of funds, operating cost, negative carry on account of CRR
- Base rate
  - It is the minimum rate set by the Reserve Bank of India below which banks are not allowed to lend to its customers. (not used since 2016 in India)

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Cost plus loan pricing model

- Measure cost of funds
- Assess the servicing costs
- Quantify the credit risk and set premium
- Assess the profit margin that ensures ROE
- Relate the rate to a reference rate
- Ensure market presence

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Cost plus loan pricing model

- If the bank is not a position to identify the sources from which the funds are used to extend a particular credit facility, the average cost of funds (ACF) will be the suitable option
- If the banks can clearly segregate its liabilities then it can use pooled cost of funds with similar maturities
- Loan price= Cost of funds + margin

$$\text{Loan interest rate} = \text{Marginal cost of raising loanable funds to lend to the borrower} + \text{Nonfunds operating costs} + \text{Estimated margin to compensate for default risk} + \text{Desired profit margin}$$

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Example

Maturity	Amount (Rs. Crore)	Rate
0	15	0.00
6 moths	25	5.00
1year	15	10.00
2 years	15	12.00
3 years	30	13.00

Compute the loan price using ACF and MCF approach for a loan proposal of Rs. 30 crore for 3 years?

Average cost of funds: 25*0.05 + 15*0.1+ 15*0.12+ 30*0.13= 8.45

If margin is 2% then loan price: 8.45 + 2= 10.45%

Pooled cost of funds: 13% + 2% = 15%

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Example cont…

- Cost of servicing: 3%, risk margin: 0.25%, profit margin: 1.25%
- Loan Price using ACF = 8.45% + 3% + 0.25% + 1.25% = 12.95%
- Loan Price using MCF= 13% + 3% + 0.25% + 1.25% =17.5%
- The profit margin which the bank sets should enable the bank to earn its required ROE
- When required ROE is met then the price charge which is known as contractual rate becomes expected return for that loan

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Cost plus loan pricing model …

- Bank will earn expected return as long as there is no default payment of the loan
- In the presence of default, the contractual rate will not give the bank the expected return.
- If the bank has to reach the targeted ROE, then the risk should be quantified to arrive at a contractual rate that in turn gives the bank the expected rate
- When a default is expected from a loan, the bank adjusts the recovered amount towards the principal

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Cost plus loan pricing model …

- E (R) = P1(r) + P2 [(Principal (1+r) *R)/Principal -1]
- P1 = Probability of repayment
- P2=Probability of default
- R= Recovery rate
- P1(r)= Returns using the contractual rate (probability of total payment of the loan in the normal course of payment)

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Example

- Loan= Rs. 1500 cr, Avergae contractual rate: 14%, probability of repayment= 90%, recovery rate= 80%
- E(r) = 11.72%
- The difference between E(r) and contractual rate arises due to 80% recovery rate and 90 % repayment rate

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The Price Leadership Model

$$\text{Loan interest rate} = \text{Base or prime rate (including the lender's desired profit margin over all operating and administrative costs)} + \overbrace{\text{Default-risk premium paid by nonprime-rated borrowers} + \text{Term-risk premium paid by borrowers seeking long-term credit}}^{\text{Markup}}$$

- **Leading commercial lenders have switched to LIBOR-based loan pricing due to the growing use of Eurocurrencies as a source of loanable funds**
  - **LIBOR-based loan rate = LIBOR + Default-risk premium + Profit margin**

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Below-Prime Market Pricing

- Banks announced that some large corporate loans covering only a few days or weeks would be made at low money market interest rates
  - Federal funds rate on domestic loans plus a small margin

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Customer Profitability Analysis (CPA)

- **Assumes that the lender should take the whole customer relationship into account when pricing a loan**

$$\text{Net before-tax rate of return to the lender from the whole customer relationship} = \frac{\text{Revenues from loans and other services provided to this customer} - \text{Expenses from providing loans and other services to this customer}}{\text{Net loanable funds used in excess of this customer's deposits}}$$

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Customer Profitability Analysis (CPA) Cont…

$$\text{Before-tax rate of return over costs from the entire lender-customer relationship} = \frac{\text{Revenues expected} - \text{Costs expected}}{\text{Net amount of all loanable funds supplied customer}}$$

- If the net rate of return is positive, the proposed loan is acceptable because all expenses have been met
- If the net rate of return is negative, the proposed loan and other services provided to the customer are not correctly priced as far as the lender is concerned
- The greater the perceived risk of the loan, the higher the net rate of return the lender should require

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Customer Profitability Analysis (CPA) Cont…

- **Earnings Credit for Customer Deposits**
  - **In calculating how much in revenues a customer generates for a lending institution, many lenders give the customer credit for any earnings received from investing the balance in the customer's deposit account**

$$\text{Net investable (usable) funds for the lender} = \text{Customer's average deposit balance} - \text{Average amount of float in the account} - \left(\text{Required legal reserves behind the deposit} \times \text{Net amount of collected funds in the account} \right)$$

$$\text{Amount of earnings credited to the customer} = \text{Annual earnings rate} \times \text{Fraction of the year funds are available from the deposit} \times \text{Net investable (usable) funds}$$

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CONCLUSION

- The objectives of loan pricing models are to maintain margin, maintain a balance between risk and reward and ensuring market rates.
- There are many loan pricing models are used to price the loans and these include cost plus loan pricing model, price leadership model, below prime market pricing model and customer profitability analysis

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CONCEPTS COVERED

- Types of Consumer Loans
- Characteristics of Consumer Loans
- Evaluating Consumer Loan Application

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Overview

- Consumers (individuals and households) borrow money to supplement their income and enhance their lifestyle
- In recent decades, bankers are dominant providers of credit to individuals and families
- Lending stems from growing reliance on individuals and families for their chief source of funds – checkable and savings deposits
- Services directed at consumers can also be costly and risky financial products as financial conditions can change due to illness, loss of employment, tragedy etc.

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Types of Loans Granted to Consumers

Consumer loans are classified by

1. Purpose – what the borrowed funds will be used for
2. Type – whether the borrower must repay in installments or repay in one lump sum
3. Combination of both loan types and loan purpose

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Types of Loans Granted to Consumers: Residential Loans

- Credit to finance purchase of a home or fund improvements on a private residence
- Usually a long-term loan, typically bearing a term of 10 to 30 years
- Secured by the property itself
- May carry either a fixed interest rate or a variable (floating) interest rate
- A commitment fee of 1 to 2 % of the face amount of the loan is routinely charged upfront
- Banks are leading residential mortgage lenders today; other lenders: finance companies and insurance company

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Types of Loans Granted to Consumers: Nonresidential Loans

Installment Loans	Noninstallment Loans
• Short-term to medium-term loans • Repayable in two or more consecutive payments (usually monthly or quarterly) • Used to buy big-ticket items (e.g., automobiles, furniture, and home appliances) or to consolidate existing household debts	• Short-term loans individuals and families draw upon for immediate cash needs • Repayable in a lump sum • May be for relatively small amounts and include charge accounts that often require payment in 30 days or less • May also be made for a short period (usually six months or less) to wealthier individuals and can be quite large

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Types of Loans Granted to Consumers: Credit Card Loans & Revolving Credit

- One of the most popular forms of consumer credit today is accessed via credit cards
- Offer their holders access to either installment or non-installment credit
- Credit card users can be installment users and non-installment users
- Installment users of credit cards are far more profitable due to the interest income they generate
- Card providers also earn discount fees (usually 1 to 7 percent of credit card sales) from merchants who accept their cards

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Characteristics of Consumer Loans

- Consumer loans are profitable credits with “sticky” interest rates
  - ✓ Typically prices above the cost of funding them but contract interest rates often don’t change readily with market conditions as do most business loans ; exposed to significant interest rate risk
- Tend to be cyclically sensitive : rise in periods of economic expansion when consumers are more optimistic about future
- Relatively interest inelastic: more concerned about the size of monthly payments required by a loan agreement than the interest rate charges
- Education & income level influence on use of credit
- Borrowing often used to achieve a standard of living than a safety net to be used only in emergencies

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Evaluating Consumer Loan Applications: Character & Purpose

- **Character of borrower**
  - ✓ **Lender must be assures that the borrower feels a keen sense of moral responsibility to repay loan on time**
  - ✓ **Fundamental character of borrower revealed through purpose of loan request**

    Lender must ask:

    Has the customer clearly stated what he or she plans to do with the money?
    Is the stated purpose of loan consistent with the lender's loan policy?
    Is there evidence of sincere intension to repay any funds borrowed?

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Evaluating Consumer Loan Applications: Character & Purpose Cont..

- **Borrower's ability to pay**
  - ✓ **Borrowers income and valuable assets must be sufficient to reassure the lender that the customer has the ability to repay loan with a comfortable margin of safety**
  - ✓ **Lenders must check with one or more regional or national credit bureaus**

    Credit Bureaus are institutions that hold files on most individuals who have borrowed money, indicating their record of repayment and credit rating
  - ✓ **Incase borrower is without a credit record or with a poor track record of repaying loans, a cosigner may be requested to support the repayment**

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Evaluating Consumer Loan Applications: Other Factors

Income Levels:	•Both size and stability of an individual's income are considered •Customer to report net salary, take home salary •With large loans, check with customers employer to verify accuracy
Deposit Balances	•It is an indirect measure of income size and stability •Right to offset: permits the lender to call a loan that is in default and seize any checking savings deposits the customer may hold in order to recover its funds
Employment and Residential Stability	•Duration of employment considered while granting a sizable loan to someone •Length of residency: longer period stays in one residency; the more stable
Pyramid of Debt	•Individuals draws credit at one lending institution to pay another is frowned upon

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Evaluating Consumer Loan Applications Cont..

How to qualify for a customer loan?

- Home ownership or ownership of any form of real property such as land, building, even if property is not used as collateral
  -It conveys impression of stability and good money management skills
- Maintaining strong deposit balances
  - Above average deposit levels suggest financially disciplined individual determined to meet obligations
- Lender may look for inconsistencies on a loan application as a sign the borrower is untruthful or, at best, forgetful

Evaluating Consumer Loan Applications Cont..

Challenges of Consumer Lending

- It is easier to conceal pertinent information bearing on the payout loan (such as health, employment prospects) than for business
- Business firms can more easily adjust to ill health, injury or financial setbacks than individuals
- Default rate of consumer loans are several times higher than for many types of business loans
- On positive side: most loans are small in denomination and often secured by marketable collateral

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CONCLUSION

- Loans and other financial services extended to households represent one of the most important sources of financial service revenue
- Consumer credit represents an important supplement to business credit services
- Consumer lending presents special challenges to loan officers due to higher than average default rates related to vulnerability of families to loss of employment, illness and other adverse circumstances

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MANAGEMENT OF COMMERCIAL BANKING

PROF. JITENDRA MAHAKUD
DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES, IIT KHARAGPUR

Module 04: Management of Lending Activities of Commercial Banks

Lecture 40: Management of Lending Activities-X

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CONCEPTS COVERED

- Credit Scoring System
- Pricing of Loans

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Credit Scoring

- Used by lenders to evaluate loan applications they receive from consumers
- Major credit card systems such as master cars and VISA use these systems routinely to evaluate their credit card applications
- It is based on discriminant models or related techniques, such as logit or probit analysis or neural networks, in which several variables are jointly used to establish a numerical score for each credit applicant

-If score exceeds critical cutoff level, approved for credit in the absence of other damaging information

-If below cutoff, credit likely to be denied in the absence of mitigating factors

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Credit Scoring

Advantages	Drawbacks
•Ability to handle a large number of credit applications quickly with minimal labor thus reducing operating costs •Maybe an effective substitute for the use of judgment among inexperienced loan officers, thus helping control of bad-debt •Removes personal judgment from the lending process and reduces the lender's decision time from hours to minutes	•Scoring system uses financial, economic and motivational factors that separate good loans from bad based on observations from past data. It assumes that the same factors will hold in future, with an acceptable risk of error. This underlying assumption is wrong if the economy or other factors change abruptly •Danger of being sued by customer under antidiscrimination laws if race, gender, marital status or other discriminating factors are used in scoring system
Frequent verification and revision of credit-scoring system are not only wise from a legal and regulatory point of view but also mitigate the biggest potential weakness of such lifestyles	

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The FICO Scoring System

- Most famous of all credit scoring system currently in use
- Developed and sold by Fair Isaac Corporation
- Calculated scores of millions of consumers worldwide and provides these scores to credit bureaus, lending institutions and individuals who file a request
- Provide programs for consumers that suggests how they can improve their FICO score and gain access to credit more cheaply
- Score ranges from 300 to 850; higher values denote less credit risk to lenders
- All lenders do not adopt the same cutoff score

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The FICO Scoring System Cont..

- FICO is based on 5 different types of information (from most important to least important ranked)
    1. The borrower's payment history
    2. The amount of money owed
    3. The length of a prospective borrower's credit history
    4. The nature of new credit being requested
    5. The types of credit the borrower has already used
- Elements of a borrower's background-especially age, gender, residential localities – are not included in establishing FICO score
- Confines list of factors available in each consumer's credit bureau report
- Scores are recalculated as new information comes in

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Credit Scoring in India

- There are four credit companies licensed by Reserve Bank of India to operate as Credit Information Companies in India.
  1. The Credit Information Bureau (India) Limited (CIBIL)
  2. Experian
  3. Equifax
  4. CRIF High Mark
- Each company has developed their individual credit scores
- Most popular is CIBIL credit score: ranges from 300 – 900

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Laws and Regulations Applying to Consumer Loans

- **Disclosure Rules:**

  Mandates telling the customer about the costs and other terms or lease agreements

- **Antidiscrimination law:**

  Prevents categorizing loan customers according to their age, gender, race, or other irrelevant factors and denying membership to anyone solely based one these criteria

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KYC India

- Reserve Bank of India (RBI) has advised banks to follow the (KYC) 'Know Your Customer guidelines', wherein certain personal information of account-opening prospect or the customer is obtained
- Objective of the KYC guidelines is to prevent banks being used, intentionally or unintentionally by criminal elements for money laundering
- Banks should keep in mind that the information collected from the customer for the purpose of opening of account is to be treated as confidential and details thereof are not to be divulged for cross selling or any other like purposes

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KYC India

- Banks should ensure that any remittance of funds by way of demand draft, mail/telegraphic transfer or any other mode and issue of travellers' cheques for value of Rupees fifty thousand and above is effected by debit to the customer's account or against cheques and not against cash payment
- Banks should ensure that the provisions of Foreign Contribution (Regulation) Act, 1976, as amended from time to time, wherever applicable are strictly adhered to

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Pricing Consumer Loans: The Cost Plus Model

- Many consumer loans are priced off some base or cost rate, with a profit margin and compensation for risk added
- The rate on a consumer installment loan may be figured from the cost-plus model:

Loan rate paid by the consumer = **Lender's cost of raising loanable funds** + **Non-funds operating cost(including wages and salaries of lender personnel)** + **Premium for risk of customer default** + **Premium for term risk with a longer-term loan** + **Desired profit margin**

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Pricing Consumer Loans: The Cost Plus Model Cont..

- Variety of methods are used to calculate the actual loan rates banks offer to their customers
- Among the more familiar methods are:
  1. Annual Percentage Rate
  2. Simple Interest
  3. The Discount Rate
  4. Add-on Rate

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Pricing Consumer Loans: The Cost Plus Model Cont..

Annual Percentage Rate (APR)

- **APR is the internal rate of return (annualized) that equates expected total payments with the amount of the loan**
- **Takes into account how much of loan is repaid and how much credit the customer will actually have use during the life of loan**
- **Example:**

Consumer borrows $5000 for a year, paying off the loan in 12 equal installments, including 12% as interest per annum

Per month interest = 1%

Each month borrower pays $444.25 in principal and interest

Total Payment: $444.25*12=$5331

Total Finance charge: $331

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Pricing Consumer Loans: The Cost Plus Model Cont..

Simple Interest

- **Adjusts for the length of time a borrower has used the credit**
- **If a customer is paying off loan gradually, the simple interest approach determines the declining loan balance, and that reduced loan balance is then used to determine the amount of interest owed**
- **Example:**

Loan amount=5000 for a year, simple interest = 12%

If none of the principal is to be paid off before 12 months, interest owned by customer is:

Principal * Rate * Time = 5000*0.12*1 =600

At maturity customer will pay $5600

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Simple Interest Example cont…

- Now assume that loan principal is to be paid off in four quarterly installments of $1250 each. Total payment due will be:
- First quarter: $ 1250 + $5000*0.12*1/4=$1400
- Second quarter: $1250+ $3750*0.12*1/4=$1362.5
- Third quarter: $1250+ $2500*0.12*1/4=$$1325
- Fourth quarter: $1250+ $12500*0.12*1/4=$1287.5
- Total payment due: $5375

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Pricing Consumer Loans: The Cost Plus Model Cont..

The Discount Rate Method

- **Requires customers to pay interest rate upfront**
- **Interest rate is deducted first, the customer receives the loan amount less any interest owed**
- **Example:**

Loan amount=5000 for a year, loan rate= 12%

Interest amount of $600 to be paid upfront

Borrower receives $4400 i.e. $5000- $600

When loan matured, customer will payback $5000

Borrower's effective loan rate = $600/$4400 or 13.63%

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Pricing Consumer Loans: The Cost Plus Model Cont..

Add-on Rate

- **One of the oldest loan calculation methods**
- **Any interest owed is added to the principal amount before calculating the required installment payments**
- **Example:**

Loan amount=$2000 for a year, add-on interest rate = 12%

Repaymnet plan: 12 equal installment

Total payment will be: $2000+ $240=$2240

Each month payment: $2240/12=$186.67

Installment principal = ($2000/12) =$166.67 and loan installment: $20

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CONCLUSION

- Various credit scoring models are sued to evaluate the consumer loans
- FICO in USA and CIBIL score in India are most used credit scores
- Consumer loans are subject to regulations and laws
- Cost plus model is used to price the consumer loans

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