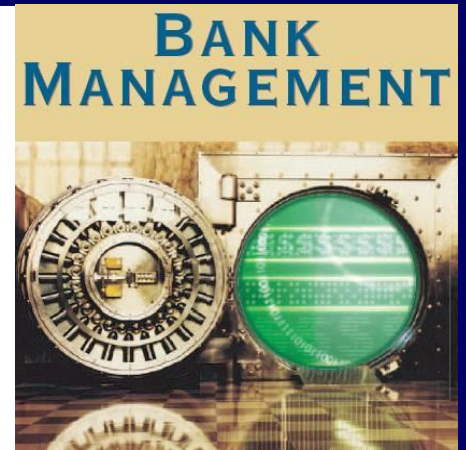


Evaluating Commercial and Consumer Loan Requests

Lecture 11 and 12



Two types of errors in judgment regarding lending :

- **Type I Error**
 - **Making a loan to a customer who will ultimately default**
- **Type II Error**
 - **Denying a loan to a customer who would ultimately repay the debt.**



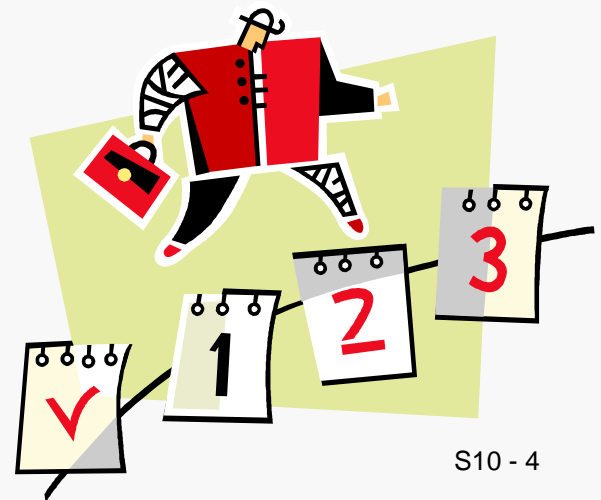
Five key questions/issues:

1. **What is the character of the borrower and the quality of information provided?**
2. **What are the loan proceeds going to be used for?**
3. **How much does the customer need to borrow?**
4. **What is the primary source of repayment and when?**
5. **What collateral is available ?
(Secondary source of repayment)**



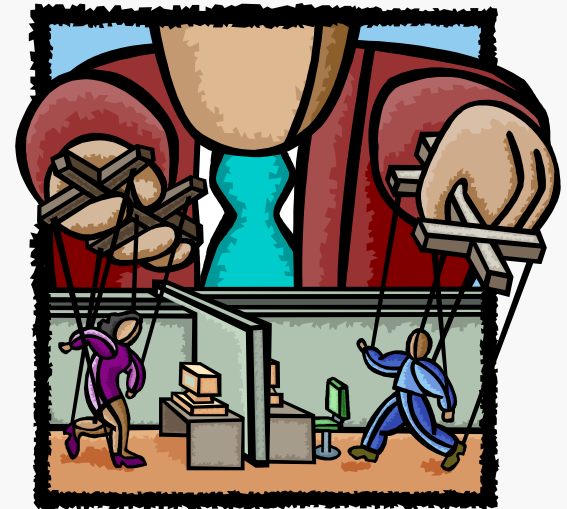
Four steps in evaluating credit requests

1. **Overview of management and operations**
2. **Spread the financial statements**
3. **Cash flow analysis**
4. **Pro forma projections and analysis**



Overview of management and operations

- **Gather information on:**
 - **Business and related industry**
 - **Management quality**
 - **Nature of loan request**
 - **Quality of the data**



Spread the financials

- **Spread the financials and compute common size ratios**
 - Compare with industry averages
 - Compare over time (on trend)
- **Calculate a series of financial ratios that indicate performance and risk**
 - Compare with industry averages
 - Compare over time

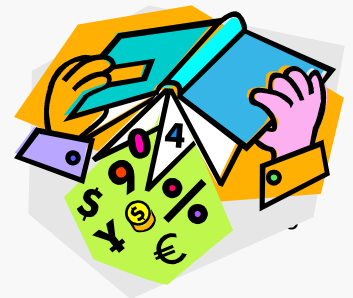


Exhibit 16.3 Wades Office Furniture - *Income Statement*

Wades Office Furniture Unaudited: , SIC #2522 INCOME STATEMENT	[- HISTORICAL -] 2002			[- HISTORICAL -] 2003			[- HISTORICAL -] 2004			RMA 6/30/03 - 3/31/04
	% Cha	\$ 1,000	% of Total	% Cha	\$ 1,000	% of Total	% Cha	\$ 1,000	% of Total	
Net sales	#N/A	7,571	100.0%	8.10%	8,184	100.0%	51.88%	12,430	100.0%	100.0%
Cost of goods sold	#N/A	5,089	67.2%	6.58%	5,424	66.3%	52.19%	8,255	66.4%	67.3%
Gross profit	#N/A	2,482	32.8%	11.20%	2,760	33.7%	51.27%	4,175	33.6%	32.7%
Selling expenses	#N/A	906	12.0%	13.25%	1,026	12.5%	58.67%	1,628	13.1%	
Management salaries	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
General & administrative expenses	#N/A	1,019	13.5%	18.84%	1,211	14.8%	39.47%	1,689	13.6%	
Research and development expenses	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Depreciation & amortization	#N/A	70	0.9%	1.43%	71	0.9%	2.82%	73	0.6%	
Other operating expenses	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Total operating expenses	#N/A	1,995	26.4%	15.69%	2,308	28.2%	46.88%	3,390	27.3%	25.7%
<i>Operating profit</i>	#N/A	487	6.4%	-7.19%	452	5.5%	73.67%	785	6.3%	7.0%
Interest on marketable securities	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Income on long term investments	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Interest expense - Bank Notes	#N/A	141	1.9%	-15.60%	119	1.5%	31.93%	157	1.3%	
Interest expense - Term notes + LTD	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
All other expenses	#N/A	63	0.8%	36.51%	86	1.1%	17.44%	101	0.8%	
All other income	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Total All Other Income (Expenses)	#N/A	(204)	-2.7%	0.49%	(205)	-2.5%	25.85%	(258)	-2.1%	
<i>Profit before taxes</i>	#N/A	283	3.7%	-12.72%	247	3.0%	113.36%	527	4.2%	6.2%
Income taxes	#N/A	100	1.3%	-5.00%	95	1.2%	97.89%	188	1.5%	
Extraordinary and other income (exp.)	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Net income	#N/A	183	2.4%	-16.9%	152	1.9%	123.0%	339	2.7%	
Dividends	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Retained earnings	#N/A	183	2.4%	-16.94%	152	1.9%	123.03%	339	2.7%	

Wades Office Furniture: *Historical Balance Sheet (Assets)*

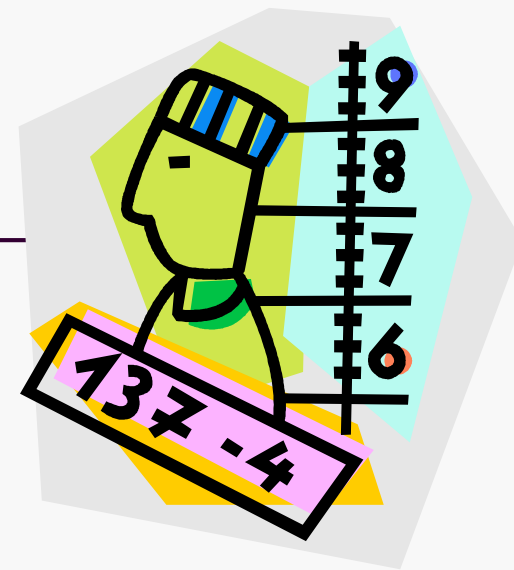
Wades Office Furniture Unaudited: , SIC #2522 BALANCE SHEET	[- HISTORICAL -] 2002			[- HISTORICAL -] 2003			[- HISTORICAL -] 2004			RMA 6/30/03 - 3/31/04
	% Cha	\$ 1,000	% of Total	% Cha	\$ 1,000	% of Total	% Cha	\$ 1,000	% of Total	
ASSETS										
Cash	#N/A	141	4.3%	-5.67%	133	3.9%	-45.86%	72	1.6%	5.5%
Marketable securities	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Accounts receivable	#N/A	1,254	38.4%	11.56%	1,399	40.8%	35.53%	1,896	42.3%	28.8%
Inventory	#N/A	1,160	35.6%	3.88%	1,205	35.2%	46.39%	1,764	39.4%	29.7%
Prepaid expenses	#N/A	47	1.4%	6.38%	50	1.5%	-70.00%	15	0.3%	
Deferred tax asset	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Other current assets	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	2.4%
Current assets	#N/A	2,602	79.7%	7.11%	2,787	81.4%	34.45%	3,747	83.6%	66.4%
Gross fixed assets	#N/A	629	19.3%	7.15%	674	19.7%	17.36%	791	17.7%	
Leasehold improvements	#N/A	198	6.1%	2.02%	202	5.9%	17.82%	238	5.3%	
Less accumulated dep.	#N/A	206	6.3%	34.47%	277	8.1%	24.91%	346	7.7%	
Net fixed assets	#N/A	621	19.0%	-3.54%	599	17.5%	14.02%	683	15.2%	28.2%
Notes & contracts receivable	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Long-term investments	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Intangible assets	#N/A	40	1.2%	-2.50%	39	1.1%	28.21%	50	1.1%	0.4%
Other noncurrent assets	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	5.0%
Total Assets	#N/A	3,263	100.0%	4.96%	3,425	100.0%	30.80%	4,480	100.0%	100.0%

Wades Office Furniture: Historical Balance Sheet (Liabilities and Equity)

Wades Office Furniture Unaudited: , SIC #2522 BALANCE SHEET	[- HISTORICAL -] 2002 % Cha \$ 1,000 % of Total			[- HISTORICAL -] 2003 % Cha \$ 1,000 % of Total			[- HISTORICAL -] 2004 % Cha \$ 1,000 % of Total			RMA 6/30/03 - 3/31/04
	% Cha	\$ 1,000	% of Total	% Cha	\$ 1,000	% of Total	% Cha	\$ 1,000	% of Total	
LIABILITIES & EQUITY										
Notes payable - bank	#N/A	643	19.7%	-9.49%	582	17.0%	53.26%	892	19.9%	6.0%
Accounts payable	#N/A	836	25.6%	8.61%	908	26.5%	41.19%	1,282	28.6%	14.0%
Accrued expenses	#N/A	205	6.3%	25.85%	258	7.5%	34.88%	348	7.8%	
Income tax payable	#N/A	41	1.3%	51.22%	62	1.8%	27.42%	79	1.8%	1.7%
Current maturity - Term notes	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Current maturity - LTD	#N/A	75	2.3%	0.00%	75	2.2%	0.00%	75	1.7%	3.6%
Other current liabilities	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	11.8%
Current liabilities	#N/A	1,800	55.2%	4.72%	1,885	55.0%	41.96%	2,676	59.7%	37.1%
Deferred tax liability	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Term notes	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Long-term debt (LTD)	#N/A	450	13.8%	-16.67%	375	10.9%	-20.00%	300	6.7%	20.1%
Other noncurrent liabilities	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	0.9%
Total liabilities	#N/A	2,250	69.0%	0.44%	2,260	66.0%	31.68%	2,976	66.4%	58.1%
Common stock - par	#N/A	600	18.4%	0.00%	600	17.5%	0.00%	600	13.4%	
Paid-in surplus	#N/A	100	3.1%	0.00%	100	2.9%	0.00%	100	2.2%	
Preferred stock	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Treasury and other equities	#N/A	0	0.0%	0.00%	0	0.0%	0.00%	0	0.0%	
Retained earnings	#N/A	313	9.6%	48.56%	465	13.6%	72.90%	804	17.9%	
Stockholder's equity	#N/A	1,013	31.0%	15.00%	1,165	34.0%	29.10%	1,504	33.6%	41.9%
Total Liabilities and Equity	#N/A	3,263	100.0%	4.96%	3,425	100.0%	30.80%	4,480	100.0%	100.0%

Ratio analysis

- Liquidity and activity ratios
- Leverage ratios
- Profitability ratios



Liquidity and activity ratios

- **Net Working Capital = CA - CL**
- **Current Ratio = CA / CL**
- **Quick Ratio = (Cash + A/R) / CL**
- **Days Cash = Cash / Avg. daily sales**
- **Inventory Turnover = COGS / Avg. Inv.**
- **AR Collection (Days A/R) = (A/R) / Avg. daily sales**
- **Days Cash to Cash**
= Days Cash + Days A/R + Days inventory
- **Days Payable Outstanding = AP / Avg. daily pur.**
= AP / [(COGS + Δ Inventory) / 365]
- **Sales to net fixed assets = Sales / Net fixed assets**

Wades Office Furniture: *Liquidity Ratios*

Wades Office Furniture Unaudited: , SIC #2522 FINANCIAL RATIOS	<i>[- HISTORICAL -]</i> 2002 \$ 1,000	<i>[- HISTORICAL -]</i> 2003 \$ 1,000	<i>[- HISTORICAL -]</i> 2004 \$ 1,000	<i>RMA</i> 6/30/03 - 3/31/04
Credit sales	\$ 7,571	\$ 8,184	\$ 12,430	
Liquidity Ratios				
Current Ratio	1.45	1.48	1.40	1.70
Quick Ratio	0.78	0.81	0.74	0.90
	<u>Days</u> <u>Times</u>	<u>Days</u> <u>Times</u>	<u>Days</u> <u>Times</u>	<u>Days</u> <u>Times</u>
Days Cash	6.80 53.70 x	5.93 61.53 x	2.11 172.64 x	
Days Accts Receivable (Turnover)	60.46 6.04 x	62.39 5.85 x	55.67 6.56 x	45.0 8.1x
Days Inventory (Turnover)	83.20 4.39 x	81.09 4.50 x	78.00 4.68 x	65.0 5.6x
Cash-to-cash asset cycle	<u>150.45</u>	<u>149.41</u>	<u>135.79</u>	
Days AP Outstanding (Turnover)	48.83 7.47 x	60.60 6.02 x	53.09 6.88 x	32.0 11.3x
<i>Memo: COGS / Accounts payable</i>	59.96 6.09 x	61.10 5.97 x	56.68 6.44 x	11.3x
Days Cash to Cash Cycle	<u>101.62</u> 3.59 x	<u>88.81</u> 4.11 x	<u>82.70</u> 4.41 x	
Est. W.C. financing Needs	<u>\$1,417</u>	<u>\$1,320</u>	<u>\$1,870</u>	

Leverage ratios



- **Debt Ratio = Debt / Total assets**
- **Debt to tangible net worth = Debt / Tang. NW**
- **Times interest earned = EBIT / Int. exp.**
where,
EBIT = Earns before tax plus int. exp.
- **Fixed Charge Coverage**
= (EBIT+lease pay) / (Int. exp.+ lease pay)
- **Net Fixed Assets to Tangible NW**
- **Dividend Payout %**
= Dividends paid / Net profit

Wades Office Furniture: *Leverage Ratios*

Wades Office Furniture	<i>[- HISTORICAL -]</i>	<i>[- HISTORICAL -]</i>	<i>[- HISTORICAL -]</i>	<i>RMA</i>
Unaudited: , SIC #2522	2002	2003	2004	6/30/03 -
FINANCIAL RATIOS	\$ 1,000	\$ 1,000	\$ 1,000	3/31/04
<i>Leverage Ratios</i>				
Debt to Tangible Net Worth	2.31 x	2.01 x	2.05 x	1.7x
Times Interest Earned	3.01 x	3.08 x	4.36 x	5.3x
Fixed Charge Coverage	1.96 x	1.79 x	2.09 x	1.7x
Net Fixed Assets to Tangible Net Worth	63.82%	53.20%	46.97%	50.0%
Dividend Payout	0.00%	0.00%	0.00%	

Profitability ratios



- **Return on Equity (ROE)**
= Net income / Total equity
 - **Profit before taxes to net worth**
= Profit before taxes / Tangible net worth
- **Return on Assets (ROA) = Net income / Total assets**
 - **Profit before taxes to total assets**
= Profit before taxes / Total assets
- **Asset utilization (AU)= Sales / Total assets**
sometimes referred to as asset turnover
- **Profit margin (PM) = Net income / Sales**
- **Sales growth = Δ Sales / Last period's sales**
- **Income taxes to profit before taxes**
= Reported income tax / Profit before taxes

Wades Office Furniture: *Profitability Ratios*

Wades Office Furniture Unaudited: , SIC #2522 FINANCIAL RATIOS	<i>[- HISTORICAL -]</i> 2002 \$ 1,000	<i>[- HISTORICAL -]</i> 2003 \$ 1,000	<i>[- HISTORICAL -]</i> 2004 \$ 1,000	RMA 6/30/03 - 3/31/04
<i>Profitability Ratios</i>				
Return on Net Worth (ROE)	18.07%	13.05%	22.54%	
Profit Before Taxes to Net Worth	29.09%	21.94%	36.24%	27.7%
Return on Assets (ROA)	5.61%	4.44%	7.57%	
Profit Before Taxes to Total Assets	8.67%	7.21%	11.76%	12.1%
Equity multiplier (leverage = TA / TE)	3.22 x	2.94 x	2.98 x	2.4x
<u>Income</u>				
Tot. asset turnover (net sales / TA)	2.32 x	2.39 x	2.77 x	2.1x
All other income / total assets	0.00%	0.00%	0.00%	
<u>Expenses</u>				
Net profit margin (NI / net sales)	2.42%	1.86%	2.73%	
COGS / net sales	67.22%	66.28%	66.41%	67.3%
Operating expenses / net sales	26.35%	28.20%	27.27%	25.7%
Income Taxes to Earnings Before Tax	35.34%	38.46%	35.67%	
Sales / Net Fixed Assets	12.19 x	13.66 x	18.20 x	

Cash flow analysis:

Cash pays a loan not net income

■ **Cash Assets**
$$\sum_{i=1}^n \Delta A_i = \sum_{j=1}^m \Delta L_j + \Delta NW$$

■ **Let A1 = Cash, then:**
$$\Delta A_1 = \sum_{j=1}^m \Delta L_j - \sum_{i=2}^n \Delta A_i + \Delta NW$$

■ **Let $\Delta NW = \Delta \text{stock} + \Delta \text{surplus} + \text{NI} - \text{DIV}$**

■ **Let $\text{NI} = \text{Revenues} - \text{Expenses} - \text{Taxes}$**

$$\Delta A_1 = \sum_{j=1}^m \Delta L_j - \sum_{i=2}^n \Delta A_i + \Delta \text{stock} + \Delta \text{surplus} + \text{NI} - \text{DIV}$$

$$\Delta A_1 = \sum_{j=1}^m \Delta L_j - \sum_{i=2}^n \Delta A_i + \Delta \text{stock} + \Delta \text{surplus} \\ + \text{Revenues} - \text{Expenses} - \text{Taxes} - \text{DIV}$$

Sources and uses of cash

$$\Delta A_1 = \sum_{j=1}^m \Delta L_j - \sum_{i=2}^n \Delta A_i + \Delta \text{stock} + \Delta \text{surplus} \\ + \text{Revenues} - \text{Expenses} - \text{Taxes} - \text{DIV}$$

■ Sources of cash are:

- Increase in any liability
- Decrease in any non-cash asset
- New issues of stock
- Additions to surplus
- Revenues

■ Uses of cash are:

- Decrease in any liability
- Increases in any non-cash assets
- Repayment / refunding of stock
- Deductions from surplus
- Cash expenses, taxes, dividends

Understanding sources and uses

- **Assets are a use of cash:**
 - = $-(A_t - A_{t-1})$
- **Liabilities are a source of cash:**
 - = $+(L_t - L_{t-1})$
- **Revenues are a source of cash:**
 - = +Revenues
- **Expenses are a use of cash:**
 - = -Expenses
- **Sum up each part**

There are two types of cash flow statements

1. Direct

- Converts the income statement into a “cash based income statement.”
- Begins with net sales and adjusts for changes in balance sheet items.

2. Indirect

- Adjusts net income for non-cash charges and changes in balance sheet items.

Four sections in either cash flow statement.

1. *Operations*

- Includes income statement items and all current assets and current liabilities.

2. *Investing*

- Includes all long term assets

3. *Financing*

- Includes all long term liabilities and equity (except retained earnings) plus cash dividends paid.

4. *Cash*

- Total of the above, but must equal the actual change in cash and marketable securities.

Converting the income statement into a cash based income statement

1. *Operating:*

■ Cash sales:

- + Net Sales
- - Δ Accounts receivables
- = Cash sales

■ Cash purchases (negative value):

- - COGS
- - Δ Inventory
- + Δ Accounts payable
- = Cash purchases
- = Cash gross margin

Converting the income statement into a cash based income statement (continued)

Operating (continued):

- **Cash operating expenses (negative value):**
 - - Operating expenses
 - + Non-cash charges (dep. and amortization.)
 - - Δ Prepaid expenses
 - + Δ Accruals
 - = Cash operating expenses
- **Other expenses and taxes:**
 - - Other expenses + Other income
 - - Reported taxes
 - + Δ Income tax payables and deferred inc. tax
 - = Other expenses and taxes
- = **Cash flow from operations (CFO)**

Cash based income statement (cont.)

2. *Investing:*

- - Capital Exps. = Δ Net fixed assets + depreciation
- - Δ Other long term assets
- = Cash used for Investing.

3. *Financing:*

- - Payments for last periods current maturity debt
- - Payments for dividends
- = Payments for financing
- + Δ Debt + EOP CM L-T debt
- + New stock issues
- = External Financing

4. = *Change in cash and marketable securities*

Wades Office Furniture	HISTORICAL	HISTORICAL	HISTORICAL
Unaudited: , SIC #2522	2002	2003	2004
CASH BASED INCOME STATEMENT	\$ 1,000	\$ 1,000	\$ 1,000
Net sales	7,571	8,184	12,430
Change in accounts receivable	#N/A	(145)	(497)
Cash receipts from sales	#N/A	8,039	11,933
Cost of goods sold	(5,089)	(5,424)	(8,255)
Change in inventory	#N/A	(45)	(559)
Change in accounts payable	#N/A	72	374
Cash purchases	#N/A	(5,397)	(8,440)
Cash margin	#N/A	2,642	3,493
Total operating expenses	(1,995)	(2,308)	(3,390)
Depreciation & amortization	70	71	73
Change in prepaid expenses	#N/A	(3)	35
Change in accruals	#N/A	53	90
Change in other current assets & liab.	#N/A	0	0
Cash operating expenses	#N/A	(2,187)	(3,192)
Cash operating profit	#N/A	455	301
Interest on marketable securities	0	0	0
Income on long term investments	0	0	0
All other expenses & income (net)	(63)	(86)	(101)
Cash before interest & taxes	#N/A	369	200
Interest expense - Bank notes	(141)	(119)	(157)
Interest expense - Term notes and LTD	0	0	0
Income taxes reported	(100)	(95)	(188)
Change in income tax payable	#N/A	21	17
Change in deferred income taxes	#N/A	0	0
Cash flow from operations (CFO)	#N/A	176	(128)

Wades Office Furniture	HISTORICAL	HISTORICAL	HISTORICAL
Unaudited: , SIC #2522	2002	2003	2004
CASH BASED INCOME STATEMENT	\$ 1,000	\$ 1,000	\$ 1,000
Cash flow from operations (CFO)	#N/A	176	(126)
Capital exp. and leasehold improvements	#N/A	(49)	(157)
Change in long-term investments	#N/A	0	0
Change in intangible assets	#N/A	1	(11)
Change in other noncurrent assets	#N/A	0	0
Cash Used for Investments	#N/A	(48)	(168)
Payment for last period's CM Term note	#N/A	0	0
Payment for last period's CMLTD	#N/A	(75)	(75)
Dividends paid (DIV)	0	0	0
Payments for financing	#N/A	(75)	(75)
Cash before external financing	#N/A	53	(371)
Change in short-term bank debt	#N/A	(61)	310
Change in term notes & EOP CM term notes	#N/A	0	0
Change in LT debt + EOP CMLTD	#N/A	0	0
Change in stock & surplus	#N/A	0	0
Change in preferred stock	#N/A	0	0
Change in treasury and other equities	#N/A	0	0
Change in other noncurrent liabilities	#N/A	0	0
External financing	#N/A	(61)	310
Extraordinary exp. and cha. In acct. prin.	0	0	0
Current period accounting adjustment	(130)	0	0
Change in cash & mktbl securities	#N/A	(8)	(61)
<i>Actual change in cash</i>	#N/A	(8)	(61)

Projections of financial condition

- ***Pro Forma* projections of the borrower's condition reveal:**
 - How much financing is required.
 - When the loan will be repaid.
 - Use of the loan.
- ***Pro Forma* Projections**
 - Determine critical and non critical assumptions.
 - Use industry projections, internal projections and judgment to determine sales projections.

Pro Forma: Income Statement

- **Sales₂₀₀₅** = **Sales₂₀₀₄ x (1 + *g_{sales}*)**
= **\$12,430 x (1 + 0.20) = \$14,916**
- **COGS₂₀₀₅** = **Sales₂₀₀₅ x *COGS % of Sales***
= **\$14,916 x 0.68 = \$10,143**
- **Sell. Exp₂₀₀₅** = **Sales₂₀₀₅ x *Selling Exp. % of Sales***
= **\$14,916 x 0.13 = \$1,939**
- **G&A Exp₂₀₀₅** = **Sales₂₀₀₅ x *G&A Exp. % of Sales***
= **\$14,916 x 0.122 = \$1,820**
- **Int. Exp₂₀₀₅** = **(Bank debt₂₀₀₅ x *rate on bank debt*)**
+ **(L.T. debt₂₀₀₅ x *rate on L.T. debt*)**
= **\$697 x 0.145**
+ **[(\$75 + \$50 + \$350 + \$225) x 0.09]**
= **\$186**

Pro Forma: Balance Sheet (Assets)

Associate balance sheet items with sales.

- $AR_{2005} = \text{Days A/R} \times \text{Average Daily Sales}_{2005}$
 $= 50 \times (\$14,916 / 365) = \$2,043$
- $\text{Inventory}_{2005} = \text{COGS}_{2005} / \text{Inventory turnover}$
 $= \$10,143 / 4.9 = \$2,070$

Capital expenditures from the capital budget:

- $\text{Gross fixed (GFA)}_{2005} = \text{GFA}_{2004} + \text{Cap. Exp.}_{2005}$
 $= \$791 + \$400 = \$1,191$
- $\text{Accumulated depreciation}_{2005}$
 $= \text{Acc. Dep.}_{2004} + \text{depreciation exp.}_{2005}$
 $= \$346 + \$110 = \$973$

Determine appropriate turnover rates from historical trends or industry averages.

Pro Forma: Balance Sheet (Liabilities)

Trade credit may be tied to inventory growth, thus accounts payable tied to inventory growth:

$$\begin{aligned}\blacksquare \text{AP}_{2005} &= \text{Days AP} \times \text{Avg. Daily purchases}_{2005} \\ &= \text{Days AP} \times ((\text{COGS}_{2005} + \Delta \text{Inv.}_{2005}) / 365) \\ &= 53 \quad \times (\$10,143 + (\$2,070 - \$1,764) / 365) \\ &= \$1,517\end{aligned}$$

Principal payments on debt can be obtained from the capital budget:

$$\begin{aligned}\blacksquare \text{LTD}_{2005} &= \text{LTD}_{2004} + \text{New LTD}_{2005} - \text{CM LTD}_{2005} \\ &= \$300 \quad + \$0 \quad \quad \quad - \$75 \\ &= \$225\end{aligned}$$

$$\begin{aligned}\blacksquare \text{Term notes (TN)}_{2005} &= \text{TN}_{2004} + \text{New TN}_{2005} - \text{CM TN}_{2005} \\ &= \$0 \quad \quad + \$400 \quad \quad \quad - \$50 \\ &= \$350\end{aligned}$$

Note: CM = Current maturity

Pro Forma: Balance Sheet (Equity)

Balance sheet definitions:

- Retained earnings (RE)₂₀₀₅
= RE₂₀₀₄ + (NI₂₀₀₅ - Div.₂₀₀₅) + Acct Adjust.
= \$804 + (\$339 - \$0) + 0
= \$1,893
- Stock₂₀₀₅ = Stock₂₀₀₄ + New stock issues

Note: an accounting adjustment is only needed when adjustments have been made to retained earnings.

Pro Forma: Determining the “Plug Figure”

- Sales growth will determine growth in receivables, inventory and profit.
- Net Income varies directly with sales in a stable environment.

The difference in projected asset base and total funding without new debt determines additional credit needed or the Plug figure.

- When $\text{Assets}_{2005} > (\text{Liabilities}_{2005} + \text{Net worth}_{2005})$
→ Additional financing is required (notes payable plug):
$$\text{Notes payable}_{2005} = A_{2005} - (L_{2005} + \text{NW}_{2005})$$
- When $\text{Assets}_{2005} < (\text{Liabilities}_{2005} + \text{Net worth}_{2005})$
→ Surplus cash, invest (marketable securities (plug)):
$$\text{Mkt. securities}_{2005} = - (A_{2005} - (L_{2005} + \text{NW}_{2005}))$$

Wades financial projections assumptions: *Most likely circumstances, income statement*

- Sales increase by 20 percent annually.
- Cost of goods sold equals 68 percent of sales.
- Selling expenses average 13 percent of sales,
- G&A expenses average 12.2 percent of sales
- Depreciation equals \$110,000 annually.
- Noninterest expense equals \$110,000 in 2005 and \$135,000 in 2006.
- Interest expense equals 14.5 percent of bank debt and 9 percent of other long-term debt.
- Income taxes equal 36 percent of earnings before taxes
- Income tax payable increases annually by the rate of change in 2004.
- No dividends are paid.

Wades financial projections assumptions: *Most likely circumstances, balance sheet*

- **A/R collection improves to:
50 in 2005 and 46 in 2006.**
- **Inventory turnover increases to:
4.9 in 2005 and 5.1 times in 2006.**
- **Days AP outstanding remains constant at 53.**
- **Prepaid expenses increase by \$5,000**
- **Accruals increase by \$20,000 annually.**
- **\$400,000 is loaned to purchase new equipment, with the principal repaid in 8 equal annual installments.**
 - **depreciation on the new equip. \$40,000, while depreciation on old will be \$70,000 per year.**
- **The minimum cash required is \$120,000.**
- **Other assets remain constant at \$50,000.**

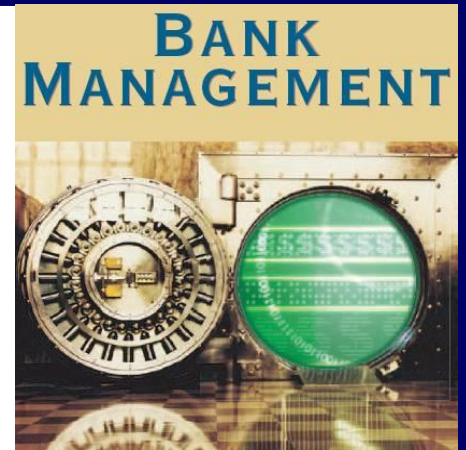
Bank Management, 6th edition.

Timothy W. Koch and S. Scott MacDonald

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Evaluating Consumer Loans

Chapter 12



Consumer Loans

- **Consumer loans in the aggregate currently produce greater percentage profits for banks than commercial loans**
 - **This is true despite the higher default rates on consumer loans**
 - **Not surprisingly, consumer loan rates typically exceed commercial loan rates**

Consumer Loans

- **Evaluating Consumer Loans**
 - **An analyst should address the same issues discussed with commercial loans:**
 - **The use of loan proceeds**
 - **The amount needed**
 - **The primary and secondary source of repayment**
 - **However, consumer loans differ so much in design that no comprehensive analytical format applies to all loans**

Types of Consumer Loans

■ Installment Loans

- Require the periodic payment of principal and interest
- Can be extremely profitable
- Direct
 - Negotiated between the bank and the ultimate user of the funds
- Indirect
 - Funded by a bank through a separate retailer that sells merchandise to a customer

Types of Consumer Loans

- **Credit Cards and Other Revolving Credit**
 - **Credit cards and overlines tied to checking accounts are the two most popular forms of revolving credit agreements**
 - **In 2004 consumers charged approximately \$2.5 trillion on credit cards**
 - **Most banks operate as franchises of MasterCard and/or Visa**
 - **Bank pays a one-time membership fee plus an annual charge determined by the number of its customers actively using the cards**

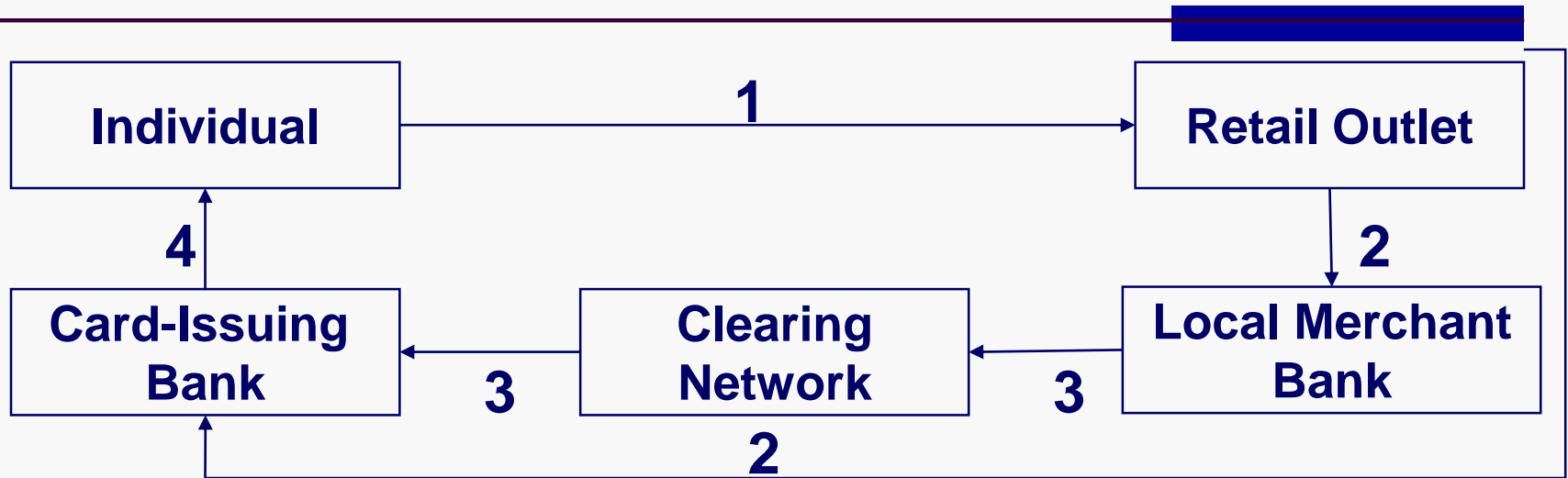
Types of Consumer Loans

- **Credit Cards and Other Revolving Credit**
 - **Credit cards are attractive because they provide higher risk-adjusted returns than do other types of loans**
 - **Card issuers earn income from three sources:**
 - **Cardholders' annual fees**
 - **Interest on outstanding loan balances**
 - **Discounting the charges that merchants accept on purchases.**

Types of Consumer Loans

- **Credit Card Systems and Profitability**
 - **Returns depend on the specific role the bank plays**
 - **A bank is called a card bank if it administers its own credit card plan or serves as the primary regional agent of a major credit card operation**
 - **A non-card bank does not issue its own card**

Credit Card Transaction Process



Steps

1. Individual uses a credit card to purchase merchandise from a retail outlet.
2. Retail outlet deposits the sales slip or electronically transmits the purchase data at its local bank.
3. Local merchant bank forwards the transaction information to a clearing network, which routes the data to the bank that issued the credit card to the individual.
4. The card-issuing bank sends the individual an itemized bill for all purchases.

Fees

1. None
2. The merchant bank discounts the sales receipt. A 3 percent discount indicates the bank gives the retailer \$97 in credit for each \$100 receipt.
3. The card-issuing bank charges the merchant bank an interchange fee equal to 1 to 1.5 percent of the transaction amount for each item handled.
4. The card-issuing bank charges the customer interest and an annual fee for the privilege of using the card. A card-issuing bank also serves as a merchant bank.

Debit Cards and Smart Card

- **Debit Cards**
 - **Widely available**
 - **When an individual uses the card, their balance is immediately debited**
 - **They have lower processing costs to the bank**

Debit Cards and Smart Card

■ Smart Card

- An extension of debit and credit cards
- Contains a memory chip which can manipulate information
- It is programmable such that users can store information and recall this information when effecting transactions.
- Only modest usage in the U.S.

Debit Cards and Smart Card

■ Smart Card

- Usage will likely increase dramatically in the U.S.:
 - Firms can offer a much wider range of services
 - Smart cards represent a link between the Internet and real economic activity
 - Suppliers of smart cards are standardizing the formats so that all cards work on the same systems

Pre-Paid Cards

■ Prepaid Cards

- A hybrid of debit cards in which customers prepay for services to be rendered and receive a card against which purchases are charged
- Use of phone cards, prepaid cellular, toll tags, subway, etc. are growing rapidly

Types of Consumer Loans

- **Overdraft Protection and Open Credit Lines**
 - **Overdraft Protection Against Checking Accounts**
 - **A type of revolving credit**
- **Open Credit Lines**
 - **A recent trend is to offer open credit lines to affluent individuals whether or not they have an existing account relationship**
 - **Typically, the bank provides customers with special checks that activate a loan when presented for payment**

Types of Consumer Loans

■ Home Equity Loans

- Grew from virtually nothing in the mid-1980s to over \$250 billion in 2004
- They meet the tax deductibility requirements of the Tax Reform Act of 1986, which limits deductions for consumer loan interest paid by individuals, because they are secured by equity in an individual's home
- Some allow access to credit line by using a credit card

Types of Consumer Loans

■ Non-Installment Loans

- Often require a single principal and interest payment

- Bridge loans are representative of single payment consumer loans.

- Bridge loans often arise when an individual borrows funds for the down payment on a new house
- The loan is repaid when the borrower sells the previous home

Subprime Loans

- **One of the hottest growth areas during the 1990s**
 - **Subprime loans are higher-risk loans labeled “B,” “C,” and “D” credits**
 - **They have been especially popular in auto, home equity, and mortgage lending**
 - **Typically have the same risk as loans originated through consumer finance companies**

Subprime Loans

- **Subprime loans have greater risk and must be priced consistently higher than prime-grade loans**
- **Example Definitions:**
 - **B: Typically scores 600+ under the Fair Isaac system; has some 90-day past dues but is now current. Typical delinquencies are 2%-5%; repossessions are 2.5%-6%; and losses are 1.5%-3%**
 - **C: Typically scores between 500 and 600 and has had write-offs and judgments. The borrower has made subsequent payments of some or all of the loans. Typical delinquencies are 5%-10%; repossessions, 5%-20%; and losses 3%-10%**
 - **D: Typically scores between 440 and 500 and has charge-offs and judgments that have not been repaid and has not made payments on these loans. Delinquencies are 10%-20%; repossessions, 16%-40%; losses, 10%-20%**

Subprime Loans

- **High LTV Loans**

- **High Loan-To-Value**

- **Many lenders upped the stakes by making “high LTV” loans based on the equity in a borrower’s home**
 - **Where traditional home equity loans are capped at 75 percent of appraised value minus the outstanding principal balance, high LTV loans equal as much as 125% of the value of a home**

Consumer Credit Regulations

- **Equal Credit Opportunity**
 - **Makes it illegal for lenders to discriminate**
 - **Prohibits Information Requests on:**
 - **The applicant's marital status**
 - **Whether alimony, child support, and public assistance are included in reported income**
 - **A woman's childbearing capability and plans**
 - **Whether an applicant has a telephone**

Consumer Credit Regulations

- **Equal Credit Opportunity**
 - **Credit Scoring Systems**
 - **Credit scoring systems are acceptable if they do not require prohibited information and are statistically justified**
 - **Credit scoring systems can use information about age, sex, and marital status as long as these factors contribute positively to the applicant's creditworthiness**

Consumer Credit Regulations

- **Equal Credit Opportunity**
 - **Credit Scoring Systems**
 - **Credit scoring models are based on historical data obtained from applicants who actually received loans**
 - **Statistical techniques assign weights to various borrower characteristics that represent each factor's contribution toward distinguishing between good loans that were repaid on time and problem loans that produced losses**

Consumer Credit Regulations

- **Equal Credit Opportunity**
 - **Credit Reporting**
 - **Lenders must report credit extended jointly to married couples in both spouses' names**
 - **Whenever lenders reject a loan, they must notify applicants of the credit denial within 30 days and indicate why the request was turned down**

Consumer Credit Regulations

■ Truth In Lending

- Regulations apply to all individual loans up to \$25,000 where the borrower's primary residence does not serve as collateral
- Requires that lenders disclose to potential borrowers both the total finance charge and an annual percentage rate (APR)
 - The APR equals the total finance charge computed against the loan balance as a simple annual interest rate equivalent

Consumer Credit Regulations

- **Truth In Lending**
 - **Historically, consumer loan rates were quoted as add-on rates, discount rates, or simple interest rates**
- **Add-on Rates**
 - **Applied against the entire principal of installment**
 - **Gross interest is added to the principal with the total divided by the number of periodic payments to determine the size of each payment**

Consumer Credit Regulations

- **Add-on Rates**

- **Applied against the entire principal of installment**
 - **Gross interest is added to the principal with the total divided by the number of periodic payments to determine the size of each payment**

Consumer Credit Regulations

■ Add-on Rates

■ Example:

- Suppose that a customer borrows \$3,000 for one year at a 12 percent add-on rate with the loan to be repaid in 12 equal monthly installments
- Total interest equals \$360, monthly payment equals \$280, and the effective annual interest cost is approximately 21.5%

$$\text{Monthly Payment} = \frac{[0.12(\$3,000) + \$3,000]}{12} = \$280$$

$$\text{Effective Interest Rate}(i) : \sum_{t=1}^{12} \frac{\$280}{(1+i)^t} = \$3,000 \quad i = 21.46\%$$

Consumer Credit Regulations

- **Discount Rate Method**

- **Quoted rate is applied against the sum of principal and interest, yet the borrower gets to use only the principal, as interest is immediately deducted from the total loan**

Consumer Credit Regulations

■ Discount Rate Method

■ Example:

- Consider a 1-year loan with a single \$3,000 payment at maturity.
 - The borrower receives only \$2,640, or the total loan minus 12% discount rate interest.
 - The effective annual percentage rate, or APR, equals 13.64%
 - Interest charge = $0.12 (\$3,000) = \360

$$\text{Annual Percentage Rate } (i_n) \quad \$2,640 = \frac{\$3,000}{(1+i_n)}$$

$$i = 13.64\%$$

Consumer Credit Regulations

■ Simple Interest

- Interest is paid on only the principal sum

- Example:

- \$3,000 loan at 12% simple interest per year produces \$360 in interest, or a 12 percent effective rate interest (i_s): =
 $\$3,000(0.12)(1) = \360

$$\$3,000 = \frac{\$3,360}{(1+i_s)}$$

$$i_s = 12\%$$

Consumer Credit Regulations

■ Simple Interest

- The quoted rate (APR) is adjusted to its monthly equivalent, which is applied against the unpaid principal balance on a loan
- The loan is repaid in 12 monthly installments and the monthly interest rate equals 1 percent of the outstanding principal balance at each month

Consumer Credit Regulations

■ Simple Interest

Repayment Schedule				
End of Month	Monthly Payment	Interest Portion	Principal	Outstanding Principal Balance
January	<u>\$266.55</u>	<u>\$30.00</u>	<u>\$236.55</u>	<u>\$2,763.45</u>
February	266.55	27.63	238.92	2,524.53
March	266.55	25.25	241.30	2,283.23
April	266.55	22.83	243.72	2,039.51
May	266.55	20.40	246.15	1,793.36
June	266.55	17.93	248.62	1,544.74
July	266.55	15.45	251.10	1,293.64
August	266.55	12.94	253.61	1,040.03
September	266.55	10.40	256.15	783.88
October	266.55	7.84	258.71	525.17
November	266.55	5.25	261.30	263.87
December	266.51	2.64	263.87	0.00
Total	\$3,198.56	\$198.56	\$3,000.00	

Effective interest rate:

Monthly rate = 1%

Annual percentage rate = 12%

$$\text{Monthly payment} = \$3,000 / \sum_{i=1}^{12} \frac{1}{(1.01)^t}$$

Consumer Credit Regulations

- **Fair Credit Reporting Act**
 - **Enables individuals to examine their credit reports provided by credit bureaus**
 - **If any information is incorrect, the individual can have the bureau make changes and notify all lenders who obtained the inaccurate data**
 - **There are three primary credit reporting agencies:**
 - **Equifax**
 - **Experian**
 - **Trans Union**
 - **Unfortunately, the credit reports that they produce are quite often wrong**

Consumer Credit Regulations

- **Community Reinvestment Act**
 - **CRA prohibits redlining and encourages lenders to extend credit within their immediate trade area and the markets where they collect deposits**
 - **FIRREA of 1989 raised the profile of the CRA by:**
 - **Mandating public disclosure of bank lending policies and regulatory ratings of bank compliance**
 - **Regulators must also take lending performance into account when evaluating a bank's request to charter a new bank, acquire a bank, open a branch, or merge with another institution**

Consumer Credit Regulations

- **Bankruptcy Reform**
 - **Individuals who cannot repay their debts on time can file for bankruptcy and receive court protection against creditors**
 - **Individuals can file for bankruptcy under:**
 - **Chapter 7**
 - **Individuals liquidate qualified assets and distribute the proceeds to creditors**
 - **Chapter 13**
 - **An individual works out a repayment plan with court supervision.**
 - **Unfortunately, individuals appear to be using bankruptcy as a financial planning tool**
 - **It appears the stigma of bankruptcy is largely gone**

Credit Analysis

- **Objective of consumer credit analysis is to assess the risks associated with lending to individuals**
 - **When evaluating loans, bankers cite the Cs of credit:**
 - **Character**
 - **The most important element, but difficult to assess**
 - **Capital**
 - **Refers to the individual's wealth position**
 - **Capacity**
 - **The lender often imposes maximum allowable debt-service to income ratios**
 - **Conditions**
 - **The impact of economic events on the borrower's capacity to pay**
 - **Collateral**
 - **The importance of collateral is in providing a secondary source of repayment**

Credit Analysis

- **Two additional Cs**
 - **Customer Relationship**
 - **A bank's prior relationship with a customer reveals information about past credit and deposit experience that is useful in assessing willingness and ability to repay.**
 - **Competition**
 - **Has an impact by affecting the pricing of a loan.**
 - **All loans should generate positive risk-adjusted returns**
 - **Lenders periodically react to competitive pressures by undercutting competitors' rates in order to attract new business**
 - **Competition should not affect the accept/reject decision**

Credit Analysis

- **Policy Guidelines**
 - **Acceptable Loans**
 - **Automobile**
 - **Boat**
 - **Home Improvement**
 - **Personal-Unsecured**
 - **Single Payment**
 - **Cosigned**

Credit Analysis

■ Policy Guidelines

■ Unacceptable Loans

- Loans for speculative purposes
- Loans secured by a second lien
 - Other than home improvement or home equity loans
- Any participation with a correspondent bank in a loan that the bank would not normally approve
- Loans to a poor credit risk based on the strength of the cosigner
- Single payment automobile or boat loans
- Loans secured by existing home furnishings
- Loans for skydiving equipment and hang gliders

Credit Analysis

- **Evaluation Procedures:**
 - **Judgmental and**
 - **Quantitative, Credit Scoring**

Credit Analysis: Judgmental Procedures

- **Judgmental**
 - **The loan officer subjectively interprets the information in light of the bank's lending guidelines and accepts or rejects the loan**

Credit Analysis: Quantitative

- **Quantitative credit scoring / Credit scoring model**
 - **The loan officer grades the loan request according to a statistically sound model that assigns points to selected characteristics of the prospective borrower**
- **In both cases, judgmental and quantitative, a lending officer collects information regarding the borrower's character, capacity, and collateral**

Recent Risks and Return Characteristics of Consumer Loans

- **Revenues from Consumer Loans**
 - **The attraction is two-fold:**
 - **Competition for commercial customers narrowed commercial loan yields so that returns fell relative to potential risks**
 - **Developing loan and deposit relationships with individuals presumably represents a strategic response to deregulation**

Recent Risks and Return Characteristics of Consumer Loans

- **Revenues from Consumer Loans**
 - **Consumer loan rates have been among the highest rates quoted at banks in recent years**
 - **In addition to interest income, banks generate substantial non-interest revenues from consumer loans**
 - **With traditional installment credit, banks often encourage borrowers to purchase credit life insurance on which the bank may earn a premium**

Recent Risks and Return Characteristics of Consumer Loans

- **Consumer Loan Losses**
 - **Losses on consumer loans are normally the highest among all categories of bank credit**
 - **Losses are anticipated because of mass marketing efforts pursued by many lenders, particularly with credit cards.**
 - **Credit card fraud losses amounted to more than \$2.4 billion in mid-2004**

Recent Risks and Return Characteristics of Consumer Loans

- **Interest Rate and Liquidity Risk with Consumer Credit**
 - **The majority of consumer loans are priced at fixed rates**
 - **New auto loans typically carry 4-year maturities, and credit card loans exhibit an average 15- to 18-month maturity**

Recent Risks and Return Characteristics of Consumer Loans

- **Interest Rate and Liquidity Risk with Consumer Credit**
 - **Bankers have responded in two ways:**
 - **Price more consumer loans on a floating-rate basis**
 - **Commercial and investment banks have created a secondary market in consumer loans, allowing loan originators to sell a package of loans**