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ADM 2350 SECTION M
FINANCIAL MANAGEMENT

Assignment #4

Problem 1

- a) Current accounts payable = \$400,000
Current days payable = 40 days
Average daily payables = \$400,000 / 40 days = \$10,000/day

Financing needed to eliminate the past-due accounts payable (40 days to 20 days)
20 days x \$10,000/day = \$200,000

KGC needs \$200,000 in financing to eliminate the past-due accounts payable in order to respect its 20 day terms of purchase policy.

b) $Debt\ ratio = \frac{Total\ Liabilities}{Total\ Assets} = \frac{\$1,150,000 + \$500,000}{\$2,400,000} = \frac{\$1,650,000}{\$2,400,000} = 0.6875\ or\ 68.75\%$

$$Current\ ratio = \frac{Current\ Assets}{Current\ Liabilities} = \frac{\$1,400,000}{\$1,150,000} = 1.22$$

$$ROA = \frac{Net\ Income}{Total\ Assets} = \frac{4\% \times \$7,300,000}{\$2,400,000} = \frac{\$292,000}{\$2,400,000} = 0.1217\ or\ 12.17\%$$

As a conservative bank loan officer, it would be risky to make a loan to KGC. The debt ratio is relatively high where their total liabilities are more than 50% of their total assets. Moreover, the low current ratio of 1.22 does not help KGC's case. KGC's current assets are about 20% higher than their current liabilities. Also, the majority of KGC's current assets consist of inventories which are the least liquid. On the other hand, KGC's 12.17% return on assets proves that KGC is capable of servicing a loan. The loan could be granted if KGC increased permanent capital such as their common shares.

- c) Raising needed capital
Option #1 – Borrow from bank on line of credit

$$k = \left(1 + \frac{QR}{m}\right)^m - 1$$

$$k = \left(1 + \frac{0.09}{12}\right)^{12} - 1 = (1 + 0.0075)^{12} - 1 = 0.0938 = 9.38\% \text{ (effective annual rate)}$$

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Option #2 – Negotiate with suppliers on terms 0.48/10, net 30

$$k_{periodic} = \frac{\text{Percentage Discount}}{1 - \text{Percentage Discount}} = \frac{0.0048}{1 - 0.0048} \quad m = \frac{365}{\text{credit period} - \text{discount period}} = \frac{365}{30 - 10} = \frac{365}{20}$$

$$k_{annual} = (1 + k_{periodic})^m - 1$$

$$k_{annual} = (1 + \frac{0.0048}{1 - 0.0048})^{\frac{365}{20}} - 1 = 0.0918 = \mathbf{9.18\%}$$

Option #3 – Sell subordinated convertible debentures

Par Value = \$ 1,000

Annual coupon rate = 9%

Current share price = 25\$

Conversion Price = \$40

Expected growth rate = 8%

Number of years until convertibles will be callable = 10

Call premium = 9%

CV (Conversion Value) = CR (Conversion Ratio) x P (Market Price)

Conversion value in 10 years = (\$1,000/\$40) x (\$25 x 1.08¹⁰) = **\$1,349.33**

TVM	INPUTS	COMPUTE	SOLUTION
Periods, N	10		
Rate, i		1	11.08
PV	-\$1,000		
PMT	\$90		
FV	\$1,349.33		

Set P/Y = C/Y = 1, N = 10, PV = - \$1,000, PMT = \$90, and FV = \$1,349.33.

Then CPT I/Y = 11.08.

$$k_{annual} = \mathbf{11.08\%}$$

Recommendation

Option 3 is the most costly in the short term and the costs for option 1 and 2 are very close. Hence, borrowing from a bank for a line of credit is the best option. The trade credit option will still leave KGC short from its required financing. If KGC takes the discount it will still have to finance \$100,000

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of payables (\$10,000/day x 10 days). If the discount is not taken KGC will have to finance \$300,000 of payables (\$10,000/day x 30 days). Hence, borrowing from the bank is the best short-term financing decision. However, as stated previously, KGC needs equity capital (permanent capital) through the distribution of shares and bonds. Option 3 would be great for long-term financing and would eventually serve as equity financing.

Problem 2

Current Structure		New Structure	
Annual Credit Sales	\$ 14,600,000	Annual Credit Sales	\$ 15,330,000
Less: Variable Cost Ratio (14.60Mx80%)	\$ 11,680,000.00	Less: Variable Cost Ratio (14.60M - (15.33Mx80%))	\$ 12,264,000.00
Contribution Margin	\$ 2,920,000.00	Contribution Margin	\$ 3,066,000.00
Less Expenses		Less Expenses	
Current Expenses	\$ 400,000.00	Current Expenses	\$ 300,000.00
Bad Debt Expense	\$ 219,000.00	Bad Debt Expense	\$ 459,900.00
Cost to Carry Receivables	\$ 240,000.00	Cost to Carry Receivables	\$ 420,000.00
Income before Tax	\$ 2,061,000.00	Income before Tax	\$ 1,886,100.00
Income Tax (40%)	\$ 824,400.00	Income Tax (40%)	\$ 754,440.00
Net Income	\$ 1,236,600.00	Net Income	\$ 1,131,660.00

Variable Costs = 80% of sales

Contribution Margin = Annual Credit Sales – Variable Costs

Bad Debt Expense (Current Structure) = 0.015 * \$14,600,000 (annual credit sales) = \$219,000

Bad Debt Expense (New Structure) = 0.03 * \$15,330,000 (annual credit sales) = \$459,900

Cost to Carry Receivables = *opportunity cost* * $\frac{\text{Average collection period} * \text{Revenue}}{365}$

(Current Structure) = 0.2 * $\frac{30 * \$14,600,000}{365}$ = \$240,000

(New Structure) = 0.2 * $\frac{50 * \$15,330,000}{365}$ = \$420,000

Income tax = 40% x Income before Tax

Net Income = Income before Tax – Income Tax

Net Income (Current Structure) – Net Income (New Structure) = \$1,236,600 – \$1,131,660 = **\$104,940**

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$(\text{Net Income (New Structure)} - \text{Net Income (Current Structure)}) / \text{Net Income (Current Structure)} =$
 $(\$1,131,660 - \$1,236,600) / (\$1,236,600) = -0.085 \text{ or } -8.5\%$

The Rentz Corporation (RC) should not relax its collection efforts as it will result in a loss of **\$104,940**. Hence, this represents a **decrease of 8.5%**.

Problem 3

a) The two basic decisions in formulating a working capital policy are:

- Determining the appropriate level of current assets
- Selecting a method of financing these assets.

When economic conditions are certain, firms will hold minimal levels of current assets. When uncertainty exists, firms will hold a minimum amount of cash and inventory based on expected sales and then additional safety stock to accommodate any unexpected sales. A firm's accounts receivable is determined by their credit policy. The stricter the terms, the lower the credit sales for any period.

There are three types of working capital policies that can be selected: a tight working capital policy, a liberal working capital policy, or a moderate working capital policy.

A tight working capital policy means that the firm will hold a very minimal safety stock and have a strict credit policy. These terms minimize cost, but limit sales because the firm will be unable to respond to unexpected increases in demand. The tight credit policy will also dissuade customers.

A liberal working capital policy has large safety stocks and a relaxed credit policy. In this case, lower return is expected, but there are fewer risks than with a tight policy.

A moderate working capital policy is between tight working capital policy and a liberal working capital policy. This policy involves a mix of long term and short term debt. When firms try to achieve this, have a target capital structure that defines their debt-to-equity ratio. They choose the debt-maturity-mix. As the yield curves upwards short term debt will cost less, but long term debt will cost more. However, it is crucial to remember that with lower cost comes higher risk. There are two reasons for this:

- short term debt costs rise with interest rates
- short term creditors may be unwilling to renew debt if the firm's condition deteriorates.

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A maturity matching finance policy is seen in companies who follow this type of debt financing. They use short-term debt to finance temporary working capital needs and they use long-term debt to finance their long-term asset base. These terms follow between an aggressive and a conservative approach.

On the other hand, a firm that uses an aggressive financing policy, finances its permanent assets with short-term debt. This policy allows for a higher expected return, but this high return is due to the risk involved.

Conservative financing policies are seen in firms with a level of permanent financing (long term debt and equity) that exceeds permanent assets. Therefore, during slack times where working capital is needed, marketable securities can be used to help finance and increase inventory and receivables. This involves less risk than an aggressive approach and a moderate approach; it also has the lowest yield of the three approaches.

b)
Average Economy

	Aggressive	Moderate	Conservative
Sales	\$600,000.00	\$725,000.00	\$825,000.00
COGS (Variable + Fixed)	\$485,000.00	\$548,750.00	\$587,500.00
EBIT	\$115,000.00	\$176,250.00	\$237,500.00
Interest expense	\$20,000.00	\$24,000.00	\$28,000.00
Taxable income	\$95,000.00	\$152,250.00	\$209,500.00
Taxes (40%)	\$38,000.00	\$60,900.00	\$83,800.00
Net Income	\$57,000.00	\$91,350.00	\$125,700.00
ROE	19.00%	22.84%	25.14%

c)
Strong Economy

	Aggressive	Moderate	Conservative
Sales	\$700,000.00	\$850,000.00	\$975,000.00
COGS (Variable + Fixed)	\$545,000.00	\$617,500.00	\$662,500.00
EBIT	\$155,000.00	\$232,500.00	\$312,500.00
Interst expense	\$20,000.00	\$24,000.00	\$28,000.00
Taxable income	\$135,000.00	\$208,500.00	\$284,500.00
Taxes (40%)	\$54,000.00	\$83,400.00	\$113,800.00
Net Income	\$81,000.00	\$125,100.00	\$170,700.00
ROE	27.00%	31.28%	34.14%

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Weak Economy

	Aggressive	Moderate	Conservative
Sales	\$500,000.00	\$600,000.00	\$675,000.00
COGS (Variable + Fixed)	\$425,000.00	\$480,000.00	\$512,500.00
EBIT	\$75,000.00	\$120,000.00	\$162,500.00
Interest expense	\$20,000.00	\$24,000.00	\$28,000.00
Taxable income	\$55,000.00	\$96,000.00	\$134,500.00
Taxes (40%)	\$22,000.00	\$38,400.00	\$53,800.00
Net Income	\$33,000.00	\$57,600.00	\$80,700.00
ROE	11.00%	14.40%	16.14%

d)

	Aggressive	Moderate	Conservative
Average	0.076	0.09135	0.10056
Strong	0.081	0.093825	0.10242
Weak	0.033	0.0432	0.04842
Expected ROE	19.00%	22.84%	25.14%
Standard Deviation	6.20%	6.54%	6.97%
Coefficient of Variation	0.3261	0.2862	0.2773

The highest expected ROE is seen with the conservative policy, but when we look at the SD there is higher risk. However, since the conservative policy has the highest return in every economic condition, we will disregard this statistic and look instead to the coefficient of variance to measure risk. In terms of this statistic, the conservative policy has the lowest level of risk. Thus, the firm should adopt the conservative policy.

e)

Short Term Interest Rates	Aggressive	Moderate	Conservative
5%	\$20,000.00	\$24,000.00	\$28,000.00
5%+4%=9%	\$36,000.00	\$32,000.00	\$28,000.00
Increase	\$16,000.00	\$8,000.00	\$0.00

*Under an aggressive policy, the interest expense is the highest since it favours short-term interest rates. The interest expense in the conservative policy does not increase do to the locked long term rate (7%)

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Due to the locked in 7% long-term rate, the increase interest expense causes the ROE to decrease for aggressive and moderate policies:

	Aggressive	Moderate	Conservative
Sales	\$600,000.00	\$725,000.00	\$825,000.00
COGS (Variable + Fixed)	\$485,000.00	\$548,750.00	\$587,500.00
EBIT	\$115,000.00	\$176,250.00	\$237,500.00
Interest expense	\$36,000.00	\$32,000.00	\$28,000.00
Taxable income	\$79,000.00	\$144,250.00	\$209,500.00
Taxes (40%)	\$31,600.00	\$57,700.00	\$83,800.00
Net Income	\$47,400.00	\$86,550.00	\$125,700.00
ROE	15.80%	21.64%	25.14%

ROE

Short Term Interest Rates	Aggressive	Moderate	Conservative
5%	19.00%	22.84%	25.14%
9%	15.80%	21.64%	25.14%

*The greater the use of short-term debt, the lower the ROE in the event of an increase in interest rates.

f)

1) Gross Purchases annually: \$73,000

2% Discount

Net Purchases with terms 2/10 = $0.98(\$73,000) = \mathbf{\$71,540}$

Net daily purchases = $\$71,540/365 = \mathbf{\$196/day}$

2)

If the discount is taken the firm must pay every 10 days. Therefore, if supplies are purchased on day 1, the firm must pay the supplier on day 11. Hence, on average the accounts payable will be:

10 days x $(\$196/day) = \mathbf{\$1960}$

If discount is not taken, the firm will have 30 days to pay supplier (net 30).

30 days x $(\$196/day) = \mathbf{\$5880}$

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Total Trade credit = \$5880

Free Trade Credit = \$1960

Costly Trade Credit = Total Trade credit - Free Trade Credit = \$5880 - \$1960 = \$3920

The firm gets \$1960 of free trade credit. It can wait another 10 days and still take the discount.
However, if the firm does not take the discount it can get \$5880 in credit.

3)

$$\text{APR or QR} = \frac{\text{Percentage Discount}}{1 - \text{Percentage Discount}} \times \frac{365}{\text{credit period} - \text{discount period}} = \frac{0.02}{1 - 0.02} \times \frac{365}{30 - 10} = 0.3724 \text{ or } \mathbf{37.24\%}$$

Effective Annual Rate

$$k_{\text{annual}} = \left(1 + \frac{2}{98}\right)^{\frac{365}{20}} - 1 = 0.4459 = \mathbf{44.59\%}$$