

# Principles of Managerial Finance Solution

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## CHAPTER 15

### *Current Liabilities Management*

#### **Instructor's RESOURCES**

##### **Overview**

This chapter introduces the fundamentals and describes the interrelationship of net working capital, profitability, and risk in managing the firm's current liability accounts. The management of current liabilities requires choosing appropriate levels of financing and involves trade-offs between risk and profitability. This chapter also reviews sources of secured and unsecured short-term financing, including the role of international loans. Spontaneous sources, such as accounts payable and accruals, are differentiated from negotiated bank sources, such as lines of credit. The cash discount offered on accounts payable and the costs of forgoing the discount are described. Secured sources include bank and commercial finance company loans backed by collateral such as inventory or accounts receivable.

##### ***PMF DISK***

This chapter's topics are not covered on the *PMF Tutor* or the *PMF Problem-Solver*.

##### ***PMF Templates***

The following spreadsheet template is provided:

<u>Problem</u>	<u>Topic</u>
15-8	Cost of bank loan

***Study Guide***

The following *Study Guide* examples are suggested for classroom presentation:

<u>Example</u>	<u>Topic</u>
1	Loss of loan discounts
4	Accounts receivable as collateral

**ANSWERS TO REVIEW QUESTIONS**

- 15-1** The two key sources of *spontaneous short-term financing* (financing that arises from the normal operating cycle) are accounts payable and accruals. Both of these sources are spontaneous, since their levels increase and decrease directly with increases or decreases in sales. If sales increase, the firm will purchase more new materials, resulting in higher accruals of these items.
- 15-2** There is no cost—stated or unstated—associated with taking a cash discount; there is a cost of giving up a cash discount. By giving up a cash discount, the purchaser pays the full price for merchandise but can make the payment later. The *unstated cost* of giving up a cash discount is the implied rate of interest paid to delay payments. This rate can be used to make decisions with respect to whether or not the discount should be taken. If the cost of giving up the cash discount is greater than the cost of borrowing short-term funds, the firm should take the discount. Cash discounts can be a source of additional profitability for a firm. However, some firms, either due to lack of alternative funding sources or ignorance of the true cost, do not take advantage of these discounts.
- 15-3** *Stretching accounts payable* is the process of delaying the payment of accounts payable for as long as possible without damaging the firm's credit rating. Stretching payments reduces the implicit cost of giving up a cash discount.
- 15-4** The *prime rate of interest*, which is the lowest rate charged on business loans to the best business borrowers, is usually used by the lender as a base rate to which a premium is added by the lender, depending upon the risk of the borrower, in order to determine the rate charged. A *floating-rate loan* has its interest tied to the prime rate. The rate of interest is established at an increment above the prime rate and floats at that increment above prime over the term of the note.
- 15-5** The *effective interest rate* is the actual rate of interest paid for the period. The calculation of this rate depends on whether interest is paid at maturity or in advance (deducted from the loan so that the borrower receives less than the requested amount). When interest is paid at maturity, the effective interest rate is equal to:

$$\frac{\text{Interest}}{\text{Amount borrowed}}$$

The effective interest rate when interest is paid in advance—a *discount loan*—is calculated as follows:

$$\frac{\text{Interest}}{\text{Amount borrowed} - \text{Interest}}$$

Paying interest in advance raises the effective rate above the stated rate.

- 15-6** A *single-payment note* is an unsecured loan from a commercial bank. It usually has a short maturity—30 to 90 days—and the interest rate is normally tied in some way to the prime rate of interest. The interest rate on these notes may be fixed or floating. The effective annual interest rate when the note is rolled over throughout the year on the same terms is calculated on a compound basis as follows, using Equation 5.10:

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

- 15-7** A *line of credit* is an agreement between a commercial bank and a business that states the amount of unsecured short-term borrowing the bank will make available to the firm over a given period of time.

- a. In a line of credit agreement, a bank may retain the right to revoke the line if any major changes occur in the firm's financial condition or operations.
- b. To ensure that the borrower will be a good customer, frequently a line of credit will require the borrower to maintain compensating balances in a demand deposit. In some cases, fees in lieu of balances may be negotiated.
- c. To ensure that money lent under the credit agreement is actually being used to finance seasonal needs, banks require that the borrower have a zero loan balance for a certain number of days per year. This is called the *annual cleanup period*.

**15-8** A *revolving credit agreement* is a guaranteed line of credit. Under a line of credit agreement, a firm is not guaranteed that the bank will have funds available to lend upon demand, while under the more formal revolving credit agreement the availability of funds is guaranteed. Since the lender under the revolving credit agreement guarantees the availability of funds, the borrower must pay a *commitment fee*, a fee levied against the average unused portion of the line.

**15-9** *Commercial paper (CP)*, which is a short-term, unsecured promissory note, can be sold by large, creditworthy firms in order to raise funds. Commercial paper is merely the IOU of a financially sound firm. The maturity of commercial paper is generally between 3 to 270 days and is normally issued in multiples of \$100,000 or more. The interest rate on CP is usually 1 to 2 percent below the prime rate and is a less costly source of short-term funds than bank loans. Commercial paper is purchased by corporations, life insurance companies, pension funds, banks, and other financial institutions and investors. Commercial paper may be sold directly by the issuing firm to a purchaser or may be sold through a middleman known as a commercial paper house, which charges a fee to the issuer for its marketing efforts.

**15-10** International transactions differ from domestic ones because they involve payments made or received in a foreign currency. This results in additional foreign costs and also exposes the company to foreign exchange risk.

A *letter of credit* is a letter written by a company's bank to a foreign supplier that effectively guarantees payment of an invoiced amount, assuming that all the specified terms are met.

"*Netting*" occurs when a company's subsidiaries or divisions located in different countries have transactions that result in intracompany receivables and payables. Rather than pay the gross amount of both the receivables and payables, paying the net amount due—which is lower—allows the parent to reduce foreign exchange fees and other transaction costs.

**15-11** Lenders view secured and unsecured short-term loans as having the same degree of risk. The benefit of the collateral for a secured loan is only beneficial if the firm goes into bankruptcy. The risk associated with going bankrupt and defaulting on a loan does not change due to be secured or unsecured.

**15-12** The interest rate charged on secured short-term loans is typically higher than the interest rate on unsecured short-term loans. Typically, companies that require secured loans may not qualify for unsecured debt, and they are perceived as higher-risk borrowers by lenders. The presence of collateral does not change the risk of default; it provides a means to reduce losses if the borrower defaults. In general, lenders require security for less creditworthy, higher-risk borrowers. Since the negotiation and administration of these loans is more troublesome for the lender, the lender normally requires certain fees to be paid by the secured borrower. The higher rates on these secured short-term loans are attributable to the greater risk of default and the increased loan administration costs of these loans over the unsecured short-term loan.

- 15-13 a.** A *pledge of accounts receivable* is the use of a firm's receivables to secure a short-term loan. The lender evaluates the quality of the accounts receivable, selects acceptable accounts, and files a lien on the collateral. After the selection of accounts, the lender determines the percentage advanced against receivables. Typically ranging from 50 to 90 percent of the face value of the acceptable receivables, this amount becomes the principal on the loan. Pledging receivables usually costs 2 to 5 percent above the prime rate due to the nature of the borrower and additional administrative costs. Commercial banks offer this type of financing.
- b.** *Factoring accounts receivable* is the outright sale to the factor or other financial institution. The factor sets the conditions of the sale in a factoring agreement. Normally factoring is done on a nonrecourse basis (the factor accepts all credit risks), and the customer is usually notified that the account receivable has been sold. Factoring can typically cost from 3 to 7 percent above the prime rate, including commissions and interest. This type of financing is handled by specialized financial institutions called factors; some commercial banks and commercial finance companies factor receivables. While the cost is high, the advantages include immediate conversion of receivables into cash and also the known pattern of cash flows.
- 15-14 a.** *Floating inventory liens* are made by lenders and secured by a claim on general inventory consisting of a diversified and low cost group of merchandise. Generally less than 50 percent of the book value of the average inventory is advanced. The interest charge on a floating lien is typically 3 to 5 percent above the prime rate.
- b.** *Trust receipt inventory loans* are often made by manufacturers' financing subsidiaries to their customers. Under this arrangement, merchandise is typically expensive (automotive, industrial and consumer-durable equipment, for example) and remains in the hands of the borrower. The lender advances 80 to 100% of the cost of the salable inventory. The borrower is free to sell the merchandise and is trusted to remit the loan amount plus accrued interest to the lender immediately. The interest charge is generally 2 percent or more above the prime rate.
- c.** A *warehouse receipt loan* is an arrangement whereby the lender receives control of the pledged collateral. The inventory may be retained by the borrower in the firm's warehouse with security administered by a field warehousing company. Or the inventory may be stored in a terminal warehouse located in the geographic vicinity of the borrower. Generally, less than 75 to 90 percent of the collateral's value is advanced to the borrower at an interest rate from 4 to 8 percent above the prime rate.

**SOLUTIONS TO PROBLEMS**

**15-1 LG 1: Payment Dates**

- |    |             |    |             |
|----|-------------|----|-------------|
| a. | December 25 | b. | December 30 |
| c. | January 9   | d. | January 30  |

**15-2 LG 1: Cost of Giving Up Cash Discount**

- |    |  |        |
|----|--|--------|
| a. | $(.02 \div .98) \times (360 \div 20) =$  | 36.73% |
| b. | $(.01 \div .99) \times (360 \div 20) =$  | 18.18% |
| c. | $(.02 \div .98) \times (360 \div 35) =$  | 20.99% |
| d. | $(.03 \div .97) \times (360 \div 35) =$  | 31.81% |
| e. | $(.01 \div .99) \times (360 \div 50) =$  | 7.27%  |
| f. | $(.03 \div .97) \times (360 \div 20) =$  | 55.67% |
| g. | $(.04 \div .96) \times (360 \div 170) =$ | 8.82%  |

**15-3 LG 1: Credit Terms**

- a. 1/15 net 45 date of invoice  
2/10 net 30 EOM  
2/7 net 28 date of invoice  
1/10 net 60 EOM

- b. 45 days  
50 days  
28 days  
80 days

- c. Cost of giving up cash discount =  $\frac{CD}{100\% - CD} \times \frac{360}{N}$   
 Cost of giving up cash discount =  $\frac{1\%}{100\% - 1\%} \times \frac{360}{30}$   
 Cost of giving up cash discount =  $.0101 \times 12 = .1212 = 12.12\%$   
 Cost of giving up cash discount =  $\frac{2\%}{100\% - 2\%} \times \frac{360}{20}$   
 Cost of giving up cash discount =  $.0204 \times 18 = .1836 = 36.72\%$   
 Cost of giving up cash discount =  $\frac{2\%}{100\% - 2\%} \times \frac{360}{21}$   
 Cost of giving up cash discount =  $.0204 \times 17.14 = .3497 = 34.97\%$   
 Cost of giving up cash discount =  $\frac{1\%}{100\% - 1\%} \times \frac{360}{50}$   
 Cost of giving up cash discount =  $.0204 \times 7.2 = .1049 = 14.69\%$
- d. In all four cases the firm would be better off to borrow the funds and take the discount. The annual cost of not taking the discount is greater than the firm's 8% cost of capital.

**15-4 LG 1: Cash Discount versus Loan**

Cost of giving up cash discount =  $(.03 \div .97) \times (360 \div 35) = 31.81\%$

Since the cost of giving up the discount is higher than the cost of borrowing for a short-term loan, Erica is correct; her boss is incorrect.

### 15-5 LG 1, 2: Cash Discount Decisions

a.	<u>Supplier</u>	<u>Cost of Forgoing Discount</u>	b.	<u>Decision</u>
	<b>J</b>	$(.01 \div .99) \times (360 \div 20) = 18.18\%$		Borrow
	<b>K</b>	$(.02 \div .98) \times (360 \div 60) = 12.24\%$		Give up
	<b>L</b>	$(.01 \div .99) \times (360 \div 40) = 9.09\%$		Give up
	<b>M</b>	$(.03 \div .97) \times (360 \div 45) = 24.74\%$		Borrow

Prairie would have lower financing costs by giving up Ks and Ls discount since the cost of forgoing the discount is lower than the 16% cost of borrowing.

- c. Cost of giving up discount from Supplier M =  $(.03 \div .97) \times (360 \div 75) = 14.85\%$  In this case the firm should give up the discount and pay at the end of the extended period.

### 15-6 LG 2: Changing Payment Cycle

Annual Savings =  $(\$10,000,000) \times (.13) = \$1,300,000$

### 15-7 LG 2: Spontaneous Sources of Funds, Accruals

Annual savings =  $\$750,000 \times .11 = \$82,500$

### 15-8 LG 3: Cost of Bank Loan

- a. Interest =  $(\$10,000 \times .15) \times (90 \div 360) = \$375$
- b. Effective 90 day rate =  $\frac{\$375}{\$10,000} = 3.75\%$
- c. Effective annual rate =  $(1 + 0.0375)^4 - 1 = 15.87\%$

### 15-9 LG 3: Effective Annual Rate of Interest

Effective interest =  $\frac{\$10,000 \times .10}{[\$10,000 \times (1 - .10 - .20)]} = 14.29\%$

### 15-10 LG 3: Compensating Balances and Effective Annual Rates

- a. Compensating balance requirement =  $\$800,000 \text{ borrowed} \times 15\%$   
=  $\$120,000$

**Part 5 Short-Term Financial Decisions**

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$$\begin{aligned}\text{Amount of loan available for use} &= \$800,000 - \$120,000 \\ &= \$680,000\end{aligned}$$

$$\begin{aligned}\text{Interest paid} &= \$800,000 \times 11\% \\ &= \$88,000\end{aligned}$$

$$\text{Effective interest rate} = \frac{\$88,000}{\$680,000} = 12.94\%$$

$$\begin{aligned}\text{b. Additional balances required} &= \$120,000 - \$70,000 \\ &= \$50,000\end{aligned}$$

$$\text{Effective interest rate} = \frac{\$88,000}{\$800,000 - \$50,000} = 11.73\%$$

$$\text{c. Effective interest rate} = 11\%$$

(None of the \$800,000 borrowed is required to satisfy the compensating balance requirement.)

- d. The lowest effective interest rate occurs in situation **c**, when Lincoln has \$150,000 on deposit. In situations **a** and **b**, the need to use a portion of the loan proceeds for compensating balances raises the borrowing cost.

**15-11 LG 4: Compensating Balance vs. Discount Loan**

a.

$$\text{State Bank interest} = \frac{\$150,000 \times .09}{\$150,000 - (\$150,000 \times .10)} = \frac{\$13,500}{\$135,000} = 10.0\%$$

This calculation assumes that Weathers does not maintain any normal account balances at State Bank.

$$\text{Frost Finance interest} = \frac{\$150,000 \times .09}{\$150,000 - (\$150,000 \times .09)} = \frac{\$13,500}{\$136,500} = 9.89\%$$

- b. If Weathers became a regular customer of State Bank and kept its normal deposits at the bank, then the additional deposit required for the compensating balance would be reduced and the cost would be lowered.

**15-12 LG 5: Integrative–Comparison of Loan Terms**

$$\text{a. } (.08 + .033) \div .80 = 14.125\%$$

$$\text{b. Effective annual interest rate} =$$

$$\frac{[\$2,000,000 \times (.08 + .028) + (.005 \times \$2,000,000)]}{(\$2,000,000 \times .80)} = 14.125\%$$

- c. The revolving credit account seems better, since the cost of the two arrangements is the same; with a revolving loan arrangement, the loan is committed.



**15-13 LG 4: Cost of Commercial Paper**

a. Effective 90 - day rate =  $\frac{\$1,000,000 - \$978,000}{\$978,000} = 2.25\%$

Effective annual rate =  $(1 + .0225)^4 - 1 = 9.31\%$

b. Effective 90 - day rate =  $\frac{[\$1,000,000 - \$978,000 + \$9,612]}{(\$978,000 - \$9,612)} = 3.26\%$

Effective annual rate =  $(1 + .0326)^4 - 1 = 13.69\%$

**15-14 LG 5: Accounts Receivable as Collateral**

a. Acceptable Accounts Receivable

<u>Customer</u>	<u>Amount</u>
<b>D</b>	\$ 8,000
<b>E</b>	50,000
<b>F</b>	12,000
<b>H</b>	46,000
<b>J</b>	22,000
<b>K</b>	<u>62,000</u>
Total Collateral	\$200,000

b. Adjustments: 5% returns/allowances, 80% advance percentage.

Level of available funds =  $[\$200,000 \times (1 - .05)] \times .80 = \$152,000$

**15-15 LG 5: Accounts Receivable as Collateral**

a.

<u>Customer</u>	<u>Amount</u>
<b>A</b>	\$20,000
<b>E</b>	2,000
<b>F</b>	12,000
<b>G</b>	27,000
<b>H</b>	<u>19,000</u>
Total Collateral	\$80,000

b.  $\$80,000 \times (1 - .1) = \$72,000$

c.  $\$72,000 \times (.75) = \$54,000$

**15-16 LG 3, 5: Accounts Receivable as Collateral, Cost of Borrowing**

a.  $[\$134,000 - (\$134,000 \times .10)] \times .85 = \$102,510$

b.  $(\$100,000 \times .02) + (\$100,000 \times .115) = \$2,000 + \$11,500 = \$13,500$

**Part 5 Short-Term Financial Decisions**

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$$\text{Interest cost} = \frac{\$13,500}{\$100,000} = 13.5\%$$

$$(\$100,000 \times .02) + \left( \$100,000 \times \frac{.115}{2} \right) = \$2,000 + \$5,750 = \$7,750$$

$$\text{Interest cost} = \frac{\$7,750}{\$100,000} = 7.75\% \text{ for 6 months}$$

$$\text{Effective annual rate} = (1 + .0775)^2 - 1 = 16.1\%$$

$$(\$100,000 \times .02) + \left( \$100,000 \times \frac{.115}{4} \right) = \$2,000 + \$2,875 = \$4,875$$

$$\text{Interest cost} = \frac{\$4,875}{\$100,000} = 4.88\%$$

$$\text{Effective annual rate} = (1 + .0488)^4 - 1 = 21.0\%$$

**15-17 LG 5: Factoring**

Holder Company Factored Accounts May 30					
<u>Accounts</u>	<u>Amount</u>	<u>Date Due</u>	<u>Status on May 30</u>	<u>Amount Remitted</u>	<u>Date of Remittance</u>
<b>A</b>	\$200,000	5/30	C 5/15	\$196,000	5/15
<b>B</b>	90,000	5/30	U	88,200	5/30
<b>C</b>	110,000	5/30	U	107,800	5/30
<b>D</b>	85,000	6/15	C 5/30	83,300	5/30
<b>E</b>	120,000	5/30	C 5/27	117,600	5/27
<b>F</b>	180,000	6/15	C 5/30	176,400	5/30
<b>G</b>	90,000	5/15	U	88,200	5/15
<b>H</b>	30,000	6/30	C 5/30	29,400	5/30

The factor purchases all acceptable accounts receivable on a nonrecourse basis, so remittance is made on uncollected as well as collected accounts.

**15-18 LG 6, 7: Inventory Financing**

- a. City-Wide Bank:  $[\$75,000 \times (.12 \div 12)] + (.0025 \times \$100,000) = \$1,000$   
 Sun State Bank:  $\$100,000 \times (.13 \div 12) = \$1,083$   
 Citizens' Bank and Trust:  $[\$60,000 \times (.15 \div 12)] + (.005 \times \$60,000) = \$1,050$
- b. City-Wide Bank is the best alternative, since it has the lowest cost.
- c. Cost of giving up cash discount =  $(.02 \div .98)(360 / 20) = 36.73\%$

The effective cost of taking a loan =  $(\$1,000 / \$75,000) \times 12 = 16.00\%$

Since the cost of giving up the discount (36.73%) is higher than borrowing at Citywide Bank (16%), the firm should borrow to take the discount.

**CHAPTER 15 CASES****Selecting Kanton Company's Financing Strategy and Unsecured Short-Term Borrowing Arrangement**

This case asks the student to evaluate the permanent and short-term funding requirements of Kanton Company, and to choose a financing strategy from among three alternatives: aggressive, conservative, and trade-off. The company's funding requirements vary considerably during the year, showing a seasonal pattern and peaking mid-year. Then the student must calculate the effective annual interest rates for two short-term borrowing alternatives and make a recommendation.

**a. Strategy I - Aggressive**

(1) Amount required: \$2,500,000 short-term and \$1,000,000 long-term

(2) Cost:  $(10\% \times \$2,500,000) + (14\% \times \$1,000,000) = \$390,000$

**Strategy 2 - Conservative**

(1) Amount required: \$7,000,000 long-term and \$0 short-term

(2) Cost:  $(14\% \times \$7,000,000) = \$980,000$

**Strategy 3 – Trade-off**

(1) Calculation of short-term requirements

	(1) Total Funds Requirements	(2) Permanent Requirements	Seasonal Requirements
<u>Month</u>			
January	\$1,000,000	\$3,000,000	\$ 0
February	1,000,000	3,000,000	0
March	2,000,000	3,000,000	0
April	3,000,000	3,000,000	0
May	5,000,000	3,000,000	2,000,000
June	7,000,000	3,000,000	4,000,000
July	6,000,000	3,000,000	3,000,000
August	5,000,000	3,000,000	2,000,000
September	5,000,000	3,000,000	2,000,000
October	4,000,000	3,000,000	1,000,000
November	2,000,000	3,000,000	0
December	1,000,000	3,000,000	0

Monthly Average: Permanent = \$3,000,000

Seasonal = \$1,166,667 (sum of seasonal requirements ÷ 12)

(2) Cost:  $(10\% \times \$1,166,667) + (14\% \times \$3,000,000) = \$536,667$

**b. Net working capital = Current assets - Current liabilities**

Aggressive = \$4,000,000 - \$2,500,000 = \$1,500,000

Conservative = \$4,000,000 - \$0 = \$4,000,000

$$\text{Trade-off} = \$4,000,000 - \$1,166,667 = \$2,833,333$$

- c. The three strategies differ in terms of profitability and risk. The aggressive strategy is the most profitable—it has the lowest cost, \$300,000—because it uses the largest amount of the less-expensive short-term financing. It also pays interest only on needed financing. The aggressive strategy is also the most risky, relying heavily on short-term financing, which may have more limited availability. Net working capital is lowest, also increasing risk.

Because the conservative strategy funds the highest amount in any month for the whole year with more-expensive long-term financing, it is the most expensive (\$980,000) and the least profitable. It is the lowest-risk strategy, however, reserving short-term financing for emergencies. The high level of working capital also reduces risk.

The trade-off strategy falls between the two extremes in terms of both profitability and risk. The cost (\$536,667) is higher than the aggressive strategy because the permanent funds requirement of \$3,000,000 is financed with more costly long-term funds. In five months (January, February, March, November, and December), the company pays interest on unneeded funds. The risk is less than with the aggressive strategy; some short-term borrowing capacity is preserved for emergencies. Because a portion of short-term requirements is financed with long-term funds, the firm's ability to obtain short-term financing is good.

Mr. Mercado should consider implementing the trade-off strategy. The wide swings in monthly funds requirements make the cost of the conservative strategy very high in comparison to the reduced risk. For the same reason, the aggressive strategy is quite risky, requiring the firm to raise short-term funds ranging from \$1,000,000 to \$6,000,000. If it should become difficult to arrange short-term financing, Kanton Company would be in trouble.

Note: Other recommendations are possible, depending on the student's risk preference. Of course, the student should present sound reasons for his or her choice of strategy.

- d. (1) Effective interest, line of credit:

$$\text{Interest on borrowing: } \$600,000 \times (7\% + 2.5\%) = \$57,000$$

$$\text{Effective interest} = \frac{\text{Interest}}{\text{Amount available for use}} = \frac{\$57,000}{\$600,000 \times .80} = 11.88\%$$

- (2) Effective interest, revolving credit agreement:

Cost of borrowing:

Interest: \$600,000 x (7% + 3.0%)	\$60,000
Commitment Fee: \$400,000 x .5%	<u>2,000</u>
Total	\$62,000

**Part 5 Short-Term Financial Decisions**

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$$\begin{aligned}\text{Effective interest} &= \frac{\text{Interest and commitment fee}}{\text{Amount available for use}} \\ &= \frac{\$62,000}{\$600,000 \times .80} = 12.92\%\end{aligned}$$

- e. The line of credit arrangement seems better, since its annual cost of 11.88% is less than the 12.92% cost of the revolving loan arrangement. Kanton will save about 1% in terms of annual interest cost (11.88% versus 12.92%) by using the line of credit. The only negative is that if Third National lacks loanable funds, Kanton may not be able to borrow the needed funds. Under the revolving credit agreement, funds availability would be guaranteed.

## INTEGRATIVE CASE 5

### CASA DE DISEÑO

Integrative Case V, Casa de Diseño, involves evaluating working capital management of a furniture manufacturer. Operating cycle, cash conversion cycle, and negotiated financing needed are determined and compared with industry practices. The student then analyzes the impact of changing the firm's credit terms to evaluate its management of accounts receivable before making a recommendation.

$$\begin{aligned} \text{a. Operating Cycle Period} &= \text{Average Age of Inventory} + \text{Average Collection} \\ &= 110 \text{ days} + 75 \text{ days} \\ &= 185 \text{ days} \end{aligned}$$

$$\begin{aligned} \text{Cash Conversion Cycle} &= \text{Operating Cycle} - \text{Average Payment Period} \\ &= 185 \text{ days} - 30 \text{ days} \\ &= 155 \text{ days} \end{aligned}$$

$$\begin{aligned} \text{Resources needed} &= \frac{\text{Total annual outlays}}{360 \text{ days}} \times \text{Cash Conversion Cycle} \\ &= \frac{\$26,500,000}{360} \times 155 \\ &= \$11,409,722 \end{aligned}$$

$$\begin{aligned} \text{b. Industry OC} &= 83 \text{ days} + 75 \text{ days} \\ &= 158 \text{ days} \end{aligned}$$

$$\begin{aligned} \text{Industry CCC} &= 158 \text{ days} - 39 \text{ days} \\ &= 119 \text{ days} \end{aligned}$$

$$\begin{aligned} \text{Industry Resources needed} &= \frac{\$26,500,000}{360} \times 119 \\ &= \$8,759,722 \end{aligned}$$

$$\begin{aligned} \text{c. Casa de Diseño} & \\ \text{Negotiated Financing} & \$11,409,722 \\ \text{Less: Industry Resources needed} & \underline{8,759,722} \\ & \$ 2,650,000 \end{aligned}$$

$$\text{Cost of inefficiency: } \$2,650,000 \times .15 = \$397,500$$

$$\begin{aligned} \text{d. (1) Offering 3/10 net 60:} & \\ \text{Reduction in collection period} &= 75 \text{ days} \times (1 - .4) \\ &= 45 \text{ days} \end{aligned}$$

$$\begin{aligned} \text{Operating cycle} &= 83 \text{ days} + 45 \text{ days} \\ &= 128 \text{ days} \end{aligned}$$

$$\begin{aligned}\text{Cash Conversion Cycle} &= 128 \text{ days} - 39 \text{ days} \\ &= 89 \text{ days}\end{aligned}$$

$$\begin{aligned}\text{Resources needed} &= \frac{\$26,500,000}{360} \times 89 \text{ days} \\ &= \$6,551,389\end{aligned}$$

$$\begin{aligned}\text{Additional Savings} &= \$8,759,722 - \$6,551,389 = \$2,208,333 \\ &= \$2,208,333 \times .15 = \$331,250\end{aligned}$$

(2) Reduction in sales:  $\$40,000,000 \times .45 \times .03 = \$540,000$

(3) Average investment in accounts receivable assuming cash discount:

$$\begin{aligned}\text{New average collection period} &= 45 \text{ days} \\ (\$40,000,000 \times .80) \div (360 \div 45) &= \$4,000,000\end{aligned}$$

$$\begin{aligned}\text{Average investment in accounts receivable assuming no cash discount:} \\ (40,000,000 \times .80) \div (360 \div 75) &= \$6,666,667\end{aligned}$$

$$\begin{aligned}\text{Reduction in investment in accounts receivable:} \\ \$6,66,667 - \$4,000,000 &= \$2,666,667\end{aligned}$$

$$\begin{aligned}\text{Annual savings:} \\ \$2,666,667 \times .15 &= \$400,000\end{aligned}$$

(4) Reduction in bad debt expense:  
 $\$40,000,000 \times (.02 - .015) = \$200,000$

(5) Cost of offering cash discount	(\$540,000)
Annual savings from reduction in investment in accounts receivable	400,000
Annual savings from reduction in bad debt expense	<u>200,000</u>
Savings due to cash discount	<u>\$ 60,000</u>

e. Ms. Leal should bring working capital measures in line with the industry and offer the proposed cash discount.

f. The other sources of financing available include both unsecured and secured sources.

Unsecured Sources:

- Short-term self-liquidating bank loans – usually used to help with seasonal needs where the loan is repaid as receivables are collected
- Single payment bank notes – normally a short-term (30 days to 9 months) loan to be repaid on the end of the loan period.
- Line of credit – a loan much like a credit card in that the borrow can draw down the money as needed and make various payments. The loan must often be paid in full at some point within each year.



- Revolving credit agreement – a guaranteed amount of funds available to the borrower. The borrower usually pays a commitment fee to the bank to compensate them for having the funds available “on demand.”
- Commercial paper – a 3 day to 270 day loan sold as a security to the lender.

Secured Sources:

- Pledging accounts receivable – a lender purchases the receipts to be received from the accounts receivable accounts of the borrower. The lender advances the money to the borrower in an amount discounted from the book value of the receivables. When the borrower collects the receivables payments the money is remitted to the lender.
- Factoring accounts receivable – Selling the firms accounts receivable to a lender at a discount to the book value of the receivables. The factor normally receives the payment directly from the customer when they make payment.
- Floating inventory liens – when inventory is used as collateral for a loan.
- Trust receipt inventory loans – a loan against relatively expensive and easily identifiable assets, such as automobile. The loan is repaid when the asset is sold.
- Warehouse receipt loans – when assets in a warehouse are pledged against a loan. The lender takes control of the inventory items that are normally stored in a public warehouse.