Chapter 15
Current Liabilities Management

■ Solutions to Problems

P15-1. LG 1: Payment Dates
Basic

(a) December 25
(b) December 30
(c) January 9
(d) January 30

P15-2. LG 1: Cost of Giving Up Cash Discount
Basic

(a) $(0.02 \div 0.98) \times (365 \div 20) = 37.24\%$
(b) $(0.01 \div 0.99) \times (365 \div 20) = 18.43\%$
(c) $(0.02 \div 0.98) \times (365 \div 35) = 21.28\%$
(d) $(0.03 \div 0.97) \times (365 \div 35) = 32.25\%$
(e) $(0.01 \div 0.99) \times (365 \div 50) = 7.37\%$
(f) $(0.03 \div 0.97) \times (365 \div 20) = 56.44\%$
(g) $(0.04 \div 0.96) \times (365 \div 170) = 8.95\%$

P15-3. LG 1: Credit Terms
Basic

(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) $\text{Cost of giving up cash discount} = \dfrac{\text{CD}}{100\% - \text{CD}} \times \dfrac{365}{\text{N}}$

$\text{Cost of giving up cash discount} = \dfrac{1\%}{100\% - 1\%} \times \dfrac{365}{30}$

$\text{Cost of giving up cash discount} = 0.0101 \times 12.17 = 0.1229 = 12.29\%$

$\text{Cost of giving up cash discount} = \dfrac{2\%}{100\% - 2\%} \times \dfrac{365}{20}$

$\text{Cost of giving up cash discount} = 0.0204 \times 18.25 = 0.3723 = 37.23\%$

$\text{Cost of giving up cash discount} = \dfrac{2\%}{100\% - 2\%} \times \dfrac{365}{21}$

$\text{Cost of giving up cash discount} = 0.0204 \times 17.38 = 0.3646 = 36.46\%$

$\text{Cost of giving up cash discount} = \dfrac{1\%}{100\% - 1\%} \times \dfrac{365}{50}$

$\text{Cost of giving up cash discount} = 0.0204 \times 7.3 = 0.1489 = 14.89\%$

(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.

P15-4. LG 1: Cash Discount versus Loan

Basic

Cost of giving up cash discount = (0.03 ÷ 0.97) × (365 ÷ 35) = 32.25%

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.

P15-5. LG 1, 2: Cash Discount Decisions

Intermediate

(a) (b)

Supplier	Cost of Forgoing Discount	Decision
J	(0.01 ÷ 0.99) × (365 ÷ 20) = 18.43%	Borrow
K	(0.02 ÷ 0.98) × (365 ÷ 60) = 12.42%	Give up
L	(0.01 ÷ 0.99) × (365 ÷ 40) = 9.22%	Give up
M	(0.03 ÷ 0.97) × (365 ÷ 45) = 25.09%	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 = (0.03 ÷ 0.97) × (365 ÷ 75) = 15.05% In this case the firm should give up the discount and pay at the end of the extended period.

P15-6. LG 2: Changing Payment Cycle

Basic

Annual Savings = ($10,000,000) × (0.13) = $1,300,000

P15-7. LG 2: Spontaneous Sources of Funds, Accruals
Intermediate

Annual savings = $\$750{,}000 \times 0.11 = \$82{,}500$

P15-8. LG 3: Cost of Bank Loan
Intermediate

(a) Interest = $(\$10{,}000 \times 0.15) \times (90 \div 365) = \$369.86$

(b) Effective 90 day rate = $\dfrac{\$375}{\$10{,}000} = 3.75\%$

(c) Effective annual rate = $(1 + 0.0375)^4 - 1 = 15.87\%$

P15-9. LG 3: Effective Annual Rate of Interest
Basic

$$\text{Effective interest} = \frac{\$10{,}000 \times 0.10}{[\$10{,}000 \times (1 - 0.10 - 0.20)]} = 14.29\%$$

P15-10. LG 3: Compensating Balances and Effective Annual Rates
Intermediate

(a) Compensating balance requirement = $\$800{,}000$ borrowed $\times$ 15%
= $\$120{,}000$

Amount of loan available for use = $\$800{,}000 - \$120{,}000$
= $\$680{,}000$

Interest paid = $\$800{,}000 \times 11\ \%$
= $\$88{,}000$

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

(b) Additional balances required = $\$120{,}000 - \$70{,}000$
= $\$50{,}000$

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

(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.

P15-11. LG 3: Compensating Balance vs. Discount Loan

Intermediate

(a) State Bank interest $= \dfrac{\$150{,}000 \times 0.09}{\$150{,}000 - (\$150{,}000 \times 0.10)} = \dfrac{\$13{,}500}{\$135{,}000} = 10.0\%$

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

Frost Finance interest $= \dfrac{\$150{,}000 \times 0.09}{\$150{,}000 - (\$150{,}000 \times 0.09)} = \dfrac{\$13{,}500}{\$136{,}500} = 9.89\%$

(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.

P15-12. LG 3: Integrative–Comparison of Loan Terms

Challenge

(a) $(0.08 + 0.033) \div 0.80 = 14.125\%$

(b) Effective annual interest rate $= \dfrac{[\$2{,}000{,}000 \times (0.08 + 0.028) + (0.005 \times \$2{,}000{,}000)]}{(\$2{,}000{,}000 \times 0.80)} = 14.125\%$

(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.

P15-13. LG 4: Cost of Commercial Paper

Intermediate

(a) Effective 90-day rate $= \dfrac{\$1{,}000{,}000 - \$978{,}000}{\$978{,}000} = 2.25\%$

Effective annual rate $= (1 + 0.0225)^{365/90} - 1 = 9.44\%$

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

Effective annual rate $= (1 + 0.0326)^{365/90} - 1 = 13.89\%$

P15-14. LG 5: Accounts Receivable as Collateral

Intermediate

(a) Acceptable Accounts Receivable

Customer	**Amount**
D	$8,000
E	50,000
F	12,000
H	46,000
J	22,000
K	62,000
Total Collateral	$200,000

(b) Adjustments: 5% returns/allowances, 80% advance percentage.
Level of available funds = [$200,000 × (1 − 0.05)] × 0.80 = $152,000

P15-15. LG 5: Accounts Receivable as Collateral

Intermediate

(a)

Customer	Amount
A	$20,000
E	2,000
F	12,000
G	27,000
H	19,000
Total Collateral	$80,000

(b) $80,000 × (1 − 0.1) = $72,000

(c) $72,000 × (0.75) = $54,000

P15-16. LG 3, 5: Accounts Receivable as Collateral, Cost of Borrowing

Challenge

(a) [$134,000 − ($134,000 × 0.10)] × 0.85 = $102,510

(b) ($100,000 × 0.02) + ($100,000 × 0.115) = $2,000 + $11,500 = $13,500

$$\text{Interest cost} = \frac{\$13,500}{\$100,000} = 13.5\% \text{ for 12 months}$$

$$(\$100,000 \times 0.02) + \left(\$100,000 \times \frac{0.115}{2}\right) = \$2,000 + \$5,750 = \$7,750$$

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

Effective annual rate = $(1 + 0.0775)^2 - 1 = 16.1\%$

$$(\$100,000 \times 0.02) + \left(\$100,000 \times \frac{0.115}{4}\right) = \$2,000 + \$2,875 = \$4,875$$

$$\text{Interest cost} = \frac{\$4,875}{\$100,000} = 4.88\% \text{ for 3 months}$$

Effective annual rate = $(1 + 0.0488)^4 - 1 = 21.0\%$

P15-17. LG 5: Factoring

Intermediate

Holder Company
Factored Accounts
May 30

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

P15-18. LG 1, 6: Inventory Financing

Challenge

(a) City-Wide Bank: $[\$75{,}000 \times (0.12 \div 12)] + (0.0025 \times \$100{,}000) = \$1{,}000$

Sun State Bank: $\$100{,}000 \times (0.13 \div 12) = \$1{,}083$

Citizens' Bank and Trust: $[\$60{,}000 \times (0.15 \div 12)] + (0.005 \times \$60{,}000) = \$1{,}050$

(b) City-Wide Bank is the best alternative, since it has the lowest cost.

(c) Cost of giving up cash discount = $(0.02 \div 0.98) \times (365 \div 20) = 37.24\%$

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

Since the cost of giving up the discount (37.24%) is higher than borrowing at Citywide Bank (16%), the firm should borrow to take the discount.

P15-19. Ethics Problem

Intermediate

Management should point out that what it is doing shows integrity, as it is honest, just and fair. The ethics reasoning portrayed in the ethics focus box could be used.