

Question Book for Working Capital Management

Self-Test Problems

(ST-1)
Working Capital
Policy

The Calgary Company is attempting to establish a current assets policy. Fixed assets are \$600,000, and the firm plans to maintain a 50% debt-to-assets ratio. Calgary has no operating current liabilities. The interest rate is 10% on all debt. Three alternative current asset policies are under consideration: 40%, 50%, and 60% of projected sales. The company expects to earn 15% before interest and taxes on sales of \$3 million. Calgary's effective federal-plus-state tax rate is 40%. What is the expected return on equity under each asset policy?

(ST-2)
Current Asset
Financing

Vanderheiden Press Inc. and the Herrenhouse Publishing Company had the following balance sheets as of December 31, 2010 (thousands of dollars):

	Vanderheiden Press	Herrenhouse Publishing
Current assets	\$100,000	\$ 80,000
Fixed assets (net)	<u>100,000</u>	<u>120,000</u>
Total assets	<u>\$200,000</u>	<u>\$200,000</u>
Current liabilities	\$ 20,000	\$ 80,000
Long-term debt	80,000	20,000
Common stock	50,000	50,000
Retained earnings	<u>50,000</u>	<u>50,000</u>
Total liabilities and equity	<u>\$200,000</u>	<u>\$200,000</u>

Earnings before interest and taxes for both firms are \$30 million, and the effective federal-plus-state tax rate is 40%.

- What is the return on equity for each firm if the interest rate on current liabilities is 10% and the rate on long-term debt is 13%?
- Assume that the short-term rate rises to 20%, that the rate on new long-term debt rises to 16%, and that the rate on existing long-term debt remains unchanged. What would be the return on equity for Vanderheiden Press and Herrenhouse Publishing under these conditions?
- Which company is in a riskier position? Why?

Problems

EASY PROBLEMS 1–5

(16-1)
Cash Management

Williams & Sons last year reported sales of \$10 million and an inventory turnover ratio of 2. The company is now adopting a new inventory system. If the new system is able to reduce the firm's inventory level and increase the firm's inventory turnover ratio to 5 while maintaining the same level of sales, how much cash will be freed up?

(16-3)

Cost of Trade Credit

What is the nominal and effective cost of trade credit under the credit terms of 3/15, net 30?

(16-4)

Cost of Trade Credit

A large retailer obtains merchandise under the credit terms of 1/15, net 45, but routinely takes 60 days to pay its bills. (Because the retailer is an important customer, suppliers allow the firm to stretch its credit terms.) What is the retailer's effective cost of trade credit?

INTERMEDIATE PROBLEMS

6-12

(16-7)

Cost of Trade Credit

Calculate the nominal annual cost of nonfree trade credit under each of the following terms. Assume that payment is made either on the discount date or on the due date.

- a. 1/15, net 20
- b. 2/10, net 60
- c. 3/10, net 45
- d. 2/10, net 45
- e. 2/15, net 40

(16-8)

Cost of Trade Credit

- a. If a firm buys under terms of 3/15, net 45, but actually pays on the 20th day and *still takes the discount*, what is the nominal cost of its nonfree trade credit?
- b. Does it receive more or less credit than it would if it paid within 15 days?

(16-10)

Effective Cost of Trade
Credit

The D.J. Masson Corporation needs to raise \$500,000 for 1 year to supply working capital to a new store. Masson buys from its suppliers on terms of 3/10, net 90, and it currently pays on the 10th day and takes discounts. However, it could forgo the discounts, pay on the 90th day, and thereby obtain the needed \$500,000 in the form of costly trade credit. What is the effective annual interest rate of this trade credit?

(16-11)

Cash Conversion Cycle

The Zocco Corporation has an inventory conversion period of 60 days, an average collection period of 38 days, and a payables deferral period of 30 days. Assume that cost of goods sold is 75% of sales.

- a. What is the length of the firm's cash conversion cycle?
- b. If Zocco's annual sales are \$3,421,875 and all sales are on credit, what is the firm's investment in accounts receivable?
- c. How many times per year does Zocco turn over its inventory?

(16–12)

Working Capital Cash
Flow Cycle

The Christie Corporation is trying to determine the effect of its inventory turnover ratio and days sales outstanding (DSO) on its cash flow cycle. Christie's sales last year (all on credit) were \$150,000, and it earned a net profit of 6%, or \$9,000. It turned over its inventory 7.5 times during the year, and its DSO was 36.5 days. Its annual cost of goods sold was \$121,667. The firm had fixed assets totaling \$35,000. Christie's payables deferral period is 40 days.

- a. Calculate Christie's cash conversion cycle.
- b. Assuming Christie holds negligible amounts of cash and marketable securities, calculate its total assets turnover and ROA.
- c. Suppose Christie's managers believe the annual inventory turnover can be raised to 9 times without affecting sales. What would Christie's cash conversion cycle, total assets turnover, and ROA have been if the inventory turnover had been 9 for the year?

CHALLENGING PROBLEMS

13–17

(16–13)

Working Capital Policy

The Rentz Corporation is attempting to determine the optimal level of current assets for the coming year. Management expects sales to increase to approximately \$2 million as a result of an asset expansion presently being undertaken. Fixed assets total \$1 million, and the firm wishes to maintain a 60% debt ratio. Rentz's interest cost is currently 8% on both short-term and longer-term debt (both of which the firm uses in its permanent capital structure). Three alternatives regarding the projected current asset level are available to the firm: (1) a tight policy requiring current assets of only 45% of projected sales, (2) a moderate policy of 50% of sales in current assets, and (3) a relaxed policy requiring current assets of 60% of sales. The firm expects to generate earnings before interest and taxes at a rate of 12% on total sales.

- a. What is the expected return on equity under each current asset level? (Assume a 40% effective federal-plus-state tax rate.)
- b. In this problem, we have assumed that the level of expected sales is independent of current asset policy. Is this a valid assumption?
- c. How would the overall riskiness of the firm vary under each policy?

(16–14)

Cash Budgeting

Dorothy Koehl recently leased space in the Southside Mall and opened a new business, Koehl's Doll Shop. Business has been good, but Koehl has frequently run out of cash. This has necessitated late payment on certain orders, which is beginning to cause a problem with suppliers. Koehl plans to borrow from the bank to have cash ready as needed, but first she needs a forecast of just how much she should borrow. Accordingly, she has asked you to prepare a cash budget for the critical period around Christmas, when needs will be especially high.

Sales are made on a cash basis only. Koehl's purchases must be paid for during the following month. Koehl pays herself a salary of \$4,800 per month, and the rent is \$2,000 per month. In addition, she must make a tax payment of \$12,000 in December. The current cash on hand (on December 1) is \$400, but Koehl has agreed to maintain an average bank balance of \$6,000—this is her target cash balance. (Disregard cash in the till, which is insignificant because Koehl keeps only a small amount on hand in order to lessen the chances of robbery.)

The estimated sales and purchases for December, January, and February are shown below. Purchases during November amounted to \$140,000.

	Sales	Purchases
December	\$160,000	\$40,000
January	40,000	40,000
February	60,000	40,000

- Prepare a cash budget for December, January, and February.
- Now suppose that Koehl starts selling on a credit basis on December 1, giving customers 30 days to pay. All customers accept these terms, and all other facts in the problem are unchanged. What would the company's loan requirements be at the end of December in this case? (*Hint:* The calculations required to answer this question are minimal.)

(16–15)
Cash Discounts

Suppose a firm makes purchases of \$3.65 million per year under terms of 2/10, net 30, and takes discounts.

- What is the average amount of accounts payable net of discounts? (Assume the \$3.65 million of purchases is net of discounts—that is, gross purchases are \$3,724,489.80, discounts are \$74,489.80, and net purchases are \$3.65 million.)
- Is there a cost of the trade credit the firm uses?
- If the firm did not take discounts but did pay on the due date, what would be its average payables and the cost of this nonfree trade credit?
- What would be the firm's cost of not taking discounts if it could stretch its payments to 40 days?

(16–16)
Trade Credit

The Thompson Corporation projects an increase in sales from \$1.5 million to \$2 million, but it needs an additional \$300,000 of current assets to support this expansion. Thompson can finance the expansion by no longer taking discounts, thus increasing accounts payable. Thompson purchases under terms of 2/10, net 30, but it can delay payment for an additional 35 days—paying in 65 days and thus becoming 35 days past due—without a penalty because its suppliers currently have excess capacity. What is the effective, or equivalent, annual cost of the trade credit?