Chapter 19

Cash Conversion, Inventory, and Receivables Management

Answers to Concept Review Questions

1. What does the firm’s cash conversion cycle represent? What is the financial manager’s goal with regard to it? Why?

The firm’s cash conversion cycle represents how quickly a firm turns its product, from paying for inventory to collecting cash from the customer in payment for finished goods. The financial manager’s goal is to reduce the cash conversion cycle. The longer the cycle, the greater the need for interim financing to pay for the firm’s materials needs. The shorter the cycle, the sooner the firm receives cash that it can reinvest in the firm. A shorter cycle minimizes firm costs.

2. How should the firm manage its inventory, accounts receivable, and accounts payable in order to reduce the length of its cash conversion cycle?

The firm should have the least amount of inventory possible (as long as there are no stockouts which result in lost sales), the least amount of accounts receivable (collect accounts receivable quickly) and the greatest amount of accounts payable (stretch payments as long as possible).

3. What are the general cost trade-offs that the financial manager must consider when managing the firm’s operating assets? How do these costs behave as a firm considers reducing its accounts receivable by offering more-restrictive credit terms? How can the optimum balance be determined?

There are costs associated with holding too much and too little of each current asset and liability. For example, if a firm has a liberal credit policy, it will attract more customers, resulting in higher sales. However, it will have the cost of supporting the higher level of accounts receivable and possibly more bad debts. If the firm has more restrictive credit policies, it may lose sales to competitors with more liberal terms. The firm wants to find the amount of each asset that minimizes these competing costs.

4. What are the general cost trade-offs associated with the firm’s level of short-term financing? How do these costs behave when a firm substitutes short-term financing for long-term financing? How would you quantitatively model this decision to find the optimal level of short-term financing?

A firm with a great deal of short-term financing will have reduced liquidity, but will also have lower costs, since short-term debt is generally less expensive than long-term debt or equity financing. In other words, the greater the amount of short-term financing, the lower the costs to the firm. The firm will need to balance its desired liquidity, for
example, maintaining minimum current or quick ratio, with its desire to reduce the costs of obtaining financing.

5. How might the view of the financial manager with regard to inventory differ from that of those in production and marketing? What is the relationship between inventory turnover and inventory investment? Explain.

There are potential conflicts between the finance function view of inventory and that of marketing and production. The financial manager wants to minimize inventory. Funds that are not tied up in inventory can be used for positive net present value investment. The production function, however, wants to ensure that there is adequate inventory so that production can run smoothly, while the marketing function will want enough inventory to avoid stockouts. Inventory turnover is higher when inventory investment is lower. Inventory turnover refers to how many times the warehouse is emptied and then filled up each year. The higher the inventory turnover, the more efficient the firm’s use of inventory (as long as there are not stockouts which adversely impact sales.)

6. What is the ABC system? What role does the EOQ model play in controlling inventory? How does it capture the opportunity costs associated with inventory investment?

In the ABC system, inventory is divided into three groups. A items are those in which the firm has the largest investment and therefore the most intensive control. B items require the next largest investment and less intensive control than the A items, and C items require the smallest investment and least intensive control. Separating inventory allows the firm to decide what level and type of inventory control is needed. The EOQ model might be used to control A group items. This model considers operating and financial costs and determines the order quantity that minimizes overall inventory costs. This model captures opportunity costs because it includes order costs and carrying costs, the cost of holding too much inventory. The model balances carrying and order costs to find the optimal level of inventory.

7. Describe from the financial manager’s perspective the role of safety stock, reorder points, MRP, MRPII, and a just-in-time system in managing a firm’s inventory.

The EOQ model assumes perfect coordination between supplier and user. In reality, the firm may not be able to predict the exact time a new order will arrive. In order to ensure that production runs smoothly, the firm may want to hold safety stocks, extra inventory that takes into account the probability of shipment delays and faster-than-average usage. The reorder point is lead time in days times daily usage, and is an estimate of when new orders should be placed. MRP, or material requirements planning, is a computerized system to control the flow of resources. It uses a master schedule to ensure that production needs are at the right time and place in the correct amounts. Manufacturing requirements planning II expands on MRP. Its computerized system integrates data from financing, marketing, engineering and manufacturing. It generates a production plan for the firm, along with management reports, forecasts and financial statements. Just-in-time is a system with the core principle that materials should arrive exactly when they are needed for production. A computerized system like MRP can state when the materials will be needed, and just-in-time principles states that the materials should be ordered to arrive precisely when the MRP schedule says the will be needed. JIT can
reduce inventory levels and carrying costs, allowing the financial manager to invest these funds in more productive uses.

8. Why do a firm’s regular credit terms typically conform to those of its industry? On what basis other than credit terms should the firm compete?

A firm’s credit terms typically conform to those of its industry. If they did not, then customers would be more likely to patronize competitors with more liberal credit policies. The firm can, however, compete on other than credit terms. For example, the firm could offer faster delivery or higher quality, which might attract more customers even if the credit policies were more restrictive.

9. How are the five Cs of credit used to perform in-depth credit analysis? Why is this framework typically used only on high-dollar credit requests?

The five Cs of credit are used to perform in-depth credit analysis but don’t provide a specific accept or reject decision. Applying the five C’s requires an analyst experienced in reviewing and granting credit requests. Applying the five C’s is costly and time-consuming, and therefore is applied primarily to high-dollar credit requests.

10. How is credit scoring used in the credit selection process? In what types of situations is it most useful?

Credit scoring applies statistically derived weights for key financial and credit characteristics to predict whether a potential customer will pay in a timely manner. The score measures the applicant’s overall credit strength. It is most commonly used by large credit card operations, such as those of banks, oil companies and department stores.

11. What are the key variables to consider when evaluating the benefits and costs of changing credit standards? How do these variables differ when evaluating the benefits and costs of changing credit terms?

When considering changing credit standards, the firm must look at what impact a change would have on sales, costs and overall cash flows. A restrictive credit policy could cost the firm lost sales, while relaxing standards could lead to an increase in bad debts. Relaxing credit standards generally increases sales and bad debt expense. Tightening credit standards lowers accounts receivable and bad debts but also lowers sales and profits.

12. Why do we include only the variable cost of sales when estimating the average investment in accounts receivable? Why do we apply an opportunity cost to this investment to estimate its cost?

We use only variable costs because the model assumes an increase in sales will not cause fixed costs to increase. There is an opportunity cost of increasing accounts receivable – the higher level of accounts receivable must be financed and there is a cost associated (interest expense) with higher levels of financing.
13. What are the key elements of a firm’s credit terms? What is a key determinant of the credit terms offered by a firm?

Credit terms include when the customer must pay and if the customer receives discounts for paying before the bill is due. Credit terms are influenced by the nature of the business. For example, a firm with perishable times will have short credit terms, since there is little value to repossessing the items if the bill is not paid on time. A firm in a seasonal business may use seasonal dating, fitting credit terms to fit industry cycles.

14. What is a collection policy? What is the typical sequence of actions taken by a firm when attempting to collect an overdue account?

Collection policy refers to the procedures used by a company to collect overdue accounts receivable. A firm may start with a reminder, form letter, telephone call or visit to encourage customer payment. The company may suspend further sales until the delinquent account is made current. Next, the firm may negotiate with the customer for past due amounts and report the customer to credit bureaus. If the goods were sold with a lien attached, collateral or corporate or personal guarantees, the company may pursue these options to obtain payment. As a last resort, the account may be turned over to a collection agency or referred to an attorney.

15. Why should a firm actively monitor the accounts receivable of its credit customers? How do each of the following credit monitoring techniques work: (a) average collection period, (b) aging of accounts receivable, and (c) payment pattern monitoring?

A firm should actively monitor accounts receivable to ensure that customers are paying in a timely manner. For example, are customers complying with the firm’s credit terms or are they taking longer to pay than the company’s policies allow? At some point the firm may need to turn overdue accounts over to a collection agency or take legal actions to collect. By monitoring average collection policy, the firm can see if its terms are generally being met. For example, if the firm extends credit for 30 days and it has a 45-day collection period, then customers on average are significantly slower in paying than company policies allow. Aging of accounts receivable shows what percent of accounts are not paid in a timely manner. Payment pattern monitoring is helpful if the firm has very cyclical sales patterns. The payment pattern is the normal timing in which a firm’s customers pay their accounts, expressed as a percentage of monthly sales collected in each month following the sale. By tracking patterns over time, the company can determine its average pattern.
Answers to Self-Test Problems

ST19-1. Aztec Products wishes to evaluate its cash conversion cycle (CCC). Research by one of the firm’s financial analysts indicates that on average the firm holds items in inventory for 65 days, pays its suppliers 35 days after purchase, and collects its receivables after 55 days. The firm’s annual sales (all on credit) are about $2.1 billion, its cost of goods sold represent about 67 percent of sales, and purchases represent about 40 percent of cost of goods sold. Assume a 365-day year.

a. What is Aztec Products’ operating cycle (OC) and cash conversion (CCC)?

b. How many dollars of resources does Aztec have invested in (1) inventory, (2) accounts receivable, (3) accounts payable, and (4) the total CCC?

c. If Aztec could shorten its cash conversion cycle by reducing its inventory holding period by 5 days, what effect would it have on its total resource investment found in part b(4)?

d. If Aztec could shorten its CCC by 5 days, would it be best to reduce the inventory holding period, reduce the receivable collection period, or extend the accounts payable period? Why?

a. Operating cycle = average age of inventory + average collection period

\[ OC = AAI + ACP \]

\[ = 65 \text{ days} + 55 \text{ days} = 120 \text{ days} \]

Cash conversion cycle = operating cycle – average payment period

\[ CCC = OC - APP \]

\[ = 120 \text{ days} - 35 \text{ days} = 85 \text{ days} \]

b. (1) inventory = ($2.1 billion x 67%) x (65/365) = $250.6 million

(2) accounts receivable = ($2.1 billion) x (55/365) = $316.4 million

(3) accounts payable = ($2.1 billion x 67% x 40%) x (35/365) = $54 million

(4) total resources invested = $250.6 million + $316.4 million - $54 million

\[ = $513.0 \text{ million} \]

c. New inventory investment = ($2.1 billion x 67%) x [(65 – 5)/365] = $231.3 million

Change in resource investment = change in inventory investment

\[ = $231.3 \text{ million} - $250.6 \text{ million} = -$19.3 \text{ million} \]

The total resource investment would be reduced by $19.3 million.

d. It would be best to reduce the receivable collection period because the receivables account for the largest annual dollar investment—$2.1 billion—whereas the annual inventory investment equals 67 percent of that amount, and annual purchases equal 40 percent of the inventory investment.

ST19-2. Vargas enterprises wishes to determine the economic order quantity (EOQ) for a critical and expensive inventory item that is used in large amounts at a relatively constant rate
Chapter 19/Cash Conversion, Inventory, and Receivables Management

throughout the year. The firm uses 450,000 units of the item annually, has order costs of $375 per order, and its carrying costs associated with this item are $28 per unit per year. The firm plans to hold safety stock of the item equal to 5 days of usage, and it estimates that it takes 12 days to receive an order of the item once placed. Assume a 365-day year.

a. Calculate the firm’s EOQ for the item of inventory described above.

b. What is the firm’s total cost based upon the EOQ calculated in part a?

c. How many units of safety stock should Vargas hold?

d. What is the firm’s reorder point for the item of inventory being evaluated? (Hint: Be sure to include the safety stock.)

\[ EOQ = \sqrt{\frac{2SO}{C}} = \sqrt{\frac{2 \times 450,000 \times 375}{28}} = \sqrt{12,053,571} = 3,472 \text{ units} \]

\[ \text{Total cost} = (O \times S/Q) + (C \times Q/2) \]
\[ = (375 \times 450,000/3,472) + (28 \times 3,472/2) \]
\[ = 48,603 + 48,608 = 97,211 \]

c. Daily usage = 450,000 ÷ 365 = 1,233 units

Safety stock = 5 days x 1,233 units/day = 6,165 units

d. Reorder point = (lead time in days x daily usage) + safety stock

= (12 days x 1,233 units/day) + 6,165 units = 20,961 units

ST19-3. Belton Company is considering relaxing its credit standards to boost its currently sagging sales. It expects its proposed relaxation will increase sales by 20 percent from the current annual level of $10 million. The firm’s average collection period is expected to increase from 35 days to 50 days and bad debts are expected to increase from 2 percent of sales to 7 percent of sales as a result of relaxing the firm’s credit standards as proposed. The firm’s variable costs equal 60 percent of sales and their fixed costs total $2.5 million per year. Belton’s opportunity cost is 16 percent. Assume a 365-day year.

a. What is Belton’s contribution margin?

b. Calculate Belton’s marginal profit from increased sales.

c. What is Belton’s cost of the marginal investment in accounts receivable?

d. What is Belton’s cost of marginal bad debts?

e. Use your findings in parts b, c, and d to determine the net profit (cost) of Belton’s proposed relaxation of credit standards. Should they relax credit standards?

\[ \text{Contribution margin} = 1.00 - \text{variable cost percentage} = 1.00 - 0.60 = 0.40 = 40\% \]

\[ \text{Marginal profit from increased sales} = \Delta \text{sales} \times \text{contribution margin} \]
\[ = (\$10 \text{ million x 20\%}) \times 40\% = 800,000 \]

c. Cost of marginal investment in accounts receivable:

\[ \text{Investment in accounts receivable} = \text{Total variable cost} / \text{A/R turnover} \]
\[ \text{After relaxation: } (\$12 \text{ million x 60\%}) / (365/50) = 986,301 \]
Before relaxation: \((10 \text{ million } \times 60\%) / (365/35) = \$575,342\)  
Marginal investment in A/R = \$986,301 - \$575,342 = \$410,959  
Cost of marginal investment in A/R = \$410,959 \times 16\% = \$65,753  

d. Cost of marginal bad debts:  
Cost of bad debts = annual sales \times bad debt expense rate  
After relaxation: \(12 \text{ million } \times 7\% = \$840,000\)  
Before relaxation: \(10 \text{ million } \times 2\% = \$200,000\)  
Cost of marginal bad debts = \$840,000 - \$200,000 = \$640,000  

e. Summary:  
Marginal profit from increased sales = \$800,000  
Less: Cost of marginal investment in A/R = \$65,753  
Less: Cost of marginal bad debts = \$640,000  
Net profit from proposed relaxation = \$94,247  
Recommendation: Belton Company should relax its credit standards as proposed because it will result in an annual increase in profits of \$94,247.