Chapter 15 Working Capital and Current Liabilities Management

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Course Title: Managerial Finance

Current Liabilities Management

Spontaneous liabilities:

Financing that arises from the normal course of business; the two major short-term sources of such liabilities are accounts payable and accruals.

Unsecured short-term financing:

Short-term financing obtained without pledging specific assets as collateral.

Accounts payable management:

Management by the firm of the time that elapses between its purchase of raw materials and its mailing payment to the supplier.

Accounts Payable Management

- ☐ As sales increase, both accounts payable and accruals increase.
- ☐ Managing accounts payable includes managing the average payment period APP which is the final component of the *cash conversion cycle*.
- ☐ The average payment period APP has two parts:
- 1. The time from the purchase of raw materials until the firm mails the payment.
- 2. payment float time (the time that the payment takes after the firm mails its payment until the supplier has withdrawn spendable funds from the firm's account).

Role of Accounts Payable in the Cash Conversion Cycle

- ☐ The objective of managing accounts payable is to pay accounts payable as slowly as possible without damaging the firm's credit rating.
- When the seller of goods charges no interest and offers no discount to the buyer for early payment, the buyer's goal is to pay as slowly as possible without damaging its credit rating. This means that Accounts payable should be paid on the last day possible, given the supplier's stated credit terms.
- ☐ Resources tied up in the cash conversion cycle and
- 1. Increasing APP will decrease resources invested in the cash conversion cycle.
- 2. Decreasing App will increase the resources invested in the cash conversion cycle.

• Example 1:

A company has annual sales of \$ 6 million, cost of goods sold of 60% of sales, and purchases that are 50% of cost of goods sold. The company has an average age of inventory (AAI) of 50 days, an average collection period (ACP) of 40 days, and an average payment period (APP) of 35 days. (Assume the year has 360 days)

- 1. Calculate the CCC.
- 2. Calculate cash resources invested or tied up to the cash conversion cycle.
- 3. How will allo-day increase in APP affect the resources invested in the CCC?

1) Calculating CCC:

$$CCC = AAI + ACP - APP$$

$$CCC = 50 + 40 - 35$$

$$CCC = 55 days$$

2) Calculating resources invested or tied up in the cash conversion cycle:

Inventory = Cost of goods sold \times AAI = \$ Inventory 360

+ Accounts receivable = Sales \times ACP = + \$ A/R 360

- Accounts payable = Purchases \times APP = - \$ A/P = 360

Total Resources Invested in the cash conversion cycle

Inventory $(6,000,000 \times 0.6) \times 50$ 500,000 360 6,000,000 × + Accounts receivable = = +40 666,667 360 - Accounts payable $(6,000,000 \times 0.6 \times 0.5) \times$ <u>35</u> 175,000 360 Total Resources Invested in the cash conversion cycle 991,667

\$\$\$

3) Effects of a 10 day increase in APP on the resources invested in the CCC:

• This will increase resources invested in accounts payable and will reduce resources invested in the CCC.

Increase in A/P resources = purchases
$$\times$$
 days increased of APP 360

Increase in A/P resources = $(6,000,000 \times 0.6 \times 0.5) \times 10$ days 360

Increase in A/P resources = \$ 50,000

New amount of resources in CCC after 10-day increase in APP is:

- = Total resources invested in CCC resources increased from A/P
- = \$991,667 \$50,000 = \$941,667

Analyzing Credit Terms

- ☐ The credit terms that a firm is offered by its suppliers sometimes will include a cash discount for early payment.
- ☐ In that case, the purchaser should carefully analyze credit terms to determine the best time to repay the supplier.
- ☐ The purchaser must weigh the benefits of taking the cash discount or not.
- ☐ If a firm intends to take a cash discount, it should pay on the last day of the discount period. There is no added benefit from paying earlier than that date.

Taking a cash discount

• Example 2:

A company purchased \$1,000 worth of merchandise on February 27 from a supplier extending terms of 2/10 net 30 EOM. What will the firm pay if takes the cash discount? How much did the firm save from taking the offered cash discount?

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Payment wi th cash di scount = purchase amount - d iscount am ount 
Payment wi th cash di scount = purchase amount - (CD\% \times purchase amount) 
Payment wi th cash di scount = $1,000 - (2\% \times $1,000) 
Payment wi th cash di scount = $1,000 - $20 = $980
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Savings from taking the offered cash discount = \$1,000- \$980 = \$20 or Savings from taking the offered cash discount = $CD\% \times \$$ purchases Savings from taking the offered cash discount = $.02 \times \$1,000$ = \$20

Cost of giving up a cash discount

☐ If the firm chooses to give up the cash discount, it should pay on the final day of the credit period. There is an implicit cost associated with giving up a cash discount.

Cost of giving up a cash discount:

The implied rate of interest paid to delay payment of an account payable for an additional number of days.

☐ When a firm gives up a discount, it pays a higher cost for the goods that it orders. The higher cost that the firm pays is like interest on a loan, and the length of this loan is the number of additional days that the purchaser can delay payment to the seller.

Cost of giving up a cash discount

Calculating the actual cost of giving up a cash discount:

Actual cost of gi ving up ca sh discoun
$$t = \frac{CD}{100\% - CD} \times \frac{365}{N}$$

Approximating the cost of giving up a cash discount:

Approximat e cost of giving up cash disco unt = $CD \times \frac{365}{N}$

CD = % of cash discount

N = number of days that the payment can be delayed by giving upthe cash discount $N = credit\ period - cash\ discount\ period$

• <u>E 15 - 1:</u>

A company purchased seeds costing \$25,000 with terms of 3/15 net 30. How much will the firm pay if it takes the cash discount? What is the cost of giving up cash discount using:

- 1. Actual cost of giving up the cash discount
- 2. Approximate cost of giving up the cash discount
- 1 Actual cost of gi ving up ca sh discoun $t = \frac{CD}{100\% CD} \times \frac{365}{N}$ Actual cost of givin g up cash discount $= \frac{3\%}{100\% 3\%} \times \frac{365}{30 15} = 75.26\%$
- 2 Approximat e cost of giving up cash disco unt = $CD \times \frac{365}{N}$ Approximat e cost of giving up cash disco unt = $3\% \times \frac{365}{30-15} = 73\%$

Using the Cost of Giving Up a Cash Discount in Decision Making

- ☐ The financial manager must determine whether it is advisable to take a cash discount.
- ☐ A primary consideration influencing this decision is the cost of other short-term sources of funding.
- When a firm can obtain financing from a bank or another institution at a lower cost than the cost of giving up a cash discount from a supplier, the firm is better off borrowing from the bank and taking the discount offered by the supplier. However, other factors relative to payment strategies may also need to be considered.
- □ Some firms, particularly small firms and poorly managed firms, routinely give up all discounts because they either lack alternative sources of unsecured short-term financing or fail to recognize the implicit costs of their actions.

Example 3:

The following table provides credit terms offered by suppliers A, B, C, and D and the cost of giving up the cash discounts in each transaction. The firm can have short-term funds by borrowing from its bank at an interest rate of 13%. Which (if any) of the suppliers' cash discounts will the firm give up?

| Supplier | Credit terms | Approximate cost of giving up a cash discount |
|----------|-----------------|---|
| A | 2/10 net 30 EOM | 36.5% |
| В | 1/10 net 55 EOM | 8.1 |
| C | 3/20 net 70 EOM | 21.9 |
| D | 4/10 net 60 EOM | 29.2 |

• Solution:

| Supplier | Credit terms | Approximate cost of giving up cash discount | Cost of short term funds borrowed from the bank | Decision to take or give up cash discount |
|----------|--------------|---|---|---|
| A | 2/10 net 30 | 36.5% | 13% | 36.5% > 13% take CD |
| В | 1/10 net 55 | 8.1 | 13% | 8.1% < 13% give up CD |
| С | 3/20 net 70 | 21.9 | 13% | 21.9% > 13% take CD |
| D | 4/10 net 60 | 29.2 | 13% | 29.2% > 13% take CD |

Effects of Stretching Accounts Payable

Stretching accounts payable:

Paying bills as late as possible without damaging the firm's credit rating. Stretching accounts payable reduces the implicit cost of giving up a cash discount.

Example 4:

A company was extended credit terms of 2/10 net 30 EOM. If the firm were able to stretch its account payable to net 70 days without damaging its credit rating, what will be the cost of giving up the cash discount before and after stretching account payable?

Cost of cash discount before stretching account payable net 30:

Approximat e cost of giving up cash disco unt =
$$CD \times \frac{365}{N}$$

Approximat e cost of giving up cash disco unt = $2\% \times \frac{365}{30-10} = 36.5\%$

Cost of cash discount after stretching account payable net 70:

Approximat e cost of giving up cash disco unt =
$$CD \times \frac{365}{N}$$

Approximat e cost of giving up cash disco unt = $2\% \times \frac{365}{70-10} = 12.2\%$

Accruals Management

Accruals:

Liabilities for services received for which payment has yet to be made.

☐ The most common items accrued by a firm are wages and taxes.

Accruals from wages result from delaying payment of wages, thereby receiving an interest-free loan from employees who are paid sometime after they have performed the work.

• Example 5:

A company, currently pays its employees at the end of each work week. The weekly payroll totals \$400,000. If the firm were to extend the pay period so as to pay its employees 1 week later throughout an entire year, the employees would in effect be lending the firm \$400,000 for a year. If the firm could earn 10% annually on invested funds, what will such a strategy be worth?

• Solution:

Worth of delaying payment to employees = required return \times total payroll

Worth of delaying payment to employees = $.1 \times $400,000$

Worth of delaying payment to employees = \$ 40,000 per year

Self test problem:

The credit terms for each of three suppliers are shown in the following table. (*Note: Assume a 365-day year.*)

| Supplier | Credit terms |
|----------|-----------------|
| X | 1/10 net 55 EOM |
| Y | 2/10 net 30 EOM |
| Z | 2/20 net 60 EOM |

- a) Determine the approximate cost of giving up the cash discount from each supplier.
- b) Assuming that the firm needs short-term financing, indicate whether it would be better to give up the cash discount or take the discount and borrow from a bank at 15% annual interest. Evaluate each supplier *separately using your findings in* part a.
- c) What impact, if any, would the fact that the firm could stretch its accounts payable (net period only) by 20 days to become net 80 from supplier Z have on your answer in part b relative to this supplier?

a) approximate cost of giving up the cash discount from each supplier:

| Supplier | Approximate cost of giving up cash discount |
|----------|---|
| X | 1% × [365/(55 - 10)] = 1% × 365/45 = 1% × 8.1 = 8.1% |
| Y | $2\% \times [365/(30-10)] = 2\% \times 365/20 = 2\% \times 18.25 = 36.5\%$ |
| Z | $2\% \times [365/(60-20)] = 2\% \times 365/40 = 2\% \times 9.125 = 18.25\%$ |

b) giving up the cash discount or taking the discount and borrow from a bank at 15% annual interest

| Supplier | Recommendation |
|----------|--|
| X | 8.1% cost of giving up discount < 15% interest cost from bank; therefore, give up discount. |
| Y | 36.5% cost of giving up discount > 15% interest cost from bank; therefore, take discount and borrow from bank. |
| Z | 18.25% cost of giving up discount > 15% interest cost from bank; therefore, take discount and borrow from bank. |

c) Impact of stretching accounts payable (net period only) by 20 days to become net 80 from supplier Z on your answer in part b relative to this supplier?

Stretching accounts payable for supplier Z would change the cost of giving up the cash discount to

Approximat e cost of giving up cash disco unt =
$$CD \times \frac{365}{N}$$

Approximat e cost of giving up cash disco unt = $2\% \times \frac{365}{80-20} = 12.2\%$

In this case, in light of the 15% interest cost from the bank, the recommended strategy in part b would be to give up the discount because the 12.2% cost of giving up the discount would be less than the 15% interest cost from the bank.

Unsecured Sources of Short-Term Loans(1) Understanding Loan Interest Rates:

☐ The interest rate on a bank loan can be a fixed or a floating rate, typically based on the prime rate of interest.

Prime rate of interest (prime rate):

The lowest rate of interest charged by leading banks on business loans to their most important business borrowers.

- ☐ The prime rate fluctuates with changing supply-and-demand relationships for short-term funds.
- Banks determine the rate to be charged to various borrowers by adding a premium to the prime rate to adjust it for the borrower's "riskiness."
- ☐ The loan interest rate = Prime rate + increment (Risk premium)

The more creditworthy the borrower, the lower the risk premium (interest increment) above prime, and vice versa.

Loan Interest Rates.

Loans can have either fixed or floating interest rates.:

Fixed-rate loan:

A loan with a rate of interest that is determined at a set increment above the prime rate and remains unvarying until maturity.

Floating-rate loan:

A loan with a rate of interest initially set at an increment above the prime rate and allowed to "float," or vary, above prime as the prime rate varies until maturity.

- ☐ Generally, the increment above the prime rate will be lower on a floating-rate loan than on a fixed-rate loan of equivalent risk because the lender bears less risk with a floating-rate loan.
- ☐ As a result of the volatile nature of the prime rate during recent years, today most short-term business loans are floating-rate loans.

Method of Computing Effective Interest

- ☐ Interest can be paid in two options:
- 1. When a loan matures: it is paid at loan maturity which means that the borrower actually receives the exact money that he requested and repays this principal in addition to interest by the end of the loan term.
- 2. <u>In advance:</u> it is deducted from the loan so that the borrower actually receives less money than is requested (and less than they must repay which is the full loan amount).

Discount Loan:

It is a loan on which interest is paid in advance by being deducted from the amount borrowed.

Method of Computing Effective Interest

(1) If interest on the loan is paid at maturity:

The effective (or true) annual rate—the actual rate of interest paid for an assumed 1-year period is equal to:

Effective interest rate =

Interest amount

Amount borrowed

(2) If interest on the loan is paid in advance:

The effective (or true) annual rate—the actual rate of interest paid for an assumed 1-year period is equal to:

Effective interest rate =

Interest amount

Amount borrowed – Interest amount

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

• Example 6:

A company wants to borrow \$10,000 at a stated annual rate of 10% interest for 1 year, calculate:

- 1. The interest amount that the firm will pay at maturity.
- 2. The effective annual rate on this loan if interest is paid at maturity.
- 3. The effective annual rate on this loan if interest is paid in advance (discount loan).

1. Calculating Interest amount:

Interest amount = Loan Principal × nominal interest % × time to maturity = $$10,000 \times 0.1 \times 360$ = \$1,000 2. Effective annual interest if the loan is paid at maturity:

Effective interest rate =
$$\frac{\text{Interest amount}}{\text{Amount borrowed}}$$
Effective interest rate =
$$\frac{\$1,000}{\$10,000} = 0.1 = 10\%$$

3. Effective annual interest for discount loan (interest paid in advance)

Effective interest rate =
$$\frac{\text{Interest amount}}{\text{Amount borrowed - Interest amount}}$$
Effective interest rate =
$$\frac{\$1,000}{\$10,000 - \$1,000} = 0.111 = 11.1\%$$
Effective interest rate =
$$\frac{\$1,000}{\$9,000} = 0.111 = 11.1\%$$

• Example 7:

• A company has been given two offers for short term financing:

| Itama | Offer 1: | Offer 2: |
|--------------------|-----------------|---------------------------------|
| Item | A discount loan | interest to be paid at maturity |
| Amount of the loan | \$20,000 | \$20,000 |
| Interest rate | 12 % | 13% |
| Time to Maturity | 1 year | 1 year |

• Calculate the effective annual rates for each loan:

| effective annual rate / Offer 1 : | effective annual rate / Offer 2 : |
|--|--|
| A discount loan | Interest paid at maturity |
| $= \frac{\$20,000 \times 0.12}{\$20,000 - (\$20,000 \times 0.12)}$ $= \frac{\$2,400}{\$17,600} = 13.6\%$ | $= \frac{\$20,000 \times 0.13}{\$20,000}$ $= \frac{\$2,600}{\$20,000} = 13 \%$ |

• Which loan offer should the company use? Offer 1 / Offer 2 / Why? The company should select Offer 2 because: effective annual rate for offer 2 < effective rate for offer 1

• Example 8:

A firm had *a Floating rate loan* from a bank to be *paid at maturity* with the following data:

- •Loan amount = \$10,000
- •Time to Maturity = 180 days, year has 360 days.
- •Interest rate = Prime Rate + 3% increment (or risk premium)
- •Prime Rate = 6% for the first 100 days.

8 % for the next 80 days.

Calculate the interest amount and the effective interest rate for 180 days and annually

| Time to maturity | Calculation | \$ Interest Amount |
|---------------------------|---|-----------------------|
| 100 days | Loan Principal \times interest rate $\% \times$ time to maturity $10,000 \times (.06 + .03) \times 100$ $= 360$ | \$ 250 |
| 80 days | Loan Principal \times interest rate $\% \times$ time to maturity $10,000 \times (.08 + .03) \times 80$ 360 | \$ 244 |
| Total interest amount the | e company must pay by the end of the Floating rate loan = | \$ 494 |

2. Effective 180 day interest for a floating rate loan when paid at maturity:

Effective 180 day interest rate =
$$\frac{\text{Interest amount}}{\text{Amount borrowed}}$$
Effective interest rate =
$$\frac{\$494}{\$10,000} = 0.0494 = 4.94\%$$

3. Effective annual interest for a floating rate loan when paid at maturity:

$$n = year / loan period$$

$$n = 360 / 180 = 2$$
Effective annual interest rate = $(1+r)^n - 1$
Effective annual interest rate = $(1+0.0494)^{-2} - 1$
Effective annual interest rate = $0.1012 = 10.12 \%$

• Example 9:

A firm had *a Floating rate loan* from a bank to be *paid at maturity* with the following data:

- •Loan amount = \$20,000
- •Time to Maturity = 4 months, year has 12 months.
- •Interest rate = Prime Rate + 2% increment (or risk premium)
- •Prime Rate = 7 % for the first 1 months.

9 % for the next 3 months.

Calculate the interest amount and the effective interest rate for 180 days and annually

| Time to maturity | Calculation | \$ Interest Amount |
|---|---|-----------------------|
| 1 months = | Loan Principal \times interest rate $\% \times$ time to maturity $20,000 \times (.07 + .02) \times 1$ | \$ 150 |
| 3 months = | Loan Principal \times interest rate $\% \times$ time to maturity $20,000 \times (.09 + .02) \times 3$ | \$ 550 |
| Total interest amount the company must pay by the end of the Floating rate loan = | | \$ 700 |

2. Effective 4 months interest for a floating rate loan when paid at maturity:

Effective 4 months interest rate =
$$\frac{\text{Interest amount}}{\text{Amount borrowed}}$$
Effective interest rate =
$$\frac{\$700}{\$20,000} = 0.035 = 3.5 \%$$

3. Effective annual interest for a floating rate loan when paid at maturity:

$$n = year / loan period$$

$$n = 12 / 4 = 3$$
Effective annual interest rate = $(1 + r)^n - 1$
Effective annual interest rate = $(1 + 0.035)^3 - 1$
Effective annual interest rate = $0.1087 = 10.87\%$

(2) Understanding Types of Unsecured Sources of Short-Term Loans

- Businesses obtain unsecured short-term loans from two major sources:

 (1) <u>bank loans</u> (2) <u>sales of commercial paper (short-term debt security)</u>.
- ☐ Unlike the spontaneous sources of unsecured short-term financing (accounts payable and accruals), bank loans and commercial paper are negotiated and result from actions taken by the firm's financial manager.
- Bank loans are more popular because they are available to firms of all sizes; commercial paper tends to be available only to large firms.
- ☐ In addition, firms can use <u>international loans</u> to finance international transactions.

Unsecured Sources of Short-Term Loans

(1) BANK LOANS:

Short-term, self-liquidating loan:

It is an unsecured short-term loan in which the use to which the borrowed money is put provides the mechanism through which the loan is repaid.

- ☐ These loans are intended merely to carry the firm through seasonal peaks in financing needs that are due primarily to buildups of inventory and accounts receivable.
- ☐ As the firm converts inventories and receivables into cash, the funds needed to retire these loans are generated (self-liquidating).
- ☐ Banks lend unsecured, short-term funds in three basic ways:
- 1. Single payment notes.
- 2. Lines of credit.
- 3. Revolving credit agreements.

(1) Single payment notes:

It is a short-term, one-time loan made to a borrower who needs funds for a specific purpose for a short period.

- ☐ A single-payment note can be obtained from a commercial bank by a creditworthy business borrower.
- ☐ This type of loan is usually a one-time loan made to a borrower who needs funds for a specific purpose for a short period.
- ☐ The resulting instrument is a *note*, *signed by the borrower*, *that states the terms of the loan*, including the length of the loan and the interest rate.
- ☐ This type of short-term note generally has a maturity of 30 days to 9 months or more. The interest charged is usually tied in some way to the prime rate of interest.

• Example 10:

A firm had a *Fixed rate loan from bank A* and a *Floating rate loan from bank B* to be *paid at maturity* with the following data:

- •Loan amount = \$100,000
- •Time to Maturity = 90 days for each note, year has 365 days.
- •Interest rate = Prime Rate + increment (or risk premium)

| Item | Bank A | Bank B | |
|------------------------|-------------------|-----------------------------|--|
| TUCIII | (Fixed Rate note) | (Floating rate note) | |
| | | % 6 for the first 30 days | |
| Prime rate: | % 6 for 90 days | %6.5 for the next 30 days | |
| | | % 6.25 for the last 30 days | |
| Increment above prime: | % 1.5 | % 1 | |
| Time to maturity: | 90 day note | 90 day note | |

Calculate:

- 1. Interest amount for each bank.
- 2. Effective interest rate for 90 days.
- 3. Annual effective interest rate.

Interest amount paid for bank A:

= Loan Principal \times interest rate $\% \times$ time to maturity

1. =
$$\$100,000 \times (.06 + .015) \times 90$$

= $\$1,849$ 365

Interest amount paid for bank B:

| Time to maturity | Calculation | \$ Interest Amount |
|---|---|-----------------------|
| First 30 days = | Loan Principal \times interest rate $\% \times$ time to maturity $\$100,000 \times (.06 + .01) \times 30 = 365$ | \$ 575 |
| Second 30 days = | Loan Principal \times interest rate $\% \times$ time to maturity $\$100,000 \times (.065 + .01) \times 30$ | \$ 616 |
| Last 30 days | Loan Principal \times interest rate $\% \times$ time to maturity $\$100,000 \times (.0625 + .01) \times 30$ 365 | \$ 596 |
| Total interest amount the company must pay by the end of the Floating rate loan = | | \$ 1,787 |

2. Effective interest rate for 90 days for bank A:

Effective interest rate =
$$\frac{\$1,849}{\$100,000} = 0.0185 = 1.85 \%$$

Effective interest rate for 90 days for bank B:

Effective 90 day interest rate =
$$\frac{\text{Interest amount}}{\text{Amount borrowed}}$$
Effective interest rate =
$$\frac{\$1,787}{\$1,00,000} = 0.01787 = 1.787 \%$$

\$100,000

3. Effective annual interest for a fixed rate loan when paid at maturity to bank A: n = vear / loan period

Effective annual interest rate =
$$(1+r)^n - 1$$

Effective annual interest rate = $(1+0.0185)^{4.06} - 1$
Effective annual interest rate = $0.0773 = 7.73\%$

Effective annual interest for a floating rate loan when paid at maturity to bank B: n = year / loan period

$$n = 365 / 90 = 4.06$$
Effective annual interest rate = $(1+r)^n - 1$
Effective annual interest rate = $(1+0.01787)^{-4.06} - 1$
Effective annual interest rate = $0.0746 = 7.46\%$

The floating-rate loan (Bank B) is less expensive than the fixed-rate loan (Bank A) because of its lower effective annual rate.

(2) Lines of credit:

It is an agreement between a commercial bank and a business specifying the amount of unsecured short-term borrowing the bank will make available to the firm over a given period of time.

- ☐ A line-of-credit is typically made for a period of 1 year.
- ☐ It is *not a guaranteed loan* but indicates that if the bank has sufficient funds available, it will allow the borrower to owe it up to a certain amount of money.
- The amount of a line of credit is the *maximum amount the firm can owe* the bank at any point in time.
- When applying for a line of credit, the borrower may be required to submit cash budget, pro forma and recent financial statements.
- ☐ If the bank finds the customer acceptable, the line of credit will be extended.
- The major attraction of a line of credit from the bank's point of view is that it eliminates the need to examine the creditworthiness of a customer each time it borrows money within the year.

Interest Rate on a line of credit:

The interest rate on a line of credit is normally stated as a floating rate – the *prime rate plus a premium*.

• If the prime rate changes, the interest rate charged on new as well as outstanding borrowing automatically changes.

Operating-Change Restrictions on a line of credit

They are contractual restrictions that a bank may impose on a firm's financial condition or operations as part of a line-of credit agreement.

- They give it the right to revoke the line if any major changes occur in the firm's financial condition or operations without the bank approval.
- Examples on restrictions: submit up-to-date audited financial statements.
- Informing the bank about changes in key managerial personnel or in the firm's operations before they occur.

Compensating Balances

A required checking account balance equal to a certain percentage of the amount borrowed from a bank under a line-of-credit or revolving credit agreement.

- A compensating balance is equal to a certain percentage of the amount borrowed.
- Banks frequently require compensating balances of 10 to 20 percent.
- A compensating balance forces the borrower to be a good customer of the bank and raise the interest cost of borrowing *only if the compensating balance amount is larger than the firm's normal cash balance amount.*

• Example 11:

A company has borrowed \$1 million under a one year line-of credit agreement. It must pay a stated interest rate of 10% and maintain, in its checking account, a compensating balance equal to 20% of the amount borrowed.

- 1. Calculate the compensating balance amount.
- 2. The amount that the company will receive (usable funds) and the effective annual rate:
 - a. if the company checking account balance is zero.
 - b. if the company checking account balance is \$100,000.
 - c. if the company checking account balance is \$200,000.

• Solution:

1) Compensating balance amount = compensating balance % × borrowed amount

$$= 0.2 \times \$1,000,000 = \$200,000$$

- 2) The amount that the company will receive and the effective annual rate:
 - a. if the company checking account balance is zero:

The received amount =

borrowed amount – compensating balance + checking account balance

The received amount = \$1,000,000 - \$200,000 + \$0 = \$800,000

This is similar to having a discount loan

Interest amount = Loan Principal \times interest rate $\% \times$ time to maturity Interest amount = $\$1000,000 \times 10\% \times 1$ year \$100,000

Effective interest rate =
$$\frac{\text{Interest amount}}{\text{Amount received}}$$
Effective interest rate =
$$\frac{\text{Interest amount}}{\text{Amount received}} = \frac{\$100,000}{\$800,000} = 12.5 \%$$

- 2) The amount that the company will receive and the effective annual rate:
 - b. if the company checking account balance is \$100,000.

The received amount =

borrowed amount – compensating balance + checking account balance

The received amount = \$1,000,000 - \$200,000 + \$100,000 = \$900,000

Interest amount = Loan Principal × interest rate % × time to maturity

Interest amount = $$1000,000 \times 10\% \times 1 \text{ year}$ \$100,000

Effective interest rate = Interest amount

Amount received

Effective interest rate = $\frac{\text{Interest amount}}{\text{Amount received}} = \frac{\$100,000}{\$900,000} = 11.1 \%$

- The amount that the company will receive and the effective annual rate:
 - if the company checking account balance is \$200,000.

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The received amount =
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borrowed amount – compensating balance + checking account balance

The received amount = \$1,000,000 - \$200,000 + \$200,000 = \$1,000,000

Interest amount = Loan Principal × interest rate % × time to maturity

 $1000,000 \times 10\% \times 1 \text{ year}$ \$100,000 Interest amount

Interest amount Effective interest rate =

Amount received

Interest amount

\$100,000 Effective interest rate = Amount received \$1,000,000

Thus a compensating balance raises the cost of borrowing *only if it is larger than* the firm's normal cash balance.

= 10 %

Annual cleanup:

It is the requirement that for a certain number of days during the year borrowers under a line of credit carry a zero loan balance (that is, owe the bank nothing).

- ☐ It is used to ensure that money lent under a line-of-credit agreement is actually being used to finance seasonal needs.
- ☐ Insisting that the borrower carry a zero loan balance for a certain period ensures that short-term loans do not turn into long-term loans.
- All the characteristics of a line-of-credit agreement are negotiable to some extent (negotiate favorable interest rate, for an optimal amount of funds, and with a minimum of restrictions.)
- ☐ Negotiations should produce a line of credit that is suitable to both borrower and lender.

Revolving credit agreement:

A line of credit guaranteed to a borrower by a commercial bank regardless of the scarcity of money.

- ☐ A revolving credit agreement is nothing more than a guaranteed line of credit.
- ☐ The interest rate and other requirements are similar to those for a line of credit with a period greater than 1 year.
- Because the bank guarantees the availability of funds, *a commitment fee* is normally charged on a revolving credit agreement. This fee applies to the average unused balance of the borrower's credit line. It is normally about 0.5 percent *of the average unused portion of the line*.

A commitment fee:

The fee that is normally charged on a revolving credit agreement; it often applies to the average unused portion of the borrower's credit line.

• Example 12:

A company has a \$2 million from a bank under a revolving credit agreement. Its average borrowing under the agreement for the past year was \$1.5 million. The bank charges a commitment fee of 0.5% on the average unused balance. The company paid an interest amount of \$112,500 on the \$1.5 million borrowed.

- 1. Calculate the unused portion of the committed funds.
- 2. Calculate the commitment fee amount on the unused balance.
- 3. Calculate the effective rate (effective cost) of the agreement.
- 1) Unused portion of the committed funds = revolving credit amount borrowed amount = \$2,000,000 \$1,500,000 = \$500,000
- 2) Committed fee on unused balance = commitment fee $\% \times$ unused amount = $0.005 \times \$500,000 = \$2,500$
- 3) Effective interest rate = $\frac{\text{Interest amount + commitment fee amount}}{\text{Amount received}}$

Effective interest rate =
$$\frac{\$112,500 + \$2,500}{\$1,500,000} = \frac{\$115,000}{\$1,500,000} = 7.67 \%$$

Commercial paper:

A form of financing consisting of short-term, unsecured promissory notes issued by firms with a high credit standing.

- ☐ Generally, only large firms of unquestionable financial soundness are able to issue commercial paper.
- ☐ Most commercial paper issues have maturities ranging from 3 to 270 days.
- ☐ It is generally issued in multiples of \$100,000 or more.
- Businesses often purchase commercial paper, which they hold as marketable securities to provide an interest-earning reserve of liquidity.

Interest on Commercial Paper

- ☐ Commercial paper is sold at a discount from its *par*, *or face*, *value*.
- ☐ The size of the discount and the length of time to maturity determine the interest paid by the issuer of commercial paper.
- ☐ The actual interest earned by the purchaser is determined by certain calculations, illustrated by the following example.

• **Example 13:**

A large company has just issued \$1 million worth of commercial paper (face value is \$1,000,000) that has a 90-day maturity and sells for \$990,000 (sold at a discount).

- 1. How much will the investor (purchaser) receive at maturity (by the end of 90 days)?
- 2. Calculate the interest amount paid by the issuer on this financing at maturity.
- 3. Calculate the effective 90 day rate.
- 4. Calculate the effective annual rate.

- 1) At maturity the investor (purchaser) will receive the commercial paper face value which is \$1,000,000.
- 2) Interest amount paid by the issuer = Commercial paper face value selling price = \$1,000,000 \$990,000 = \$10,000

3) Effective 90 day interest rate = $\frac{1}{\Delta n}$

Interest amount
Amount borrowed

Effective interest rate =
$$\frac{\$10,000}{\$990,000}$$
 = 0.0101 = 1.01 %

4) Effective annual interest rate

n = year / loan periodn = 365/90 = 4.06

Effective annual interest rate = $(1+r)^n - 1$

Effective annual interest rate = (1 + 0.0101) 4.06 - 1

Effective annual interest rate = 0.0416 = 4.16%

- ☐ An interesting characteristic of commercial paper is that firms are able to raise funds more cheaply by selling commercial paper than by borrowing from a commercial bank.
- ☐ Although the stated interest cost of borrowing through the sale of commercial paper is normally lower than the prime rate, the *overall cost of commercial paper* may not be less than that of a bank loan.
- ☐ Additional costs include various fees and flotation costs.
- ☐ In addition, even if it is slightly more expensive to borrow from a commercial bank, it may at times be advisable to do so to establish a good working relationship with a bank.
- ☐ This strategy ensures that when money is tight, funds can be obtained promptly and at a reasonable interest rate.

International Loans

In some ways, arranging short-term financing for international trade is no different from financing purely domestic operations. In both cases, producers must finance production and inventory and then continue to finance accounts receivable before collecting any cash payments from sales. In other ways, however, the short-term financing of international sales and purchases is fundamentally different from that of strictly domestic trade.

International Transactions

The important difference between international and domestic transactions is that payments are often made or received in a foreign currency. This will expose the companies to *exchange rate risk*.

Typical international transactions are large in size and have long maturity dates.

Financing International Trade

One specialized techniques used for financing international trade is the *Letter of Credit*.

Letter of Credit

A letter written by a company's bank to the company's foreign supplier, stating that the bank guarantees payment of an invoiced amount if all the underlying agreements are met.

The letter of credit essentially substitutes the bank's reputation and creditworthiness for that of its commercial customer.

A U.S. exporter is more willing to sell goods to a foreign buyer if the transaction is covered by a letter of credit issued by a well-known bank in the buyer's home country.

Secured Sources of Short-Term Loans

Secured short-term financing

Short-term financing (loan) that has specific assets pledged as collateral.

Security agreement

The agreement between the borrower and the lender that specifies the collateral held against a secured loan.

Characteristics of Secured Short-Term Loans

Lenders recognize that holding collateral can reduce losses if the borrower defaults, but the presence of collateral has no impact on the risk of default.

A lender requires collateral to ensure recovery of some portion of the loan in the event of default. A lender wants to be repaid as scheduled. In general, lenders prefer to make less risky loans at lower rates of interest than to be in a position in which they must liquidate collateral.

Collateral and Terms

Lenders of secured short-term funds prefer collateral that has a duration closely matched to the term of the loan.

Current assets are the most desirable short-term loan collateral because they can normally be converted into cash much sooner than fixed assets.

Thus, the short-term lender of secured funds generally accepts only liquid current assets as collateral.

Percentage Advance:

The percentage of the book value of the collateral that constitutes the principal of a secured loan.

Percentage Advance

- ☐ This percentage advance constitutes the principal of the secured loan and is normally between 30 and 100 percent of the book value of the collateral.
- ☐ It varies according to the type and liquidity of collateral.
- ☐ The interest rate that is charged on secured short-term loans is typically higher than the rate on unsecured short-term loans.
- Lenders do not normally consider secured loans less risky than unsecured loans.
- ☐ In addition, negotiating and administering secured loans is more troublesome for the lender than negotiating and administering unsecured loans.
- ☐ The lender therefore normally requires added compensation in the form of a service charge, a higher interest rate, or both.
- ☐ Firms use secured loans (more expensive) only after all unsecured loans sources (less costly) are exhausted

Use of Accounts Receivables as Collateral

Two commonly used means of obtaining short-term financing with accounts receivable are *pledging accounts receivable and factoring accounts receivable*.

Actually, only a pledge of accounts receivable creates a secured short-term loan; factoring really entails the *sale of accounts receivable at a discount*.

Although factoring is not actually a form of secured short-term borrowing, it does involve the use of accounts receivable to obtain needed short-term funds.

Pledge of Accounts Receivable:

It is the use of a firm's accounts receivable as security, or collateral, to obtain a short-term loan.

The Pledging Process When a firm requests a loan against accounts receivable:

- 1. The lender first evaluates the firm's accounts receivable to determine their desirability as collateral.
- 2. The lender makes a list of the acceptable accounts, along with the billing dates and amounts.
- 3. If the borrowing firm requests a loan for a fixed amount, the lender needs to select only enough accounts to secure the funds requested.
- 4. If the borrower wants the maximum loan available, the lender evaluates all the accounts to select the maximum amount of acceptable collateral.
- 5. After selecting the acceptable accounts, the lender normally adjusts the dollar value of these accounts for expected returns on sales and other allowances.
- 6. If a customer whose account has been pledged returns merchandise or receives some type of allowance, such as a cash discount for early payment, the amount of the collateral is automatically reduced.

- 7. For protection from such occurrences, the lender normally reduces the value of the acceptable collateral by a fixed percentage.
- 8. Next, the percentage to be advanced against the collateral must be determined.
- 9. The lender evaluates the quality of the acceptable receivables and the
- 10. expected cost of their liquidation.
- 11. This percentage represents the principal of the loan and typically ranges between 50 and 90 percent of the face value of acceptable accounts receivable.
- 12. To protect its interest in the collateral, the lender files a lien, which is a publicly disclosed legal claim on the collateral.

Lien:

It is a publicly disclosed legal claim on loan collateral.

There are two methods for Pledging of Accounts Receivable:

1) Non-notification basis

The basis on which a borrower, having pledged an account receivable, continues to collect the account payments without notifying the account customer.

2) Notification basis

The basis on which an account customer whose account has been pledged (or factored) is notified to remit payment directly to the lender (or factor).

Pledging Cost The stated cost of a pledge of accounts receivable is normally 2 to 5 percent above the prime rate. In addition to the stated interest rate, a service charge of up to 3 percent may be levied by the lender to cover its administrative costs. Clearly, pledges of accounts receivable are a high-cost source of short-term financing.

Factoring Accounts Receivable

Factoring accounts receivable:

The outright sale of accounts receivable at a discount to a factor or other financial institution.

Factor:

A financial institution that specializes in purchasing accounts receivable from businesses.

Although it is not the same as obtaining a short-term loan, factoring accounts receivable is similar to borrowing with accounts receivable as collateral.

Factoring Agreement:

A factoring agreement normally states the exact conditions and procedures for the purchase of an account.

- ☐ The factor is like a lender against a pledge of accounts receivable, chooses accounts for purchase, selecting only those that appear to be acceptable in terms of credit risks.
- ☐ Factoring is normally done on a *notification basis*, *and the factor receives payment of the account directly from the* customer.
- ☐ In addition, most sales of accounts receivable to a factor are made on a nonrecourse basis.

Nonrecourse basis:

It is the basis on which accounts receivable are sold to a factor with the understanding that the factor agrees to accept all credit risks on the purchased accounts.

☐ Thus, if a purchased account turns out to be uncollectible, the factor must absorb the loss.

☐ Typically, the factor is not required to pay the firm until the account is collected or until the last day of the credit period, whichever occurs first. ☐ The factor sets up an account similar to a bank deposit account for each customer. As payment is received or as due dates arrive, the factor deposits money into the seller's account, from which the seller is free to make withdrawals as needed. ☐ In many cases, if the firm leaves the money in the account, a *surplus* will exist on which the factor will pay interest. ☐ In other instances, the factor may make *advances to the firm against* uncollected accounts that are not yet due.

☐ These advances represent a negative balance in the firm's account, on

which interest is charged.

Factoring Cost:

Factoring costs include commissions, interest levied on advances, and interest earned on surpluses. The factor deposits in the firm's account the book value of the collected or due accounts purchased by the factor, less the commissions. The commissions are typically stated as a 1 to 3 percent discount from the book value of factored accounts receivable. The interest levied on advances is generally 2 to 4 percent above the prime rate. It is levied on the actual amount advanced. The interest paid on surpluses is generally between 0.2 percent and 0.5 percent per month.

Factoring advantages:

- 1) Although its costs may seem high, one advantage is the ability it gives the firm to turn accounts receivable immediately into cash without having to worry about repayment.
- 2) Another advantage is that it ensures a *known pattern of cash flows*. *In addition*, if factoring is undertaken on a continuing basis, the firm *can eliminate its credit and collection departments*.

USE OF INVENTORY AS COLLATERAL

- ☐ Inventory is generally second to accounts receivable in desirability as short-term loan collateral.
- ☐ Inventory normally has a market value that is greater than its book value, which is used to establish its value as collateral.
- ☐ A lender whose loan is secured with inventory will probably be able to sell that inventory for at least book value if the borrower defaults on its obligations.
- ☐ The most important characteristic of inventory being evaluated as loan collateral is *marketability*.
- ☐ When evaluating inventory as possible loan collateral, the lender looks for items with very stable market prices that have ready markets and that lack undesirable physical properties.

1) Floating Inventory Liens

Floating inventory lien

A secured short-term loan against inventory under which the lender's claim is on the borrower's inventory in general.

- ☐ This arrangement is most attractive when the firm has a stable level of inventory that consists of a diversified group of relatively inexpensive merchandise.
- ☐ Inventories of items such as auto tires and shoes are candidates for floating-lien loans. Because it is difficult for a lender to verify the presence of the inventory, the lender generally advances less than 50 percent of the book value of the average inventory.
- ☐ The interest charge on a floating lien is 3 to 5 percent above the prime rate.
- ☐ Commercial banks often require floating liens as extra security on what would otherwise be an unsecured loan.

2) Trust Receipt Inventory Loans

Trust receipt inventory loan:

A secured short-term loan against inventory under which the lender advances 80 to 100 percent of the cost of the borrower's relatively expensive inventory items in exchange for borrower's promise to repay the lender with accrued interest, immediately after the sale of each item of collateral.

- ☐ A trust receipt inventory loan often can be made against relatively expensive automotive, consumer durable, and industrial goods that can be identified by serial number.
- ☐ Under this agreement, the borrower keeps the inventory, and is free to sell the merchandise but is *trusted to remit* the amount lent, along with accrued interest, to the lender immediately after the sale.
- ☐ The lender makes periodic checks of the borrower's inventory to make sure that the required collateral remains in the hands of the borrower. The interest charge to the borrower is normally 2 percent or more above the prime rate.

3) Warehouse Receipt Loans; m

Warehouse receipt loan:

It is an arrangement whereby the lender, which may be a commercial bank or finance company, receives control of the pledged inventory collateral, which is stored by a designated agent on the lender's behalf. After selecting acceptable collateral, the lender hires a warehousing company to act as its agent and take possession of the inventory.

Regardless of the type of warehouse, the warehousing company places a guard over the inventory. Only on written approval of the lender can any portion of the secured inventory be released by the warehousing company.

There are two types of warehousing arrangements possible:

1) A terminal warehouse:

It is a central warehouse that is used to store the merchandise of various customers. The lender normally uses such a warehouse when the inventory is easily transported and can be delivered to the warehouse relatively inexpensively.

2) A field warehouse arrangement:

It is an agreement in which the lender hires a field-warehousing company to set up a warehouse on the borrower's premises or to lease part of the borrower's warehouse to store the pledged collateral.

- ☐ As with other secured loans, the lender accepts only collateral that it believes to be readily marketable and advances only a portion generally 75 to 90 percent- of the collateral's value.
- ☐ The specific costs of warehouse receipt loans are generally higher than those of any other secured lending arrangements because of the need to hire and pay a warehousing company to guard and supervise the collateral.
- ☐ The basic interest charged on warehouse receipt loans is higher than that charged on unsecured loans, generally ranging from 3 to 5 percent above the prime rate.
- □ In addition to the interest charge, the borrower must absorb the costs of warehousing by paying the warehouse fee, which is generally between 1 and 3 percent of the amount of the loan. The borrower is normally also required to pay the insurance costs on the warehoused merchandise.