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Short-Term Financing Decisions

Whereas long-term financing decisions concern how the firm finances its assets over several years, short-term financing decisions concern how the firm can get the money it needs for daily, weekly, and monthly needs. Cash management is paramount, either by budgeting the amount on hand, buying supplies on credit, or borrowing it for short periods of time. Short-term funds are also often used for investments in accounts receivable and inventory. Chapter 17 begins this section with an examination of the trade-off that is at the heart of short-term financial management: liquidity versus profitability. Firms can either keep large balances of cash and inventory, which increases liquidity but decreases profitability, or they can keep low balances of cash and inventory, which helps profitability but decreases liquidity. Somewhere in-between is the proper balance for each individual firm. Chapters 18 through 20 take up the management of the individual current asset and current liability accounts. Chapter 18 explains cash management, including the process of developing a cash budget. Chapter 19 discusses the optimal levels of inventory and accounts receivable, including the decision process associated with offering credit to customers. Chapter 20 explores short-term financing alternatives and discusses how to calculate the effective interest rate for various types of short-term loans.

CHAPTERS

- 17** Working Capital Policy
- 18** Managing Cash
- 19** Accounts Receivable and Inventory
- 20** Short-Term Financing

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17

Working Capital Policy

“Ready money is Aladdin’s lamp.”

—Lord Byron

The U.S. Small Business Administration Helps Companies Find Needed Working Capital

The Export Working Capital Program (EWCP) was designed to provide short-term working capital to exporters. The SBA’s Export Working Capital Program (EWCP) supports export financing to small businesses when that financing is not otherwise available on reasonable terms. The program encourages lenders to offer export working capital loans by guaranteeing repayment of up to \$1 million or 90 percent of a loan amount, whichever is less. A loan can support a single transaction or multiple sales on a revolving basis.

The above comes from the website of the Hartford, CT, Office of the U.S. Small Business Administration (SBA). It shows how the SBA, which tries to support small businesses, recognizes the importance of working capital to a firm. Working capital allows a company to pay its bills and stay in business. We examine this important topic in this chapter.

Source: http://www.sba.gov/ct/CT_FINANCING.html, the website of the U.S. Small Business Administration, Hartford, CT, office, June 23, 2006.

Campfire queen Cycling champion Sentimental geologist*

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Chapter Overview

In this chapter we examine working capital policy—the management of a firm’s current assets and its financing. First, we’ll see why firms manage working capital carefully, why they accumulate it, and how to classify current assets. We then investigate what determines a firm’s working capital policy and look at different types of policies.

Managing Working Capital

Working capital refers to a firm’s current assets. By “current” we mean those assets that the firm expects to convert into cash within a year. Current assets include cash; inventory, which generates cash when the items are sold; and accounts receivable, which produces cash when customers pay off their credit accounts. Current assets are considered liquid because they can be transformed into cash in a relatively short time.

Net working capital is the firm’s current assets minus current liabilities. Current liabilities are business obligations (i.e., debts) that the firm is required to pay off or otherwise satisfy within a year. Examples include accounts payable—bills due soon—and notes payable—loans due to be paid in less than a year.

Table 17-1 shows the working capital and net working capital for Green World Lawn Care Products Company, which manufactures lawn and gardening products and sells them to retailers.

Learning Objectives

After reading this chapter, you should be able to:

1. Explain the importance of managing working capital.
2. Discuss how the trade-off between liquidity and profitability affects a firm’s current asset management policy.
3. Describe how a firm reaches an optimal level of current assets.
4. Discuss the effects of the three approaches to working capital financing policy.

Table 17-1 Green World Lawn Care Products Company Balance Sheet, as of December 31, 2006

Cash	\$ 2,000	Accounts Payable	\$ 7,000
Accounts Receivable	1,000	Notes Payable	4,000
Inventory	10,000	Total Current Liabilities	11,000
Total Current Assets	13,000	Other Liabilities	7,000
Other Assets	32,000	Common Stock	27,000
Total Assets	\$45,000	Total Liabilities and Equity	\$ 45,000

In Table 17-1 we see that Green World has \$13,000 in current assets (working capital), \$11,000 in current liabilities, and \$2,000 in net working capital (\$13,000 – \$11,000 = \$2,000). Net working capital is important to firms. It represents the amount of current assets remaining if they were liquidated to pay the company’s short-term debts.

Working capital policy is the firm’s policy about its working capital level and how its working capital should be financed. For instance, a firm needs to make decisions about how much to keep in its cash account, what level of inventory to maintain, and how much to allow accounts receivable to build up. The firm must also decide whether to finance current assets with short-term funds, long-term funds, or some mixture of the two. Together, the level and financing decisions make up the firm’s working capital policy.

Why Businesses Accumulate Working Capital

Why do firms accumulate working capital, and why does its level vary over time? In this section we examine the answers to these two questions.

Fluctuating Current Assets

Many factors affect a firm’s working capital policy. For instance, a service firm may require a different level of current assets than a manufacturing firm. Or a business like Jason’s Popcorn Wagon (from Chapter 13), which makes and sells popcorn during the summer months only, has different seasonal working capital needs than a firm that makes and sells products year-round.

To illustrate the principles of working capital policy, we focus on a manufacturing firm that has level production—that is, it produces the same amount of product every month, year-round. However, its sales are seasonal—the firm sells more in certain time periods than in others. Many businesses are seasonal. (For instance, a swimwear manufacturer may sell many more swimsuits at the start of summer than it does in other months. A lawn care products manufacturer will probably have more sales at the start of the gardening season than it will in other months.)

If a business has level production but not level sales, inventory increases when production exceeds sales. Inventory then falls when sales exceed production. The firm’s other current assets may fluctuate during the year as well. Accounts receivable, for example, will rise when new credit sales exceed customer payments and will fall when

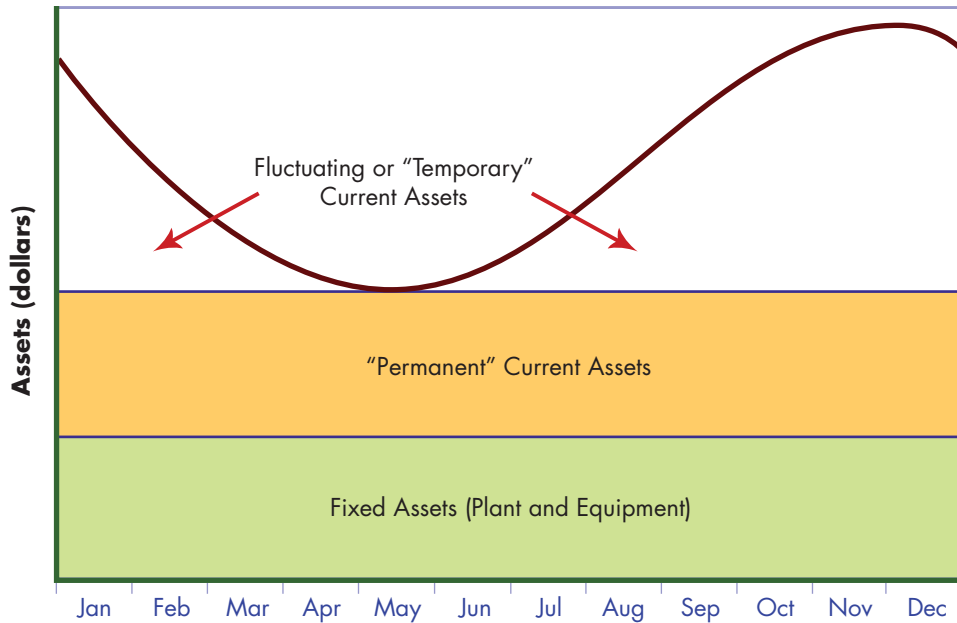


Figure 17-1 The Variation in Current Assets Over Time for Green World Lawn Care Products

Figure 17-1 shows how the current assets of a company tend to fluctuate over time but never fall below a permanent level of current assets.

customer payments exceed new credit sales. Cash will accumulate as sales revenues are collected and will decline when bills are paid. Thus, the current assets of the business will fluctuate over time.

Permanent and Temporary Current Assets

Although the level of current assets in the firm may fluctuate, it rarely reaches zero. The firm will nearly always have some cash on hand, hold some inventory in stock, and be owed some amount of money. Current assets thus reach various temporary levels but will rarely fall below some minimal permanent level. This effect is illustrated for Green World Lawn Care Products Company in Figure 17-1.

Figure 17-1 shows three categories of business assets that affect a firm's working capital policy:

1. Temporary current assets represent the level of inventory, cash, and accounts receivable that fluctuate seasonally.
2. Permanent current assets represent the base level of inventory, cash, and accounts receivable, which tends to be maintained.
3. Fixed assets represent the land, buildings, equipment, and other assets that would not normally be sold or otherwise disposed of for a long period of time.

Permanent current assets tend to build up on a firm's balance sheet year after year. Cash collections increase as the business grows, accounts receivable grow as the list of credit customers lengthens, inventory on hand rises as new facilities are opened, and so on. Figure 17-2 shows how Green World Lawn Care Product's current assets might vary over several years.

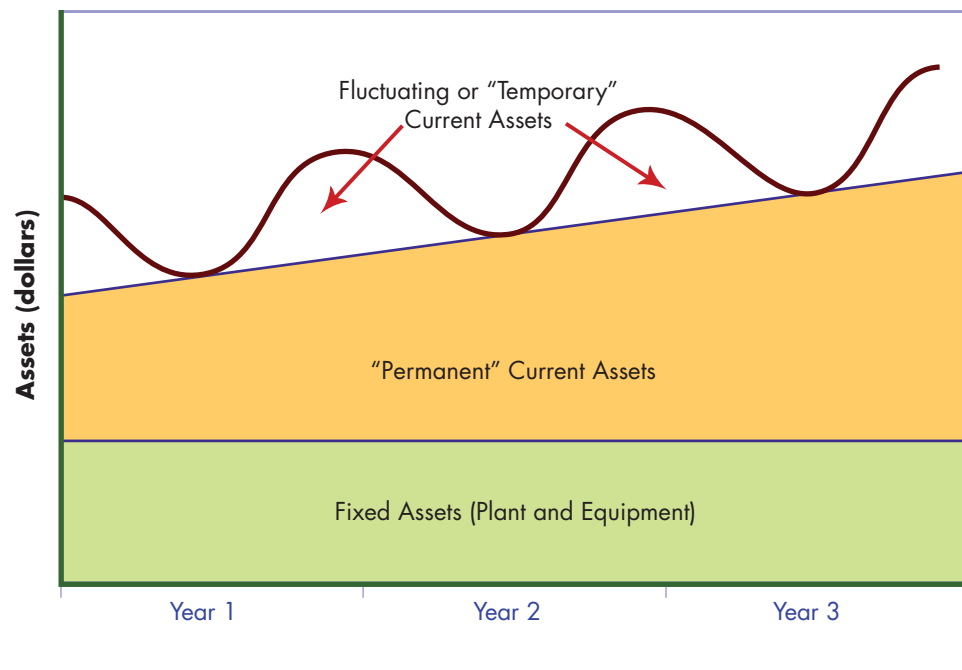
Take Note

The term *permanent current assets* may sound like an oxymoron (like "jumbo shrimp"), but it's not. A portion of a firm's current assets is likely to remain on a firm's balance sheet indefinitely.

Figure 17-2

The Variation in Current Assets Over Several Years for Green World Lawn Care Products

Figure 17-2 shows how a typical firm's current assets tend to build up from year to year, while fluctuating within each year. The effect occurs because as firms grow, they accumulate receivable, and inventory over time.



As Figure 17-2 shows, businesses have two tasks: First, they must contend with current assets that fluctuate through their business cycle. Second, they must manage permanent current asset growth due to long-term business growth over time. In the sections that follow, we discuss how firms do this.

Liquidity versus Profitability

Lenders would like a company to have a large excess of current assets over current liabilities. But the owners don't necessarily feel the same way. Think about it. Current assets—in the form of cash, accounts receivable, and inventory—do not earn the firm a very high return. Cash is usually held in a commercial bank checking account that pays no interest.¹ Accounts receivable earns no return because it represents money that customers owe to the firm that the firm doesn't have yet. Inventory earns no return until it's sold. (Inventory being held by the firm is just material sitting in a warehouse, earning nothing.) These assets have the advantage of being liquid, but holding them is not very profitable.

Now consider the company's noncurrent assets—its land, buildings, machinery, equipment, and long-term investments. These assets often earn a substantial return. The company's land, buildings, machinery, and equipment are used to turn raw material into products that can be sold for a profit. Long-term investments (such as investments in subsidiaries) generally produce greater returns than current assets. These noncurrent assets may be profitable, but they are usually not very liquid. Lenders are reluctant to let firms use them for collateral (protection in the event of a default) for short-term loans. Why? Because lenders will have to spend more time and expense to sell noncurrent assets if firms default on their loans and the lenders become the asset owners. As a result, lenders prefer that firms use liquid assets as loan collateral.

¹Business checking accounts almost never pay interest.

Firms, then, are faced with a trade-off in their working capital management policy. At one extreme they can seek liquidity, holding a lot of cash and other current assets in case cash is needed soon. At the other extreme they can seek profitability, holding a low level of current assets and investing primarily in long-term, high-return-producing assets.

In practice, no firm would actually choose either of these extreme positions. Instead, managers seek a balance between liquidity and profitability that reflects their desire for profit and their need for liquidity.

Establishing the Optimal Level of Current Assets

The search for a balance between liquidity and profitability serves as a general guide for financial managers looking for an optimal level of current assets. However, the level managers eventually achieve is actually a result of their efforts to maintain optimal levels of each of the components of the current asset group. In other words, a firm's optimal level of current assets is reached when the optimal level of cash, of inventory, and of accounts receivable² is achieved. Each asset account is managed separately, and the combined results produce the actual level of current assets. Here's a description of the attempt to find the optimal level for each current asset account:

- *Cash*: Managers try to keep just enough cash on hand to conduct day-to-day business, while investing extra amounts in short-term marketable securities. We discuss cash in detail in Chapter 18.
- *Inventory*: Managers seek the level that reduces lost sales due to lack of inventory, while at the same time holding down inventory costs. We discuss inventory management in Chapter 19.
- *Accounts receivable*: Firms want to enhance sales but hold down bad debt and collection expenses through sound credit policies. We discuss credit policies in Chapter 19.

Once financial managers set policies to attain the optimal level of current assets, they must turn their attention to the flip side of working capital management: managing current liabilities.

Managing Current Liabilities: Risk and Return

A firm's current asset fluctuations and any long-term build-up of current assets (its working capital) must, of course, be financed. The question facing financial managers is whether to obtain the financing from short-term borrowing, long-term borrowing, contributions from the owners (equity financing), or some mixture of all three.

As is so often the case, the choice of the firm's working capital financing blend depends on managers' desire for profit versus their aversion to risk. Short-term debt financing is generally less expensive than long-term debt and always less expensive than equity financing. Recall from Chapter 2 that short-term interest rates are usually lower than long-term interest rates. Short-term loans, however, are more risky because a firm may not have enough cash to repay the loans (due to cash flow fluctuations) or



Interactive Module

Go to Downloadable Companion Material, chapter 17. Follow the instructions there. See the importance of liquidity to a company.

Take Note

In our discussion we assume that a firm has all available financing alternative options. In practice, however, some firms may have limited financing options. For example, small firms usually have limited access to long-term capital markets.

²Along with any other current assets the firm possesses, of course. In this book we concentrate on these three major categories of current assets.

interest rates may increase and increase the cost of short-term funds as loans are renewed. Long-term debt and/or equity financing is less risky from the firm's perspective because it puts repayment off (forever, in the case of stock) and locks in an interest rate for a long time period in the case of long-term debt.

The balance between the risk and return of financing options depends on the firm, its financial managers, and its financing approaches. We discuss several financing approaches next.

Three Working Capital Financing Approaches

The three primary working capital financing approaches are the aggressive approach, the conservative approach, and the moderate approach. A firm that takes an aggressive approach uses more short-term financing to finance current assets. Firm risk increases, due to the risk of fluctuating interest rates, but the potential for higher returns increases because of the generally low-cost financing. A firm that implements the conservative approach avoids short-term financing to reduce risk but decreases the potential for maximum value creation because of the high cost of long-term debt and equity financing. The moderate approach tries to balance risk and return concerns.

The Aggressive Approach

We know that short-term interest rates are normally lower than long-term interest rates. We also know that borrowing short term is riskier than borrowing long term because the loan must be paid off or refinanced sooner rather than later.

The **aggressive working capital financing approach** involves the use of short-term debt to finance at least the firm's temporary assets, some or all of its permanent current assets, and possibly some of its long-term fixed assets. The aggressive approach is shown graphically in Figure 17-3.

If we compare current assets and current liabilities in Figure 17-3, we see that all the firm's temporary current assets and most of its permanent current assets are being financed with short-term debt (the current liabilities). As a result, the firm has very little net working capital. Depending on the nature of the firm's business, this small amount of net working capital can be risky. There isn't much cushion between the value of liquid assets and the amount of debt due in the short term.

Firms may be more aggressive than the firm depicted in Figure 17-3. If the firm's managers financed all working capital from short-term debt, then current assets would equal current liabilities and the firm would have zero net working capital—no cushion at all. Managers may go even further and finance a portion of the firm's long-term assets (plant and equipment) with short-term debt, creating a negative net working capital. However, such an approach is very risky. (Think what would happen to a firm using that approach if short-term interest rates rose unexpectedly.)

What tempts financial managers to take the aggressive approach and use a relatively large amount of short-term debt for working capital financing? Usually, lower interest rates tempt them. Managers will take a risk if the promise of return is high enough to justify it.

The Conservative Approach

Borrowing long term is considered less risky than borrowing short term. This is because the borrower has a longer time to use the loan proceeds before repayment is due.

The Balance Sheet

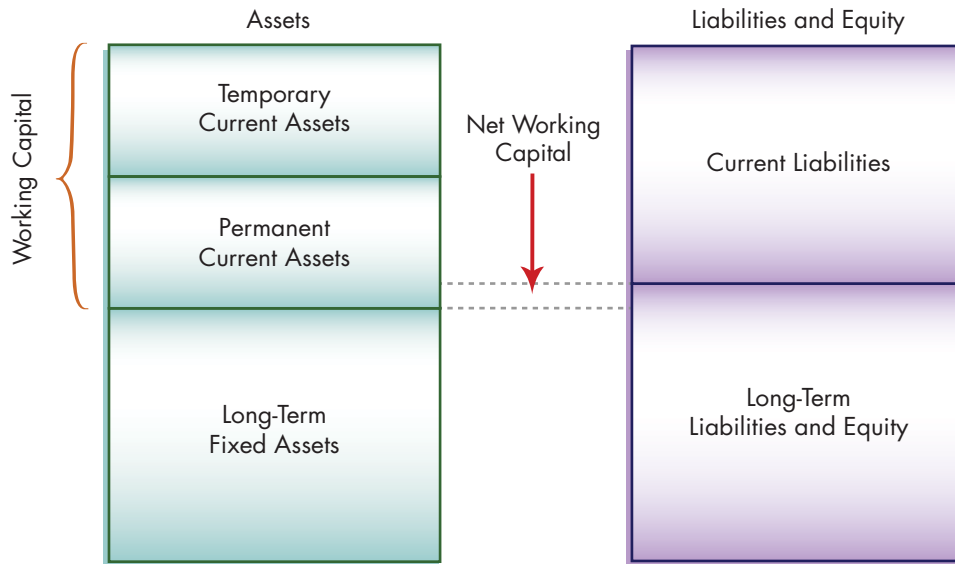


Figure 17-3
The Aggressive Working Capital Financing Approach

Figure 17-3 shows the firm's assets on the left and liabilities and equity on the right. Subtracting current liabilities from current assets shows that this firm's working capital financing strategy is to finance nearly all current assets with current liabilities, resulting in a small amount of net working capital.

Furthermore, if interest rates should go up during the period of the loan, the long-term borrower has another advantage. The long-term borrower has locked in a fixed interest rate and may end up paying less total interest than the short-term borrower, who must renew the loan each time it comes due—at a new, higher interest rate. If market rates fall, the long-term borrower can usually refinance.

The **conservative working capital financing approach** involves the use of long-term debt and equity to finance all long-term fixed assets and permanent current assets, in addition to some part of temporary current assets. The conservative approach is shown graphically in Figure 17-4.

Compare current assets with current liabilities in Figure 17-4. Note that all the firm's permanent current assets and most of its temporary current assets are being financed with long-term debt or equity. As a result, current assets exceed current liabilities by a wide margin and the firm has a large amount of net working capital. Having a large amount of net working capital is a relatively low-risk position because the firm has many assets that could be liquidated to satisfy short-term debts.

A financial manager who applies an ultra-conservative approach would use cash from the owners for all asset financing needs (high cash balance supported by equity) and incur no debt. By using only equity capital, the firm would also have the maximum amount of net working capital possible because it would have no current liabilities.

The safety of the conservative approach has a cost. Long-term financing is generally more expensive than short-term financing. Long-term interest rates are higher than short-term rates when there is an upward sloping yield curve, the normal yield curve described in Chapter 2. Also, the cost of equity is greater than the cost of either long-term or short-term debt, as described in Chapter 9. So relying on long-term debt and equity sources to finance working capital consumes funds that could otherwise be put to more productive use.

The Balance Sheet

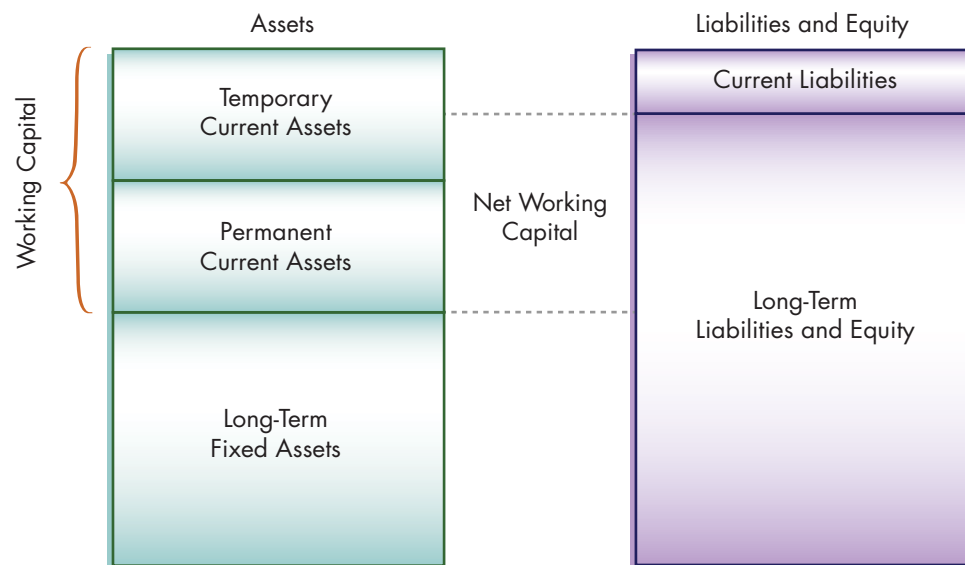


Figure 17-4 The Conservative Working Capital Financing Approach

The relative size of the current asset and current liability accounts in Figure 17-4 reveals the firm's working capital financing strategy. The figure shows that this firm is financing nearly all current assets with long-term liabilities and equity, resulting in a high level of net working capital.

The Moderate Approach

An accounting concept known as the matching principle states that the cost of an asset should be recognized over the length of time that the asset provides revenue, or benefit, to the business.

The concept of the matching principle can be applied to define a moderate position between the aggressive and the conservative working capital financing approaches. According to the matching principle, temporary current assets that are only going to be on the balance sheet for a short time should be financed with short-term debt—that is, current liabilities. Permanent current assets and long-term fixed assets that are going to be on the balance sheet for a long time should be financed from long-term debt and equity sources. The **moderate working capital financing approach** is shown in Figure 17-5.

If we look at current assets and current liabilities in Figure 17-5, we see that the firm has matched its short-term temporary current assets to its current liabilities. It has also matched its long-term permanent current assets and fixed assets to its long-term financing sources. This policy gives the firm a moderate amount of net working capital. It calls for a relatively moderate amount of risk balanced by a relatively moderate amount of expected return. We all have some feel for the rationale behind this approach. You would probably not be attracted to a 30-year car loan nor a 6-month mortgage.

Now that we have described three working capital financing policies, we turn to an analysis of the effect of such policies on a firm.

Working Capital Financing and Financial Ratios

The use of ratio analysis highlights how the three approaches to working capital financing policy can affect the risk and return potential of a firm. In Table 17-2 we compare selected financial ratios for three different firms that differ only in the manner in which

The Balance Sheet

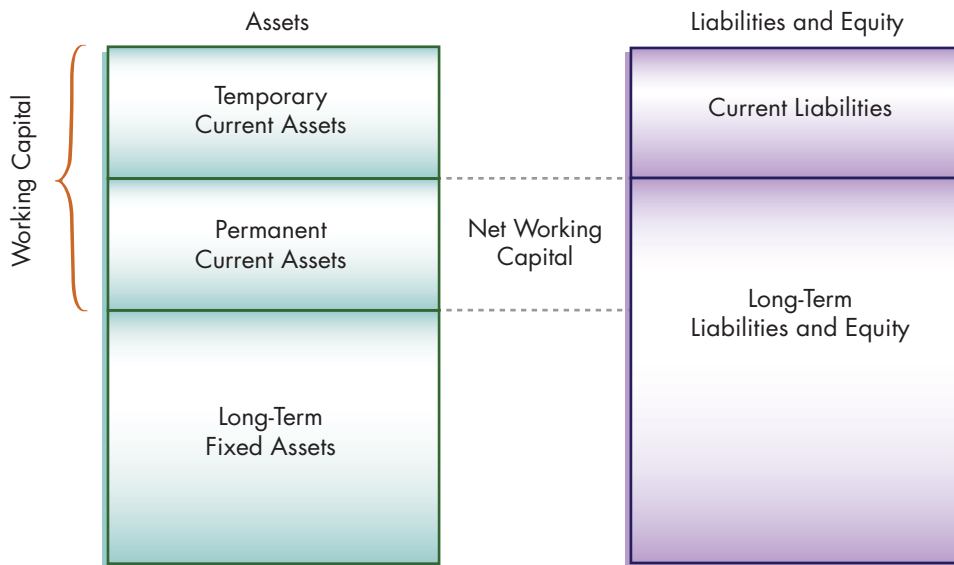


Figure 17-5 The Moderate Working Capital Financing Approach

In Figure 17-5 we see that this firm's approach to working capital financing policy is to finance its permanent current assets with long-term debt and equity and its temporary current assets with current liabilities. This results in a moderate level of net working capital.

Table 17-2 Ratio Analysis of Approaches to Working Capital Financing Policy (in thousands)

Data as of the End of the Last Fiscal Year	Firm A Aggressive	Firm C Conservative	Firm M Moderate
Temporary Current Assets	\$ 200	\$ 200	\$ 200
Permanent Current Assets	\$ 400	\$ 400	\$ 400
Fixed Assets	\$ 600	\$ 600	\$ 600
Total Assets	\$1,200	\$1,200	\$1,200
Current Liabilities	\$ 300	\$ 100	\$ 200
Long-Term Debt	\$ 300	\$ 500	\$ 400
Stockholders' Equity	\$ 600	\$ 600	\$ 600
Total Liabilities and Equity	\$1,200	\$1,200	\$1,200
Net Income for the Year	\$ 126	\$ 114	\$ 120
Net Working Capital	\$ 300	\$ 500	\$ 400
Current Ratio	2.0	6.0	3.0
Total Debt to Total Assets Ratio	50%	50%	50.0%
Return on Equity	21%	19%	20.0%

they finance their working capital. Firm A takes the aggressive approach, Firm C takes the conservative approach, and Firm M takes the moderate approach.

Notice in Table 17-2 that Firm A, which follows an aggressive financing approach, has the highest net income, smallest amount of net working capital, the lowest current ratio, and the highest return on stockholders' equity of any of the three firms. This is consistent

Table 17-3 The Three Approaches to Working Capital Financing Policy—Cost and Risk Factors

	Aggressive	Conservative	Moderate
Cost	Low	High	In-Between
Risk	High	Low	In-Between

with the relationship between risk and return (the more risk a firm takes, the more return it earns). There is no guarantee, of course, that net income will be positive.

Firm C, which follows the conservative financing approach, has the lowest net income, the largest amount of net working capital, the highest current ratio, and the lowest return on stockholders' equity of the three firms. This reflects its relatively lower risk and lower return potential.

Firm M, which follows the moderate approach of matching its short-term temporary current assets to its current liabilities is, of course, in a position between the other two.

Table 17-3 summarizes the cost and risk considerations of the aggressive, conservative, and moderate approaches to working capital financing.

In the real world, of course, each firm must decide on its balance of financing sources and its approach to working capital management based on its particular industry and the firm's risk and return strategy.

What's Next

In this chapter we examined the general working capital policy of a firm. In Chapter 18 we will look at cash. Accounts receivable and inventory will follow in Chapter 19 and short-term financing in Chapter 20.

Summary

1. Explain the importance of managing working capital.

A firm's current assets—such as cash, inventory, and accounts receivable—are referred to as working capital. Managing the levels and financing of working capital effectively is necessary to keep the firm's costs and risk under control while maintaining a firm's returns and cash flow over the long term.

Firms accumulate working capital because of fluctuations in sales, production, and cash or credit payments. For instance, cash accumulates as accounts are collected and declines when bills are paid. Inventory builds when production exceeds sales and falls when sales exceed production. Accounts receivable rises as credit sales are made and falls when customers pay off their accounts. The combined effect of changes in each current asset account causes working capital to fluctuate. Furthermore, working capital will gradually build up over time unless the firm takes some concrete action to either reinvest the funds in long-term assets or distribute them to the firm's owners.

Temporary current assets represents the level of current assets that fluctuates, and permanent current assets represents the level of current assets a firm keeps regardless of periodic fluctuations.

2. Discuss how the trade-off between liquidity and profitability affects a firm's current asset management policy.

Current asset management involves a trade-off between the need for liquidity and the desire for profitability. The more current assets a firm holds, the more liquid the firm, because the assets can be converted to cash relatively quickly. However, tying up funds to sustain a certain level of current assets prevents the funds from being invested in long-term, high-return-producing assets.

3. Describe how a firm reaches an optimal level of current assets.

Firms reach an optimal level of current assets when the optimal level for each individual current asset account (mainly cash, inventory, and accounts receivable) is achieved. Separate techniques exist for managing each of the current asset accounts. The techniques for managing each current asset account are described in Chapters 18 and 19.

4. Discuss the effects of the three approaches to working capital financing policy.

Short-term interest rates are usually lower than long-term interest rates, so financing working capital with short-term debt generally lowers the firm's financing costs. However, using short-term debt increases the risk that cash won't be available to pay the loans back, and that the firm may have to renew its loans at higher interest rates. Relying on long-term debt and/or equity sources to finance working capital decreases risk because firms repay such obligations in the long term, and firms lock in an interest rate. A firm's return suffers, however, because long-term financing costs are normally higher than short-term costs.

The aggressive approach to working capital policy consists of financing all temporary current assets, and some or all long-term permanent current assets, and possibly a portion of fixed long-term assets with short-term debt. The conservative approach to working capital policy consists of financing all permanent current assets and some short-term temporary current assets with long-term debt and/or equity financing. The moderate approach consists of financing temporary current assets with short-term debt, and financing long-term permanent current assets with long-term debt and/or equity.

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Self-Test

- ST-1.** Explain the liquidity–profitability trade-off associated with working capital management.
- ST-2.** How is the optimal level of working capital established?
- ST-3.** Using the following financial data, draw a diagram showing the company’s temporary current assets, permanent current assets, and long-term fixed assets during this last year.
- ST-4.** As of today, a company has \$100,000 of temporary current assets, \$50,000 of permanent current assets, and \$80,000 of long-term fixed assets. If the company follows the moderate approach to working capital financing, how much of its assets will be financed with short-term debt (current liabilities) and how much will be financed with long-term debt and/or equity as of today?

Selected Financial Data for Past Fiscal Year (in thousands)

	Jan 1	Mar 31	Jun 30	Oct 31	Dec 31
Total Assets	\$580	\$480	\$280	\$400	\$ 58
Fixed Assets	\$100	\$100	\$100	\$100	\$100

Review Questions

- What is working capital?
- What is the primary advantage to a corporation of investing some of its funds in working capital?
- Can a corporation have too much working capital? Explain.
- Explain how a firm determines the optimal level of current assets.
- What are the risks associated with using a large amount of short-term financing for working capital?
- What is the matching principle of working capital financing? What are the benefits of following this principle?
- What are the advantages and disadvantages of the aggressive working capital financing approach?
- What is the most conservative type of working capital financing plan a company could implement? Explain.

cross fingers

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Build Your Communication Skills

- CS-1.** Research a business you find interesting. Prepare a short report outlining at least two ways that company could increase its liquidity. Consider both asset management and liability management.
- CS-2.** Choose any company for which you can locate balance sheet data for the last five years. Plot on a graph the company's total assets for each year and connect the data points with a line. Next, plot the company's net fixed assets for each year and connect the data points with a line. Finally, sketch a line that just touches the low points reached by the total asset line across the graph.

You should now have a graph similar to Figure 17-2. Label the appropriate areas of your graph as temporary current assets, permanent current assets, and fixed assets.

Refer to the company's latest balance sheet and note the amount of current liabilities and long-term debt and equity shown. Compare these amounts with the ending amount of current and fixed assets shown on your graph. The results will reveal the company's working capital financing policy. Explain your findings to the class.

Problems

- 17-1.** WPS International has the following balance sheet. Twenty-five percent of its current assets are temporary, and the remainder are permanent current assets.

Working Capital

Cash	\$150,000	Accounts Payable	\$100,000
Inventory	120,000	Notes Payable	90,000
Accounts Receivable	80,000	Long-Term Debt	120,000
Fixed Assets	<u>500,000</u>	Common Equity	<u>540,000</u>
Total Assets	\$850,000	Total Liabilities and Equity	\$850,000

- What is WPS International's working capital?
 - What is WPS International's net working capital?
 - Calculate the temporary current assets.
 - Calculate the permanent current assets.
- 17-2.** Compare the following two firms and decide which has more liquidity. Explain why.

Liquidity

Firm 1		Firm 2	
Cash	\$10,000	Cash	\$8,000
Inventory	\$3,000	Inventory	\$6,000
Accounts Receivable	\$2,500	Accounts Receivable	\$3,500
Net Fixed Assets	\$15,000	Net Fixed Assets	\$13,000
Accounts Payable	\$7,500	Accounts Payable	\$3,500
Notes Payable	\$4,000	Notes Payable	\$11,000
Long-Term Debt	\$7,000	Long-Term Debt	\$9,000
Common Equity	\$12,000	Common Equity	\$7,000

Assessing Liquidity 

17-3. Consider the following two companies:

	Company A	Company B
Cash	\$ 1,000	\$ 80
Accounts Receivable	400	880
Net Fixed Assets	<u>1,500</u>	<u>1,620</u>
	<u>\$ 2,900</u>	<u>\$2,580</u>
Accounts Payable	\$ 900	\$ 600
Long-Term Debt	800	1,100
Common Equity	<u>1,200</u>	<u>880</u>
	<u>\$ 2,900</u>	<u>\$2,580</u>

Which of the two firms is the more liquid? Why?

Current Assets, Current Liabilities, and Net Working Capital 

17-4. Capt. Louis Renault's Hikewell Outdoor Equipment Company has the following balance sheet accounts as of the end of last year. One-half current assets are permanent and one-half are temporary.

Cash	\$ 30,000	Accounts Payable	\$ 100,000
Accounts Receivable	15,000	Notes Payable	60,000
Inventory	130,000	Long-Term Debt	90,000
Fixed Assets	<u>500,000</u>	Common Equity	<u>425,000</u>
	<u>\$ 675,000</u>		<u>\$ 675,000</u>

- What is the amount of the company's current assets, its working capital?
- What is the amount of the company's current liabilities?
- What is the amount of the company's net working capital?
- What percentage of temporary current assets is financed by current liabilities? Would you consider this an aggressive approach or a conservative approach?

Conservative Working Capital Financing Approach 

17-5. Alexander Sebastian, the finance manager of Hikewell Outdoor Equipment Company of problem 17-4, thinks the way the company is financing its current assets is too risky. By the end of next year, he would like the pro forma balance sheet to look as follows:

Cash	\$ 30,000	Accounts Payable	\$ 30,000
Accounts Receivable	15,000	Notes Payable	20,000
Inventory	130,000	Long-Term Debt	150,000
Fixed Assets	<u>500,000</u>	Common Equity	<u>475,000</u>
	<u>\$ 675,000</u>		<u>\$675,000</u>

- a. What is the amount of the company's projected current assets, its working capital?
- b. What is the amount of the company's projected current liabilities?
- c. What is the amount of the company's projected net working capital?
- d. What percentage of temporary current assets is projected to be financed by current liabilities? Would you consider this an aggressive approach or a conservative approach?

17-6. Consider the following balance sheet for Lulu Belle's Killer Guard Dogs, Inc.:

Assets		Liabilities and Equity	
Cash	\$ 50	Accounts Payable	\$ 80
Marketable Securities	0	Short-Term Debt	90
Accounts Receivable	40	Long-Term Debt	210
Inventories	70	Common Equity	310
Net Fixed Assets	<u>530</u>		<u>\$ 690</u>
	<u>\$ 690</u>		

- a. How much working capital does Lulu Belle have?
- b. How much net working capital does Lulu Belle have?
- c. What working capital financing policy (aggressive, moderate, or conservative) is Lulu Belle following?
- d. Explain what actions Lulu Belle could take to increase the company's liquidity.

17-7. Laroux Products has the following balance sheet. Its temporary current assets are 30 percent of the current assets, and the remaining are permanent current assets.

Cash	\$ 100,000	Accounts Payable	\$ 600,000
Inventory	\$ 200,000	Notes Payable	\$ 200,000
Accounts Receivable	\$ 150,000	Long-Term Debt	\$ 150,000
Net Fixed Assets	<u>\$ 550,000</u>	Common Equity	<u>\$ 50,000</u>
Total Assets	<u>\$ 1,000,000</u>	Total Liabilities and Equity	<u>\$ 1,000,000</u>

The company would like to change its financing approach to a more conservative one. Create a new balance sheet using the conservative approach that the company could adopt. Laroux estimates the asset amounts will remain the same.

 **Assessing Working Capital Policy**

 **Conservative Working Capital Financing Approach**

Moderate 
Working Capital
Financing
Approach

- 17-8.** Tony Reynolds, CFO for Ridgeway Building Supplies, has determined that the company would run best if it used the moderate approach to financing. Recently, the company has thought about switching to this approach. The following is a partial balance sheet stating its assets. Permanent current assets are assumed to be 60 percent of the current assets.

Cash	\$ 50,000	Accounts Payable	_____
Accounts Receivable	25,000	Notes Payable	_____
Inventory	150,000	Long-Term Debt	_____
Fixed Assets	<u>475,000</u>	Common Equity	_____
	\$ 700,000		

What would the company's financing look like if Tony switched to the moderate approach? Calculate for the following scenarios:

- Accounts payable is \$40,000; common equity is \$200,000.
- Accounts payable is \$30,000; common equity is \$425,000.

Aggressive 
Working Capital
Financing
Approach

- 17-9.** Using the information given in problem 17-8, what would Ridgeway Building Supplies' financing look like if Tony decided to use an aggressive approach instead? Accounts payable is \$180,000, and common equity is \$200,000.

Moderate 
Working Capital
Financing
Approach

- 17-10.** Marian Pardoo, the chief financial officer of Envirosafe Chemical Company, believes in a moderate approach of financing following the matching principle. Some of the projected balance sheet accounts of the company for the end of next year follow:

Current and Fixed Assets		Permanent
		Current Assets
Cash	\$ 30,000	\$ 15,000
Accounts Receivable	15,000	5,000
Inventory	130,000	80,000
Fixed Assets	<u>500,000</u>	
Total Assets	\$ 675,000	
Liabilities and Equity		
Accounts Payable	\$ 20,000	
Short-Term Debt	?	
Long-Term Debt	?	
Common Equity	<u>450,000</u>	
Total Liabilities and Equity	\$ 675,000	

How much should Marian finance by short-term debt and long-term debt to conform to the matching principle?

- 17-11.** Use the same data given in problem 17-10. Marian's boss, Ann Lowell, is the vice president of finance of Envirosafe Chemical Company and she expects interest rates to decrease in the future and, hence, would like to follow a very aggressive policy using a large amount of short-term debt and a small amount of long-term debt. She would also like to decrease net working capital to \$25,000. How much should Ann finance by short-term debt and how much by long-term debt to conform to her aggressive approach?
- 17-12.** Comparative data at the end of this past year for three firms following aggressive, moderate, and conservative approaches to working capital policy follow (in thousands of dollars):

	Aggressive	Moderate	Conservative
Temporary Current Assets	\$ 75	\$ 75	\$ 75
Permanent Current Assets	\$ 100	\$ 100	\$ 100
Fixed Assets	\$ 500	\$ 500	\$ 500
Total Assets	\$ 675	\$ 675	\$ 675
Current Liabilities	\$ 160	\$ 75	\$ 50
Long-Term Debt	\$ 90	\$ 150	\$ 150
Stockholders' Equity	\$ 425	\$ 450	\$ 475
Net Income	\$ 70	\$ 70	\$ 70

Calculate, compare, and comment on the current ratios, total debt to asset ratios, and returns on equity of the three firms.

- 17-13.** Greenplanet Recycling Company is considering buying an additional facility at a cost of \$500,000. The facility will have an economic life of five years. The company's financial officer, Karen Holmes, can finance the project by:
- a. A five-year loan at an annual interest rate of 13 percent
 - b. A one-year loan rolled over each year for five years

Compare the total interest expenses for both the preceding alternatives under the following assumptions, and calculate the savings in the interest expenses by choosing one of two alternatives:

1. The one-year loan has a constant interest rate of 11 percent per year over the next five years.
2. The one-year loan has an annual interest rate of 11 percent in the first two years, 14 percent in the third and fourth years, and 16 percent in the fifth year.

 **Aggressive Working Capital Financing Approach**

 **Different Working Capital Financing Approach**

 **Challenge Problem**

The Matching Principle



- 17-14.** To analyze your company's working capital financing policy, you have gathered the following balance sheet data for the past 12 months (in thousands):

Date	Total Assets	Fixed Assets
Jan 31	\$45	\$14
Feb 28	\$46	\$14
Mar 31	\$34	\$14
Apr 30	\$48	\$14
May 31	\$40	\$14
Jun 30	\$30	\$14
Jul 31	\$28	\$14
Aug 31	\$39	\$14
Sep 30	\$45	\$14
Oct 31	\$39	\$14
Nov 30	\$52	\$14
Dec 31	\$50	\$14

Plot these data on a trendline graph. Indicate the amount of your firm's current liabilities each month if you follow the matching principle.

Comprehensive Problem



- 17-15.** Milton Warden, the finance manager of WinHeart Gift Company, is analyzing past data on the firm's fixed assets, permanent current assets, and temporary current assets for each month over the last five years. The company maintains level production, but its sales are seasonal. He found that the monthly level of the three types of assets over the last five years can be closely approximated by the following patterns (in thousands of dollars):

- Fixed assets remained constant at 39 each month over the last five years.
 - Permanent current assets were equal to 2 in January of year 1 and had grown 0.16 per month each month over the last five years.
 - Temporary current assets followed the same pattern each year, starting at 0 in January, then each year they increased by 1 monthly until July and reduced by 1 monthly until they reached 0 again in January of the next year.
- a. Plot these data on a graph similar to the one shown in Figure 17-2.
 - b. Calculate and identify on the graph the level of temporary current assets, permanent current assets, and fixed assets in:
 - (i) The month of September of year 4
 - (ii) The month of August of year 5
 - c. Now calculate the levels of current liabilities in those months if the company followed:
 - (i) An aggressive working capital financing approach
 - (ii) A moderate working capital financing approach
 - (iii) A conservative working capital financing approach

Assume that the stockholders' equity remained constant at 20 over those five years.

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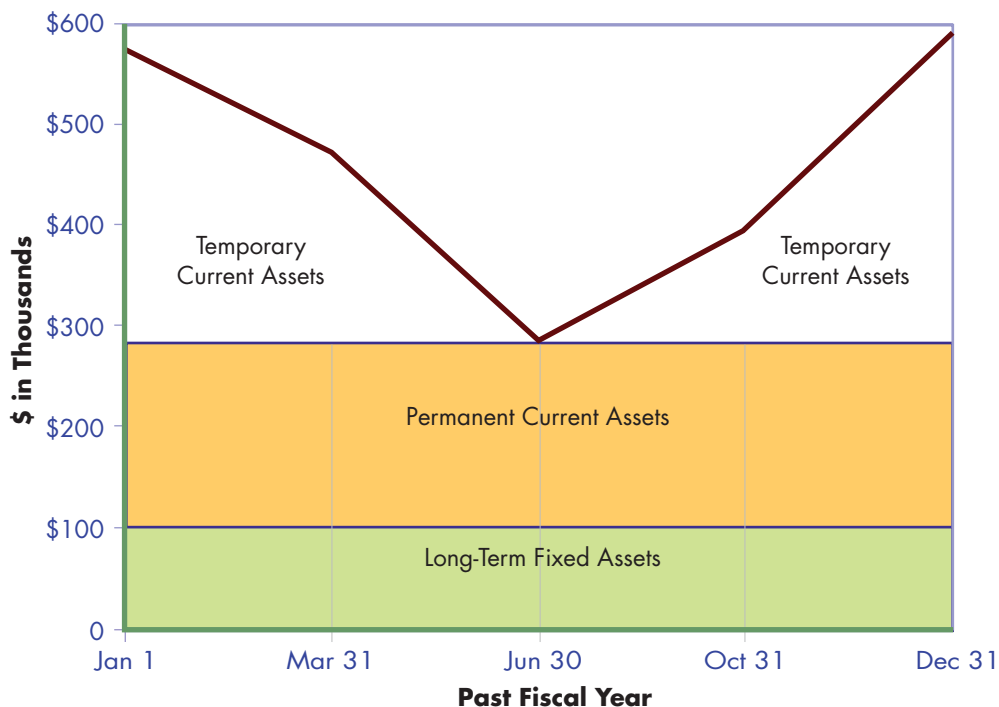
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Answers to Self-Test

ST-1. Working capital (i.e., current assets in the form of cash, accounts receivable, inventory, and so on) can normally be exchanged for cash, or liquidated, in a relatively short time. Therefore, the more working capital a company maintains, the easier it is to raise cash quickly. However, maintaining working capital costs money and it ties up funds that could otherwise be used to invest in long-term income-producing assets, so profits and returns suffer. For this reason, we say that managing working capital involves balancing liquidity and profitability.

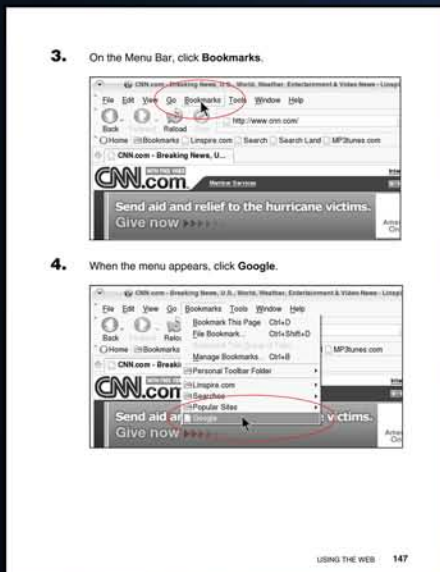
ST-2. The optimal level of working capital is achieved when the optimal levels of each current asset account—cash, inventory, accounts receivable, and any others—are reached. Each current asset category is managed separately and the combined results produce the optimal level of current assets.

ST-3.



ST-4. Following the moderate approach, the company will finance its temporary current assets with short-term debt and the rest of its assets with long-term debt and equity. Therefore, as of today, the company will have on its balance sheet:

Current Liabilities	\$100,000
Long-Term Debt and Equity	\$130,000



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