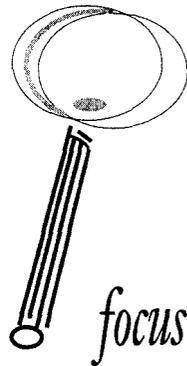


1

Working Capital



Learning Objectives

By the end of this chapter, you should be able to:

- List the five objectives of financial management.
- Explain the operation of the operating cycle.
- Define the term *net working capital* in at least two different ways.
- Integrate working capital components.
- Interpret liquidity ratios.

INTRODUCTION

Because almost every action of a company has financial implications, managers responsible for or with oversight of cash flow get directly involved in many functional areas of the business. Cash flow managers are financial managers, although in very large organizations the financial management function may be broken down into various segments and the cash flow management segment may concern itself primarily with short-term management issues, or the daily cash flow management tasks. Examples of these would be the maintenance of only minimum balances in non-interest-bearing bank accounts, the movement of excess cash into short-term investments, and the maintenance of adequate cash balances to cover the normal operating expenses of the organization that must be paid from day to day. In any event, those responsible for short-term cash flow must consider the long-term financial management objectives of the organization.

OBJECTIVES OF FINANCIAL MANAGEMENT

The overall financial management objectives of an organization could be summarized in terms of the following five objectives:

1. To ensure that the organization always has enough cash to meet its legal obligations and avoid illiquidity—that is, to maintain adequate short-term financial flexibility.
2. To arrange to obtain whatever funds are required from external sources at the right time, in the right form, and on the best possible terms.
3. To ensure that the organization's assets and liabilities—current and long-term, financial and operating—are utilized as effectively as possible.
4. To forecast and plan for the financial requirements of future operations.
5. To make all decisions and recommendations on the basis of one primary criterion: maximizing the long-term value of the organization. This objective is attained in a publicly owned corporation through maximization of the wealth of the owners (stockholders) by maximizing stock price.

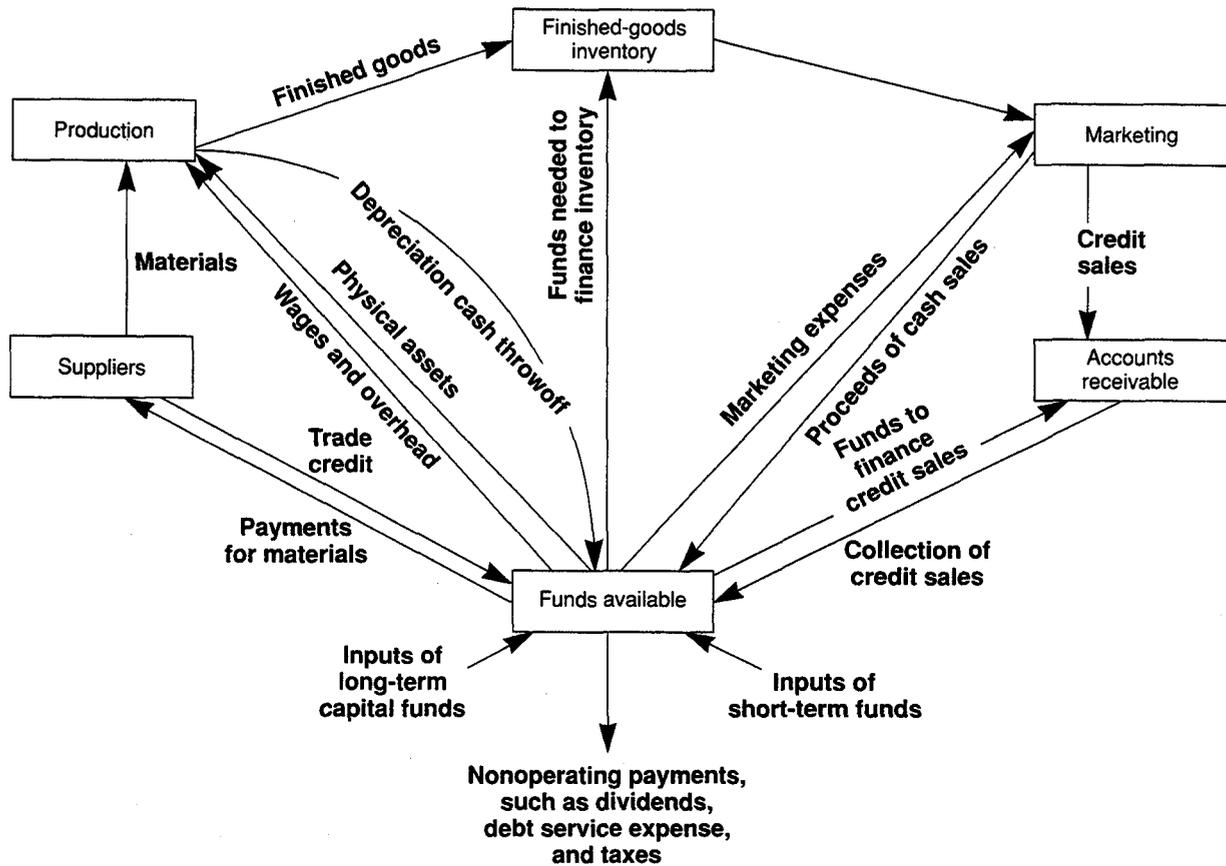
The last point is particularly important; without this requirement, financial executives could find many suboptimal solutions to problems. It would be easy, for example, to satisfy the first requirement by maintaining enormous cash balances or investing very large sums in readily salable short-term securities; but such a policy would normally not be in the best interests of the stockholders of a typical corporation. The implications of the last principle underlie the whole of financial decision making, and effective cash flow management supports this long-term objective.

THE OPERATING CYCLE

In any business organization, there is an ongoing cycle of events concerned with the production and sale of the company's products or the provision and sale of the company's services. This cycle continuously consumes and generates cash and short-term funds. In other words, operations both drain from and replenish the stock of short-term funds we call *working capital*.

Some people tend to think of a typical operating cycle as “cash to cash”: goods are produced and, when sold, are converted into cash; the cash remaining after subtracting costs incurred is profit. Such an approach, however, fails to show the variety of sources and uses of funds in the operating cycle.

A more complete representation would be that shown in Exhibit 1-1. Note that, in the exhibit, the box representing the company's financial resources is labeled “Funds Available” rather than “Working Capital” or “Short-Term Funds.” Regardless of accounting conventions, companies do not keep two separate pools of short-term and long-term funds. There is, in effect, a single pool of funds; all payments—both wage payments to production workers, for example, and dividend payments to stockholders—come out of this one pool. To this extent, the conventional distinction between short

E**Exhibit 1-1****The Operating Cycle**

term and long-term funds is unrealistic. From an accounting viewpoint, which is used when discussing financial statements, the distinction is very straightforward. *Short-term* refers to maturities of less than one year, and *long-term* refers to maturities of greater than one year. This single distinction will suffice until we further differentiate between long-term funds and those that are considered intermediate-term funds.

Although all the company's funds do go into a common pool, there are nevertheless essential differences between short-term and long-term funds, the markets that supply them, their timing, and their costs. For most companies, long-term financing is the exception rather than the rule. A typical company might raise additional long-term capital once every three or four years. Such funds may have a long-term use, such as building a new plant, modernizing production equipment, refunding a bond issue, or making an acquisition for cash.

Alternatively, funds raised in the long-term capital markets may also be used in whole or in part to finance working capital, if management believes that existing working capital is inadequate to finance the company's current

scale of operations. Such a permanent addition to working capital may be considered a long-term use of funds, however, even though the funds are used for what are normally considered short-term purposes.

Long-term funds, then, are characterized by the fact that new increments are raised fairly infrequently and usually in large amounts. A company usually goes to the long-term capital market for funds only when it requires the funds to finance a long-term need or to make a permanent addition to the working capital. The process of raising long-term funds is formal, involving the sale of stock or debt instruments, and is conducted within a framework of legal and regulatory requirements. Since the long-term financing decisions directly affect the short-term cash flow management decisions, in later chapters this course will also deal with these long-term decisions.

Short-term and *intermediate-term* funds—which we define somewhat arbitrarily (but in accordance with accepted usage) as those with a working life of less than ten years—have quite different characteristics. They flow into and out of the company in relatively small increments on a day-to-day basis rather than in one very large increment every few years. Some short-term sources of funds are almost automatic. For example, cash becomes available from cash sales or from the collection of accounts receivable as part of the cycle of operations. Even when short-term funds are obtained from an outside lender, the process is comparatively informal, drawing on another part of the company's line of credit with a commercial bank is much simpler than selling a new issue of mortgage bonds or debentures.

Similarly, the short-term uses of funds also tend to be comparatively automatic and informal. For example, buying more materials to replace those used in production and to keep inventory at the desired level requires no formal decision, but the construction of a new plant (which requires long-term funds) needs careful discussion and planning at the highest levels of company management.

The use of long-term and short-term funds also affects cash flow. For example, depreciation's impact on income taxes affects the amount of cash available. When a capital asset is purchased for cash, there is an outflow of cash but no corresponding expense for income tax purposes. Over the life of the asset, as its economic value is consumed, the organization is allowed to deduct as an expense this decrease in value in computing its taxable income. The larger the amount of depreciation allowed, the smaller the taxable income is and the less the organization has to pay in income taxes. By reducing its tax liability, the organization in effect has more cash available for other purposes. In the cash budget, all noncash expenses, including depreciation, are ignored. In the cash flow analysis for long-term investment decisions, however, depreciation and its tax impacts must be included.

In addition to the difference between long-term and short-term funds, there is a difference between cash flow and funds flow (working capital flow). The reason for this difference is that most companies use an accrual accounting system to match revenue and expenses, even if there has been no receipt or disbursement of cash. For the purposes of this course, we will concern ourselves with the actual increase or decrease in cash rather than funds flow.

In recent years, the accounting profession has recognized the need for reporting the cash flow of organizations more directly and clearly to outsiders. As a result, the Financial Accounting Standards Board (FASB) issued FASB Statement no. 95, *Statement of cash Flows*, which significantly altered the way changes in cash flow are presented in financial statements. Formerly, changes in working capital were presented in a *Statement of changes in Financial Position*.

Thus, although it is misleading to think of short-term and long-term cash flow and short-term and long-term funds as separate entities, and although they are all of concern to the financial manager, there are important differences between them. This course will concentrate on the management of cash flow and working capital items that directly affect cash flow in the short run.

WORKING CAPITAL VERSUS CASH

The term *working capital* has many connotations and is often used very loosely in practice. Small-business owners often refer to the need to obtain more working capital to keep their businesses operating “in the black,” and many people equate working capital with cash.

Definition of Working Capital

Working capital is the total of all those items shown on a company’s balance sheet as short-term or current assets—that is, cash, marketable securities, accounts receivable, and inventories. A current asset is one that is expected to be turned into cash in one year or the current operating cycle, whichever is longer. Nevertheless, when we speak of working capital, we usually mean *net working capital*, which is current assets minus current liabilities (accounts payable, taxes and wages currently payable, short-term bank borrowing, and the current part of long-term debt). Net working capital is a useful indication of the funds available to the company to finance its current operations, but we shall see that net working capital is not synonymous with cash or even liquidity. An understanding of working capital does, however, provide managers with an insight on both cash flow and liquidity.

Adequacy of Cash and Working Capital

These definitions point out a crucial distinction: although cash is a part of working capital and although working capital is closely connected with cash needs, working capital is not the same thing as cash. Indeed, a company may have millions of dollars of working capital and yet be seriously short of cash. Our first task is to make this difference clear and show how it arises.

We shall begin by looking at the current part of a company’s balance sheet. In Exhibit 1–2, using the definitions just given, we can say that True Tool has working capital of \$2.5 million and net working capital of \$1.0 million. But is its working capital adequate? How do we judge the adequacy of working capital?

E**xhibit 1-2****Truetool, Inc.: Partial Balance Sheet as of December 31, 1995***Current Assets*

Cash	\$ 500,000
Marketable securities	300,000
Accounts receivable	800,000
Inventory	900,000
Total current assets	<u>\$2,500,000</u>

Current Liabilities

Accounts payable	\$ 700,000
Accrued wages	300,000
Notes payable	500,000
Total current liabilities	<u>\$1,500,000</u>

[Net Working Capital: \$2,500,000 – \$1,500,000 = \$1,000,000]

WORKING CAPITAL POLICIES

Different companies adopt different policies concerning the management of working capital. As in most areas of financial management, some companies adopt very aggressive policies, some companies adopt very conservative policies, and some try to follow a middle-of-the-road approach.

Aggressive Approach

An aggressive approach to managing current assets usually implies holding minimum levels of current assets; this risk-oriented approach, it is hoped, will produce greater returns for the company. For example, by holding minimum levels of cash in non-interest-bearing accounts or minimum levels of near-cash assets (e.g., short-term marketable securities), the company may hope to earn greater returns by investing in longer-term investment vehicles, which typically earn higher yields. The company may also be investing more in long-term productive assets (e.g., plant and equipment), again hoping for more dramatic returns over the long run. This aggressive current asset management policy, however, is associated with substantial risks; by holding minimum levels of cash and near-cash assets, there is a risk that the company will not have adequate cash on hand to meet its short-term obligations when they are due.

Likewise, if a company holds minimum inventory levels—another aggressive approach—there is a risk that stockouts will result and sales will be lost due to a shortage of inventory on hand. This is especially true in the

retail industry. By holding minimum inventory levels, however, the company hopes to reduce the expenses associated with carrying inventory, such as storage and handling costs, insurance, and even inventory shrinkage caused by damage or theft. In this way, a greater return, or profit, would be earned.

An aggressive approach to managing current liabilities usually implies using the maximum amount of short-term debt relative to long-term debt, under the generally valid assumption that short-term debt will be less expensive, thereby increasing returns by lowering costs. The risk, however, is two-edged: first, there is the risk that the company will not be able to “roll over,” or refinance, its short-term debt as it comes due; second, there is the risk that interest rates will rise and the new short-term debt will be more costly. Additionally, it has been demonstrated that short-term interest rates are generally more volatile than long-term rates and so are more subject to change during the short-term period.

Conservative Approach

On the other hand, a conservative approach to managing current assets implies holding excess cash balances and excess inventory levels. In this way, cash will be adequate to meet any unexpected liquidity needs and inventory levels will be sufficient to avoid stockouts. As a result, however, greater returns are usually sacrificed.

A conservative approach to managing current liabilities implies financing both short-term and long-term needs with long-term financing and keeping current liabilities to a minimum. In this way, financing at a fixed rate for longer periods guarantees that funds are available, although probably at a higher cost. Additionally, there will be periods when the company is paying interest on financed funds that are not needed at that particular time.

Middle-of-the-Road Approach

A middle-of-the-road approach to working capital policy can be summarized by the *matching principle*, which states that long-term or permanent assets should be financed by long-term or permanent sources and short-term assets should be financed by short-term sources.

Some level of current assets, such as accounts receivable and inventories, will always be required for corporate needs. These are referred to as *permanent Levels of current assets (or permanent current assets)*. In addition, some level of current liabilities, such as accounts payable, will always be on hand. These are referred to as *permanent levels of current liabilities (or permanent current liabilities)*. Therefore, working capital policy must also concern itself with the permanent levels of current assets and current liabilities, which, for financing purposes, are treated as though they represented long-term assets and long-term liabilities.

In periods of high uncertainty, especially with regard to interest rate movements, it would seem that a middle-of-the-road policy is wise. Once the general trend of interest-rate movement is ascertained, a greater reliance on

either short-term or long-term financing sources can be implemented. In any event, a company following either an aggressive or a conservative working capital policy should be well aware of its policy decisions and of the implications and risks involved and should be ready to adapt its working capital policies to changes in the financial environment.

RATIO ANALYSIS

One very useful tool in evaluating the adequacy of working capital and comparing working capital policies of different companies is ratio analysis. Two ratios, current ratio and quick ratio, are most relevant to the management of working capital.

The Current Ratio

The *current ratio* is computed by dividing current assets by current liabilities. For Tmetool (Exhibit 1-2), the result is as follows:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$2,500,000}{\$1,500,000} = 1.67$$

But what does this mean? We need to have some standard of comparison. If the average current ratio in the tool industry is 3.0, then we can say that True-tool's current ratio is below average. But even if a company's current ratio is different from the industry average, we cannot immediately say that the company is in trouble.

In our example, the current ratio of True tool is below the industry norm. This could indicate that True tool's managers are very efficient in handling current assets, economizing on the amount of funds tied up in short-term accounts. The funds they free up may be used for projects that will increase profits. On the other hand, this example could indicate that Tmetool does not have enough current assets to compete effectively in the proper markets, because of either restrictive credit policies or lack of a full line of inventory. Similarly, differing interpretations can be made for individual current ratios that are above industry norms. The only thing we can say for certain at this point is that, when an individual ratio differs from the norm, it should be a warning signal. It may be a good sign or a bad one; further analysis is required to tell which.

The Quick Ratio

The *quick ratio*, sometimes called the *acid-test ratio*, differs from the current ratio in that it considers only those current assets that can fairly readily be converted into cash. Inventory, for example, is excluded from the quick ratio because it usually cannot be converted into cash whenever one wishes—except, perhaps, by selling it at scrap prices. The quick ratio is computed by

dividing quick assets (cash, marketable securities, and accounts receivable) by total current liabilities. For Truetool, the result is as follows:

$$\text{Quickratio} = \frac{\text{Quickassets}}{\text{Current liabilities}} = \frac{\$1,600,000}{\$1,500,000} = 1.07$$

The quick ratio is more useful than the current ratio because it tells us something even if we have no industry standard with which to compare it. We know that if Truetool could immediately collect its accounts receivable and sell its marketable securities at the value at which they are carried on its books, its cash balance would exceed its outstanding current liabilities, though not by very much. Does this mean that Truetool's working capital is adequate?

THE QUESTION OF TIMING

In fact, we still cannot say whether Truetool has adequate working capital because our analysis to this point has left out one vital element: timing. We shall now rephrase our question: instead of asking whether Truetool has adequate working capital, we shall ask, is Truetool going to be able to pay all its bills as they fall due? The answer is that we still do not know. It depends on when the bills fall due and how long it will take to collect the accounts receivable.

Average Collection Period

To get some indication of when a company can expect to receive the cash flow from the collection of its accounts receivable, we can look at its average collection period and its accounts receivable aging schedule. The *average collection period* tells us how long it will take, on the average, to collect accounts receivable from the day of sale. It can be calculated by dividing accounts receivable by average sales per day. Let's assume that Truetool's 1995 sales amounted to \$9,733,333. In that case, its average collection period would be as follows:

$$\text{Average collection period} = \frac{\text{Accounts receivable}}{\text{Sales per day}} = \frac{\$800,000}{(\$9,733,333/365)} = 30 \text{ days}$$

In general, the longer the average collection period, the less stringent the company's credit policy. The average collection period is also referred to as the *day's sales outstanding* (DSO). This calculation is most useful when it is analyzed over a period of time to determine if the speed of collections is improving or deteriorating. Unfortunately, the average collection period can also provide misleading results. Wide swings in monthly sales can cause the denominator to change unrealistically, which produces misleading results.

E**Exhibit 1-3****Truetool's Accounts Receivable**

<i>Period Outstanding</i>	<i>Dollar Amount of A/R</i>	<i>Percent of Total</i>
0–30 days	\$400,000	50%
30–60 days	325,000	41
60–90 days	50,000	6
Over 90 days	25,000	3
Total	\$800,000	100%

Aging Schedule

A more detailed statement of the volume and percentage of the accounts receivable that have been outstanding for various lengths of time is contained in the accounts receivable aging schedule. Exhibit 1-3 shows Truetool's aging schedule.

If we make a couple of very simple assumptions, we can see just why timing is important. Assume that all of Truetool's accounts payable are for materials bought on terms of net 30 days and that the average maturity of the accounts payable is half this amount of time, or 15 days. Assume, too, that Truetool's terms of sale to its customers are net 60 days. We have already established that the average collection period is 30 days.

What does this imply about Truetool's cash requirements in the coming month? Assuming that the company's business is stable—that is, sales are neither expanding nor shrinking—we can assume that during the next 30 days the company will have to pay all its accounts payable—\$700,000. But it will have collected its prior month's receivables, or about \$800,000. This leaves a net cash balance of \$100,000. If we further assume that the \$300,000 of accrued wages must also be paid during this period, this gives us a net outflow of \$200,000. Cash alone will not be adequate to meet these net outflows. The company will have to sell its marketable securities, and even then it will be left dangerously short of cash, especially if the \$500,000 note soon becomes payable. Thus, a company that at first sight seemed to have adequate working capital now appears to be heading for insolvency because it is ignoring the timing of its cash flows.

WORKING CAPITAL VERSUS LIQUIDITY

It should now be clear that an increase in net working capital does not necessarily translate into an increase in liquidity. One reason for this is that increases in net working capital often result from increases in operating assets, not from increases in cash. These operating assets, such as accounts receivable or inventory, are usually tied up in operations and are not commonly liquidated (prematurely) to pay bills.

Bills are paid with cash. If cash balances are not adequate, certain near-cash assets, such as short-term marketable securities, are converted into cash. If there is still a liquidity problem, the company may also be able to speed the accounts receivable collection process or even borrow from the bank. But as the need for liquidity increases, the company eventually finds it more and more difficult to liquidate current assets. The company may have some success in speeding the accounts receivable collection process but will probably not be as successful in converting inventory quickly into cash. Therefore, an increase in working capital, if caused primarily by an increase in these operating assets (accounts receivable and inventory), will not necessarily cause an equivalent increase in liquidity.

Furthermore, the makeup of the company's current liabilities also determines, in large part, how liquid the company actually is. If a large portion of the current liabilities consists of trade accounts payable in an industry where vendors are relatively lenient with regard to credit terms, the actual liquidity needs of the company may not be as great as they would be in a situation where most of the current liabilities consist of short-term bank loans payable. Having adequate liquidity to avoid defaulting on a bank loan, in this case, is a much more critical problem.

Thus, we can see it is dangerous to use net working capital calculations and working capital ratios to assess liquidity. This practice ignores the nonliquid nature of certain current assets and the degree of callability of certain current liabilities. A true understanding of liquidity requires a more in-depth understanding of each of the components of net working capital. And this highlights one of the fundamental weaknesses of the traditional liquidity ratios, such as the current ratio or quick ratio. These ratios include in their formulas both liquid financial assets and operating assets. Since operating assets are tied up in operations, inclusion of these assets in a liquidity ratio is not very useful from a going-concern perspective.

The management of working capital, therefore, involves the management of liquidity as well as management of the nonliquid components of working capital, such as accounts receivable and inventories. It also includes acquiring the appropriate levels of financing from suppliers and creditors. These issues will be addressed separately in later chapters. To forecast the amount and timing of its funding requirements, management usually needs to develop a detailed cash forecast. The cash forecast, also discussed in later chapters, is useful in determining the appropriate maturity of funding sources.

Adequacy of Working Capital and Cash

Working capital and cash needs vary among industries, as well as among companies in the same industry. For example, retailers typically have seasonal cash needs as they build up inventories and hire temporary personnel to handle the busy holiday season. Generalizations about cash flow needs based on industry group, however, are less reliable than they used to be. Many companies that were involved in takeovers or takeover defenses have increased the amount of debt carried on their balance sheets.

The enormous amount of debt that well-known retailer Macy's assumed when its managers structured a leveraged buyout of the company eventually resulted in Macy's bankruptcy. Such companies have a continual need of large amounts of cash just to fund their debt payments, over and above cash needed for operations.

Importance of Cash Flow Analysis

Although working capital analysis is a useful concept, analysts have increasingly recognized that its limitations make it a poor substitute for cash flow analysis. A positive growth in working capital, for example, can actually mask a deteriorating liquidity position. This occurs when working capital is comprised heavily of inventory and accounts receivable. Although inventory will normally be converted into cash, an increase in inventory—and working capital—may occur because customers are not buying the company's products.

The classic example is the old W. T. Grant Company, which had a healthy surplus of working capital but went bankrupt because it lacked the cash to pay its bills. Although an analysis of working capital showed the company was doing well, in fact the company lacked the liquidity to pay its bills on time. This sort of problem can be detected by analyzing trends in several key ratios, including *receivables turnover* (net credit sales divided by average net receivables), *inventory turnover* (cost of goods sold divided by average inventory), and *interest coverage* (income before interest expense and taxes divided by interest expense). Cash flow analysis could have highlighted this trend at Grant's before it became a disaster.

SUMMARY

Working capital is often misinterpreted as being synonymous with a company's liquidity. In fact, only a part of net working capital is liquid; the balance of net working capital is tied up in short-term assets supporting the company's operations. Companies can usually be viewed as being either more aggressive or more conservative than others relative to their working capital management policies. In periods of high volatility in the financial markets, more companies would tend to take the conservative or middle-of-the-road approach.

Preparing a cash flow forecast assists managers in assessing the timing and maturity of funding needs. With a cash flow forecast, management can determine more easily the type of funding to procure and the company's ability to grow with available funds. In the chapters that follow, we will describe cash forecasts and discuss planning strategies.



Review Questions

1. All of the following are basic objectives of financial management *except:* 1.(b)
 - (a) to ensure that the organization always has enough cash to meet its legal obligations.
 - (b) to ensure that the company's current cash balances always exceed its current liabilities.
 - (c) to ensure that the organization's assets and liabilities are utilized as effectively as possible.
 - (d) to forecast and to plan for future operations.

2. Net working capital equals: 2.(d)
 - (a) cash plus current assets.
 - (b) cash plus inventory.
 - (c) cash less current liabilities.
 - (d) current assets less current liabilities.

3. All of the following are current assets *except:* 3.(b)
 - (a) inventory.
 - (b) accrued wages.
 - (c) marketable securities.
 - (d) accounts receivable.

4. All of the following are current liabilities *except:* 4.(d)
 - (a) accounts payable.
 - (b) accrued wages.
 - (c) notes payable.
 - (d) accounts receivable.

Use the following information to answer questions 5 through 10:

Data for Company SAG

Cash	\$ 600,000
Marketable securities	250,000
Accounts receivable	750,000
Inventory	1,000,000
Accounts payable	650,000
Accrued wages	350,000
Notes payable	625,000

5. Current assets for Company SAG total:
- (a) \$850,000.
 (b) \$1,600,000.
 (c) \$2,600,000.
 (d) \$2,950,000.
6. Current liabilities for Company SAG total:
- (a) \$650,000.
 (b) \$1,000,000.
 (c) \$1,275,000.
 (d) \$1,625,000.
7. Company SAG net working capital is:
- (a) \$850,000.
 (b) \$975,000.
 (c) \$1,300,000.
 (d) \$2,600,000.
8. One measure of the adequacy of working capital is the current ratio. Company SAG has a current ratio of:
- (a) 1.10.
 (b) 1.60.
 (c) 2.41.
 (d) 2.60.
9. Company SAG has slightly more than one-and-a-half times as much in current assets as it has in:
- (a) current liabilities.
 (b) working capital.
 (c) net working capital.
 (d) cash.
10. What is the quick ratio (excluding inventory) for Company SAG?
- (a) \$1,300,000/\$1,600,000
 (b) \$1,000,000/\$1,300,000
 (c) \$1,300,000/\$1,000,000
 (d) \$1,000,000/\$1,600,000
5. (c) See end of review questions for computation.
6. (d) See end of review questions for computation.
7. (b) See end of review questions for computation.
8. (b) See end of review questions for computation.
9. (a)
10. (a)

Computation for question 5:

Cash	\$ 600,000
Marketable securities	250,000
Accounts receivable	750,000
Inventory	<u>1,000,000</u>
Current assets	<u>\$2,600,000</u>

Computation for question 6:

Accounts payable	\$ 650,000
Accrued wages	350,000
Notes payable	<u>625,000</u>
Current liabilities	<u>\$1,625,000</u>

Computation for question 7:

$$\begin{aligned}\text{Net working capital} &= \text{Current assets} - \text{Current liabilities} \\ &= \$2,600,000 - \$1,625,000 \\ &= \$975,000\end{aligned}$$

Computation for question 8:

$$\text{Current ratio} = \frac{\$2,600,000}{\$1,625,000} = 1.6$$

