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Working Capital Finance

With a good foundation in how businesses are financed and how to interpret their financial statements, we are prepared to address specialized financing issues for enterprises. This chapter focuses on financing a firm's working capital needs while Chapter 6 discusses the financing of longer term fixed assets. To address working capital finance, the chapter begins by discussing the different definitions of working capital, and explaining its importance to a business, both for long-term operations and for managing the short-term cash flow cycle. In the next section, the different debt instruments used to finance working capital are described. Following the discussion of debt instruments, the most common working capital finance sources are reviewed. Firms face many working capital finance options, both in the debt instrument used and institutional sources. The development finance professional's job is to first understand the firm's financing needs and capacity and then to help it locate and structure appropriate working capital debt. To help develop these skills, the underwriting issues involved in structuring working capital debt are reviewed and a case study assignment, Crystal Clear Window Company, is provided to apply this knowledge to a specific and realistic working capital financing situation.

The Importance of Working Capital Finance

Three Meanings of Working Capital

The term working capital has several meanings in business and economic development finance. In accounting and financial statement analysis, working capital is defined as the firm's short-term or current assets and current liabilities. *Net working capital* represents the excess of current assets over current liabilities and is an indicator of the firm's ability to meet its short-term financial obligations (Brealey & Myers, 2002). From a financing

perspective, working capital refers to the firm's investment in two types of assets. In one instance, working capital means a business's investment in short-term assets needed to operate over a normal business cycle. This meaning corresponds to the required investment in cash, accounts receivable, inventory, and other items listed as current assets on the firm's balance sheet. In this context, working capital financing concerns how a firm finances its current assets. A second broader meaning of working capital is the company's overall nonfixed asset investments. Businesses often need to finance activities that do not involve assets measured on the balance sheet. For example, a firm may need funds to redesign its products or formulate a new marketing strategy, activities that require funds to hire personnel rather than acquiring accounting assets. When the returns for these "soft costs" investments are not immediate but rather are reaped over time through increased sales or profits, then the company needs to finance them. Thus, *working capital* can represent a broader view of a firm's capital needs that includes both current assets and other nonfixed asset investments related to its operations. In this chapter, we use this last meaning of working capital and focus on the tools and issues involved in financing these business investments.

Business Uses of Working Capital

Just as working capital has several meanings, firms use it in many ways. Most fundamentally, working capital investment is the lifeblood of a company. Without it, a firm cannot stay in business. Thus, the first, and most critical, use of working capital is providing the ongoing investment in short-term assets that a company needs to operate. A business requires a minimum cash balance to meet basic day-to-day expenses and to provide a reserve for unexpected costs. It also needs working capital for prepaid business costs, such as licenses, insurance policies, or security deposits. Furthermore, all businesses invest in some amount of inventory, from a law firm's stock of office supplies to the large inventories needed by retail and wholesale enterprises. Without some amount of working capital finance, businesses could not open and operate. A second purpose of working capital is addressing seasonal or cyclical financing needs. Here, working capital finance supports the buildup of short-term assets needed to generate revenue, but which come before the receipt of cash. For example, a toy manufacturer must produce and ship its products for the holiday shopping season several months before it receives cash payment from stores. Since most businesses do not receive prepayment for goods and services, they need to finance these purchase, production, sales, and collection costs prior to receiving payment from customers. Figure 5.1 illustrates this short-term cash flow and financing cycle. Another way to view this function of working capital is providing liquidity. Adequate and appropriate working capital financing ensures that a firm has sufficient cash flow to pay its bills as it

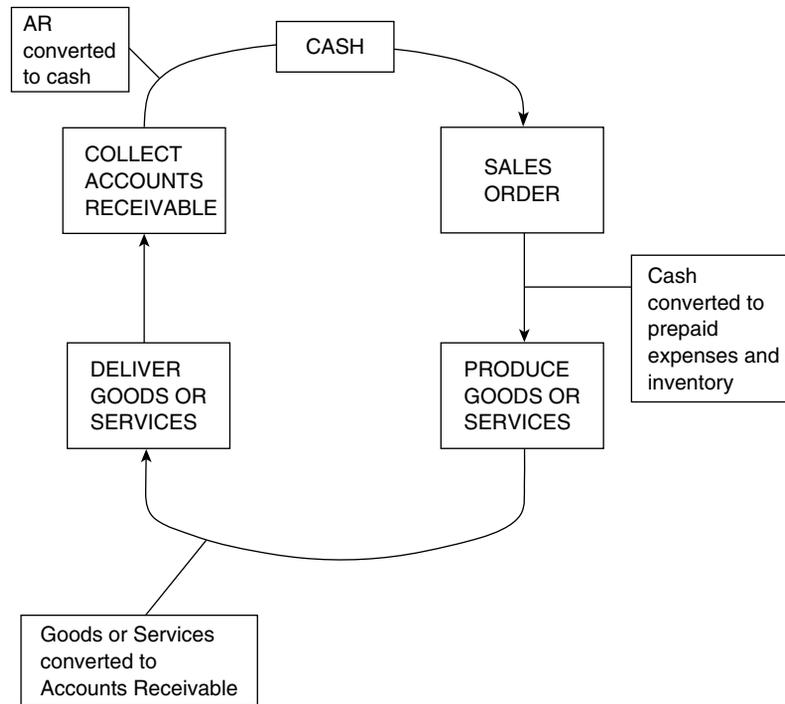


Figure 5.1 Cash Flow and the Working Capital Cycle

awaits the full collection of revenue. When working capital is not sufficiently or appropriately financed, a firm can run out of cash and face bankruptcy. A profitable firm with competitive goods or services can still be forced into bankruptcy if it has not adequately financed its working capital needs and runs out of cash. Working capital is also needed to sustain a firm's growth. As a business grows, it needs larger investments in inventory, accounts receivable, personnel, and other items to realize increased sales. New facilities and equipment are not the only assets required for growth; firms also must finance the working capital needed to support sales growth. A final use of working capital is to undertake activities to improve business operations and remain competitive, such as product development, ongoing product and process improvements, and cultivating new markets. With firms facing heightened competition, these improvements often need to be integrated into operations on a continuous basis. Consequently, they are more likely to be incurred as small repeated costs than as large infrequent investments. This is especially true for small firms that cannot afford the cost and risks of large fixed investments in research and development projects or new facilities. Ongoing investments in product and process improvement and market expansion, therefore, often must be addressed through working capital financing.

Permanent and Cyclical Working Capital

Firms need both a long-term (or permanent) investment in working capital and a short-term or cyclical one. The permanent working capital investment provides an ongoing positive net working capital position, that is, a level of current assets that exceeds current liabilities. This allows the firm to operate with a comfortable financial margin since short-term assets exceed short-term obligations and minimizes the risk of being unable to pay its employees, vendors, lenders, or the government (for taxes). To have positive net working capital, a company must finance part of its working capital on a long-term basis. Since total assets equal total liabilities and owner's equity, when current assets exceed current liabilities, this excess is financed by the long-term debt or equities (Brealey & Myers, 2002). Figure 5.2 demonstrates this point graphically. For current assets (area CA) to be greater than current liability (area CL), long-term debt and equity must finance part of area CA. Beyond this permanent working capital investment, firms need seasonal or cyclical working capital. Few firms have steady sales and production throughout the year. Since the demand for goods and services varies over the course of a year, firms need to finance both inventories and other costs to prepare for their peak sales period and accounts receivable until cash is collected. Cyclical working capital is best financed by short-term debt since the seasonal buildup of assets to address seasonal demand will be reduced and converted to cash to repay borrowed funds within a short predictable period. By matching the term of liabilities to the term of the underlying assets, short-term financing helps a firm manage inflation and other financial risks. Short-term financing is also preferable since it is usually easier to obtain and priced lower than long-term debt.

Working capital financing is a key financing need and challenge for small firms. As discussed in Chapter 2, small businesses have less access to long-term sources of capital than large businesses, including limited access to equity capital markets and fewer sources of long-term debt. Thus, many small firms are heavily dependent on short-term debt, much of which is tied to working capital.¹ However, limited equity and reliance on short-term debt increases the demand on a firm's cash flow, reduces liquidity, and increases financial leverage—all of which heighten the financial risks of extending credit. Consequently, small firms may have trouble raising short-term debt while at the same time facing obstacles to securing the longer-term debt necessary to improve their financial position and liquidity, and lessen their credit risk. Development finance has an important role in addressing this problem, either by offering working capital loans when private loans are not available or by providing debt terms that reduce a firm's financial risk and help it access private working capital financing. In particular, practitioners can help businesses finance permanent working capital to reduce their short-term financial pressures.

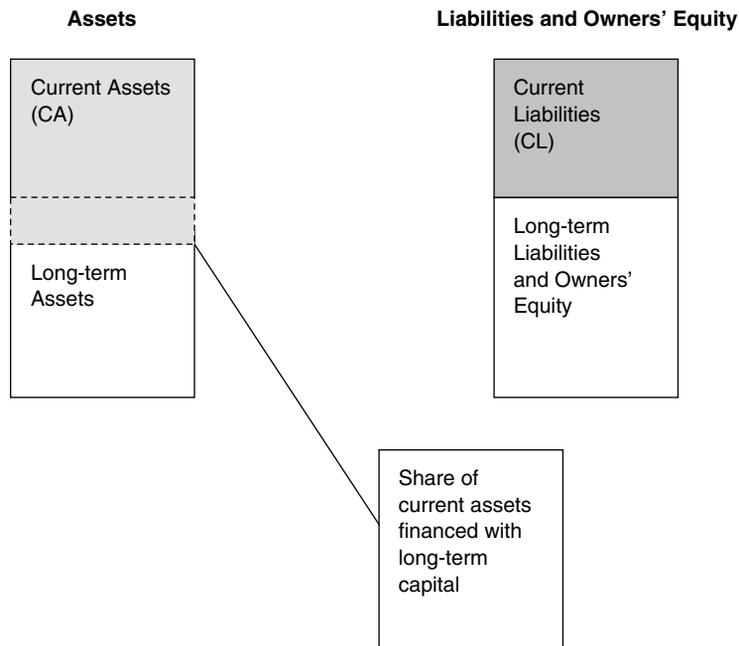


Figure 5.2 Positive Net Working Capital Requires Long-Term Financing

Forms of Working Capital Financing

Working capital financing comes in many forms, each of which has unique terms and offers certain advantages and disadvantages to the borrower. This section introduces the five major forms of debt used to finance working capital and discusses the relative advantages of each one.² The purpose of this information is to provide insight into the different ways in which debt can be structured and prepare practitioners to choose and structure a debt tool best suited to a firm's financial situation and needs. Table 5.1 summarizes the major features of the five working debt tools described below.

Line of Credit

A *line of credit* is an open-ended loan with a borrowing limit that the business can draw against or repay at any time during the loan period. This arrangement allows a company flexibility to borrow funds when the need arises for the exact amount required. Interest is paid only on the amount borrowed, typically on a monthly basis. A line of credit can be either

Table 5.1 Summary of Working Capital Finance Instruments

<i>Finance Instrument</i>	<i>Description</i>	<i>Key Terms</i>
Line of Credit	Maximum loan limit established. Firm draws on loan as needed up to limit.	Can be unsecured or secured. Annual repayment. Compensating balance may be required.
Accounts Receivable (AR) Loan	Loan secured by accounts receivable.	Loan amount based on a percentage of accounts receivable. Accounts receivable assigned to lender as sales occur. Loan balance paid down with AR collection.
Factoring	Sale of accounts receivable to a third party collector (factor). Factor bears collection risk.	Company paid based on average collection period less a collection fee. Collection amount can be advanced with an interest charge.
Inventory Loan	Loan secured by inventory.	Loan amount based on a percentage of inventory value. Lender receives security interest in inventory and may take physical control. Release of inventory with loan repayment.
Term Loan	Medium-term loan. Principal repaid over several years based on a fixed schedule.	Loan amount tied to collateral value. Can be fully amortized or a balloon loan. Typical term is three to seven years.

unsecured, if no specific collateral is pledged for repayment, or secured by specific assets such as accounts receivable or inventory. The standard term for a line of credit is 1 year with renewal subject to the lender's annual review and approval. Since a line of credit is designed to address cyclical working capital needs and not to finance long-term assets, lenders usually require full repayment of the line of credit during the annual loan period and prior to its renewal. This repayment is sometimes referred to as the annual cleanup.

Two other costs, beyond interest payments, are associated with borrowing through a line of credit. Lenders require a fee for providing the line of credit, based on the line's credit limit, which is paid whether or not the firm uses the line. This fee, usually in the range of 25 to 100 basis points, covers the bank's costs for underwriting and setting up the loan account in the event that a firm does not use the line and the bank earns no interest income. A second cost is the requirement for a borrower to maintain a compensating balance account with the bank. Under this arrangement, a borrower must have a deposit account with a minimum balance equal to a percentage of the line of credit, perhaps 10% to 20%. If a firm normally maintains this balance in its cash accounts, then no additional costs are imposed by this requirement. However, when a firm must increase its bank deposits to meet the compensating balance requirement, then it is incurring an additional

cost. In effect, the compensating balance reduces the business's net loan proceeds and increases its effective interest rate. Consider a line of credit for \$1 million at a 10% interest rate with a 20% compensating balance requirement. When the company fully draws on the line of credit, it will have borrowed \$1 million but must leave \$200,000 on deposit with the lender, resulting in net loan proceeds of \$800,000. However, it pays interest on the full \$1 million drawn. Thus, the effective annual interest rate is 12.5% rather than 10% (one year's interest is \$100,000 or 12.5% of the \$800,000 in net proceeds). Like most loans, the lending terms for a line of credit include financial covenants or minimal financial standards that the borrower must meet. Typical financial covenants include a minimum current ratio, a minimum net worth, and a maximum debt-to-equity ratio.

The advantages of a line of credit are twofold. First, it allows a company to minimize the principal borrowed and the resulting interest payments. Second, it is simpler to establish and entails fewer transaction and legal costs, particularly when it is unsecured. The disadvantages of a line of credit include the potential for higher borrowing costs when a large compensating balance is required and its limitation to financing cyclical working capital needs. With full repayment required each year and annual extensions subject to lender approval, a line of credit cannot finance medium-term or long-term working capital investments.

Accounts Receivable Financing

Some businesses lack the credit quality to borrow on an unsecured basis and must instead pledge collateral to obtain a loan. Loans secured by accounts receivable are a common form of debt used to finance working capital. Under *accounts receivable debt*, the maximum loan amount is tied to a percentage of the borrower's accounts receivable. When accounts receivable increase, the allowable loan principal also rises. However, the firm must use customer payments on these receivables to reduce the loan balance. The borrowing ratio depends on the credit quality of the firm's customers and the age of the accounts receivable. A firm with financially strong customers should be able to obtain a loan equal to 80% of its accounts receivable. With weaker credit customers, the loan may be limited to 50% to 60% of accounts receivable. Additionally, a lender may exclude receivables beyond a certain age (e.g., 60 or 90 days) in the base used to calculate the loan limit. Older receivables are considered indicative of a customer with financial problems and less likely to pay.³ Since accounts receivable are pledged as collateral, when a firm does not repay the loan, the lender will collect the receivables directly from the customer and apply it to loan payments. The bank receives a copy of all invoices along with an assignment that gives it the legal right to collect payment and apply it to the loan. In some accounts receivable loans, customers make payments directly to a bank-controlled account (a lock box).

Firms gain several benefits with accounts receivable financing. With the loan limit tied to total accounts receivable, borrowing capacity grows automatically as sales grow. This automatic matching of credit increases to sales growth provides a ready means to finance expanded sales, which is especially valuable to fast-growing firms. It also provides a good borrowing alternative for businesses without the financial strength to obtain an unsecured line of credit. Accounts receivable financing allows small businesses with creditworthy customers to use the stronger credit of their customers to help borrow funds. One disadvantage of accounts receivable financing is the higher costs associated with managing the collateral, for which lenders may charge a higher interest rate or fees. Since accounts receivable financing requires pledging collateral, it limits a firm's ability to use this collateral for any other borrowing. This may be a concern if accounts receivable are the firm's primary asset.

Factoring

Factoring entails the sale of accounts receivable to another firm, called the factor, who then collects payment from the customer. Through factoring, a business can shift the costs of collection and the risk of nonpayment to a third party. In a factoring arrangement, a company and the factor work out a credit limit and average collection period for each customer. As the company makes new sales to a customer, it provides an invoice to the factor. The customer pays the factor directly, and the factor then pays the company based on the agreed upon average collection period, less a slight discount that covers the factor's collection costs and credit risk (Brealey & Myers, 2002). In addition to absorbing collection risk, a factor may advance payment for a large share of the invoice, typically 70% to 80%, providing the company with immediate cash flow from sales. In this case, the factor charges an interest rate on this advance and then deducts the advance amount from its final payment to the firm when an invoice is collected (Owen et al., 1986; Brealey & Myers, 2002).

Factoring has several advantages for a firm over straight accounts receivable financing. First, it saves the cost of establishing and administering its own collection system. Second, a factor can often collect accounts receivable at a lower cost than a small business, due to economies of scale, and transfer some of these savings to the company. Third, factoring is a form of collection insurance that provides an enterprise with more predictable cash flow from sales. On the other hand, factoring costs may be higher than a direct loan, especially when the firm's customers have poor credit that lead the factor to charge a high fee. Furthermore, once the collection function shifts to a third party, the business loses control over this part of the customer relationship, which may affect overall customer relations, especially when the factor's collection practices differ from those of the company.

Inventory Financing

As with accounts receivable loans, *inventory financing* is a secured loan, in this case with inventory as collateral. However, inventory financing is more difficult to secure since inventory is riskier collateral than accounts receivable. Some inventory becomes obsolete and loses value quickly, and other types of inventory, like partially manufactured goods, have little or no resale value. Firms with an inventory of standardized goods with predictable prices, such as automobiles or appliances, will be more successful at securing inventory financing than businesses with a large amount of work in process or highly seasonal or perishable goods. Loan amounts also vary with the quality of the inventory pledged as collateral, usually ranging from 50% to 80%. For most businesses, inventory loans yield loan proceeds at a lower share of pledged assets than accounts receivable financing. When inventory is a large share of a firm's current assets, however, inventory financing is a critical option to finance working capital.

Lenders need to control the inventory pledged as collateral to ensure that it is not sold before their loan is repaid. Two primary methods are used to obtain this control: (1) warehouse storage; and (2) direct assignment by product serial or identification numbers.⁴ Under one warehouse arrangement, pledged inventory is stored in a public warehouse and controlled by an independent party (the warehouse operator). A warehouse receipt is issued when the inventory is stored, and the goods are released only upon the instructions of the receipt-holder. When the inventory is pledged, the lender has control of the receipt and can prevent release of the goods until the loan is repaid. Since public warehouse storage is inconvenient for firms that need on-site access to their inventory, an alternative arrangement, known as a field warehouse, can be established. Here, an independent public warehouse company assumes control over the pledged inventory at the firm's site. In effect, the firm leases space to the warehouse operator rather than transferring goods to an off-site location. As with a public warehouse, the lender controls the warehouse receipt and will not release the inventory until the loan is repaid. Direct assignment by serial number is a simpler method to control inventory used for manufactured goods that are tagged with a unique serial number. The lender receives an assignment or trust receipt for the pledged inventory that lists all serial numbers for the collateral. The company houses and controls its inventory and can arrange for product sales. However, a release of the assignment or return of the trust receipt is required before the collateral is delivered and ownership transferred to the buyer. This release occurs with partial or full loan repayment.

While inventory financing involves higher transaction and administrative costs than other loan instruments, it is an important financing tool for companies with large inventory assets. When a company has limited accounts receivable and lacks the financial position to obtain a line of credit, inventory financing may be the only available type of working capital debt.

Moreover, this form of financing can be cost effective when inventory quality is high and yields a good loan-to-value ratio and interest rate.

Term Loan

While the four prior debt instruments address cyclical working capital needs, term loans can finance medium-term noncyclical working capital. A *term loan* is a form of medium-term debt in which principal is repaid over several years, typically in 3 to 7 years. Since lenders prefer not to bear interest rate risk, term loans usually have a floating interest rate set between the prime rate and prime plus 300 basis points, depending on the borrower's credit risk. Sometimes, a bank will agree to an interest rate cap or fixed rate loan, but it usually charges a fee or higher interest rate for these features. Term loans have a fixed repayment schedule that can take several forms. Level principal payments over the loan term are most common. In this case, the company pays the same principal amount each month plus interest on the outstanding loan balance. A second option is a level loan payment in which the total payment amount is the same every month but the share allocated to interest and principle varies with each payment. Finally, some term loans are partially amortizing and have a balloon payment at maturity. Term loans can be either unsecured or secured; a business with a strong balance sheet and a good profit and cash flow history might obtain an unsecured term loan, but many small firms will be required to pledge assets. Moreover, since loan repayment extends over several years, lenders include financial covenants in their loan agreements to guard against deterioration in the firm's financial position over the loan term. Typical financial covenants include minimum net worth, minimum net working capital (or current ratio), and maximum debt-to-equity ratios. Finally, lenders often require the borrower to maintain a compensating balance account equal to 10% to 20% of the loan amount. (Brealey & Myers, 2002; Owen et al., 1986)

The major advantage of term loans is their ability to fund long-term working capital needs. As discussed at the beginning of the chapter, businesses benefit from having a comfortable positive net working capital margin, which lowers the pressure to meet all short-term obligations and reduces bankruptcy risk. Term loans provide the medium-term financing to invest in the cash, accounts receivable, and inventory balances needed to create excess working capital. They also are well suited to finance the expanded working capital needed for sales growth. Furthermore, a term loan is repaid over several years, which reduces the cash flow needed to service the debt. However, the benefits of longer term financing do not come without costs, most notably higher interest rates and less financial flexibility. Since a longer repayment period poses more risk to lenders, term loans carry a higher interest rate than short-term loans.⁵ When provided with a floating interest rate, term loans expose firms to greater interest rate risk since the chances of a

spike in interest rates increase for a longer repayment period. Due to restrictive covenants and collateral requirements, a term loan imposes considerable financial constraints on a business. Moreover, these financial constraints are in place for several years and cannot be quickly reversed, as with a 1-year line of credit. Despite these costs, term loans can be of great value to small firms, providing a way to supplement their limited supply of equity and long-term debt with medium-term capital.

Sources of Working Capital for Small Businesses

Commercial banks are the largest financing source for external business debt (Berger & Udell, 1998), including working capital loans, and they offer a large range of debt products. With banking consolidation, commercial banks are multistate institutions that increasingly focus on lending to small business with large borrowing needs that pose limited risks. Consequently, alternate sources of working capital debt become more important. *Savings banks* and thrift lenders are increasingly providing small business loans, and, in some regions, they are important small business and commercial real estate lenders.⁶ Although savings banks offer fewer products and may be less familiar with unconventional economic development loans, they are more likely to provide smaller loans and more personalized service. *Commercial finance companies* are important working capital lenders since, as nonregulated financial institutions, they can make higher-risk loans. Some finance companies specialize in serving specific industries, which allows them to better assess risk and creditworthiness, and extend loans that more general lenders would not make. Another approach used by finance companies is *asset-based lending* in which a lender carefully evaluates and lends against asset collateral value, placing less emphasis on the firm's overall balance sheet and financial ratios. An asset-based lending approach can improve loan availability and terms for small firms with good quality assets but weaker overall credit. Commercial finance companies also are more likely to offer factoring than banks. Trade credit extended by vendors is a fourth alternative for small firms. While trade credit does not finance permanent or long-term working capital, it helps address short-term borrowing needs. Extending payment periods and increasing credit limits with major suppliers is a fast and cost-effective way to finance some working capital needs that can be part of a firm's overall plan to manage seasonal borrowing needs.

Other working capital finance options exist beyond these three conventional credit sources. First, loan guarantees provided through the U.S. *Small Business Administration (SBA) 7(a) program* can help early-stage small firms, and those with weaker credit and collateral, secure loans. Under its 7(a) authority, the SBA offers the Green Line Program, a specialized loan

guarantee for line-of-credit financing. The SBA 7(a) program is discussed in greater detail in Chapter 8. Business development corporations (BDCs) are a second alternative source for working capital loans. BDCs are high-risk lending arms of the banking industry that exist in almost every state. They borrow funds from a large base of member banks and specialize in providing subordinate debt and lending to higher-risk businesses. While BDCs rely heavily on bank loan officers for referrals, economic development practitioners need to understand their debt products and build good working relationships with their staffs. Venture capital firms also finance working capital, especially permanent working capital to support rapid growth. While venture capitalists typically provide equity financing, some also provide debt capital. A growing set of mezzanine funds,⁷ often managed by venture capitalists, supply medium-term subordinate debt and take warrants that increase their potential returns. This type of financing is appropriate to finance long-term working capital needs and is a lower-cost alternative to raising equity. However, the availability of venture capital and mezzanine debt is limited to fast-growing firms, often in industries and markets viewed as offering the potential for high returns. Government and nonprofit revolving loan funds also supply working capital loans. While small in total capital, these funds help firms access conventional bank debt by providing subordinate loans, offering smaller loans, and serving firms that do not qualify for conventional working capital credit.

Many entrepreneurs and small firms also rely on personal credit sources to finance working capital, especially credit cards and second mortgage loans on the business owner's home. These sources are easy to come by and involve few transaction costs, but they have certain limits. First, they provide only modest amounts of capital. Second, credit card debt is expensive with interest rates of 18% or higher, which reduces cash flow for other business purposes. Third, personal credit links the business owner's personal assets to the firm's success, putting important household assets, such as the owner's home, at risk. Finally, credit cards and second mortgage loans are not viable for entrepreneurs who do not own a home or lack a formal credit history. Immigrant or low-income business owners, in particular, are least able to use personal credit to finance a business. Given these many limitations, it is desirable to move entrepreneurs from informal and personal credit sources into formal business working capital loans that are structured to address the credit needs of their firms.

Underwriting Issues in Working Capital Financing

While underwriting working capital loans follows the broad framework presented in Chapter 4, several unique issues warrant discussion. Since repayment is closely linked to short-term cash flow, especially for cyclical working

capital loans, finance practitioners need to scrutinize these projections in detail. Borrowers will need to provide monthly or quarterly cash flow projections for the next 1 to 2 years to facilitate this analysis. Moreover, this requirement helps assess how carefully the firm plans and monitors cash flow and helps identify weaknesses in this key management area. Detailed monthly projections can also uncover ways to improve cash flow that may reduce borrowing needs and improve the firm's capacity to repay and qualify for a loan. For example, a firm may be able to reduce its inventory, offer incentives for more rapid payment of invoices, or improve supplier credit terms. For working capital loans, lenders will pay special attention to liquidity ratios and the quality of current assets since these factors are most critical to loan repayment. Finally, the underwriting analysis needs to evaluate the applicant's need for permanent versus cyclical working capital debt. Small businesses with limited long-term capital are under heavy pressure to meet short-term cash flow needs. Adding short-term working capital loans does not address this problem and may make matters worse. Thus, it is important to analyze why the firm is seeking debt, what purpose the loan will serve, and how these relate to short-term cyclical needs versus long-term permanent working capital needs. In some cases, practitioners need to revise the borrower's loan request and structure debt that better reflects the firm's needs. This might entail proposing a term loan in place of a line of credit when the business needs permanent working capital or combining short-term and medium-term debt instruments to create a good balance between cyclical and permanent working capital debt. These alternatives can improve a firm's cash flow and liquidity to partially offset the greater repayment risk that results from extending loan repayment. Loan guarantees and subordinate debt can reduce this additional risk and help convince conventional lenders to both supply credit and provide it on terms that fit a borrower's financial needs.

Case Study: Crystal Clear Window Company⁸

Introduction

Mr. Robb, assistant vice president at Commercial National Bank, will present a loan request from Crystal Clear Window Company to the loan committee today. Mr. Robb has spent considerable time on the credit request. He made a thorough investigation of the principals involved, studied the business and evaluated its potentials, and made several plant visits to become familiar with the firm's operations. He also checked with both suppliers and purchasers of the finished product. Finally, he secured the necessary financial data (See Exhibits 5.1 and 5.2), evaluated the firm's sales projections, and secured an appraisal of the machinery and equipment. This and other pertinent information was passed on to the loan committee members so that each member could evaluate the request prior to today's meeting.

Exhibit 5.1 Crystal Clear Window Company Comparative Income Statements

	12/31/67 12 months	% of Sales	12/31/68 12 months	% of Sales	12/31/69 5 months	% of Sales	5/31/70 12 months	% of Sales
Sales								
Returns and Allowances	\$390,273		\$473,920		\$597,441		\$206,778	
Net Sales	1,764		1,132		3,667		1,022	
Cost of Goods Sold	388,509	100.0%	472,788	100.0%	593,774	100.0%	205,756	100.0%
Labor	72,560	118.7%	90,046	19.0%	108,505	18.3%	41,566	20.2%
Materials	211,983	554.6%	258,155	54.6%	330,966	55.7%	111,772	54.3%
Freight in	6,366	11.6%	7,844	1.7%	9,873	1.7%	3,490	1.7%
Maintenance	1,577	0.4%	864	0.2%	2,816	0.5%	1,233	0.6%
Rent	6,712	1.7%	7,400	1.6%	9,300	1.6%	4,100	2.0%
Depreciation	2,994	0.8%	1,542	0.3%	1,970	0.3%	368	0.2%
Total	\$302,192	77.8%	\$365,851	77.4%	\$463,430	78.0%	\$162,529	79.0%
Gross Profit	\$86,317	22.2%	\$106,937	22.6%	\$130,344	22.0%	\$43,227	21.0%
Selling and shipping								
Salaries	17,056	4.4%	18,920	4.0%	23,447	3.9%	12,500	6.1%
Freight out	6,417	1.7%	7,862	1.7%	10,867	1.8%	3,714	1.8%
Travel	6,775	1.7%	9,637	2.0%	12,033	2.0%	5,150	2.5%
Advertising	6,682	1.7%	6,947	1.5%	9,441	1.6%	2,037	1.0%
Total	\$36,930	9.5%	\$43,366	9.2%	\$55,788	9.4%	\$23,401	11.4%
Administrative expense								
Salaries	\$33,973	8.7%	\$38,667	8.2%	\$38,960	6.6%	\$16,218	7.9%
Utilities	3,580	0.9%	4,464	0.9%	4,896	0.8%	2,663	1.3%
Rent	960	0.2%	1,000	0.2%	1,000	0.2%	420	0.2%
Insurance	922	0.2%	1,123	0.2%	1,490	0.3%	580	0.3%
Depreciation	167	0.0%	180	0.0%	180	0.0%	90	0.0%
Taxes and license	916	0.2%	1,130	0.2%	1,442	0.2%	600	0.3%
Interest	1,188	0.3%	1,444	0.3%	1,668	0.3%	680	0.3%
Bad debts	1,166	0.3%	1,317	0.3%	1,580	0.3%	325	0.2%
Miscellaneous	1,445	0.4%	1,697	0.4%	2,227	0.4%	814	0.4%
Total	\$44,317	11.4%	\$51,022	10.8%	\$53,443	9.0%	\$22,390	10.9%
Profit from operations	\$5,070	1.3%	\$12,549	2.7%	\$21,113	3.6%	(\$2,564)	-1.2%
Discounts earned	766	0.2%	518	0.1%	220	0.0%	0	0.0%
Net profit before taxes	5,836	1.5%	13,067	2.8%	21,333	3.6%	(2,564)	-1.2%
Provision for taxes	1,473		4,422		7,880		0	
Net profit	\$4,363		\$8,645		\$13,453		(\$2,564)	

Exhibit 5.2 Crystal Clear Window Company Comparative Balance Sheet

	12/31/67	12/31/68	12/31/69	5/31/70
ASSETS				
Cash	\$0	\$2,780	\$1,244	\$0
Accounts receivable	34,706	42,326	52,814	93,237
Allowance for doubtful	-1,500	-1,500	-1,500	-1,500
Inventory	45,185	52,433	74,479	79,109
Prepaid expenses	861	1,323	1,218	1,533
Total current assets	\$79,252	\$97,362	\$128,255	\$172,379
Machinery and equipment	\$36,345	\$38,471	\$41,770	\$44,298
Leasehold improvements	7,964	8,218	8,426	8,426
Accumulated depreciation	-7,118	-8,840	-10,990	-11,448
Total fixed assets	37,191	37,849	39,206	41,276
Total assets	\$116,443	\$135,211	\$167,461	\$213,655
LIABILITIES AND SHAREHOLDERS' EQUITY				
Bank overdraft	\$3,773	\$0	\$0	\$0
Accounts payable	37,773	44,287	51,848	77,220
Accrued expenses	9,440	14,322	18,058	13,410
Notes payable	20,000	22,500	30,000	40,000
Other liabilities	0	0	0	18,034
Total current liabilities	\$70,986	\$81,109	\$99,906	\$148,664
Capital	\$27,000	\$27,000	\$27,000	\$27,000
Retained earnings	18,457	27,102	40,555	37,991
Total equity	\$45,457	\$54,102	\$67,555	\$64,991
Total liabilities and equity	\$116,443	\$135,211	\$167,461	\$213,655

Firm History

Henry Rapp and Alan Keith organized Crystal Clear Window Company in 1960. Mr. Rapp is 42 years of age and had considerable experience with a large speculative builder of houses in an adjoining state. He is knowledgeable in the areas of construction, building materials, and real estate credit. Mr. Keith, 32, is a machinist who learned his trade from his father and was employed for several years in the production area of a national aluminum fabricating firm. Both men left their respective employers on good terms and were told that should they ever want to return the welcome mat would be out. Neither Mr. Rapp nor Mr. Keith is a man of means. Mr. Rapp put all of his savings, \$16,000, in the business when it was formed, and Mr. Keith invested \$11,000—\$7,000 from his savings and \$4,000 from the sale of his house. Both men live frugally, and there is no evidence that they are affected by “keeping up with the Joneses.” Both Mr. Rapp and Mr. Keith are stockholders, and the

latter serves as treasurer of the corporation. From a practical standpoint, the business operates as a partnership.

Operations

Crystal Clear Window Company operates in leased quarters and produces aluminum windows and sliding glass doors of standard sizes. The operation is primarily one of assembly. The firm purchases extruded window frames from a national aluminum manufacturer. These frames are then sawed and punched to size for assembly, and the prepared frames are assembled along with the necessary glass and screens, which are also purchased to size. Screens are purchased from the same firm that provides the aluminum frames. Glass, imported in sizable lots from concerns in Belgium and Australia on a letter of credit basis with draft terms at sight, comprises approximately 25% of the cost of materials. The cutting and punching machines are relatively simple and inexpensive. The firm maintains duplicate machines that can be substituted in the event of a breakdown. In the assembly process, a large amount of labor is used, although approximately 55% of the firm's total outlay is for materials. The workforce is relatively young and not unionized, and there appears to be a high degree of esprit de corps among the 20 employees.

Two salesmen are employed who call on building materials suppliers within a 300-mile radius of Jonesboro. The windows produced have consistently exceeded the specifications established by the American Aluminum Manufacturers Association, whose standards are acceptable to the Federal Housing Authority. The high quality increases the marketability of the windows, for few building supply dealers will handle a product that does not meet the standards required by the FHA in its appraisal program. This firm has emphasized an economical operation. Extruded frames, for example, are purchased in such lengths that the loss from sawing and cutting is kept to a minimum. The firm follows a policy of keeping its inventory of raw materials, supplies, and finished products as low as efficient operations will permit. They have restricted their sales to reputable building suppliers who are financially strong. The firm's returns and allowances for uncollected receivables have been very low.

The Use of Aluminum Windows

There has been fabulous growth in the use of aluminum windows in recent years. Although aluminum windows have been produced for quite some time, the aluminum window industry per se has been in existence only about 20 years. The use of aluminum windows varies throughout the country; nationally, however, about 80% of the single-family dwelling units and about 90% of the multiple units constructed at the present time use aluminum windows. Aluminum windows have several advantages over wooden windows. Aluminum windows are less expensive and their maintenance is considerably less. They can be manufactured in a shorter period of time. The time required

to produce a wooden window varies depending on the type of wood used, but in general the manufacturing process requires about triple the time required for aluminum windows. Another significant advantage of aluminum windows is the on-site cost. Wooden windows are installed by carpenters whose hourly wage is much higher than that of workers who install aluminum windows. The installation time of a wooden window is much more than that of an aluminum window, since weights must be installed and slides must be manufactured on the site. Since holes for nails that support the aluminum windows are drilled at the factory, the aluminum window can be installed within a few minutes. For these reasons, the demand for aluminum windows appears likely to continue.

Financial Status

Sales of Crystal Clear Window Company have mushroomed since the firm began in 1960—from \$2,050 for the first month of operations to \$597,441 for all of 1969. The original capital and retained earnings of the company have not been sufficient to support this volume of business activity. A large part of the financing has come from (1) funds that have been made available due to the fact that the firm's accounts payable are due on a net 60-day basis and accounts receivable are due on a net 30-day basis;⁹ and (2) loans from Mr. Mulder, who is Mr. Keith's father-in-law, that now total \$40,000. Mr. Mulder would like these loans repaid because he retired a few months ago and needs the funds to purchase property in Florida where he and his wife plan to retire. Mr. Mulder has loaned the funds to the firm at the same rate of interest that he could have earned on a certificate of deposit at a local bank, which has varied from 3% to 5.5%. Both Mr. Rapp and Mr. Keith have been quite appreciative of this loan.

The firm had some difficult initial years, which resulted in meager profitability. However, through trial and error, costs were stabilized, the break-even point was established, and with greater market penetration greater profitability was achieved—as shown by the increasing profits and the percentage of profits to sales. As volume continued to expand, the working capital requirement expanded faster than the accumulated earnings. Consequently, the firm faced increasing demand for additional working capital support as disclosed by the increasing reliance on debt, the bank overdraft, and decreasing discounts earned on early invoice payments. The anticipated rate of sales expansion, the possibility of outgrowing the present quarters, and the need for additional equipment all suggest continued absorption of funds for the foreseeable future. For example, sales have practically doubled during the last 3 years, while equipment has shown only a modest increase.

Management's record for honesty and fair dealing is excellent as judged by the comments of employees, suppliers, and customers. Their ability to produce and market a product is attested to by increasing sales, nominal bad debt losses, and a relatively low level of returns and allowances. The economic outlook for this business is favorable. However, financial understanding on

the part of management is an unknown factor since they have been shielded from financial reality by the availability of friendly debt.

Recommendation

Mr. Robb recommended to the loan committee that the bank finance Crystal Clear Window Company with a line of credit secured by accounts receivable. He proposed a \$75,000 maximum line with an advance rate equal to 80% of outstanding accounts receivable and an 8.5% interest rate. The line of credit would have an annual cleanup, require an increase in deposit balances, and the principals would have to guarantee the loan. All three members of the loan committee had different ideas about the loan application. Mr. Edwards thought that the bank should not finance the firm under any conditions and pointed out the poor debt-to-worth and current ratios. He suggested that the bank advise the company owners to sell additional stock. Mr. Robb pointed out that it was difficult and very expensive for a firm of this size and financial strength to sell stock. Mr. Davis said that the firm needed a term loan of about \$40,000 to replace the loan from Mr. Mulder that must be repaid. Mr. Robb felt that a term loan would not give the firm much financial relief since it would require monthly principal payments, and that the company would need more funds in the future. He felt Crystal Clear Window Company needed an open-ended amount of credit and that a term loan would be too restrictive. Mr. Edwards then interjected that the firm should attempt to reduce its need for funds by (1) offering selling terms of 1% 10 days net 30 in order to reduce the financial burden of carrying receivables,¹⁰ and (2) purchasing glass locally rather than from abroad. Purchasing glass abroad has forced the firm to carry large inventories in order to have an adequate supply of glass on hand. Local purchases would reduce the required inventory, freeing up funds for other working capital needs. Mr. Conrad was concerned about the firm's financial ratios and suggested a short-term seasonal loan that the bank could review every 90 days and call should the firm be in financial trouble. Mr. Conrad pointed out that the bank was lending other people's money and needed to be cautious. He asked Mr. Robb how the bank could control lending against accounts receivable given the risk that the firm might offer false invoices as collateral.

Mr. Robb held his ground and argued that the firm's management had proven itself to be honest and successful in building the business from scratch. He also was confident that an adequate verification program could be established to reduce the risk of false invoices to a minimum.

Assignment

Commercial National Bank's vice president has asked you to resolve the differences between the views of Mr. Robb and the loan committee. Your assignment is to analyze the firm's financial condition, credit needs, and cash flow and recommend how the bank should proceed. As part of your financial

analysis of Crystal Clear Window Company, complete the following calculations using the financial reports provided in Exhibits 5.1 to 5.3:

- (1) net working capital, current ratio, quick ratio, and days receivable for year-end 1967, 1968, 1969, and 5/31/70
- (2) net cash flow for 1969 after investment and financing activities
- (3) projected net cash flow for 1970 before any payments on the proposed loan. This cash flow projection should assume 1970 sales of \$750,000 and 1970 expenses at the same expense ratios as listed in the 1969 income statement. To project 1970 annual cash flow, estimate 1970 *cash receipts* by adding 1969 year-end accounts receivable (i.e., cash collected in 1970 from prior year sales) to 1970 sales and then subtracting 1970 year-end accounts receivable (i.e., uncollected cash from sales made in 1970). Assume that 1970 year-end accounts receivables equal 30 days' worth of 1970 annual sales. Next, estimate 1970 *cash expenditures* for both materials and nonmaterial expenses. For materials expenditures, adjust the 1970 materials expense by adding payment of 1969 year-end accounts payable and subtracting unpaid accounts payable at 1970 year-end. Assume that accounts payables at 1970 year-end equal 60 days' worth of annual material expenses. For *nonmaterial expenses*, assume all expenses are paid on a current cash basis within the year so that the cash expenditure and expense amounts are the same. Use the 1969 expense ratios to estimate the nonmaterial expenditures. Be sure to include a provision for taxes but omit depreciation since it is a noncash expense.

Prepare a recommendation to the vice president on what action the bank should take on the proposed \$75,000 loan secured by accounts receivables.

Exhibit 5.3 Crystal Clear Window Company Sales Projection, 1970

<i>Month</i>	<i>Projected Sales</i>
January	\$40,000
February	30,000
March	30,000
April	40,000
May	70,000
June	80,000
July	90,000
August	90,000
September	90,000
October	80,000
November	70,000
December	40,000
Total	\$750,000
Estimated net profit	\$19,000

Support your recommendation with the results of your financial analysis. Your recommendations can include approving the \$75,000 line of credit as currently proposed, declining the loan, or proposing alternative loan terms. In preparing your recommendations, consider the following questions:

- What is the market outlook for the company's products?
- What is the experience and capacity of the management team?
- Will the company generate sufficient cash flow to repay the loan?
- What are the proposed uses of the loan proceeds and their role in financing Crystal Clear Window Company's working capital needs? Are the proposed financing terms consistent with these needs?

Endnotes

1. The evidence from small businesses financial data on this point is mixed. Berger and Udell (1998) found that equity accounted for 50% of small firm's capital—a fairly high share of long-term financing. U.S. Census Bureau aggregate balance sheets for manufacturers in 2001 show that small manufacturers had a level of short-term debt (11.7%), twice that of all manufacturers (5.9%). Small manufacturers also had a lower proportion of equity capital but a slightly larger share of long-term debt. See U. S. Census Bureau (2002). *Quarterly Financial Report for Manufacturing, Mining and Trade Corporations 2001*, Table 1.1

2. This section draws on discussions of short-term and working capital finance from Brealey and Myers (2002), pp. 622–626 and Owen et al. (1986), pp. 92–98.

3. Some older receivables reflect slow payment processes or policies by a strong credit customer, such as government agencies or large corporations.

4. The discussion of inventory control methods is based on Brealey and Myers (2002), pp. 624–626 and Owen et al. (1986), pp. 95–96.

5. Interest rates in capital markets usually increase as the term of debt increases. Thus, a lender's cost of funds for a longer term loan is higher, which adds to the interest rate charged to a borrower.

6. New England federally regulated thrift institutions, for example, held 9.1% of the outstanding small business loans among financial institutions in 1999 compared to 5% for the entire nation. Similarly, these New England thrifts had a far larger share of their assets in commercial real estate and small business loans, 25.3%, than all U.S. federally regulated thrift institutions, at 11.9%. See Gilligan (2000).

7. According to Venture Economics (2001), \$6.2 billion in new capital was committed to mezzanine funds in 2000, and over \$3.3 billion in new mezzanine fund investments were made that year. *Private Equity Market Update 2001* from www.ventureeconomics.com

8. This case study is adapted from Reed & Woodland (1970), *Cases in Commercial Banking*, and is used by permission of Don Woodland.

9. Net 60-day basis means payment is due in full within 60 days, and net 30-day basis means payment is due in 30 days.

10. This would provide customers a 1% discount if they paid within 10 days.