

Chapter 19: Working capital

Some used abbreviations:

- CCC = cash conversion cycle
- EAR = effective annual rate
- g = perpetuity growth rate
- r = discount rate

Overview

The main components of net working capital are cash (not excess cash), inventory, receivables and payables. The level of working capital reflects the length of time between when cash goes out of a firm at the beginning of the production process and when it comes back in.

The operating cycle is the average length of time between when a firm originally receives its inventory and when it receives the cash back from selling its product. The cash cycle is the length of time between when a firm pays cash to purchase its initial inventory and when it receives cash from the sale of the output produced from that inventory.

The cash conversion cycle (CCC) is a measure of the cash cycle calculated as the sum of a firm's inventory days and accounts receivable days, less its accounts payable days.

$$CCC = \text{Inventory Days} + \text{Accounts Receivable Days} - \text{Accounts Payable Days}$$

This formula uses the factors:

- Inventory days

$$\text{Inventory Days} = \frac{\text{Inventory}}{\text{Average Daily Cost of Goods Sold}}$$

- Accounts receivable days

$$\text{Accounts receivable Days} = \frac{\text{Accounts receivable}}{\text{Average Daily Sales}}$$

- Account payable days

$$\text{Accounts Payable Days} = \frac{\text{Accounts payable}}{\text{Average Daily Cost of Goods Sold}}$$

If the cash cycle of a firm is long, the firm has more working capital and needs more cash to conduct its daily operations.

Working capital levels differ between industries, because each industry has different characteristics. The cash conversion cycle also differs between industries.

Any reduction in working capital requirements generates a positive free cash flow that the firm can distribute immediately to shareholders. If managers manage the working capital efficiently, the free cash flows of the firm will increase and the managers can maximize the value of the firm.

Trade credit

Trade credit is the difference between receivables and payables that is the net amount of a firm's capital consumed as a result of those credit transactions; the credit that a firm extends to its customers. Of course, a firm would prefer to be paid in cash at the time of purchase. However, a 'cash-only' policy may cause it to lose its customers to competition.

This section focuses on comparing the costs and the benefits of trade credit to determine optimal credit policies. The cost of trade credit depends on the credit terms;

- The cash discount is the percentage discount offered if the buyer pays early.
- The discount period is the number of days a buyer has to take advantage of the cash discount.
- The credit period is the total length of time credit is extended to the buyer.

In reality (when markets aren't perfect competitive) firms can maximize their value by using their trade credit options effectively.

In essence, a trade credit is a loan from the selling firm to its customer. The price discount represents an interest rate. But how do we compute the interest rate on trade credit? See page 620 of the textbook for an example. The interest rate can be converted into an effective annual rate (EAR).

$$EAR = (1 + r)^n - 1$$

Some benefits of trade credit are:

- Trade credit is simple and convenient to use.
- Trade credit has lower transaction costs than alternative sources of funds.
- Trade credit is a flexible source of funds and can be used as needed.
- Sometimes trade credit is the only source of funding available to a firm.

There are several reasons why do companies provide trade credit:

- Providing financing at below-market rates is an indirect way to lower prices for only certain customers.
- A supplier may have more information about the credit quality of the customer than a traditional outside lender would have, because a supplier may have an ongoing business relationship with its customer.
- By threatening to cut off future supplies if payment is not made, the supplier may be able to increase the likelihood of payment.
- The supplier may be able to seize the inventory as collateral, if the buyer defaults.

The time between a bill is paid and the cash is actually received contributes to the length of a firm's receivables and payables.

The collection float is the amount of time it takes for a firm to be able to use funds after a customer has paid for its goods. Three factors are important here:

- The mail float: how long it takes to receive a customer's payment check after the customer mailed it.
- The processing float: how long it takes a firm to process a customer's payment check and deposit it in the bank.
- The availability float: how long it takes a bank to give a firm credit for customer payments the firm has deposited in the bank.

The disbursement float is the amount of time it takes before a firm's payments to its suppliers actually result in a cash outflow for the firm. This is also a function of mail time, processing time and check-clearing time.

The Check Clearing for the 21st Century Act (Check 21) eliminates the disbursement float due to the check-clearing process. Under the act, banks can process check information electronically and, in most cases, the funds are deducted from a firm's checking account on the same day that the firm's supplier deposits the check in its bank.

Receivables management

Establishing a credit policy involves three steps:

1. Establishing credit standards
2. Establishing credit terms
3. Establishing a collection policy

The 5 C's of credit summarize the quantities lenders look at, in borrowers, before granting credit

- Characteristics
- Capacity
- Capitalists
- Collateral
- Conditions

To analyze whether its credit policy is working effectively, a firm must monitor its accounts receivable. There are two methods to monitor the effectiveness of a firm's credit policy:

- Accounts receivable days: the average number of days that it takes a firm to collect on its sales. By comparing this number to the payment policy specified in its credit terms the firm can analyze the effectiveness of its credit policy.

- Aging schedule: categorized a firm's accounts by the number of days they have been on the firm's books. It can be prepared using either the number of accounts or the dollar amount of the accounts receivable outstanding. The aging schedule is also sometimes augmented by analysis of the payments pattern. It provides information on the percentage of monthly sales that the firm collects in each month after the sales.

Payables Management

Accounts payable should be used to borrow only if trade credit is the cheapest source of funding.

Firms should monitor accounts payable to ensure that they are making payments at an optimal time. There are two techniques to monitor accounts payable:

- First method: calculating the accounts payable days outstanding and comparing it to the credit terms. If the accounts payable days outstanding is higher than the credit terms (e.g. 40 days versus terms 2/10, net 30), the firm is paying late and may be risking supplier difficulties. If the accounts payable days outstanding is lower than the credit terms (e.g. 25 days versus terms 2/10, net 30, this means the firm has not been taking the discount), the firm is paying too early.
- Second method: stretching the accounts payable: when a firm ignores a payment due period and pays later. This reduces the direct cost of trade credit because it lengthens the time a firm has use of the funds. However, it may also result in worse terms for suppliers.

Inventory management

The inventory manager has to search for a balance between the costs and benefits associated with inventory. Because excessive inventory uses cash, efficient inventory management increases the firm's free cash flows and thus increases the value of the firm.

1. Benefits of holding inventory

Reasons why a firm needs inventory to operate:

- Minimizing the risk that the firm will not be able to obtain an input it needs for production. Stock-outs is the situation that occurs when a firm runs out of inventory. This leads to lost sales. Disappointed customers may switch to one of the firm's competitors.
- Customer purchases may not perfectly match the most efficient production cycle because of seasonality in demand.

2. Costs of holding inventory:

Direct costs associated with inventory can be classified into three categories:

- Acquisition costs: costs of the inventory itself over the period being analyzed.
- Order costs: total costs of placing an order over the period being analyzed.
- Carrying costs: storage costs, insurance, taxes, spoilage, obsolescence and opportunity costs.

Tradeoffs must be made to minimize these costs.

An alternative for reducing the costs is “Just-in-time”(JIT) inventory management: when a firm acquires inventory precisely when needed so that its inventory balance is always zero, or very close to it. This requires exceptional coordination with suppliers and predicting demand for the products.

Cash management

Three motivations for a firm for holding cash:

- To meet its day-to-day needs.
The transactions balance is the amount of cash a firm needs to be able to pay its bills. It depends on both the average size of transactions made by the firm and the firm’s cash cycle.
- To compensate for the uncertainty associated with its cash flows.
The precautionary balance is the amount of cash a firm holds to counter the uncertainty surrounding its future cash needs. The size depends on the degree of uncertainty surrounding a firm’s cash flows.
- To satisfy bank requirements.
The compensating balance is an amount a firm’s bank may require the firm to maintain in an account at the bank as compensation for services the bank may perform. These balances are typically deposited in accounts with little or no interest.

If a firm’s need to hold cash is reduced, the funds can be invested in a number of different short-term securities, including treasury bills, certificates of deposit, commercial paper, repurchase agreements, bankers acceptances and short-term tax exempts.