

FIN 303 Hybrid - Professor Dow

Working Capital Management

What is working capital management?

- Cash in from selling goods
- Cash out to suppliers and for other expenses
- You would like the cash to come in before it goes out, but in practice it works the other way.

Working capital refers to liquid funds used to purchase materials and pay workers. This is in contrast to long-term capital such as buildings and machinery. Part of working capital management is cash management, but it goes beyond that to include the management of most short-term assets and liabilities, including accounts receivable and accounts payable.

We'll begin imagining a firm that has cash coming in from selling goods and services and cash going out due to the payments they have to make. The fundamental problem for working capital management is that you often need to pay for workers and materials before you have cash coming in from selling your product. Working capital management is finding the best way to handle that problem, either by accumulating cash ahead of time, borrowing money to make payments or altering the schedule that payments are made and cash received.

Small parts manufacturer

- Receive materials
- Pay for materials -> \$10,000 out
- [Manufacture parts]
- Deliver parts
- Get paid for parts -> \$12,000 in

Here is a simple example of the timing for a small parts manufacturer. Initially they receive the materials they use. Then they pay their supplier \$10,000 for the materials. They manufacture the parts and then deliver them to the customers. Finally the customers pay the company \$12,000 for the parts.

For an established firm, once they get paid they can use the proceeds from the sale to finance future materials purchases but for start-up firms, they will need to obtain working capital at the start. But even for established firms, cash flows in and out will be uneven so they have to make sure that they have available cash before needed payments.

Tracking the cash

- Start with \$10,000
- Pay \$10,000 for materials
 - Cash Account = \$0
- Receive \$12,000
 - Cash Account = \$12,000
- Start over by paying \$10,000

Having cash on hand is costly since you either have to raise money initially (for example, by borrowing from a bank) or, if you retain cash out of earnings, you lose the interest you could earn by using the cash for some investment. Working capital involves a tradeoff. The more cash you keep on hand, the lower the likelihood (and cost) of running out of cash; however, the more cash you keep on hand, the greater the opportunity cost. Managing this tradeoff is the central issue for working capital management: how do you use as little cash as possible without causing problems for your suppliers and customers.

How to reduce the amount of cash

- Pay your suppliers later
- Get cash from your customers earlier
- Get a short-term loan of cash rather than lots of cash around in case it's needed

There are several ways you can reduce the amount of cash you need to keep on hand. One approach is to shorten the time between when cash goes out and when it comes back in. This can be done by paying your suppliers later or getting the cash from your customers earlier. An alternate approach is to borrow the cash you need instead of building up cash reserves from business activity.

Pay your suppliers later

- Avoid paying, but it won't make suppliers happy
- Trade credit
 - Trade credit is a loan
 - Implicit interest rate

If you pay your suppliers later, it reduces the time between when cash goes out and cash comes in, which means that you have to hold less cash on average. Our course, your suppliers will not necessarily be happy about getting paid later since this makes their own working capital situation more difficult.

On the other hand, your suppliers want you to remain as a customer and want to keep you happy, so there may be some room for negotiation. A supplier may extend you "trade credit" by letting you receive their products now but pay later. The cost of this is usually expressed as a cash discount, you get a lower price if you pay up front, but this is just the same as a loan since you end up paying the cash price plus a little bit more in order to defer the payment.

Whether trade credit is a good idea depends on whether the interest rate on the loan is less than the opportunity cost of raising cash and (for the seller) whether the interest on the loan is greater than cost and risk of deferring the payment and the value to the firm of keeping the customer happy.

Get cash from your customers earlier

- More aggressive about cash collection
- Don't offer customers credit
- Factoring

The relationship between supplier and firm on the last slide is reversed for the firm in their relationship with the customer. The firm wants to get the payment from the customer as soon as possible but if it's too aggressive about it, it might lose customers.

Large firms often set up specialized operations focused on making sure that payments, such as by check, get turned into cash as quickly as possible.

Making loans to customers by letting them pay later (either through consumer credit or trade credit, depending on who is the buyer) is a way to make your customers happy but increases the necessary working capital and the risk that you won't get paid.

Factoring refers to selling your account receivables to another firm that will take the responsibility for collecting them. The advantage is that you get the cash up-front but since they're sold at a discount, you'll get less than if you collected them yourself.

Short-term loan of cash

- Lines of credit
 - Informal
 - Formal:
 - Revolving credit
 - Non-revolving credit
- Commercial paper

A firm can use a short-term loan to bridge the gap between when cash goes out and when cash comes back in. This can be an informal arrangement, negotiated when needed, or a formal arrangement, where the terms are set out ahead of time and so the firm knows exactly how much credit is available.

Revolving credit is where a firm pays a fee and can borrow as needed, subject to limits set out in advance, particularly on the total amount that can be borrowed. Money borrowed reduces available credit, money repaid increases available credit. With non-revolving credit, money borrowed reduces available credit permanently. Once the credit limit is reached, the account is closed. Installment credit is repaid with a fixed number of scheduled payments.

Commercial paper are short-term debt securities that are used by large companies to finance short-term assets, commonly by finance companies offering short-term consumer credit.

Inventory management

- Holding inventory requires working capital
- Less inventory means less working capital
- Less inventory can mean unhappy customers
- How to manage inventory is an operations management decision but has financial consequences.

Inventory waiting to be sold requires working capital since inventory typically has to be paid for before it is sold and the receivable collected. Because of this, inventory management, which is typically covered in an operations management class, is also of concern for financial management. Holding less inventory means less working capital is needed and so lower costs for the firm. On the other hand, holding lower levels of inventory may mean you occasionally might run out of goods to sell and so have missed sales and unhappy customers, and so again it's a balancing act.

Instead of refreshing inventory on a fixed schedule, some firms are shifting to computer-managed inventory systems that only refresh inventory when it's about to be exhausted as a way of reducing inventories without inconveniencing customers.

Formal Measures of Working Capital

- Current Assets (working capital)
- Current Liabilities
- Net working capital
 - Current Assets-Current Liabilities

We can determine a company's working capital position by looking at its balance sheet. Current assets (assets with maturity of a year or less) is a measure of gross working capital. Current liabilities are obligations with maturity of a year or less. Net working capital is defined as current assets less current liabilities,

Cycles

- Operating Cycle
 - Receive raw materials
 - Sell finished goods
- Cash Conversion Cycle
 - Pay for raw materials
 - Collect cash for finished goods

The time required to complete a round of the process measured in “cycle”

On the production side, the operating cycle measures the time between when the company receives the raw materials to start the production process and when the company sells the final product. Since the company will need funds up front to buy the raw materials and won't receive revenue until after it sells the goods, shortening the operating cycle will improve the financial position of the company (assuming that shortening it doesn't add other costs).

The cash conversion cycle measures the time between when cash goes out (to pay for raw materials or inventory) and when cash comes back in when the customer pays for the goods. Again, a shorter period is usually better since it requires holding less working capital (or holding it for a shorter period of time) to bridge the gap.

The two cycles are not necessarily the same. You can shorten the cash conversion cycle by getting the raw materials on credit but you would lengthen the cash conversion cycle if you offered credit to your customers.

Working Capital Ratios

- Day's Sales in Inventory
 - $= (365 \text{ days}) (\text{Inventory} / \text{COGS})$
- Day's Sales Outstanding
 - $= (365 \text{ days}) (\text{Accounts Receivable} / \text{Net Sales})$
- Days Payables Outstanding
 - $= (365 \text{ days}) (\text{Accounts Payable} / \text{COGS})$

There are several ratios that measure how well companies manage their inventory and working capital.

Day's Sales in Inventory measures how efficiently a company manages its inventory. If a firm sold products worth \$80,000 in terms of costs of goods sold, and had an average inventory level of \$20,000, then 1/4 of sales is sitting in inventory on average at any one time. If inventory is sold evenly over the year, the average piece of inventory is waiting to be sold for 1/4 of a year. A smaller number is better, in the sense of requiring less working capital, but the risk of running out of inventory when there is unusual demand still needs to be taken into account.

Day's Sales Outstanding measure how efficiently a company manages its accounts receivable. Since accounts receivable (for a given level of sales) represent how long it takes customers to make their payment, a bigger DSO ratio means a longer cash conversion cycle and a greater working capital expense. Smaller numbers are better

Day's Payables Outstanding measure how efficiently a company manages its accounts payable. In principle, a larger DPO is better since it shortens the cash conversion cycle and reduces the need for working capital. However, delaying payments may result in the firm incurring addition costs or displeasing suppliers so it probably shouldn't be pushed too much

Cash Budget

- Expected cash inflows and outflows.
- Make sure the company will have sufficient cash.
- Make sure it is not holding excess cash.

The cash budget is a financial statement with the expected cash inflows and cash outflows over the near future. Primarily it's used to make sure that the company will have the necessary cash on hand to make future payments. It can also be used to identify if the company is holding excess cash that it won't need and can be used elsewhere.