**Working Capital Management**

**Learning Outcomes**

After completing this module, students will be able to:

1. Demonstrate how to effectively manage cash, accounts receivable, and inventory.
2. Discuss current consumer and business payment trends.
3. Explain the different ways to invest temporary cash surpluses.
4. Describe the different sources of temporary financing.
5. Calculate the effective cost of the different sources of temporary financing.

**Introduction**

As discussed in the Module: Maturity Matching, companies have two major classes of assets, long-term assets and net working capital (NWC). Long-term assets include property, plant, and equipment and possibly intangible assets like patents, copyrights, or licenses, and their value is relatively stable throughout the year. Because these assets have longer lives, permanent debt and equity are used to match the maturities of these assets with their funding.

NWC is equal to current assets consisting primarily of cash and cash equivalents, accounts receivable, and inventory minus current liabilities which are mostly made up of accounts payable. NWC can vary considerably throughout a year depending on the seasonality of a business, but it never falls below the level at the seasonal low. As a result, NWC at the seasonal low is considered a long-term asset and is funded with permanent financing as well. During the seasonal highs, temporary financing is used to fund the seasonal build-up in NWC.

This module looks carefully at how a company manages its investment in NWC. The goal is not to minimize NWC but to maximize long-term profits by optimizing the level of current assets and liabilities. It may be more profitable to carry additional inventory, offer more generous credit policies, or pay creditors sooner even though they all raise the level of NWC. Once the optimal level of NWC is determined, a company must select the most cost-effective sources of temporary financing and invest any surplus cash wisely.

* 1. **| Managing Cash**

Companies hold cash so they have sufficient funds to pay their obligations as they come due (called the transaction motive). They also hold cash as a reserve for financial emergencies (called the precautionary motive) or to quickly take advantage of investment opportunities (called the speculative motive). Cash is a difficult asset to manage because there are so many different cash inflows and outflows to consider. As discussed in Module: Financial Planning and Growth, cash inflows come primarily from sales but also from debt and equity financing, interest and dividend revenue, maturing investments, tax refunds, and transfers from subsidiaries and joint ventures. Outflows relate primarily to operating expenses like wages and inventory purchases but also capital purchases, debt repayment, share repurchases, interest expense and dividends, investments in securities, taxes, and transfers to subsidiaries and joint ventures. Estimating these amounts accurately is difficult especially if the company experiences significant seasonal and cyclical variations in sales and input price variability. Cash serves as a buffer against the inability to forecast these cash flows accurately.

Different mathematical models can be used to estimate a company’s target cash balance, but most firms simply rely on experience. Several factors influence the amount of cash a company should hold. These include:

* Firms that have adopted a flexible maturity matching strategy invest their surplus cash in short-term debt securities during seasonal lows. These investments can be sold quickly reducing the need to hold additional cash for speculative and precautionary motives which lowers the target cash balance.
* Businesses with variable cash flows have greater transaction, speculative, and precautionary motives which raises the target cash balance.
* Companies with significant unused borrowing capacity or larger firms who can borrow more easily have lower precautionary and speculative motives that reduce the target cash balance.

A firm’s target cash balance increases as it grows and fluctuates due to seasonal and cyclical variations in sales. Once this target is determined, the focus is on managing the available cash effectively. Effective cash management practices typically involve either accelerating cash collections or delaying payments. Before looking at different cash management practices, it is important to understand Canada’s payments system.

**Payments System**

The Canadian Payments Association (CPA) or Payments Canada is overseen by the Bank of Canada and works closely with banks, credit unions, and other financial services providers in clearing and settling financial payments in Canada. Consumers, businesses, and governments continuously purchase items, make investments, and transfer funds. Most transactions involve more than one financial institution. Clearing and settlement are how these institutions exchange funds and settle any balances owed. Maintaining public confidence in the payment system is critical to the smooth operation of the Canadian economy.

In 2017, the CPA cleared over 21.9 billion transactions worth CAD 9.7 trillion. Electronic forms of payment have grown dramatically, but cash and cheques continue to play an important role in the Canadian payments system despite the higher cost of manually processing these transactions and protecting parties from fraud and theft. Studying three categories of payments helps to identify some important trends.

**Point-of-sale (POS).** These are consumer-to-business (C2B) transactions that occur at physical or web-based storefronts and include in-app purchases made in [mobile application](https://www.webopedia.com/TERM/M/mobile_application.html)s on smartphones or other devices. In 2017, there were 16.5 billion POS transactions worth CAD 868 billion. This accounts for 75% of total transaction volume but only 9% of value indicating there are a large number of small transactions.

**Exhibit 1: POS Transactions**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Payment Type** | **2012 Volume** | **2017 Volume** | **2012 Value** | **2017 Value** |
| Cash or cheques | 47% | 36% | 17% | 12% |
| Debit cards | 30% | 35% | 27% | 28% |
| Credit cards | 22% | 27% | 55% | 58% |
| Prepaid debit cards | 1% | 2% | 1% | 2% |

The use of cash or cheques, primarily cash, is falling by transaction volume, but it is still the most common form of payment. Despite the growth of electronic payment and e-commerce, cash remains important due to a core group of heavy users made up of younger, poorer, and rural users and those engaged in the underground economy including criminals.

Debit cards exceed credit cards in volume but not in value indicating they, like cash, are used for small transactions. The increased use of credit cards is supported by the expansion of e-commerce where only credit cards are usually accepted; high credit card ownership in Canada compared to other countries; valuable credit card rewards programs; rising consumer debt in Canada; and the growing use of commercial credit cards for travel and other business expenses. The convenience of contactless debit cards has countered this trend somewhat as has the greater ability to use debit cards for online purchases (Interac Online Debit) or transfers (Interac E-transfer).

High credit card fees charged by card providers are a concern to merchants. The main fee is the bank interchange which consists of a flat amount plus a processing fee averaging 2.0% of the value of the transaction. The processing fee varies by the card such as Visa, MasterCard, or American Express. Cards aimed at wealthier clients, commercial clients, or those offering travel rewards or cash-back programs charge higher fees. Online, mobile, and card-not-present transactions (phone, mail, or internet) and transactions that are key-entered instead of being swipe through a reader have higher fees. Finally, smaller companies with fewer transactions pay higher fees as do riskier businesses as measured by the Merchant Category Code (MCC) assigned by the issuing bank. Interchange fees for debit cards are much lower than credit cards due to government regulation and are typically not a concern to merchants.

Prepaid debit cards are issued by credit card providers and are loaded with funds. Customers can spend up to this amount or make withdrawals at ATMs, but then must reload the card once the funds are exhausted. These cards, unlike regular debit cards, can be used for online purchases and are excellent for those who do not qualify for a credit card, do not want to share their banking information, want to limit their expenditures, or are worried about credit card loss or theft. The volume and value of prepaid cards remain small. Gift cards are similar to prepaid debit cards except they can only be used at one retailer and cannot be reloaded.

Payment card use has also increased due to the introduction of mobile wallets. Mobile wallet apps or built-in features on some smartphones contain credit cards, debit cards, prepaid debit cards, loyalty cards, and coupon information. A merchant’s POS terminal automatically reads this information with near-field communication (NFC) using radio waves. All the customer does is hold their phone or another wearable communication device like a watch near the merchant’s NFC reader. Mobile wallets are useful for merchants that experience high transaction volumes and provide better security than payment cards as smartphones are harder to steal and have better encryption. Mobile wallets can also store additional information including driver’s licences, social insurance numbers, health cards, hotel keys, and tickets.

Other payment systems such as PayPal offer advantages similar to prepaid debit cards. PayPal accounts are connected to either a user’s credit card or chequing account which is useful if they do not qualify for a credit card. Users can transact with other PayPal accounts and engage in e-commerce. Funds are immediately available and they only have to release their banking information to PayPal. They can also send and receive funds internationally and PayPal offers lines of credit for those who need financing.

**Remote Consumer Transactions.** These payments include all non-POS transactions by consumers such a person-to-person (P2P) transfers between friends and family members and payments to small traders such as repair people or babysitters. It also includes regular customer-to-business (C2B) transactions such as payments for utilities, insurance, loans or leases, membership fees, or taxes. In 2017, there were 1.6 billion remote consumer transactions worth CAD 574 billion.

**Exhibit 2: Remote Consumer Transactions**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Payment Type** | **2012 Volume** | **2017 Volume** | **2012 Value** | **2017 Value** |
| Cash and cheques | 27% | 14% | 31% | 14% |
| Credit cards | 21% | 25% | 9% | 8% |
| Online transfers | 2% | 14% | 4% | 14% |
| EFT | 50% | 47% | 56% | 64% |

The volume and value of cash and cheque payments are declining rapidly. Most cheque users are older and only write two cheques per month, primarily for rent and P2P transfers or payments. Cheques are being replaced by online transfers particularly INTERAC e-Transfers. For large, time-sensitive domestic and international payments in a variety of currencies, wire transfers using payment systems such as the Society for Worldwide Interbank Financial Telecommunication (SWIFT) are used. These transfers can be initiated face-to-face, by fax or e-mail, or using the bank’s website.

Electronic funds transfer (EFT) accounts for the majority of remote consumer transactions using online/mobile banking systems for regular C2B payments. Credit card use is discouraged for these transactions due to high interchange fees.

**Business Transactions.** These payments include business-to-consumer (B2C), and business-to-business (B2B) transactions only and exclude government.

**Exhibit 3: Value of Business Payments**

|  |  |
| --- | --- |
| **Payment Type** | **2017 Value** |
| Cash | 6% |
| Cheques | 13% |
| Debit cards | 8% |
| Credit cards | 24% |
| Prepaid cards | 1% |
| Online transfers | 4% |
| EFT | 42% |
| Other | 2% |

Businesses have made great progress in adopting electronic payment. These methods, primarily credit cards and EFT, account for 80% of the value of all business transactions. This figure is deceiving as nearly 60% of businesses still use cheques regularly. CPA research indicates that most businesses would move away from cheques further if better electronic payment services were available although, smaller, older businesses were found to be less likely to convert.

Business credit card use is rising due to an established payment system, not having to submit purchase requisitions and expense claims, faster transaction reporting, and the availability of short-term financing. Different types of procurement cards or p-cards are available. Travel and entertainment cards pay for an employee’s expenses when they are “on the road” or hosting clients. Fleet cards pay for gas and repair bills and possibly a driver’s food and lodging. Purchase cards are used to buy inventory, supplies, equipment, and other business services. All cards come with limitations on who can use them, how much can be charged, the type of expenditures that can be made, and expiry dates to control fraud. Some cards are limited to just one use (called single-use cards) such as paying vendors. Instead of receiving an actual card, companies may only be assigned a billing number to give to suppliers (called a virtual card).

Most EFT consists of simple transactions such as direct deposits for payroll or pre-authorized payments for repetitive transactions. Businesses have been slow in adopting advanced EFT systems using electronic document interchange (EDI) that exchange invoices, payments with detailed remittance data, and messages. EDI is a standardized way of sending business documents like purchase orders, invoices, or bills of lading electronically so different computer systems can understand them. Improved payment products and education are needed, but EFT will continue to grow in importance with future technological innovations.

One recent innovation is real-time (RTP) payment systems that should transform how businesses, governments, and consumers transact with each other using EFT. An RTP system offers several advantages:

* 24/7/365 service
* Real-time operation
* Instant fund transfer
* Irrevocable transactions that cannot be changed or reversed
* Improved security
* Transaction data passed with payment
* Messaging
* Global compatibility

RTP systems are attractive to businesses. More data about a transaction is included with the actual payment, and parties can better communicate with each other to request payment or inquire about payment disposition. RTP systems do what current electronic payment systems do, but they just do it faster, better, and at a lower cost providing much-needed competition for existing payment providers. Many merchants offer discounts to consumers to use RTP systems in response to high credit card interchange fees.

**Effective Cash Management Practices**

Small and medium-sized enterprises (SME) typically deal with just one bank. In contrast, large multinational firms usually have one lead banker that works with them managing their cash operations, but then retain other institutions to provide specialized services such as capital markets, mergers, and acquisitions, or risk management. It is very prestigious for a bank to be selected as the lead bank for a large company so competition for these positions is intense. The institution chosen normally leads the lending syndicate that funds the company’s credit facilities.

Large companies have treasury management departments that house their cash management activities. They are responsible for:

* Cash collections and disbursements
* Short-term financial planning
* Raising temporary and permanent financing
* Investing excess funds
* International finance including currency and trade transactions
* Risk management and insurance

Effective cash management practices can be classified into three areas.

**Electronic payment.** Approximately 90% of the value of consumer payments and 80% of the value of business payments are made electronically. This transition should be completed soon, but businesses must concentrate on making the payment system more efficient through the better use of EFT, RTP, and other innovations.

**Managing the float.**  The net float is the difference between a company’s cash balance according to its books and its bank account. Companies will try to manage the net float so the book balance is less than the bank balance. This will occur if a company pays a supplier by cheque instead of electronically. The expense is recorded immediately reducing the book balance but it will take time for the cheque to get to the supplier (called the mail float), be processed by them (called the processing float), be cashed, and have the funds taken from their account (called the settlement float). The total of these periods is called the disbursement float. The company can continue to use this cash in their operations or invest it during this time.

When companies receive payments by cheque through the mail instead of being paid electronically, the opposite is true. It takes time for the cheque to arrive, be processed, and then settled before funds are added to the company’s bank account. This is called the collection float. Collections are only transferred from accounts receivables to cash in the company’s books when payment is received. Payments will likely be settled the same or next day, but if these collections are received more quickly through the mail and processed faster, the company would be better off.

Managing the float is less important due to increased electronic payment, but cheques still account for a large portion of business transactions by both volume and value. Some options for accelerating collections include:

* Send invoices to customers electronically soon after a sale is finalized and ensure they are accurate to avoid payment delays later on.
* Strictly enforce credit terms.
  + - For consumers, install in-store POS terminals that support electronic payment and have them use online/mobile banking for other payments.
    - For businesses, employ EFT, wire transfers, and e-transfers.
    - Quickly process and deposit any cash receipts and cheques.
* If cheques are accepted, have the customer scan them and send them to the business electronically instead of through the mail or use pre-authorized cheques for regular payments. Pre-authorized cheques do not require a signature and can be originated by the company receiving payment with the appropriate authorizations.
* Contract out collections to service providers with greater expertise.
* Establish “locked boxes” throughout the sales region where customers can mail payments more quickly than sending them to company headquarters. These post office mailboxes are emptied and processed daily by a local bank that transfers the funds electronically to the company’s central bank account. Afterward, the cheques are scanned, or data is taken from them and sent electronically to the business for reconciliation. Less cheque handling also reduces processing costs and gives the company faster notice of any dishonoured cheques.
* Establish company-owned collection offices throughout the sales region where customers can pay in-person or mail their payments so they can be immediately batched, deposited, and transferred electronically to the company’s central bank account.

To delay payment, companies should:

* + Pay on the last day of the cash discount or credit period only.
* Negotiate longer credit terms.
* Pay by cheque instead of electronically.
* Mail cheques from distant locations using remote disbursements.
* Stretch payments beyond the credit period if penalties and interest can be avoided.
* Pay only when creditors call about late payments and not on the due date.

The last three ways to delay payment are unethical but are still used in practice. To further improve efficiency, many companies outsource the printing and mailing of cheques or the entire cash disbursement function. Fraud detection services can also be purchased. Typically, companies provide their bank with a list of cheques and the bank only cashes those with the correct serial number, name, and amount.

**Cash concentration.** Larger companies have multiple offices, branches, or stores and each location typically has a separate account at a local bank to deposit cash and cheques using a designated business teller, night depository, armoured car service, or “smart safe.” Companies also use remote deposit capture (RDC) so cheques can be scanned by the business and deposited electronically. A “smart safe” is a safe provided by an armoured car service that is kept on a business’s premises. Deposits are made into it as funds are received and the company is given immediate credit for these deposits. The advantage is armoured car services do not have to pick up their deposits as frequently lowering operating costs.

A business’s target cash balance can be reduced by having their bank automatically transfer the funds from their local bank branches to one centralized account at company headquarters. This allows the company to maintain a smaller cash balance overall, reduce the use of their overdraft facility, and more easily identify excess cash balances that they can be used to pay down debt, take advantage of supplier discounts, or invest in short-term securities. Investing in larger amounts also helps companies meet the sizeable minimum deposit requirements for some high-yielding investments. Global cash concentration is more complex as businesses utilize several banks and operate in multiple legal jurisdictions with different currencies. In most jurisdictions, funds can be transferred to one central account in another country, but the different entities must account for the transfer as an intercompany loan and pay a market interest rate on the amount borrowed.

Firms use zero-balance accounts to better control certain expenditures such as payroll or supplier remittances. A separate account is established to process each type of payment and funds are only transferred to that account from a central account as needed. Because the disbursements made each day are uncertain, extra cash must be maintained as a safety stock in the central account. By having just one safety stock in the central account instead of each of the zero-balance accounts, the company can maintain a lower safety stock overall.

**Investing Temporary Cash Surpluses**

Companies often hold more cash than is required to meet their daily transactional, precautionary, and speculative needs. A business may be:

* Following a flexible maturity matching strategy where permanent financing is used to finance seasonal increases in NWC but then remains idle for the rest of the year.
* Accumulating cash to fund a major expenditure, interest or principal payment, or semi-annual dividend.
* Investing the proceeds from a stock or bond issue until they are needed to finance a capital project.
* Establishing a contingency fund to protect the company against unforeseen events such as a failed product launch or to take advantage of unexpected opportunities such as a business acquisition.

A business chequing account pays little or no interest, so any surplus cash should be carefully invested to earn a competitive return. Since these funds will soon be needed in operations, a company should follow a conservative strategy and invest in a diversified domestic portfolio of short-term, fixed-income securities that do not put the principal at risk. Holding a variety of high-quality government and corporate issues from different regions of the country helps minimize credit or default risk. Their short maturities also greatly reduce interest rate risk as rate changes have little effect on their market value. Liquidity risk is low since these investments mature quickly, are issued by large institutions, and often have active secondary markets if a company needs to sell early. Finally, buying securities issued in CAD eliminates exchange rate risk.

The money market consists of a variety of fixed income securities with maturities of less than a year although most have lives of just a few months. The main securities include:

**Treasury bills (T-bills).** T-bills are issued by federal and provincial governments in Canada to help finance their short-term cash flow needs. The Bank of Canada serves as the fiscal agent for the Government of Canada and issues T-bills with maturities of three, six, and twelve months at a weekly auction to a group of approved investment dealers and distributors. These dealers and distributions are major financial institutions that resell the T-bills to investors in amounts ranging from CAD 5,000 to CAD 100,000 making them accessible to smaller investors. T-bills are sold at a discount and their yields increase with maturity. An active secondary market exists so they can be redeemed very quickly if necessary. Provincial government T-bills offer slightly higher yields compared to federal government T-bills with minimal additional default or liquidity risk making them an excellent investment alternative. T-bills denoted in U.S. dollars can be purchased as part of currency hedging strategy but are sold in CAD 100,000 minimum amounts.

**Term deposits and certificates of deposits.** These deposits are available in minimum denominations ranging from CAD 1,000 to CAD 5,000 from Canadian financial institutions in USD, CAD, and GBP for periods of 1 day to 10 years making them suitable for small businesses. Interest on deposits that mature in less than a year is paid at maturity, while longer-term deposits can have their interest paid semi-annually, annually, or compounded over the life of the investment and paid at maturity. Deposits may be redeemable or non-redeemable but redeemable deposits earn a lower return because of the greater flexibility they provide investors. Certificates of deposit differ from term deposits in that an actual certificate is issued that can be pledged as collateral for other loans or sold in a secondary market. Overnight deposits allow companies to invest surplus balances in their chequing accounts from the end of the business day to the start of the next business day. These deposits are secured by the Canadian Deposit Insurance Corporation (CDIC).

In addition to the chartered banks, other financial institutions including credit unions, trust companies, and mortgage companies offer term deposits and certificates of deposits as do direct or virtual banks. Direct banks operate without a branch network relying on mobile phones, the Web, ATMs, or the postal system to conduct business. Their reduced overhead allows them to offer more competitive rates while still providing CDIC protection.

**Bearer deposit notes.** These notes are issued by financial institutions to more sophisticated investors. They are sold in a minimum investment of CAD 100,000 for terms of up to 365 days. The notes are unsecured and subordinate to the financial institution’s other debt and are either sold at a discount or as interest-bearing securities. Notes are sold through banks, investment dealers, and securities brokers and are not insured by the CDIC.

**Commercial paper, asset-backed commercial paper, sales finance paper, and bankers’ acceptances.** As will be discussed in the section on sources of temporary financing, these short-term investments are sold at a discount by large, credit-worthy corporations and investment trusts for periods of under a year.

**Short-dated bonds.** These are long-term bonds with less than a year remaining till maturity. They have low interest-rate risk due to their short remaining maturity, so they are an alternative for investors who want to earn a higher return than T-bills or commercial paper. Publicly-traded bonds or debentures have an active secondary market if a company requires quick access to its cash and they are rated by the different credit rating agencies.

**Repurchase agreements.** These agreements (also called repos) are commonly used by security dealers to finance their inventories of marketable securities such as stocks or bonds. Instead of pledging these securities as collateral for a loan, dealers raise short-term financing by selling them at a modest discount while agreeing to repurchase them at face value shortly. By buying the collateral, investors are in a stronger financial position if difficulties occur. To the investor buying the securities and then selling them back, these agreements are called reverse repos. Repos are usually sold in CAD 100,000 multiples on a call or fixed-term basis although overnight agreements are the most common.

**Eurodeposits.** These deposits are made by foreign investors in European banks and are denoted in Euros. Many European banks offer above-market returns to attract needed capital. Euro deposits expose companies to exchange rate risk so they are not recommended for operating funds, but they may be acceptable if used as part of a currency hedging strategy. Euro deposits are offered for varying periods and are sold in minimum denominations of EUR 10,000 or more. They are generally non-redeemable and have a limited secondary market. The popularity of Euro deposits has declined due to the European Central Bank’s negative interest rate policy.

**Money market funds (MMF)**. These funds are offered by major financial institutions that pool the surplus cash of small investors who cannot access most money market securities such as commercial paper on their own because of large minimum investments. MMFs also offer more professional management and greater diversification at a very modest management fee. These investments can be purchased as shares in a mutual fund or exchange-traded fund (ETF). Shares in ETFs can be redeemed more quickly because they trade daily on stock exchanges. ETFs also offer lower management fees making them the best option for small investors.

Under International Financial Reporting Standards, investments of surplus cash are classified as cash and cash equivalents, short-term investments, or long-term investments. Cash consists of any cash on hand plus demand deposits such as chequing accounts. Cash equivalents are “short-term, highly liquid investments that are readily convertible to known amounts of cash and that are subject to an insignificant risk of changes in value” with an original term to maturity of three months or less. Short-term investments are similar to cash equivalents but they have an original term to maturity of more than three months and a remaining term to maturity of less than a year. Both cash and cash equivalents and short-term investments are both classified as current assets as they will mature within the year. Other securities with a remaining term to maturity of greater than a year are classified as long-term investments.

**Exhibit 4 – Money Market Rates**

|  |  |
| --- | --- |
| Treasury bills |  |
| 3 months | 1.63% |
| 6 months | 1.67% |
| 1 year | 1.67% |
| Term deposits |  |
| 3 months | 0.35% |
| Bankers’ acceptances |  |
| 1 month | 1.82% |
| 3 months | 1.84% |
| Overnight repos | 1.75% |
| Euro deposits | Negative |
| Money market fund | 1.63% |
| Effective September 2019 | |

**Effective Cash Management Tip**

Returns on money market securities are low because of their short duration and the high creditworthiness of the issuing institutions. Before investing in the money market, companies should always use their surplus cash to reduce their line of credit and other forms of short-term financing which generally charge a much higher interest rate. The company should also approach its suppliers to see if any are willing to give a discount on their accounts payable if they pay early. This discount will likely exceed the return the company can earn on any money market instrument and will provide financial assistance to a valued supply chain member as the discount will likely be less than what they are paying on their line of credit or other forms of short-term financing.

**1.2 | Managing Accounts Receivable**

Companies can adopt restrictive or more lenient credit policies. Implementing more generous credit terms and tolerant collection practices increases sales but leads to higher financing charges for inventory and accounts receivable, greater bad debts, and more early payment discounts. Mathematical models can be used to estimate the effects of offering different terms, but companies must just offer them to determine exactly how customers and competitors will react and whether the additional profits generated are sufficient to cover the added costs. Reducing credit terms and being more forceful with collections may be the best option for improving a company’s bottom line.

**Types of Credit**

Credit extended to companies is trade or commercial credit, while individuals receive consumer credit. These types of financing can be offered in different ways:

**Open account.** Customers must pass an initial credit check and, if approved, they can make purchases without any additional credit applications or purchase contracts. Companies will usually issue an invoice for each purchase and provide monthly statements. As long as the customer adheres to the credit terms, they will continue to receive financing subject to their approved credit limit and passing periodic credit reviews. All customer payments are applied to specific invoices after adjustments are made for discounts, allowances, or returns which is referred to as an open-item system. Open accounts are the most common form of trade credit for business-to-business transactions. Promissory notes may be required for large purchases or if collection difficulties are expected to make these claims more enforceable in court if problems arise.

**Installment credit.** Customers sign a formal contract where they agree to pay for a purchase in blended payments of interest and principal over a specified period at a set interest rate. Installment credit is an important form of consumer credit that is used to finance the purchase of costly consumer durables such as automobiles. Consumers must pass a credit check each time a product is purchased. Interest earned on installment credit by companies is usually a major source of revenue.

**Revolving credit.**  A customer is assigned a credit limit based on an initial credit investigation. They are free to make purchases as long as they do not exceed the credit limit and make the minimum payments each month. Additional payments can be made at the customer’s discretion and interest is charged on the outstanding balance during each period. All payments are applied to the balance of the account and not individual transactions which is referred to as a balance-forward system. Revolving credit is commonly extended to consumers using credit cards. Open-loop credit cards like Visa, MasterCard, or American Express can be used anywhere while closed-loop cards such as retail store or gas cards can only be used at the card sponsor’s stores or service stations. Some closed loop card issuers have formed alliances with other companies to accept each other’s cards. Other firms offer cards in association with the major open looped card companies but place their names and logos on the cards.

**Letters of credit.** Commercial letters of credit are used in international trade when an exporter is unwilling to extend normal trade credit to an importer because of a lack of familiarity with the customer. The importer requests that its bank provide a letter of credit to the exporter’s bank that guarantees payment. With this guarantee, exporters may still demand immediate payment from the importer or they may be willing to extend normal trade credit. Exporters can sell letters of credit at a discount early to raise needed cash or use them as collateral in a loan or other business transactions.

**Credit Terms**

As discussed in the Module: Maturity Matching, trade credit terms can take many forms.

**Net 30.** Payment must be received within 30 days from the date of the invoice although other payment periods such as net 60, net 90, or net 120 are common. The longer the payment period, the greater the benefit to the customer but the higher the cost to the supplier.

**2/10, net 30.** Payment must be received within 30 days from the date of the invoice, but if a company pays within 10 days from the date of the invoice they receive 2% off the amount owed. The early payment period and early payment or cash discount vary depending on industry competition. The early payment discount is usually fixed although some companies use dynamic discounting where the discount increases if the customer pays earlier than the end of the discount period.

**2/10, net 30, EOM.** Payment must be received within 30 days from the end of the month (EOM), but if a company pays within 10 days from the end of the month they receive 2% off the amount owed. EOM is used when customers purchase inventory regularly. Having the same start date for credit terms reduces administrative costs as all of a customer’s orders can be processed together. A start date of the middle of the month (MOM) is also used.

**3/15, net 60, ROG.** Payment must be received within 60 days from the receipt of goods (ROG), but if a company pays within 15 days from the receipts of goods they receive 3% off the amount owed. ROG is common when shipping times for goods are long and regular credit terms will likely be over before the goods arrive. Businesses are not comfortable paying for products that they have not received and may need time to resell the product before they can pay.

**2/10, net 30, January 1.** Payment must be received within 30 days from a specified date which is not the invoice date, but if a company pays within 10 days of the specified date they receive 2% off the amount owed. This is referred to as seasonal dating and is common in industries with variable demand where customers need help financing large inventory buildups for seasonal items like toys at Christmas or greeting cards on Mother’s Day. Customers are not required to pay until the seasonal high has passed and the products have been sold to the final consumer. Seasonal dating also encourages customers to buy earlier so suppliers can better forecast sales.

**Cash terms.** No credit is extended but customers are still given a week or more before they must pay. These terms are common for new customers who have not yet been approved for regular trade credit.

**Cash on delivery (COD).** Payment must be received when goods are delivered by the supplier because of their unwillingness to provide trade credit due to a customer’s poor payment history. Putting existing customers on COD for non-payment may lead to bankruptcy as they generally need time to sell the product before they can pay a supplier.

**Cash before delivery (CBD).** Payment must be received before the goods are shipped by the supplier. CBD may be adopted if the supplier does not want to risk having to absorb the cost of shipping and returning products if the customer does not pay.

**Consignment.** A supplier or consignor ships goods to a customer or consignee who does not pay for the product until it is sold. The consignee receives a sales commission for selling the product and forwards the remaining proceeds to the consignor who retains ownership until the final sale to improve the quality of their collateral.

**Bill-to-bill.** No payment date is specified, but payment for past purchases must be received before any new shipments are made to the customer.

**Length of Credit Terms**

Credit terms vary by industry but are typically between 30 and 120 days. Several factors influence the length of terms. These include:

* Customers with extended operating cycles receive longer terms as they need more help financing products until they are sold to the end consumer.
* Wholesale customers receive longer terms than retail customers because they are further upstream in the supply chain and more removed from final payment by the end consumer.
* Companies entering new territories or selling new products offer longer terms to attract customers.
* Sales of perishable items receive shorter terms as the collateral loses its value very quickly.
* Seasonal items sold in advance of sales peaks receive extended terms as it is longer to the final sale.
* Companies selling slow-moving products and excess or obsolete inventory offer longer credit terms to encourage customers to buy these low turnover items.
* Companies operating in competitive markets offer extended terms as a means of attracting new customers.
* Highly profitable companies offer longer terms because of their greater financial resources. The opposite is true for companies with low profitability.
* Small accounts receive shorter terms as they are costly to manage and account for a small percentage of total sales.
* Larger accounts receive longer terms because of their importance and greater market power.
* Higher credit risk customers receive shorter terms to control bad debts.
* Lending covenants such as a minimum current ratio requirement reduces the length of credit terms by restricting the amount of accounts receivable a company can hold.

**Credit Approvals**

Companies should conduct a thorough credit assessment of all potential customers before extending trade credit and then monitor their status on an on-going basis. This assessment is used to decide whether to lend and the size of the credit limit. Credit limits will likely be small for new customers but will rise as they demonstrate a successful payment history. Large customers and governments may not be given credit limits at all. Credit limits help control credit risk while avoiding the cost of approving each purchase.

Customers normally have to complete a credit application and provide credit references from former suppliers, lenders, or lessors. Larger accounts may also need to supply unaudited or audited financial statements. Many companies make use of a credit reporting agency to aid in their decision making. Dun & Bradstreet (D&B) is the world’s largest commercial credit reporting agency providing online, real-time credit reports for over 90 million companies globally including 1.5 million in Canada. These reports provide both historical and predictive information that varies in detail and cost depending on a company’s needs. Some of the information D&B provides includes:

**PAYDEX Score.** Measures what percentage of a customer’s dollar-weighted trade credit was paid on time over the last year. Scores of 80.0% or higher are considered acceptable by lenders.

**Failure Score.** Measures the probability that a customer will cease operations over the next 12 months without paying all of its creditors in full or will obtain relief from its creditors as part of a bankruptcy.

**Delinquency Score.** Measures the probability that a customer will be severely delinquent in their payments over the next 12 months. Severely delinquent is when 20% or more of its payments are 90 days or more past due.

**Maximum Credit Recommendation.** Recommends the maximum amount a company should lend to a customer based on the size of the organization and other risk factors.

**D&B Rating.** Determines the financial strength of a customer by calculating its tangible net worth which is equal to the value of its equity minus any intangible assets. The net tangible assets are a potential funding source if a customer experiences financial difficulty. Other risk measures are also considered when calculating this rating.

**Country/Region Insight.** Assesses the risk level of a country or region as low, moderate, or high based on the opinion of a panel of experts as a basis for extending trade credit to companies in that area. Detailed country or region reports are also available.

**Financial information and ratios.** Provides summary financial statement information such as total assets and total liabilities along with key operating ratios such as the current ratio.

**Legal proceedings.** Summarizes the number of insolvencies, judgements, liens, and suits the customer is involved in and the total dollar value of all judgments and suits.

All credit information is supplied voluntarily by suppliers so some credit assessments may be unreliable due to a small sample size. Besides commercial credit reporting agencies, banks can also provide credit information based on their dealings with potential customers.

Consumer credit reporting agencies in Canada such as Equifax and TransUnion also provide credit reports based on creditor information and other sources such as court records and collection agencies. Based on these reports, credit agencies calculate a credit score. There are many different models and weighting systems for calculating these scores, but a typical breakdown provided by Equifax recommends:

**Payment history (35%).** The frequency, length, and size of delayed or missed payments on different loans such as credit cards, personal lines of credit, automobile loans, student loans, home equity loans, or mortgages are evaluated. Customers with the most on-time payments receive the highest credit scores.

**Credit utilization (30%).** Customers with a low ratio of debt to total credit available are scored favorably. Those who have borrowed the maximum against several credit accounts and have opened new accounts recently will be classified as high-risk borrowers and have their credit scores reduced. Also suspect are customers with a limited variety of credit accounts such as numerous credit cards.

**Credit history (15%).** Customers with credit accounts that have been in existence for a long time demonstrate that they can manage credit effectively and will receive a higher credit score.

**Public records (10%).** Those with a history of bankruptcies, foreclosures, judgements, liens, or dealings with collection agencies will have their credit scores reduced.

**Inquiries (10%).** Numerous credit file inquiries by lenders relating to new loan requests may indicate a customer is experiencing financial distress which will negatively affect their credit score.

In addition to a credit score, creditors consider other factors such as a customer’s income, years of employment, and homeownership when deciding whether to lend.

Some firms rate potential customers themselves using statistical credit scoring models that they have purchased or developed internally, or by implementing a more qualitative credit rating system based on the 5 Cs of credit assessment. These include:

**Character.** Is the perceived honesty of a customer that is usually measured by their past payment history.

**Capacity.**  Are the current and future cash flows available to a customer from employment or operating a business that can be used to satisfy their obligations.

**Capital.** Comprises other resources such as investments that can be liquidated if a customer’s cash flows are insufficient to pay its debts.

**Collateral.** Includes the assets and any personal or third-party guarantees pledged by a customer that can be used to satisfy their obligations if there are payment difficulties.

**Conditions.**  Incorporates macroeconomic factors such as interest rates, exchange rates, or the business cycle that affect the strength of the economy and a customer’s ability to pay their obligations.

**Collections**

Once the decision to extend credit is made, terms ought to be strictly enforced. All payments should be received by the due date and penalties and interest charged on any overdue balances. Penalties and interest can be difficult to collect as many customers just refuse to pay, but at least having them lets the customer know how serious the company is about collections.

Despite advances in EFT, some customers will still want to pay using a paper cheque. This allows them a few extra days of credit while their cheque moves through the postal and cheque clearing systems. Cash discounts are sometimes used to encourage electronic payment, but companies can just require that payments be made electronically as a condition of receiving credit.

To get paid quickly, companies must get accurate invoices out to their customers as quickly as possible. Mistakes and adjustments delay receipts as customers typically withhold payment on the full invoice until the errors are corrected. Electronic systems for invoicing and payment help to reduce turnaround times. Reminders may also be sent out to customers, especially new customers before payment is due to welcome them, ensure they have received their invoice, and remind them of the need to pay on time.

A formal collection procedure with timelines should be established to deal with overdue accounts. Typically, companies will:

* Issue duplicate customer invoices or statements.
* Provide a verbal warning(s) followed by a written warning(s) if unsuccessful.
* Reduce credit limits, shorten credit terms, place customers on COD or CBD, or cut them off entirely until payment is received.
* Negotiate special repayment plans, secure post-dated cheques, or have them sign a formal promissory note that can be more easily enforced in the courts.
* Take court action, use a collection agency, or write-off accounts if further collection costs are not justified given the likelihood of payment.

It is important to apply the cost-benefit principle in collections. Focus a department’s efforts on larger accounts that are experiencing difficulties. Before taking legal action, ensure that the amount that can be collected is greater than the expected legal costs. Remember a creditor might also be able to pursue the personal assets of a consumer or owners of an unincorporated business. A company may be successful in court but if customers have no assets to pay the judgement then it is of no value. Small claims court can be used to collect minor amounts as a lawyer is not needed.

Companies should be firm in their collection practices but not overly aggressive as customers may take their business elsewhere. There will always be customers that abuse the credit system, but most are just experiencing temporary financial difficulties. Having a well-trained collection staff who can recognize these two groups pays off. They also know how to convince customers to pay promptly by stressing what is important to them such as protecting their valuable credit ratings, restoring their reputations, and being respectful of the long-term relationship they have established with the supplier. Collections staffers should have scripted responses to all possible excuses and know what legal actions the company will take next if payment is not received so they can communicate it to the customer.

A company’s sales and collections departments must closely coordinate their efforts to be effective. Salesforces are focused on meeting quotas, but they also have close working relationships with their clients. They will know if a struggling client has the potential to develop into a valued customer in the future. In these cases, a company might decide to be more lenient with collections until they have had a chance to recover. The collections department must be made aware of these decisions so they do not confuse and alienate customers with their aggressive collection efforts. Sometimes a personal call from a sales representative instead of an unknown collections’ staffer is all that is needed to secure payment.

Collections management can be a highly computerized process. Technology is expensive but it pays for itself through reduced labour costs, quicker credit approvals, faster communications and payments, and timely monitoring of past-due accounts. Some companies, particularly smaller seasonal firms, choose to contract out their credit management function to a factoring company. Factors supply financing by buying a company’s accounts receivables before the due date, but they also provide credit approval, monitoring, and collections as a standalone service.

Larger companies may establish separate sales finance subsidiaries to manage their consumer and trade credit. This creates administrative efficiencies and allows the company to secure financing at a lower cost by consolidating all their collateral into one business unit. Credit insurance can be purchased to protect the company from bad debts. The Export Development Corporation provides insurance for export receivables while private insurance companies cover other types of receivables.

**Credit Monitoring**

Thorough credit approvals and careful monitoring of active accounts are critical in controlling collection costs. Careful monitoring allows companies to identify problems early and take the appropriate actions to limit losses. Instead of reacting to credit problems, companies can act pre-emptively and build long-term relationships with their customers by helping them through difficult financial times. Some common monitoring tools include:

**Days of sales outstanding (DSO).** This ratio measures the number of days it takes a company to collect its credit sales. It is calculated:

DSO

Instead of expressing this ratio in days, practitioners often use the receivables turnover ratio which is the denominator only (sales / average accounts receivable).

The DSO should match the credit terms the company offers. For example, when terms are net 30, the DSO will be approximately 30 days as customers will not pay until the end of the payment period. If customers take longer, they are likely “stretching” their payables due to financial difficulties, taking advantage of the company’s lenient collection practices, or using their market power to exploit a smaller supplier. If a company also offers an early payment discount such as 2/10, net 30, the DSO should be approximately 10 days as customers will pay early to take advantage of this lucrative discount.

**Aging schedule.** This schedule indicates the percentage of a company’s accounts that are current (i.e. still within the credit terms) and those that are past due and by how long. Percentages vary with the seasons and can be compared against those from a previous year or industry averages if available.

**Exhibit 5: Aging Schedule**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CAD** | **April** | | **May** | | **June** | |
| Sales | 583,000 | | 495,000 | | 616,000 | |
| Accounts receivable | 660,000 | | 616,000 | | 715,000 | |
| Current (under 30 days) | 345,180 | 52.3% | 297,528 | 48.3% | 365,365 | 51.1% |
| 0-30 days overdue | 110,880 | 16.8% | 112,728 | 18.3% | 125,125 | 17.5% |
| 31-60 days overdue | 97,680 | 14.8% | 93,016 | 15.1% | 106,535 | 14.9% |
| 61-90 days overdue | 67,980 | 10.3% | 72,688 | 11.8% | 72,930 | 10.2% |
| 91+ days overdue | 38,280 | 5.8% | 40,040 | 6.5% | 45,045 | 6.3% |

DSO ratios and aging schedules only provide an overall assessment of a company’s collections. Computerized credit management systems also provide numerous real-time credit reports showing status by customer, industry, country, division, product line, type of credit terms, or size of the customer. Information about specific customers is needed to begin collections, but these other reports are very useful. For example, if an industry is experiencing problems due to deteriorating economic conditions, a company may decide to lengthen its credit terms to provide additional financial assistance or strengthen the credit approval process to exclude problem customers. If smaller customers are a problem, this group may be put on CBD or COD or the company may stop servicing them entirely. Finally, if longer credit terms are a problem, reduce them and force customers to supplement their trade credit with other sources of temporary financing.

Besides internally generated reports, remaining up-to-date with industry news helps companies identify collection issues before companies begin experiencing difficulties.

**1.3 | Managing Inventory**

Inventory management incorporates the different technologies and techniques companies employ to order, transport, track and store the inputs used to manufacture products and then delivering them to customers. Inventories include raw materials, parts, work-in-progress, finished goods, scrap, and supplies. The goal of inventory management is to meet a company’s specific production and sales targets while carrying the level of inventory that maximizes its profits. Too much stock leads to excessive carrying costs such as ordering, financing, storage, handling, insurance, and taxes and increased product damage, spoilage, and obsolescence. It can also lead to cash flow problems during an economic downturn when excess inventory is much more difficult to sell. Too little stock causes production delays when key inputs are not available; rising manufacturing costs due to reduced economies of scale; lower customer satisfaction and lost sales due to stock-outs; fewer quantity discounts by not purchasing in bulk; an inability to guard against price increases, work stoppages or other supply interruptions by stockpiling inventory; or being unable to balance stable production with variable customer demand. Effective inventory management is an important competitive advantage that improves customer service and raises profits.

**Inventory Management Techniques**

Companies use a variety of technologies and techniques that directly or indirectly help to better manage their inventories. Some of the most important include:

**Supply chain technology.** Advances in technology since the microcomputer revolution began in the early 1980s have transformed how companies manage their inventories. Periodic inventory systems have been replaced by perpetual systems that provide real-time information on stock availability using barcodes, point-of-sale terminals, satellite and wireless communication systems, and hand-held inventory management devices. Traditional warehouses have been replaced by storage and retrieval systems with automated stock picking using robotics, computer-guided vehicles, and conveyor systems. Inventory is delivered using driverless vehicles and drones and tracked using global positioning (GPS) systems that give suppliers and customers real-time delivery information. Advanced forecasting and optimization software and expert systems have improved the quality of production planning. Inside factories advances such as robotics, numerically controlled machines, and three-dimensional printing have made production more flexible and efficient reducing work-in-progress and finished goods inventories.

**ABC analysis.** The Pareto principle or the 80%/20% rule states that roughly 80% of the effects come from 20% of the causes. This principle has many applications in business such as the commonly quoted finding that 80% of a company’s sales come from 20% of its customers. In inventory management, many companies also find that 80% of their costs of production come from 20% of their inputs. Since this small number of high-value items contributes so much to total costs, ABC analysis says to devote considerably more resources to control this class of inventory and to keep stock levels low to reduce costs. For other lower-valued inventory classes, larger safety stocks can be carried to reduce the risk of stock-outs with little added expense. Fragile items or ones that are more likely to be stolen can also be added to the high-value class so they are better controlled. The name ABC analysis is used because companies divide their inventory into three or more classes.

**Economic order quantity (EOQ)**. Significant carrying costs are incurred financing, storing, handling, insuring, and paying taxes on large inventories. Damage, spoilage, and obsolescence charges also rise as inventories grow. To lower these costs, companies may decide to carry less stock which means re-stocking it more often by placing smaller orders causing ordering, transportation, and handling expenses to rise. EOQ is the order size that minimizes total holding costs which is the sum of carrying and re-stocking costs.

**Exhibit 6: Carrying and Re-stocking Costs**

**Re-stocking costs**

**Total holding costs**

**EOQ**

**Carry costs**

**Cost**

**Order Size**

If we assume stable demand, total inventory holding costs can be calculated as:

Total holding costs = Carrying costs + Re-stocking costs

H = (C x ()) + (R x ())

D = Yearly demand

Q = Order quantity

C = Carryings costs per unit

R = Re-stocking costs per order

H = Total holding costs

As seen in Exhibit 5, total holding costs are minimized when carrying costs equal re-stocking costs. If the two components are equated to each other, the formula is simplified, and Q is isolated, then Q is the EOQ.

(C x ()) = (R x ()) EOQ =

EOQ can also be determined by taking the total holding cost equation and setting the derivative of the equation equal to zero. The derivative calculates the slope of an equation. The slope is zero at the minimum point of the total holding cost equation, which is the same as the crossover point of the carrying and re-stocking costs.

= - = 0 = EOQ =

One limitation of the EOQ formula is that C and R are assumed to be variable costs, but they consist of both variable and fixed cost components. Economies of scale will reduce these costs as volume increases but for simplicity, this is ignored.

EOQ is the optimal order size, but a company must also determine when to place the order. For example, if it takes 10 days on average for an order to be processed and delivered by the supplier and demand is normally 20 units daily, then the re-order point is 200 units. As the company waits for the order to arrive, they should have sufficient inventory to satisfy demand. The re-order point is also called the minimum and the maximum is equal to the re-order point plus the EOQ.

The order time of 10 days and demand of 20 units per day are estimates. If order time is longer or demand is higher than expected, the company will experience a stockout causing customer ill will and potentially lost sales if customers decide to buy elsewhere instead of waiting. To guard against this, a company may carry additional inventory or safety stock. Assuming order times can be accurately estimated, the optimal safety stock depends on the probability of demand being greater than expected, stockout costs, and the cost of carrying the additional safety stock. Greater demand uncertainty and higher stockout costs favors carrying a larger safety stock while higher carrying costs discourage it. Re-order points, EOQs, and safety stocks can be difficult to calculate in practice due to changing input values, but the approach has gained wide acceptance in the industry.

**Exhibit 7: EOQ Summary**

**Re-order Points**

**Maximum**

**Safety stock**

**Demand during**

**delivery**

**EOQ**

**Minimum**

**Time**

**Inventory in Units**

**Delivery time**

**Materials resource planning (MRP).** MRP is a computerized inventory management system. It starts with a company’s production schedule that is based on its sales forecasts. The MRP system then automatically determines the derived demand for raw materials, parts, sub-assemblies, and supplies that are needed to complete production after adjusting for current inventories. It determines when these materials are needed in production and the date inputs must be ordered so they arrive on time. Once production begins, the system adjusts in response to problems such as missed delivery dates or stock-outs.

MRP II expands on MRP systems by managing more aspects of a manufacturer’s operations such as purchasing, materials management, shop floor planning and control, order fulfillment, capacity planning, and accounting. Enterprise resource planning (ERP) systems go even further managing all functions of an organization, not just those related to manufacturing such as human resources, finance, or marketing. MRP, MRP II, and ERP systems are highly complex systems that are both time consuming and expensive to operate. Using information technology effectively to provide timely, accurate data is critical to their success.

**Just-in-time (JIT)**. JIT inventory management is closely linked with MRP systems. Inputs arrive at the factory when they are needed in production and are not simply stockpiled for future use. This system has large up-front costs and is difficult to manage but it can result in considerable long-term savings. Orders are smaller and arrive more frequently, usually daily, meaning companies only have a few hours of inventory on hand at any time. Deliveries must be on-time and contain the correct number and type of items or production quickly comes to a halt. Suppliers may need to establish new manufacturing facilities closer to their customers to meet faster delivery requirements and implement stricter quality-control procedures such as statistical process control (SPC) or total quality control (TQC) so defects do not slow production. JIT generally results in a greatly reduced number of suppliers and much closer customer-supplier relationships where the two parties share production forecasts; establish integrated EDI systems to communicate with each other; work jointly on product development; and cooperate to reduce costs and improve quality using value analysis.

Value analysis or value engineering determines best practices in product design, materials, purchasing, manufacturing, and other business processes that eliminate unnecessary costs without reducing a product’s required quality, effectiveness, and overall customer satisfaction. This technique not only minimizes costs it raises employee morale, encourages greater teamwork, and promotes a culture of continuous improvement.

JIT principles can also be applied to manufacturing. Instead of producing in large batch sizes to minimize costs, flexible manufacturing allows companies to reduce the fixed costs associated with changing over their production line so they can quickly and cheaply convert their facilities to manufacture a variety of products. This results in smaller batch sizes that lower inventories. Supply chain management professionals refer to this as a “pull” system as goods are manufactured in reaction to actual customer orders and are not “pushed” through the system after being produced in bulk.

JIT inventory and manufacturing systems have the potential to greatly reduce a company’s operating costs, but they also expose it to considerable risk. By not having an inventory buffer, business interruptions such as natural disasters, political strife, weather delays, strikes and lockouts, quality control problems, or bankruptcies quickly lead to supply problems. Companies cannot avoid expected price increases, take advantage of quantity discounts, or benefit from economies of scale if they are unable to buy or produce in bulk. They will not be able to fill large unexpected orders quickly since products must be manufactured first. JIT systems are highly integrated and difficult to balance consistently without alienating customers. Suppliers who can meet the demanding supply schedules are difficult to find. A large investment in information technology is also required.

**Vendor-managed inventory (VMI).** To justify the major commitment a supplier makes to a JIT inventory system, many are awarded single-sourcing contracts and become the exclusive vendor for a group of products. These relationships are ongoing and regularly renewed as long as delivery dates and quality standards are met. The supplier’s degree of involvement varies, but in a VMI system, they are given real-time access to inventory data, production schedules, and sales forecasts and are expected to deliver stock as required. Ongoing communications between the supplier and customer help prevent stockouts caused by unexpected changes in demand and sales promotions. Deliveries may be based on established minimum/ maximum levels or left entirely up to the supplier providing a major incentive for them to manage inventories effectively. To meet their obligations, some suppliers place staff in the customer’s warehouse while others rent a separate production or storage facility near the customer and supply stock on a JIT basis from there. Others use drop shipping where a product is sent directly from the supplier to the final consumer to reduce shipping and handling costs.

Payment can occur upon delivery subject to regular credit terms, but increasingly other methods are being used. Suppliers of high-value components can be paid-on-production to give them a needed cash infusion. Others might retain ownership as part of a consignment agreement and are only paid when/if the product is sold. Consignment encourages suppliers to manage inventories efficiently since they are responsible for most of the carrying costs. It also helps to address the “bull-whip” effect which finds that inventories become more excessive as companies move upstream in the supply chain away from the final consumer.

**Concurrent engineering.** Successful manufacturers are careful to use integrated teams of marketing, design, engineering, and manufacturing specialists to develop new products. With all the disciplines working together concurrently applying value analysis principles, these teams consistently generate items with better styling and higher quality that can be manufactured at a lower cost. Concurrent engineering employs several related practices. Parts simplification is where engineers try to minimize the number of parts in a new product. Design for manufacturing means making products that are easier to assemble on the production line. Design for disassembly is designing products that are simpler to take apart for maintenance or recycling at the end of their lives. Modularization involves only introducing new parts when they are essential to meeting customer needs and employing standardized parts for everything else. Platform building uses a shared platform for a family of products such as a truck chassis, body, and engine that can be customized to suit customer needs by adding a variety of features. All these practices help to decrease the quantity and value of parts, work-in-progress, and finished goods inventories.

**Outsourcing.** This is an agreementwith a third-party contractor to provide business services that are traditionally performed in-house. Some activities typically outsourced include accounting services, claims processing, manufacturing, information technology, and call centres. Outsourcing can take different forms. Offshoring moves work to another country where wages are typically lower. Nearshoring is the same as offshoring except operations are located in a nearby country to realize greater synergies. Farmshoring shifts work to rural areas where wages are lower and workers are less likely to unionize. Homeshoring moves work into home offices using independent contactors reducing wages and corporate overhead. Insourcing brings work back inhouse while reshoring returns it to the home country after being offshore to re-assert greater control over key business processes. Co-sourcing supplements a company’s internal capacity by adding outside contractors.

Outsourcing is normally undertaken as a cost-cutting measure to reduce wages, but it offers several other potential advantages:

* Focus in-house on core business activities that are critical to a business’ success and outsource all remaining non-essential activities.
* Maximize the sustainable growth rate by utilizing internally generated capital to finance core activities only.
* Access technical expertise that is not available internally and would be difficult to develop given current skill shortages.
* Convert a fixed cost into a variable cost which reduces a firm’s operating leverage and increasing its financial flexibility.
* Increase the speed to market for a new business or product.
* Realize economies of scale by having contractors provide the same services for several companies.
* Have contractors comply with complex regulatory requirements.
* Streamline the production process or accelerate a corporate reorganization.
* Use co-sourcing to temporarily supplement existing staff in specialized areas.

Outsourcing normally generates considerable cost savings, but third-party contractors may gain access to critical technology and sensitive operational information that could weaken a firm’s competitive position. The firm may also lose control over key areas such as product quality and customer service and be unable to enforce policies and procedures relating to issues such as child labour or workplace health and safety. Language problems, time zone differences, and animosity between the company’s staff and its contractors can lead to communication problems that hurt performance.

**Lean manufacturing.** World-class manufacturers are always trying to be more efficient. Lean manufacturing, developed by Toyota Motor in Japan, identifies eight types of waste (or Muda in Japanese) and focuses on ways to eliminate them.

**Overproduction.** Manufacturers realize economies of scale by producing in large batch sizes, but this can lead to high carrying costs including product spoilage or obsolescence charges if demand falls or consumer tastes change. Flexible manufacturing and JIT production help reduce overproduction waste.

**Over-processing.** Providing product features that are not important to the end consumer is expensive and the cost is never recovered through a higher selling price. Manufacturers should carefully determine what customers value and focus on providing it. Concurrent engineering and value analysis limit over-processing waste.

**Defects.** Defective products are costly in terms of scrap, re-work charges, production delays, customer ill will, and lost sales. Lean manufacturers re-engineer their business processes to make them mistake-proof (or Poka-yoke) and install systems that automatically detect quality problems (or Jidoka). Concurrent engineering, parts simplification, design for manufacturing, SPC, and TQC ensure quality is built into a product and carefully monitored. A lean manufacturer’s goal is to have “zero defects” and they will halt production at any time to address quality issues. Releasing defective products to consumers is not an option.

**Unnecessary transportation.** Transporting work-in-progress from one location to another adds costs but provides no value to the final consumer. Building products in just one facility and encouraging suppliers to locate close by as part of a single-sourcing agreement mitigates transportation waste.

**Waiting.**  Idle employees and machinery are costly and indicate that the next workstation is not ready to complete a task. Idle customers are also dissatisfied which usually leads to lost sales. Lean manufacturers reduce waiting time by re-engineering their production systems to create a constant flow, so products move from one workstation to the next on a JIT basis with minimal work-in-progress. Distances between workstations are reduced and employees are not asked to ramp up production temporarily to meet spikes in demand as this will lead to worker stress, production inefficiencies, and higher defects. Work-in-progress and finished goods inventory is used to balance stable production with unstable demand.

**Needless movement.** Lean manufacturing has 5s of workplace organization to help control waste due to the needless movement of people, inventory, and machinery. According to the 5s, employees should sort (or Seiri)through their materials so only those tools needed to complete their tasks remain. These tools are set in order (or Seiton) so tasks can be easily completed with no unnecessary movement. The workplace must shine (or Seiso) meaning it is clean and orderly. Workplace practices are standardized (or Seiketsu) so they are consistently followed and sustained (or Shitsuke) over time through regular audits.

**Waste of talent.** Valuable human resources are often squandered due to a lack of training, ineffective employee communication, bureaucratic work methods, a lack of motivation, and ineffective teamwork. Full utilization of an employee’s skill set helps creates a more efficient workplace.

**Excess inventory.** Unneeded inventory is a by-product of the other forms of waste. ABC, EOQ, MRP, MRP II, ERP, JIT, VMI, and outsourcing all help to reduce waste relating to excess inventory.

Paramount to the success of lean manufacturing is the principle of continuous improvement or Kaizen meaning “good change.” Instead of making a few significant breakthroughs, companies should continuously strive for perfection through small incremental improvements over time. Ideas come primarily from customers and employees working in autonomous work teams and not from management, outside consultants, or equipment vendors. Workers are engaged and respected for their knowledge and take responsibility for the production process. The changes they recommend are usually quicker to implement and require fewer capital expenditures compared to those of management. Open communications between customers, employees, and management are the norm.

Lean Six Sigma is a popular industry program that combines the principles of lean manufacturing with the statistical quality control method Six Sigma developed by U.S.-based Motorola. Lean manufacturing focuses on streamlining business processes by reducing waste while Six Sigma’s goal is to eliminate defects. Both techniques are heavily dependent on data collection and analysis. The American Society for Quality (ASQ) and other professional organizations offer certification programs in Lean Six Sigma. Graduates are awarded white, yellow, green, and black belts like in the martial arts depending on their level of achievement.

**Key Performance Indicators**

Several key performance indicators (KPIs) are useful in evaluating how efficiently a company manages its inventory.

**Days of inventory on hand (DOH).** This ratio measures the number of days it takes a company to sell its inventory and earn a profit. It is calculated:

DOH

Instead of expressing this ratio in days, practitioners often just use the inventory turnover ratio which is the denominator only (cost of sales / average inventory). They normally try to decrease DOH or increase inventory turnover to raise profits.

Manufacturers may calculate this ratio separately for raw materials, parts, work-in-progress, and finished goods inventories to determine if there are problems with specific aspects of their operations. For example, high raw materials turnover may be due to the successful introduction of a JIT inventory system, while low WIP turnover may be caused by poor production scheduling or frequent equipment breakdowns. Retailers also compute inventory turnover by product or product category to help determine allotted shelf space, store location, whether a price adjustment is required, or if a product should be discontinued. A high turnover means items are typically located at eye level and receive more square footage in the high traffic areas of the store, while low turnover items are located in limited traffic areas and may have their prices reduced to clear excess stock.

**Gross profit margin return on investment (GMROI).** To accurately interpret inventory turnover data, managers must also know the profitability of a product or group of products relative to their average inventory cost. GRMOI is calculated:

GMROI

Some stock is slow-moving requiring bigger inventories but generates higher gross profits. Other items turnover quickly resulting in smaller inventories but earns lower gross profits. Both types of inventory can be equally as profitable for the company. Managers must relate profitability to average inventory cost to accurately determine the contribution of each item.

**Inventory accuracy.**  Most inventory is accounted for using a perpetual system based on real-time data. Due to shrinkage from employee or customer theft, supplier fraud, damage, spoilage, obsolescence, defects, or administrative errors, the actual number of items in stock may not match the system count leading to potential production or delivery delays. Inventory managers should compare the actual and system counts regularly and take actions to minimize recording errors and control shrinkage.

**Order fill rate.** A good supplier should be able to fill an order soon after it is received. Insufficient inventory, inaccurate record-keeping, or a lack of order taking/ filling resources can lead to incomplete orders. A supplier should carefully monitor its order fill rate to avoid losing customers. Customers also calculate back-order rates to monitor the ability of their suppliers to fill their orders on time. Order fill and back-order rates are normally calculated based on each line or item in a purchase order instead of the entire purchase order to provide more detailed fill information.

**Order filling accuracy.** Filling an order promptly is of little value if customers do not receive the correct item in the proper size and quantity. This ratio determines the percentage of orders that are filled accurately and is calculated by both suppliers and their customers.

**Order cycle time.** Being able to assemble or “pick” an order quickly is critical in time-sensitive industries such as online retailing. The order cycle time is from when an order is received to when it is ready for shipping including the preparation of any documentation. Assembling orders usually accounts for approximately half of a warehouse’s costs, and most cost efficiencies are realized simply by reducing the distances between items. This KPI can be combined with the dock-to-stock cycle time that measures how quickly new inventory is unloaded and stored in the warehouse, and ratios that measure if shipping is completed on-time.

**1.4 | Sources of Temporary Financing**

Companies that do not follow a flexible maturity matching strategy (i.e. “pushing the line up”) must regularly issue temporary financing to fund seasonal increases in NWC. Many businesses also borrow temporarily to fund their capital purchases until permanent financing is available from a new debt or equity issuance.

**Exhibit 8: Maturity Matching**

|  |  |
| --- | --- |
| **A** – Current Assets  **B** – Long-term Assets  **C** – Current Liabilities  **D** – Permanent Debt Financing  **E** –Permanent Equity Financing  **A minus C** – Net Working Capital  **F** – Temporary Financing | **Seasonal Low**  **Seasonal High** |

A previous module looked at how trade credit, operating lines of credit, and revolving credit agreements are used to finance increases in NWC. Borrowers, especially large companies, have several other financing options with important benefits. Some of these funding sources allow the company to bypass the financial middleman such as a bank and borrow directly from investors lowering interest costs. Others involve changes to collateral requirements or the use of credit enhancements such as loan guarantees, so lenders are more willing to extend financing or lend a higher percentage of the collateral’s value.

**Specific Assignment of Accounts Receivable**

A specific assignment of accounts receivable is stronger than a general assignment or floating charge which is what lenders typically negotiate in a line of credit. With a specific assignment, the lender only accepts accounts receivable as collateral after a thorough credit assessment and then files a lien against these specific assets with the courts. This improved security arrangement allows businesses to borrow a greater percentage of the account receivables pledged and is often required for high-risk receivables.

The balance of the operating loan increases when new receivables are pledged and decreases as payments are received. There is an ongoing lending relationship between the lender and the business as with a line of credit. Payments may be sent directly to the lender by the business’ customers (called notification basis) or forwarded by the business to the lender after they are received from the customer (called non-notification basis). Notification is typically only required when payment is uncertain so as not to disrupt the ongoing business relationship between the two parties.

A specific assignment involves additional administrative and legal expenses compared to a general assignment which increases the effective cost of borrowing.

**Specific Assignment of Inventory**

A specific assignment of inventory is used to finance large, expensive items that can be quickly identified by their serial numbers like cars or household appliances. The lender is provided with a continuously updated inventory list by the business and files a lien against these items with the courts. Instead of a lien, a lender can also retain legal title to the assets to further increase the quality of their collateral. In this case, the business issues a trust receipt to the lender in which they promise to pay the amount borrowed plus interest when the inventory is eventually sold. The lender retains ownership until then and generally requires that the inventory be kept separate from other stock so its claims are more easily enforceable if required.

As with the specific assignment of accounts receivable, the operating loan is ongoing and increases when inventory is purchased and falls when payment is received. Lenders may have to approve each inventory sale to further protect their collateral and conduct periodic audits of the collateral. The company can borrow a greater percentage of the value of the assets because of the specific assignment, but additional administrative and legal expenses increase the effective cost of borrowing.

For auto dealerships and appliance stores, this arrangement is referred to as floor plan financing and is often provided by suppliers through their sales finance subsidiaries. Many large suppliers such as automobile manufacturers establish separate sales finance subsidiaries to provide a convenient and affordable source of financing to their dealers so they can focus on selling their products. These subsidiaries are usually a major source of profit for the supplier.

Instead of being sold regularly, some inventory must be held for an extended period before it can be sold such as alcohol that is aging or seasonal items like patio furniture that are produced throughout the year but are only sold in a specific season. Instead of trust receipts, companies may use either public or field warehouse financing for this type of inventory.

With public or terminal warehouse financing, the inventory is held in a warehouse that is owned by an independent third-party until sold. Using field warehouse financing, the inventory is held in a segregated area of the business’ warehouse and is protected by an independent collateral manager. This type of financing is good for items that are difficult to move and can involve the installation of locked partitions. In either case, the inventory cannot leave the public or field warehouse without the approval of the lender who also files a lien with the courts. When the inventory is withdrawn, the proceeds are used to pay down the loan.

Companies can borrow more because of the specific assignment, but the use of a field or public warehouse company does increase costs as additional inventory storage and insurance expenses are incurred.

**Purchase Order Financing**

A supplier may require upfront payments from their customers to fill large orders instead of extending normal trade credit for 30, 60, or 90 days. Carrying large accounts receivable could create serious cash flow problems for suppliers and expose them to unacceptable credit risk due to a lack of diversification. Bank financing is an option for customers to finance these upfront payments, but it is difficult for small businesses, especially startups, to secure funding because they have a limited financial track record and these loans usually have demanding lending conditions. If financing cannot be found, small businesses may have to turn down important sales orders as they will not be able to make the required upfront payments on the needed materials.

Companies specializing in purchase order financing lend small businesses the funds needed to make these large upfront payments to suppliers. When the small business produces the product and collects on the sale in 30 to 90 days, they can repay the loan. Purchase order financing companies generally only lend to established small businesses against transactions with large profit margins of 20% or more as lending costs are high. Suppliers are paid directly by the purchase order financing company who normally advances 45% to 65% of the funding required at a fee of approximately 3% to 5% for the first month and 1% to 2% for each subsequent 10-day period. Suppliers are paid directly by the purchase order financier to ensure the funds are used for their intended purpose and not misused by the small business.

Purchase order financing looks more at the merits of the sales transaction and not solely on the strengths of the borrower which helps small businesses with weaker credit ratings secure funding. Purchase order financing is expensive, but it prevents small businesses from having to refuse sales orders which are critical to their industry reputation and future expansion.

**Factoring and Reverse Factoring**

Invoice factoring allows companies to sell their receivables before the end of the normal trade credit period to raise cash thus reducing their need for temporary financing. Factoring is used primarily by SMEs as an alternative to a bank line of credit and can be employed either regularly for all of a company’s receivables or selectively for just some accounts. Factors typically only buy business and not consumer receivables because of their established credit ratings. Companies must also have high sales volumes to be accepted by a factor to justify the large fixed collection costs.

Factoring offers businesses several advantages:

* Collections are usually taken over by the factor when the receivables are purchased allowing them to provide faster customer approvals or rejections, more consistent follow-ups on late payments, shorter collection periods, and fewer bad debts. The company still manages its sales, production scheduling, and invoicing and is usually free to adjust its credit terms and offer price or quantity discounts to customers as needed to remain competitive. Good factors have highly automated collection systems that work seamlessly with the information systems of businesses and their customers. Regular collection reports are provided and when problems arise the factor is careful not to alienate a business’s customers. Customers are usually notified that the receivable has been sold and that the factor will be managing collections, but some factors try to hide their identity so customers do not think the company is in financial difficulty because the receivables have been sold. Other factors continue to require that the business collect the receivables on the factor’s behalf so as not to interfere with the customer relationship.
* Cost efficiencies are realized by combining the collection activities of several companies and diversifying receivables across more customers and geographical areas. This is especially valuable for seasonal businesses where the credit department is not needed for much of the year. Some factors provide collection services only to a company with no financing.
* Faster collections allow companies to better meet their operating expenses such as payroll and to expand their inventories and equipment as they grow. They can extend trade credit with less fear of cash shortages and can reduce their costs by taking advantage of quantity or early payment discounts offered by their suppliers.
* Easier to negotiate than a bank loan because of a greater focus on the quality of customers’ receivables and not the financial condition of the borrower. A company only needs to be well managed and have customers with good credit ratings to be approved by a factor. Factoring usually has no collateral requirements or other lending conditions. The amount of financing grows automatically as the company’s sales increase so there is no need to renegotiate a new limit on a line of credit.
* Provides financing when banks will not such as when the company is subject to a tax lien, is bankrupt, has insufficient collateral to secure the loan, or cannot provide pro forma financial statements.
* Less equity must be given up by start-ups to angels or venture capitalists in the early stages of a company’s growth when bank financing is difficult to negotiate.

Typically, 70% to 80% of the book value of receivables is paid upfront by the factor (called the advance) and the remainder (called the rebate) is paid at maturity once the accounts are collected minus any cash discounts, sales returns, sales allowances, bad debts, factoring fees, and interest. Factors normally must approve all new accounts originated by the borrower but the rigor of the evaluation process generally falls as the level of trust between the parties rises. Credit insurance can be purchased to increase the amount factors are willing to lend which is useful for international receivables where collections are more uncertain. Receivables can be factored on either a non-recourse or recourse basis. Non-recourse means the factor absorbs any bad debts on approved accounts which provides the business with more certain cash flows, but the factor is compensated for this risk by higher fees.

A factoring fee is charged on the book value of the receivables purchased, which ranges from 0.75% to 2.5%. Interest is also charged on all advances before collection of the receivables typically at prime plus 2.0% to 3.0%. These costs decline as the volume of the receivables factored increases and their quality improves. Businesses that factor all of their receivables (called whole ledger) receive lower rates than those who only factor a single invoice (called spot financing). To simplify the factoring process, some factors are now charging one flat fee that includes all the different charges.

Factors may offer specialized forms of invoice financing that cater to the needs of specific industries such as health care, construction, or trucking. For example, freight bill factoring allows trucking companies to sell their freight bills early so they can pay operating expenses such as fuel. Freight bills are the invoices trucking companies send to their customers for their logistical services.

In the past, factoring was very expensive when compared to other forms of bank financing, but fees and interest rates have declined due to increased industry competition. Factoring is no longer just an option for companies experiencing financial difficulties, but it is now considered a regular form of business financing. Greater use of information technology has allowed factors to get funds to companies quicker and to reduce their fixed collection costs allowing them to serve more businesses with lower sales. Canadian chartered banks were once very active in the factoring industry, but they have been replaced by numerous independent factoring companies who are aggressively trying to expand their businesses through lower rates, improved customer service, and greater product innovation.

Reverse factoring is similar to regular factoring except it is initiated by the buyer of a product and not its seller. Many industries are dominated by a few large buyers that are served by a network of small suppliers who have difficulties securing temporary financing and need to be paid early. Under reverse factoring, a large buyer arranges with a financial institution to purchase its suppliers’ receivables with them early at a discount. These large buyers can access capital at a lower cost because of their higher credit rating, so the discount paid by the suppliers is smaller compared to regular factoring. Suppliers benefit from the larger buyer’s superior credit rating, which they may share with the buyer through longer credit terms. The financial institution is paid by the buyer at the end of the normal credit period and is responsible for all dealings with the supplier.

Reverse factoring is gaining popularity with the expansion of global trade. It allows large buyers in developed countries to help their smaller, low-cost suppliers in the developing world gain access to temporary financing. Many developing countries have inefficient financial markets that make it difficult to raise capital at a reasonable cost.

**Securitization**

Securitization is a cost-effective alternative to factoring or line of credit financing that is used primarily by larger corporations because of its complexity and high fixed costs. Like factoring, companies sell certain operating assets before they are converted into cash as part of the normal cash conversion cycle to generate needed cash flow. These assets are securitized or packaged as negotiable instruments that are re-sold directly to investors. By bypassing their factor or bank, a company can borrow at a lower interest rate with fewer fees.

The securities that have been securitized and sold are referred to as asset-backed securities. Most asset-backed securities are financial assets like residential mortgages (mortgage-backed securities), commercial loans, car loans (CARS), credit card receivables (CARDS), trade receivables, consumer loans, and leases.These assets are first sold at a discount to an investment trust or special purpose vehicle that is managed by a sponsor who is usually a highly rated financial institution that then resells units in the trust to various institutional investors. All payments are forwarded to the trust that redistributes them to investors. The difference between these payments and the discounted amount the company receives is the investor’s return and the assets in the trust serve as their collateral. The financial institution that establishes the trust also charges a fee and may also purchase some of the trust units to increase their profit.

The asset-backed securities market can shrink dramatically during a market downturn making securitization much more difficult. Many companies carry a back-up bank line of credit to guard against this contingency. Operating companies who sell the assets to the trust may continue to administer the assets (i.e. collections) to earn valuable fee income and maintain an ongoing relationship with their customers so they can sell them other services.

The trust units are designed to have maximum appeal to investors and can become quite complex. Some typical features include:

* + Trusts focus on specific types of assets such as mortgages or credit cards to help investors diversify their portfolios across a variety of asset classes.
  + Assets in the trust are diversified geographically to reduce credit risk.
  + Different tranches or cash flow payout patterns are designed so investors can buy a unit that best suits their cash flow needs and provides the level of risk and return desire. Tranche risk is adjusted by giving certain tranches preference over cash flows (called subordination), assigning more collateral than the face value of the obligations to allow for bad debts (called over-collateralization), and providing cash flow insurance like a bank guarantee (called credit enhancements). The risk of different tranches is measured by credit rating agencies such as S&P or Moody’s.

Besides generating cash early, securitization provides companies with several other advantages including the:

* Risk of bad debts is transferred to other parties providing more certain cash collections.
* Current ratio increases if the proceeds from the sale of operating assets are used to pay down current liabilities.
* Debt ratio falls when loans are removed from the balance sheet.
* Return on assets rises as total assets fall.
* Businesses can diversify their sources of funding.

**Commercial Paper**

Some companies use commercial paper instead of lines of credit to reduce interest and loan administration costs. It allows them to by-pass the bank and borrow directly from institutional investors such as money market mutual funds or other corporations with surplus cash. Commercial paper is as flexible as a line of credit when financing seasonal variations in NWC because maturing issues can be rolled over and their size and maturity adjusted to match a company’s exact cash flow needs. Companies that issue commercial paper usually do so regularly as part of an ongoing financing program.

Commercial paper is unsecured, so investors typically buy the paper that is issued by large, highly-rated corporations with low default risk. Also, only large companies with substantial funding requirements can justify the high fixed costs of a commercial paper financing program. Riskier borrowers are advised not to issue commercial paper and instead borrow directly from a financial institution and use collateral requirements and lending covenants to manage risk and reduce interest rates.

Because of the large size of issuers, commercial paper is typically sold in denominations of CAD 100,000 for corporations and CAD 50,000 for sales finance companies. Maturities range from overnight to one year but are typically 30 or 60 days and are generally no longer than 270 days since U.S. regulators require a formal public offering for longer issues. Most commercial paper is held till maturity because of its short duration, but some issues stipulate that the issuer must repurchase securities early at the investor’s request. An active secondary market also exists for some types of commercial paper allowing securities to be sold early if needed. A sales finance company is a specialized type of financial institution that provides financing to consumers or businesses who must borrow to purchase expensive capital items such as automobiles or equipment. As discussed, these companies are usually subsidiaries of the manufacturer and generate significant profit.

Commercial paper is almost always issued at a discount because of its short maturity. Interest rates are calculated as LIBOR plus a spread which reflects the credit rating of the issuer and the length of the issue. Commercial paper is usually sold through an investment dealer who charges a dealer fee averaging 0.05%, but high-volume issuers like sales finance companies sometimes sell their commercial paper themselves to reduce issuance costs.

Commercial paper can be a risky source of financing as it may disappear during a major economic downturn when investors begin to doubt the financial health of even large corporations and financial institutions. Companies that use commercial paper generally maintain a back-up bank line of credit or letter of credit in case of emergencies. The most creditworthy companies can avoid this while others may only backup a portion of the commercial paper’s value. Others issue extendible commercial paper that allows them to increase the issue’s maturity if they are unable to find replacement financing.

To issue commercial paper publicly, issuers must receive a high credit rating from one of the credit rating agencies. Based on S&P’s short-term credit rating scale, nearly all commercial paper has an A-1 rating.

**Exhibit 9: S&P Short-term Credit Ratings**

|  |  |
| --- | --- |
| **Category** | **Definition** |
| **A-1** | A short-term obligation rated ‘A-1’ is rated in the highest category by S&P Global Ratings. The obligor’s capacity to meet its financial commitments on the obligation is strong. Within this category, certain obligations are designated with a plus sign (+). This indicates that the obligor’s capacity to meet its financial commitments on these obligations is extremely strong. |
| **A-2** | A short-term obligation rated ‘A-2’ is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligations in higher rating categories. However, the obligor’s capacity to meet its financial commitments on the obligation is satisfactory. |
| **A-3** | A short-term obligation rated ‘A-3’ exhibits adequate protection parameters. However, adverse economic conditions or changing circumstances are more likely to weaken an obligor’s capacity to meet its financial commitments on the obligations. |
| **B** | A short-term obligation rated ‘B’ is regarded as vulnerable and has significant speculative characteristics. The obligor currently has the capacity to meet its financial commitments; however, it faces major ongoing uncertainties that could lead to the obligor’s inadequate capacity to meet its financial commitments on the obligation. |
| **C** | A short-term obligation rated ‘C’ is currently vulnerable to nonpayment and is dependent upon favorable business, financial, and economic conditions for the obligor to meet its financial commitments on the obligation. |
| **D** | A short-term obligation rated ‘D’ is in default or in breach of an imputed promise. For non-hybrid capital instruments, the ‘D’ rating category is used when payments on an obligation are not made on the date due unless S&P Global Ratings believes that such payments will be made within any stated grace period. However, any stated grace period longer than five business days will be treated as five business days. The ‘D’ rating also will be used upon the filing of a bankruptcy petition or the taking of a similar action and where default on an obligation is a virtual certainty, for example due to automatic stay provisions. An obligation’s rating is lowered to ‘D’ if it is subject to a distressed exchange offer. |

Source: S&P Global Ratings

A banker’s acceptance is commercial paper that has been guaranteed by a bank. A stamping fee of 0.25% to 0.75% is charged by the bank that varies with the company’s credit rating. The guarantee makes a banker’s acceptance safer so its yield is lower than commercial paper but still higher than T-bills.

Dealer fees, back-up line of credit charges, and rating agency expenses are significant and should be combined with the discount paid when comparing different sources of temporary financing. In Canada, the quoted rate of return on commercial paper is calculated based on a 365-day year while in the U.S. and Europe 360-day years are used.

Annual cost =

Asset-backed commercial paper (ABCP) is a special type of trust unit. ABCP units have maturities of 30 to 60 days like regular commercial paper, which is used to finance a trust containing different financial assets. As the assets are collected by the sponsor, the funds are used to pay off the ABCP. Because the assets have varying lives that are greater than 30 to 60 days, a declining portion of the ABCP will have to be rolled over each period until all the assets are collected. During the life of the trust, the assets serve as collateral for the ABCP resulting in a lower rate than regular commercial paper. In 2007, the value of ABCP issues peaked at CAD 1.2 trillion in the U.S. and CAD 250 million in Europe. During the financial crisis beginning in 2008, the value of much of the collateral pledged fell as excesses in the mortgage market were discovered. Because these trusts are separate legal entities whose debts are not guaranteed by their sponsors, ABCP investors began to panic and many rushed to cash in their investments. U.S. Federal Reserve was forced to give sponsors government funds to pay for withdrawals to stabilize the financial markets. This support did not end until February 2010, and by January 2018, the ABCP market was only CAD 246 billion in the U.S.

**Letters of Credit**

Commercial letters of credit are used primarily in international trade transactions where an exporter is not willing to accept payment on delivery of a product or extent normal trade credit to an importer because of a lack of familiarity with the company, its creditworthiness, or the foreign legal system it operates under if action must be taken to collect the receivable. The importer requests that its bank (called the issuing bank) provides a letter of credit to the exporter’s bank (called the advising banking) that guarantees payment.

With this guarantee, the importer can conserve cash because it does not have to pay the exporter upfront and may receive normal trade credit. The issuing bank also helps the importer ensure performance under the contract since it will not release the funds to the exporter’s advising bank until the importer has verified that it has received the exact merchandised order in good condition. The issuing bank normally requires that the customer have a secured line of credit with them and they count the amount guaranteed as borrowing under the credit facility which means the letter of credit is secured.

Exporters can use letters of credit to generate funds by either 1) pledging them as collateral for other loans or 2) selling them at a discount before maturity if allowed under the agreement.

Letters of credit can be revocable which means the importer or its issuing bank has the option to cancel the agreement at any time if there are problems with the transaction. Exporters should ensure the letter of credit has not been revoked before shipping goods. Given the risk to exporters, most letters of credit are irrevocable. Letters of credit are also either sight or time drafts. A sight draft requires immediate payment once the transaction is complete while a time draft defers payment allowing the importer to receive trade credit like other customers.

A standby letter of credit or letter of guarantee can be used as a substitute for a letter of credit. The importer arranges for its bank to guarantee all or a portion of a transaction. The exporter only goes to the bank for payment if it cannot collect from the importer directly. The importer pays the bank a fee for this guarantee and must also pledge an equal amount of collateral.

**1.5 | Working Capital Management at Canadian Companies**

To learn more about how working capital management is applied in practice, analysts should consult the investor relations or corporate information section of a company’s website. Here they provide important financial information for their stakeholders such as the annual report, consolidated financial statements, management discussion and analysis, annual information form, management information circular, and other disclosures. These documents can also be found on the System for Electronic Data Analysis and Retrieval (SEDAR) website sponsored by Canada’s securities regulators. In the U.S., similar reports are available on the company’s website or through the Electronic Data Gathering Analysis Retrieval (EDGAR) system hosted by the U.S. Securities Exchange Commission. Magna International provides a practical example of working capital management at a large corporation.

**Magna International**

Magna is a mobile technology company that manufactures car and light truck systems, components, and tooling for all the major original equipment manufacturers (OEM) focusing on Europe, Canada, U.S., and China. It has 174,000 employees, 348 manufacturing facilities, and 91 product development, engineering, and sales centers in 28 countries. The company achieved record sales and profit of CAD 40.8 billion and CAD 2,332 million in 2018 and a return on equity of 19.7%. Despite its success, Magna faces several challenges. OEMs are demanding further innovations in the areas of fuel efficiency including hybrid and electric vehicles, vehicle safety, and autonomous driving technology. China and other low-cost vehicle producers are creating new markets but they are also becoming major competitive threats with their enhanced engineering and product development skills.

**Exhibit 10: Selected Financial Information for Magna**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Gross profit margin | 14.14% | 15.49% | 14.60% | 14.24% | 13.70% |
| Days of inventory on hand | 36.16 | 37.49 | 31.48 | 35.24 | 31.13 |
| Raw materials | 13.20 | 13.36 | 10.85 | 11.64 | 10.74 |
| Work-in-progress | 3.45 | 3.51 | 2.99 | 3.22 | 2.97 |
| Finished goods | 4.38 | 4.49 | 3.74 | 4.46 | 4.05 |
| Tooling and engineering contracts | 15.13 | 16.13 | 13.90 | 15.92 | 13.38 |
| Days of sales outstanding | 59.20 | 64.20 | 58.11 | 62.89 | 54.20 |
| Accounts payable turnover in days | 64.44 | 69.19 | 59.67 | 65.23 | 57.05 |
| Cash conversion cycle | 30.92 | 32.49 | 29.91 | 32.89 | 28.27 |
| Cash & cash equivalents / Total Assets | 2.64% | 2.85% | 4.40% | 14.54% | 6.91% |

Magna’s gross profit margin and cash conversion cycle have been relatively constant over the past five years. The days of sales outstanding and accounts payable turnover in days are approximately 60 days indicating industry credit terms are likely 60 days. Days of inventory on hand is stable, but raw materials turnover in days has risen by three days over the last two years due to rising commodity prices. Manufacturing has remained very efficient with a work-in-progress turnover in days and finished goods turnover in days consistently totaling only eight days. The auto industry was a pioneer in JIT inventory and production, flexible manufacturing, and single-sourcing due to the industry’s size and intense competition.

Magna’s cash and cash equivalents consist of demand deposits plus bank term deposits and bankers’ acceptances with maturities of three months or less at acquisition. In the past, the company also invested in government treasury bills. These investments are exposed to minimal interest rate risk and credit risk due to their short maturity and bank guarantee. All securities are rated as investment-grade and are well diversified across multiple financial institutions and governments. The ratio of cash and cash equivalents to total assets has fallen considerably indicating more efficient cash management.

Beginning in 2016, Magna launched U.S. and Euro commercial paper programs to finance their working capital needs. The company can issue up to USD 1 billion and EUR 500 million in securities under these programs for “general corporate purposes.” Maturities are less than three months and have a weighted-average interest rate of 3.00% in the U.S. and -0.24% in Europe. Each program is backed up by the company’s CAD 2.75 billion global revolving credit facility which matures on June 22, 2023. The facility has a CAD 100 million Asian tranche and CAD 100 million Mexican tranche with the remainder supporting its Canadian, U.S., and European operations and can be drawn in CAD, USD, or EUR. In October 2018, Magna negotiated a new CAD 300 million, 364-day syndicated revolving credit facility that can be drawn in either CAD or USD. The company has not yet borrowed using this credit facility which provides further backup for its commercial paper programs in case of a liquidity crisis. Magna’s commercial paper is rated R-1 (low) by the Dominion Bond Rating Service, P-2 by Moody’s Investors Services, and A-2 by S&P Global Ratings. These sub-optimal short-term ratings have increased the interest rate Magna pays on its commercial paper, but the investment is still considered very safe especially with the two backup credit facilities.