Working Capital Management

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Working capital Management

Why to Manage Working capital?

To ensure healthy balance/trade off between:

Profitability And Risk

Profitability

The optimal level of investment in current assets

The appropriate mix of short-term and long term financing used to support this investment in current assets

Risk

Failure to meet its cash obligation as they occur

Failure to Support the proper level of sales (e.g. running out of inventory)

Working capital Policy

It may be prudent or emergent

Conservative Policy- Most liquid position- Less profitable- less risky

Hedging Policy - Moderate liquidity policy

Aggressive – Least liquid position- high profitable- High risk

Profitability varies inversely with liquidity – increased liquidity generally comes at the expense of reduced profitability

Profitability moves together with risk- Higher profitability comes at greater risk

Types of working capital

Temporary working capital- current assets that varies with seasonal requirement

Permanent working capital – amount of current assets to meet firm's long term minimum needs.

It is like firm's fixed assets however, it differs from fixed assets in a sense that it changes over time. As firm grow, the permanent working capital also grows.

Hedging (Maturity Matching) Approach

Each assets would be offset with a financing instruments of the same approximate maturity. Short term seasonal variations in current assets would be financed with short term debt; the permanent components and fixed assets would be financed with long term debt or with equity.

Working Capital Policy

Conservative Policy	Seasonal Variations/Temporary Components	Long term Financing/Equity
	Permanents/Fixed Assets	
Hedging (Maturity Matching	Seasonal Variations/Temporary Components	Short term Finance
	Permanents/Fixed Assets	Long term Financing/Equity
Aggressive	Seasonal Variations/Temporary Components	Short Term Financing
	Permanents/Fixed Assets	

Crucial Concepts

Days sales outstanding (DSO)

Days Inventory on Hand (DIO)

Days Payables Outstanding (DPO)

Net Working Capital

Operating Cycles

Cash Operating Cycles

Ratios associated with WCM

Stock Turnover Ratio (Times)	$\frac{\text{COGS}}{\text{AVERAGE STOCK}}$
Stock Turnover Ratio (Days)/ Days Inventory on Hand (DIO)	$\frac{\text{Average Stock}}{\text{COGS}} \times 365$
Receivables Turnover Ratio (Times)	$\frac{\text{Net Credit Sales}}{\text{Average Accounts Receivable}}$
Average Receivables Period (Days) Days sales outstanding (DSO)	$\frac{\text{Avg A/C Receivable}}{\text{Net Credit Sales}} \times 365$
Payables Turnover Ratio (Times) / Days Payables Outstanding (DPO)	$\frac{\text{Net Credit Purchases}}{\text{Average Accounts Receivable}}$
Average Payables Period (Days)	$\frac{\text{Avg A/C Receivable}}{\text{Net Credit Sales}} \times 365$

Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$
Quick Ratio	$\frac{\text{CA – Stock}}{\text{Current Liabilities}}$
Working Capital Turnover Ratio	$\frac{\text{Net Sales}}{\text{Net Working Capital}}$
Net Working Capital Ratio	Net Working Capital/Sales

Inventories Management

Economic Order Quantity

1. Safety Stock
2. Re-order point
3. Normal Maximum Inventory
4. Absolute Maximum Inventory
5. Average Inventory
6. ABC methods for maintenance of materials
7. FIFO and Weighted Average method of Inventory valuation

Illustration of EOQ

Problem#1

PR is a retailer of bicycles. The most popular children's bicycle has an annual demand of 30,000 units. Demand is predictable and spread evenly throughout the year. The bicycles are purchased by PR for $200 each. Ordering costs are $150 per order and the annual cost of holding one bicycle in inventory is $25

Calculate the economic order quantity (EOQ) for the children's bicycle.

Calculate the total annual ordering and holding costs for the bicycle assuming the company purchases the EOQ, does not hold any buffer inventory and the lead time is zero.

EOQ= [(2*AR*OC)/CC]1/2 = [2*30000*150)/25]1/2 = 600 units

Ordering costs = No of order * cost per order = 30000/600 * 150 = 7500

Carrying Costs = Average inventory units * holding costs per unit = 600/2*25 = 7500

Problem 2

D company uses component V22 in its construction process. The company has a demand of 45000 component pa. They cost $4.50 each. There is no lead time between order and delivery and ordering costs amount to $100 per order. The annual cost of holding is 14.44%.

A 0.5% discount is available on orders of at least 3000 components and a 0.75% discount is available if the order quantity is 6000 components or above.

Required: Calculate optimal order quantity.

Receivables Management

Trade Terms

Credit Period

Cash discount offered

Problem 3

A company is concerned about its cash flow position. It has reviewed its trade receivable days and is considering offering an early settlement discount. The company currently receives payments from customers on average 65 days after the invoice date. The company's current credit terms are 30 days after the invoice date. The company is considering offering a 2% early settlement discount for payment within 20 days of the invoice date.

Calculate the effective annual interest rate of the early settlement discount. You should use compound interest methodology and assume a 365 day year

State TWO other methods that could be used to reduce the trade receivable days

Simple Interest = [(2/98)/ 45 *365] = 16.55%

[(1+2/98)^365/45]- 1 = 17.81%

Compound annual effective rate

=(1+2/98X100)365/45 -1

= 17.81%

= (discount amount/100-discount amount)365 days/time saved for allowing discount

Short Term Financing

Sources of finance:

- Trade payables
- Short term borrowing (bank overdrafts, bank loans
- Financing exports (Letter of credit, export factoring)
- Suppliers Finance
- UPAS
- ECA

Short Term Investments

- **Interest bearing bank accounts**
- **Negotiable instruments (Banknotes, Bearer bonds, Certificate of Deposits, Bill of Exchange,**
- **Treasury Bills)**
- **Short dated government bonds**
- **Other investments (corporate bonds, commercial paper)**

Where we could help you to release cash from working capital

Accounts receivable

- Tailored, proactive collections
- Credit risk policies
- Aligned and optimised customer terms
- Billing timeliness and quality
- Contract & milestone management
- Systematic dispute resolution
- Dispute root cause elimination

Where we could help you to release cash from working capital

Inventory

- Lean and agile supply chain strategies
- Global coordination
- Forecasting techniques
- Production planning
- Inventory tracking
- Balancing cost, cash and service level considerations
- Inventory parameters and controls defining target stock
- Inventory replenishment methodologies

Where we could help you to release cash from working capital

Accounts payable

- Consolidated spending
- Increased control with centre-led procurement
- Avoid leakage with purchasing channels
- Payment terms
- Supply chain finance benefits assessment and implementation
- Payment methods
- Eradicate early payments
- Supply chain finance
- Payment methods and frequency
- Eradicated early payments

Problem

- The Acme Aglet Corporation has a 12 percent opportunity cost of funds and currently sells on terms of “net/10, EOM.” (This means that goods shipped before the end of the month must be paid for by the tenth of the following month.) The firm has sales of $10 million a year, which are 80 percent on credit and spread evenly over the year. The average collection period is currently 60 days. If Acme offered terms of “2/10, net 30,” customers representing60 percent of its credit sales would take the discount, and the average collection period would be reduced to 40 days. Should Acme change its terms from “net/10, EOM” to “2/10, net 30”?Why?

Problem

- Nesud Co has credit sales of $45 million per year and on average settles accounts with trade payables after 60 days. One of its suppliers has offered the company an early settlement discount of 0·5% for payment within 30 days. Administration costs will be increased by $500 per year if the early settlement discount is taken. Nesud Co buys components worth $1·5 million per year from this supplier. From a different supplier, Nesud Co purchases $2·4 million per year of Component K at a price of $5 per component. Consumption of Component K can be assumed to be at a constant rate throughout the year. The company orders components at the start of each month in order to meet demand and the cost of placing each order is $248·44. The holding cost for Component K is $1·06 per unit per year. The finance director of Nesud Co is concerned that approximately 1% of credit sales turn into irrecoverable debts. In addition, she has been advised that customers of the company take an average of 65 days to settle their accounts, even though Nesud Co requires settlement within 40 days. Nesud Co finances working capital from an overdraft costing 4% per year. Assume there are 360 days in a year.
- Required: (a) Evaluate whether Nesud Co should accept the early settlement discount offered by its supplier. (4 marks)
- (b) Evaluate whether Nesud Co should adopt an economic order quantity approach to ordering Component K. (6 marks)
- (c) Critically discuss how Nesud Co could improve the management of its trade receivables.

Problem

- ZXC Co currently has income of $30 million per year, of which 80% is from credit sales, and a net profit margin of 10%. Due to fierce competition, ZXC Co has lost market share and is looking for ways to win back former customers and to keep the loyalty of existing customers. The sales director has pointed out that a major competitor of ZXC Co currently offers an early settlement discount of 0·5% for settlement within 30 days, while ZXC Co itself does not offer an early settlement discount. He suggests that if ZXC Co could match this early settlement discount, annual income from credit sales would increase by 20%. Credit customers of ZXC Co take an average of 51 days to settle invoices. Approximately 0·5% of the company's credit sales have historically become bad debts each year and written off as irrecoverable. The finance director has been advised that offering an early settlement discount of 0·5% for payment within 30 days would increase administration costs by $35,000 per year, while 75% of credit customers would be likely to take the discount. The credit controller believes that bad debts would fall to 0·375% of credit sales if the early settlement discount were introduced. ZXC Co has an average short-term cost of finance of 4% per year. Assume that there are 360 days in each year.
- Required: (a) Evaluate whether ZXC Co should introduce the early settlement discount. (6 marks)
- (b) Discuss TWO ways in which a company could reduce the risk associated with foreign accounts receivable.
- **Answer net benefit:3,72,200/-**

Problem

- Marton co produces a range of specialized components, supplying wide range of customers, all on credit terms. 20% of revenue is sold to one firm. Having used generous credit policies to encourage past growth, Marton co now has to finance a substantial overdraft and is concerned about its liquidity.
- Marton co borrows from its bank at 13% pa interest. No further sales growth in volume or value terms is planned for the next year.
- In order to speed up collection from customers, Marton co is considering two alternative policies.
- **Option one:**
- Factoring on a non-recourse basis, the factor administering and collecting payment from Marton Co's customers, this is expected to generate administrative savings of $200,000 pa and to lower the average receivable collection period by 15 days. The factor will make a service charge of 1% of Marton Co's revenue and also provide credit insurance facilities for an annual premium of $80,000
- **Option two:**
- Offering discounts to customers who settle their accounts early. The amount of the discount will depend on speed of payment as follows.
- Payment within 10 days of dispatch of invoices 3%
- Payment within 20 days of dispatch of invoices 1.5%
- It is estimated that customers representing 20% and 30% of MartonCo's sales respectively will take up these offers, the remainder continuing to take their present credit period.

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Sales (all on credit)	20000
Cost of sales	17000
Operating profit	3000
Current Assets	
Inventory	2500
Receivables	4500
Cash	nil

Required:

Calculate the relative costs and benefits in terms of annual profit before tax of each of the two proposed methods of reducing receivables, and identify the most financially advantageous policy.

Short term financing

Trade Credit:

i. Accounts Payable

“net 15, EOM”

The terms “2/10, net 30”

ii. Accrued Expense

Money Market Credit

i. Commercial Paper

ii. Banker’s acceptance

Short term loans

Unsecured loans A form of debt for money borrowed that is not backed by the pledge of specific assets.

Secured loans A form of debt for money borrowed in which specific assets have been pledged to guarantee payment.

Line of credit (with a bank) An informal arrangement between a bank and its customer specifying the maximum amount of credit the bank will permit the firm to owe at any one time.

Revolving credit agreement A formal, legal commitment to extend credit up to some maximum amount over a stated period of time.

Prime rate Short-term interest rate charged by banks to large, creditworthy customers. It is also called simply prime.

London interbank offered rate (LIBOR) The interest rate that world-class banks in London pay each other for Eurodollars.

Effective Interest Rates

Methods of Computing Interest Rates.

Collect basis and on a Discount basis.

When paid on a collect basis, the interest is paid at the maturity of the note; when paid on a discount basis, interest is deducted from the initial loan.

Compensating Balances. In addition to charging interest on loans, commercial banks may require the borrower to maintain demand deposit balances at the bank in direct proportion to either the amount of funds borrowed or the amount of the commitment. These minimum balances are known as compensating balance

Effective Interest= (interest + commitment fees)/usable funds

Accounts Receivable Management

Accounts Receivable backed loans (Factoring, Supplier Finance, Dealer Finance)

Inventory backed loans (Cash Credit (Hypo), LTR, LIM)

Practice 1

Maggie's Gold Coins is considering shortening its credit period from 30 to 20 days and believes, as a result of this change, its average collection period will decrease from 36 days to 30 days. Bad debt expenses are also expected to decrease from 1.2 percent to 0.80 percent of sales. This firm is currently selling 3,00,000 units but believes as a result of the change, sales will decline to 2,75,000 units. On 3,00,000 units, sales revenue is $4,200,000, variable costs total $ 3,300,000, and fixed costs are 300,000. The firm has a required return on similar –risk investments of 15 percent. Evaluate this proposed change and make an recommendation to the firm

Year Question: 2019 April

Present policy

Contribution Margin = 9,00,000

Less: Interest expense 62,137

Less: bad deb expense – 50400

Net increase in profit – 787483

Investment in A/R = 4200,000/365 * 36 = 4,14,246

Cost of A/R = 345205*15% = 62,137

Bad debt costs = 42,00,000*1.2% = 50400

Year Question: 2019 April

Proposed policy

Contribution Margin = 825000

Less: Interest expense 47,466

Less: bad deb expense – 30800

Net increase in profit – 7,46,734

Overall profit will be decreased by Tk. 40,749 (7,87,483 - 7,46,734). This policy should not be pursued.

CM = (4200000/300000 *275000) – (3300000/300000)*275000

Investment in A/R = 3850000/365 * 30 = 3,16,438

Cost of A/R = 316438*15% = 47.466

Bad debt costs = 3850000*0.8% = 30800

Practice 2 (CMA December 2019)

A firm is evaluating an accounts receivable change that would increase bad debts from 2% to 4% of sales. Sales are currently 50,000 units, the selling price is $20 per unit, and the variable cost per unit is $15, as a result of proposed change, sales are forecast to increase to 60,000 units.

(i) What are the bad debts in dollars currently and under the proposed change?

(ii) Calculate the cost of the marginal bad debts to the firm

(iii) Ignoring the additional profit contribution from increased sales, if the proposed change saves $3500 and causes no change in the average investment in accounts receivable, would you recommend it? Explain

(iv) Considering all changes in costs and benefits, would you recommend the proposed change? Explain

Practice 2 (CMA December 2019)

Metal supplies is concerned about its cash management. On average, the days sales in inventory (duration of inventory on shelf) is 90 days. Accounts receivables are collected in 90 days, while accounts payable are paid in 60 days. Metal Supplies has annual sales of $14 million, cost of goods sold of $ 9.50 million, and purchases of $ 5 million. (Note: Use a 365 days a year)

i. What is Metal Supplies' operating cycle (OC)?

ii. What is Metal Supplies' cash conversion cycle?

iii. What is the amount of resources needed to support Metal Supplies cash conversion cycle?

iv. What suggestions would you give Metal Supplies to reduce its cash conversion cycle?

Practice 2 (CMA December 2019)

A flower shop is trying to determine the optimal order quantity of the wicker baskets that it places many of its arrangements in. The store thinks it will sell 2,000 of the baskets over the next year. The baskets cost the shop tk.2 each. The carrying cost of the baskets is Tk. 0.15 each per year. It costs the shop Tk.8.00 to order.

i. What is the economic order quantity?
ii. What is the total cost of ordering the baskets once a year. Four times a year.

Practice 3

Problem no 5, June 2018 Exam

Example 1

The Barnes Corporation has just acquired a large account. As a result, it will soon need an additional $95,000 in working capital. It has been determined that there are three feasible sources of funds:

a. Trade credit: The Barnes company buys about $50,000 of materials per month on terms of “3/30, net 90.” Discounts currently are taken.

b. Bank loan: The firm’s bank will loan $106,000 at 13 percent. A 10 percent compensating balance will be required.

c. Factoring: A factor will buy the company’s receivables ($150,000 per month), which have an average collection period of 30 days. The factor will advance up to 75 percent of the face value of the receivables at 12 percent on an annual basis. The factor also will charge a 2 percent fee on all receivables purchased. It has been estimated that the factor’s services will save the company $2,500 per month – consisting of both credit department expenses and bad-debts expenses.

Which alternative should Barnes select on the basis of annualized percentage cost

Example 2

The Shelby Gaming Manufacturing Company has experienced a severe cash squeeze and needs $200,000 over the next 90 days. The company has already pledged its receivables in support of a loan. However, it does have $570,000 in unencumbered inventories. Determine the best financing alternative from the following two that are available.

a. The Cody National Bank of Reno will lend against finished goods provided that they are placed in a public warehouse under its control. As the finished goods are released for sale, the loan will be reduced by the proceeds of the sale. The company currently has $300,000 in finished-goods inventory and would expect to replace finished goods that are sold out of the warehouse with new finished goods, so that it could borrow the full $200,000 for 90 days. The interest rate will be 10 percent, and the company will pay quarterly warehousing costs of $3,000. Finally, it will experience a reduction in efficiency as a result of this arrangement. Management estimates that the lower efficiency will reduce quarterly before-tax profits by $4,000.

b. The Vigorish Finance Company will lend the company the money under a floating lien on all of its inventories. The rate will be 23 percent, but no additional expenses will be incurred

Example 3

- The Bone Company has been factoring its accounts receivable for the past 5 years. The factor charges a fee of 2 percent and will lend up to 80 percent of the volume of receivables purchased for an additional 1.5 percent per month. The firm typically has sales of $500,000 per month, 70 percent of which are on credit. By using the factor, two savings would be effected: a. $2,000 per month that would be required to support a credit department b. A bad-debt expense of 1 percent on credit sales
- The firm's bank has recently offered to lend the firm up to 80 percent of the face value of the receivables shown on the schedule of accounts. The bank would charge 15 percent per annum interest plus a 2 percent monthly processing charge per dollar of receivables lending. The firm extends terms of "net 30," and all customers who pay their bills do so by the 30th day. Should the firm discontinue its factoring arrangement in favor of the bank's offer if the firm borrows, on the average, $100,000 per month on its receivables?

Example 4

- Solid-Arity Corporation is a chain of appliance stores in Chicago. It needs to finance all of its inventories, which average the following during the four quarters of the year:
- QUARTER 1,2,3, & 4 Inventory level (in thousands) $1,600 $2,100 $1,500 $3,200
- Solid-Arity currently utilizes a loan from a finance company secured by a floating lien. The interest rate is the prime rate plus 7.5 percent, but no additional expenses are incurred. The Boundary Illinois National Bank of Chicago is bidding for the Solid-Arity business. It has proposed a trust receipt financing arrangement. The interest rate will be 2.5 percent above the prime rate, with servicing costs of $20,000 each quarter. Should the company switch financing arrangements? Why?

Reference Reading

Chapter 8,9,10

Fundamental of Financial Management

James C Van Horne

John M. Wachowicz

Q&A

June 2018

Portfolio A: Actual return 14%, beta =0.08

Portfolio B: Actual Return 20%, beta = 1.2

CAPM equal = Rf+Beta (Rf)

= 0.07+ (0.10)

Required Return of

Portfolio A: = 0.07+ 0.08 (0.10) = 15%

Portfolio B: = 0.07+ 1.2 (0.10) = 19%

Alpha = Actual return – required return

= 14%- 15% = -1%

= 20% - 19% = +1%

Alpha positive means excess retunrs over required returns. As such Portfolio A is overvalued and portfolion B is undervalued. I should sell portfolio A and hold portfolio B.

June 2018

When weight is given as

Stock AA = 60%, Stock BB = 40%

Portfolio Standard deviation =[std a^2 *wa^2 + std b^2*wb^2 + 2 wa*wb* stda *std b*cor a*b]^0.5

= (0.6^2*.6^2 + 0.4^2*.4^2+2*.6*.4*.6*.4*0.25)^0.5

= 0.43 = 4.29%