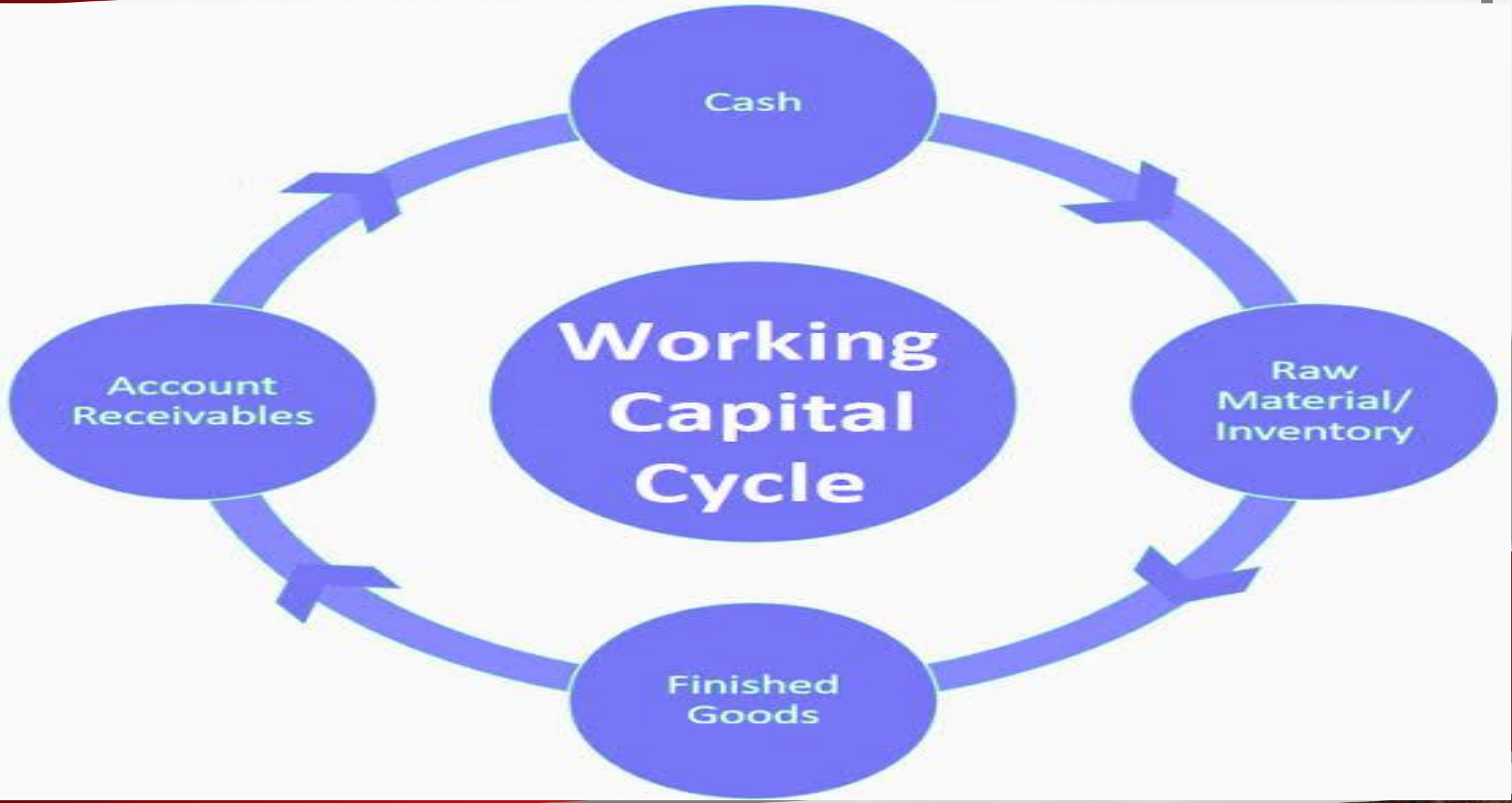
FINANCIAL MANAGEMENT

- NAME OF THE CHAPTER : WORKING CAPITAL MANAGEMENT(THEORY)
- SEMESTER : SIXTH
- PREPARED BY : PARICHITA BASU


Cash
Working Capital Cycle
Account Receivables
Raw Material/ Inventory
Finished Goods

WORKING CAPITAL MANAGEMENT

Working capital management is an important financial term. It revolves around two major financial components, namely the current assets and current liabilities. These two components make up the working capital of a business.

Working capital management deals with the managerial accounting strategies that monitor the current assets and liabilities. This is essential for a business to maintain an efficient operation of the company. An effective working capital management ensures that the business always has a sufficient cash flow to support its short-term operating costs and debt obligations.

Definition of Working Capital

Working Capital refers to that part of the firm's capital, which is required for financing short-term or current assets such a cash marketable securities, debtors and inventories. Funds thus, invested in current assets keep revolving fast and are constantly converted into cash and this cash flow out again in exchange for other current assets. Working Capital is also known as revolving or circulating capital or short-term capital.

Objectives

- Understand working capital management, net working capital, and the related trade-off between profitability and risk.
- Describe the cash conversion cycle, its funding requirements, and the key strategies for managing it.
- Discuss inventory management: differing views and common techniques

  Explain the credit selection process and the quantitative procedure for evaluating changes in credit standards.
- Review the considerations for changes to the cash discount and other aspects of credit terms, including credit monitoring.

Nature Of Working Capital

- Working capital management is concerned with the problems that arise in attempting to manage the current assets, the current liabilities and the interrelations that exist between them.
- Current assets refer to those assets which in the ordinary course of business can be, or will be, converted into cash within one year without undergoing a diminution in value and without disrupting the operations of the firm.

  Examples- cash, marketable securities, accounts receivable and inventory.
- Current liabilities are those liabilities which are intended, at their inception, to be paid in the ordinary course of business, within a year, out of the current assets or the earnings of the concern.

  Examples- accounts payable, bills payable, bank overdraft and outstanding expenses.

Scope of Working Capita

A. Cover all expenditure

B. Keep business going

C. Generate operating profit

Importance of Working Capital Management

- Improves liquidity and Solvency Position
- Ensures Uninterrupted Business Operations
- Increase Profitability and Productivity
- Enhance Goodwill
- Improves Creditworthiness
- Timely Payment of Dividends
- Helps in Facing Contingencies

Factors determining WC

- Nature of industry
- Demand of industry
- Cash requirements
- Nature of business
- Manufacturing time
- Volume of sales
- Terms of purchase and sales
- Inventory turnover
- Receivable turnover
- Production schedule

Advantages of Adequate Working Capital

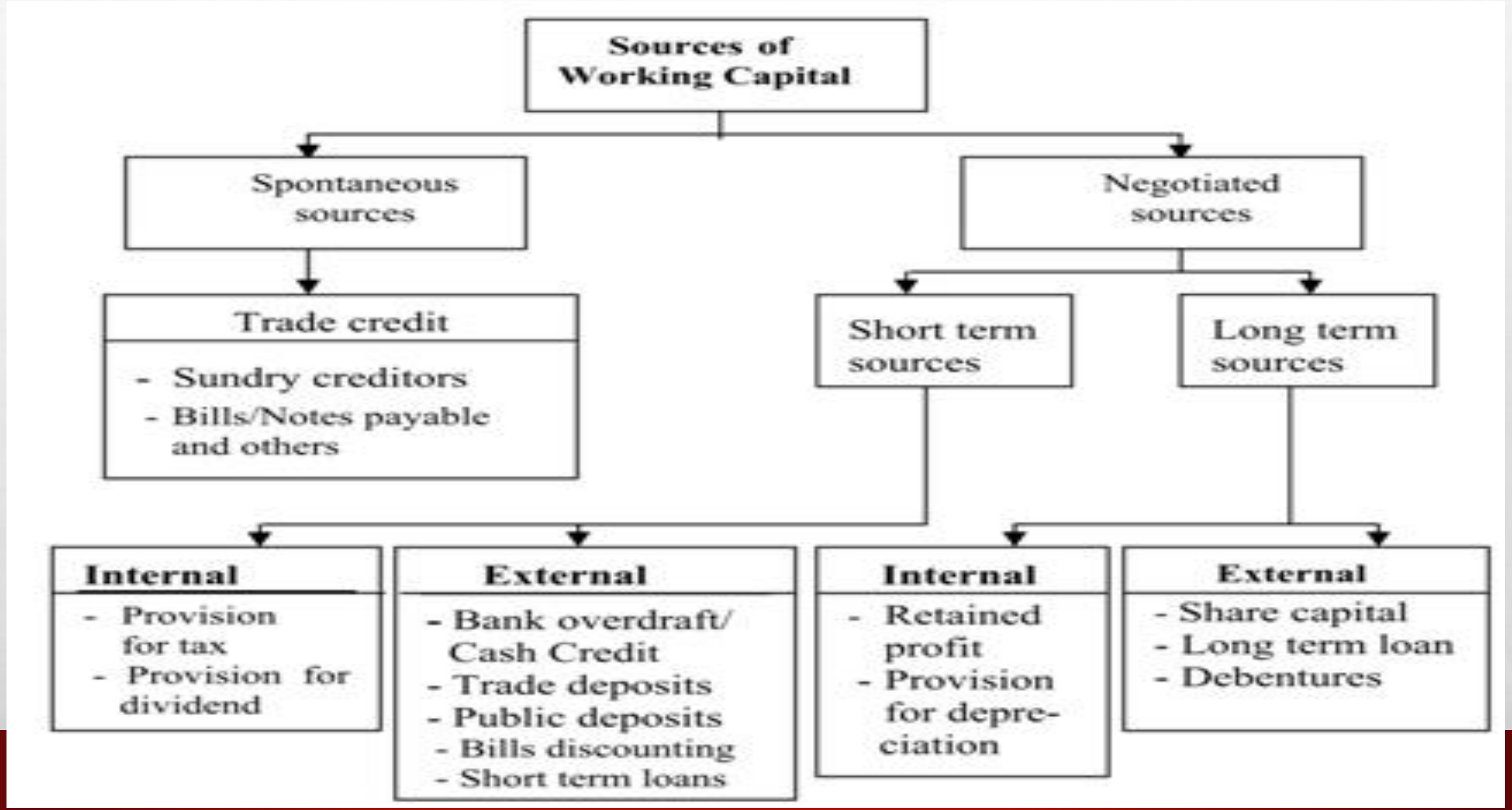
1. Solvency of the business
2. Good will
3. Easy loans
4. Cash discounts
5. Regular supply of raw materials
6. Regular payment of salaries, wages and other day-to-day commitments
7. Exploitation of favorable market condition => usage
8. Ability to face crisis
9. Quick and regular return on investment
10. High morale

Disadvantages of Excessive Working Capital

1. It leads to idle funds
2. It lead to unnecessary purchasing and accumulation of stock
3. It implies excessive debtors and defective credit policy
4. It result in overall inefficiency in the organization
5. The value of shares may fall
6. It rise speculative transactions.

Disadvantages of inadequate Working Capital

1. Unable to adopt changes
2. Trade discount are lost
3. Cash discounts are lost
4. Financial reputation is lost
5. Insolvency


Sources of Working Capital
Spontaneous sources
Negotiated sources
Trade credit
- Sundry creditors
- Bills/Notes payable and others
Short term sources
Long term sources
Internal
- Provision for tax
- Provision for dividend
External
- Bank overdraft/ Cash Credit
- Trade deposits
- Public deposits
- Bills discounting
- Short term loans
Internal
- Retained profit
- Provision for depre-ciation
External
- Share capital
- Long term loan
- Debentures

SOURCES OF WORKING CAPITAL

SPONTANEOUS SOURCES					SHORT TERM SOURCES		LONG TERM SOURCES	
Trade Creditors	Sundry Creditors	Bills Payable	Notes Payable	Accrued expenses	Internal Sources - Tax Provision, Dividend Provision	External Sources - Bank OD, Trade and Public Deposits, Bill Discounting	Internal Sources - Retained Profits, Depreciation Provision	External Sources - Share Capital, Long Term Loan

EXTERNAL SOURCES OF FINANCE

LONG 'TERM	Equity Shares	A key feature of equity share is the 'sharing of ownership rights'. The return is in the form of a dividend or bonus shares.
	Debentures	Debt is considered to be the cheaper mode of finance compared to equity. It does not share control with investors.
	Term Loan	It is given by some bank or financial institutions. These loans are also secured by some assets.
	Preferred Stock	The characteristics of both common equity stocks and debt. they have got priority over common equity shares in terms of payment.
	Venture Capital	They normally invest in a new company at an initial stage and do a rigorous analysis of a company before investing.
	Leasing / HP	Can help businesses delay its cash payment which is equal to having its goods financed
SHORT 'TERM	Bank Overdraft	Businesses need money for their day to day requirement which arises due to a time gap between their collections and payments.
	Trade Credit	The credit given to a business by their creditors/ suppliers. The credit given to a business by their creditors/ suppliers
	Debt Factoring	An arrangement whereby the business sells its account receivables/ debtors at a discount.

TYPES OF WORKING CAPITAL

TYPES OF WORKING CAPITAL

GROSS WORKING CAPITAL	• The current assets of the company's balance sheet represents the Gross Working Capital of the company
NET WORKING CAPITAL	• Net working capital is called simply as working capital • It is calculated as Current Assets - Current Liabilities
PERMANENT / FIXED WORKING CAPITAL	• It is the level below which the net working capital has never gone. It is further divided into Regular WC and Reverse WC.
TEMPORARY / VARIABLE WORKING CAPITAL	• Net working capital– Permanent Working Capital • It is further divided into Seasonal Working Capital and Special Working Capital

WORKING CAPITAL CYCLE

WORKING CAPITAL CYCLE (calculated in days) refers to the time taken by an organization to convert its net current assets and current liabilities into cash. The shorter the working capital cycle, the faster the company is able to free up its cash stuck in working capital and vice versa. The 4 key elements of WCC are cash, receivables (debtors), payables (creditors) and inventory (stock).

WORKING CAPITAL CYCLE = INVENTORY TURNOVER DAYS + DEBTORS TURNOVER (IN DAYS) – CREDITOR'S TURNOVER

SHORTENING OF WCC

1. Reducing the credit period given to customers
2. Increase sales to reduce time taken to convert inventory into sales
3. Increase credit period from supplier of the raw materials.

SOURCES OF SHORT TERM WC FINANCING

1. Line of Credit
2. Trade Credit
3. Factoring
4. Short Term Loans

DAYS OF WORKING CAPITAL are is a very important performance indicator of efficient working capital management. Days working capital expresses how much of net operating working capital is invested for achieving one dollar of daily sales OR how many days a company takes to convert its working capital into revenue.

Days of Working Capital Formula

$$\frac{(\text{Operating CA} - \text{Operating CL}) * 365}{\text{Annual Sales}}$$

CALCULATIONS WITH EXAMPLE

WHY IS IT IMPORTANT?

ANALYSIS TOOL BY INVESTORS

2 WAY INTERPRETATIONS

'DAYS TO CONVERT A $ OF WC INTO SALES'

'DOLLARS OF WC INVESTED PER DOLLAR OF DAILY SALES"

WORKING CAPITAL FORMULA

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

WORKING CAPITAL (CURRENT) RATIO

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$


Thank
You

Example of Gross and Net Working Capital:

Consider the following assets and liabilities – Land and Building ₹12,00,000; Plant & Equipment ₹7,00,000; Investments ₹60,000; Stock of raw materials ₹1,30,000; Stock of Semi-finished goods (WIP) ₹90,000; Stock of Finished Goods ₹1,50,000; Receivables (Debtors and Bills Receivable together) ₹1,40,000; Prepaid Expenses ₹20,000; 10% Debenture ₹2,00,000; Payables (Creditors and Bills payable together) ₹80,000; Outstanding Wages ₹25,000 and Cash & Bank ₹45,000.

Now, let us calculate Gross and Net Working Capital:

Current Assets:		
Raw materials	1,30,000	
WIP	90,000	
Finished goods	1,50,000	
Receivables	1,40,000	
Prepaid expenses	20,000	
Cash & Bank	45,000	
Gross Working Capital		5,75,000
Less: Current Liabilities:		
Payables	80,000	
Outstanding wages	25,000	
		1,05,000
Net Working Capital		4,70,000

4.4.3 Method of Calculating Above Conversion Period for a Firm

Raw Material Conversion Period:

This represents the material holding period starting from acquisition of raw-material till it is passed on to the factory for processing, and may be calculated as

$$\frac{\text{Average stock of raw materials}}{\text{Average per day consumption}} = \text{RMCP (In days)}$$

Work-in-Process Conversion Period:

This represents the processing period or the time lag between raw-materials entering for processing in factory and conversion into finished goods; and may be calculated as

$$\frac{\text{Average stock of WIP}}{\text{Average per day cost of production}} = \text{WIPCP in days}$$

Finished Goods Conversion Period:

This represents the warehousing period of the finished goods or the time lag between output being ready for sale and actual sale of the same and may be calculated as

$$\frac{\text{Average stock of FG}}{\text{Average per day cost of goods sold}} = \text{FGCP in days}$$

Debtors Conversion Period:

This represents the credit period allowed to debtors or the time lag between actual sale of goods and collection of the amount of sale from the debtors and may be calculated as

$$\frac{\text{Average amount of Receivables}}{\text{Average per day Credit Sales}} = \text{DCP in days}$$

Creditors Deferral Period:

This represents the credit period allowed by the suppliers of goods or the time lag between the acquisition of raw-materials and actual payment to suppliers for the same; and may be calculated as

$$\frac{\text{Average amount of Payables}}{\text{Average per day Credit Purchase}} = \text{CDP in days}$$

Now, Inventory Conversion Period (ICP) = RMCP + WIPCP + FGCP
Gross Working Capital Cycle (GWCC) = ICP + DCP
Net Working Capital Cycle (NWCC) = GWCC – CDP

Note: If we do not consider non-cash expenses like depreciation, etc., Net Working Capital Cycle (NWCC) truly represents the Cash Conversion Period.

Example of Calculation of Working Capital Cycle:
Following data are available in relation to a trading concern:

Stock of goods	Opening ₹40,000 and Closing ₹50,000
Debtors	Opening ₹65,000 and Closing ₹85,000
Creditors	Opening ₹50,000 and Closing ₹60,000

Sales during the year ₹6,00,000 (GP rate is 20%)

		Annual	Per Day	
Sales (₹)		6,00,000	1,644	(A1)
Cost of goods sold (6,00,000 × 80%)	4,80,000	4,80,000	1,315	(A2)
Add: Closing stock	50,000			
	5,30,000			
Less: Opening stock	40,000			
Purchase (₹)		4,90,000	1,342	(A3)
Average Debtors (₹) (65,000 + 85,000)/2	75,000	(B1)		
Average Stock (₹)	45,000	(B2)		
Average Creditors (₹)	55,000	(B3)		
Working Capital Cycle:				
Inventory Conversion Period	(B2/A2)	34	days	
Debtors Conversion Period	(B1/A1)	46	days	
Gross Working Capital Cycle		80		
Less: Creditors Deferral Period	(B3/A3)	41	days	
Net Working Capital Cycle		39	days	

Example

The following information is provided by X Ltd. for the year ending 31.3.20xx

Raw material storage period	45 days
WIP conversion period	18 days
Finished goods storage period	22 days
Debt collection period	30 days
Creditors payment period	55 days
Annual cash cost of operation	₹18 lakhs
(1 year = 360 days)	

Calculate:

a) Operating cycle period
b) Number of operating cycle in a year

[C.U. B.Com(H), 2018]

- Using the above information, calculate the approximate amount of working capital required.

Solution

a) Operating cycle period = Inventory conversion period + Debtors conversion period – Creditors deferral period = (45 + 18 + 22) + 30 – 55 = 60 days.
b) Number of operating cycle in a year = Days in a year/Operating cycle in days = 360/60 = 6 times

- Approximate amount of working capital requirement = Annual cash operating cost × Operating cycle period/360 = 18,00,000 × 60/360 = ₹3,00,000

B Ltd. supplied you the following information.

	₹
Sales (at 2 months credit)	36,00,000
Materials consumed (suppliers extend 2 months credit)	9,00,000
Wages paid (lag in payment 1 month)	7,20,000
Manufacturing expenses outstanding at the end of the year (lag in payment 1 month)	80,000
Total administrative expenses paid (lag in payment – 1 month)	2,40,000
Sales promotion expenses (paid quarterly in advance)	1,20,000

The company sells products at a gross profit of 25% counting depreciation as part of the cost of production. It keeps one month's stock of each of raw materials and finished goods and a cash balance of ₹1,00,000.

Assuming 20% safety margin, work out the working capital requirement of the company on cost basis. Ignore work-in-progress.

[C.U. B.Com(H), 2013]

Solution

Detailed cost statement for the year	Annual	Per month
Materials consumed	9,00,000	75,000
Wages	7,20,000	60,000
Cash manufacturing expenses [80,000 × 12]	9,60,000	80,000
(outstanding represents only the cash part)		
Cash production cost	25,80,000	2,15,000
Administration expenses	2,40,000	20,000
Sales promotion expenses	1,20,000	10,000
Total cash cost	29,40,000	2,45,000

Statement showing working capital requirement (₹):

	Block period (month) (a)	Amount blocked per month (b)	Amount (₹) a×b
Current Assets:			
Raw materials	1	75,000	75,000
Finished goods	1	2,15,000	2,15,000
Debtors [at cost]	2	2,45,000	4,90,000
Advance sales promotion expenses	3	10,000	30,000
Total (A)			8,10,000
Current Liabilities:			
Creditors	2	75,000	1,50,000
Outstanding wages	1	60,000	60,000
Outstanding manufacturing expenses	1	80,000	80,000
Outstanding administration expenses	1	20,000	20,000
Total (B)			3,10,000
Working capital requirement excluding cash (A – B)			5,00,000
Add: Expected cash			1,00,000
Cash cost of working capital including cash			6,00,000
Add: Safety margin (20% of 6,00,000)			1,20,000
			7,20,000

Cosmos Ltd. sells its production on a gross profit of 20% on sales. The following information is extracted from its annual accounts for the current year ended 31 March 20xx.

	₹
Sales at 3 months credit	40,00,000
Raw materials	12,00,000
Wages paid - average time lag 15 days	9,60,000
Manufacturing expenses paid-1 month in arrears	12,00,000
Administration expenses paid-1 month in arrears	4,80,000
Sales promotion expenses-payable half-yearly in advance	2,00,000

The company enjoys 1 month's credit from the suppliers of raw materials and maintains a 2 month's stock of raw materials and $1\frac{1}{2}$ month's stock of finished goods. Processing time is 1 month. The cash balance is maintained at ₹1,00,000 as precautionary measures. Assuming 10% margin, find out the working capital requirement of Cosmos Ltd.

[C.U.B.Com (H), 2014-modified]

Solution

Detailed cost statement for the year (₹)	Annual	Per month
Materials consumed	12,00,000	1,00,000
Wages	9,60,000	80,000
Cash manufacturing expenses	12,00,000	1,00,000
Cash production cost	33,60,000	2,80,000
Administration expenses	4,80,000	40,000
Sales promotion expenses	2,00,000	16,667
Total cash cost	40,40,000	3,36,667

***Note:** If we calculate the cost structure using GP rate, the cost of production will be ₹32,00,000 which is less than cash production cost as per our calculation. The question has some fallacy.*

Statement showing working capital requirement (₹):

	Block period (month) (a)	Amount blocked per week (b)	Amount axb
Current Assets:			
Raw materials	2	1,00,000	2,00,000
WIP [material + half of wages & mfg exps]	1	1,00,000 + 1/2(1,80,000)	1,90,000

(Continued)

Finished goods	1.5	2,80,000	4,20,000
Debtors (at cost)	3	3,36,667	10,10,000
Advance sales promotion expenses	6	16,667	1,00,000
Total (A)			19,20,000
Current Liabilities:			
Creditors	1	1,00,000	1,00,000
Outstanding wages	1/2	80,000	40,000
Outstanding manufacturing expenses	1	1,00,000	1,00,000
Outstanding administration expenses	1	40,000	40,000
Total (B)			2,80,000
Working capital requirement excluding cash (A – B)			16,40,000
Add: Expected cash			1,00,000
Cash cost of working capital including cash			17,40,000
Add: Safety margin (10% of 17,40,000)			1,74,000
			19,14,000

Finished goods	1.5	2,80,000	4,20,000
Debtors [at cost]	3	3,36,667	10,10,000
Advance sales promotion expenses	6	16,667	1,00,000
Total (A)			19,20,000
Current Liabilities:			
Creditors	1	1,00,000	1,00,000
Outstanding wages	1/2	80,000	40,000
Outstanding manufacturing expenses	1	1,00,000	1,00,000
Outstanding administration expenses	1	40,000	40,000
Total (B)			2,80,000
Working capital requirement excluding cash (A – B)			16,40,000
Add: Expected cash			1,00,000
Cash cost of working capital including cash			17,40,000
Add: Safety margin (10% of 17,40,000)			1,74,000
			19,14,000

Example 16

Determine the working capital requirement from the following particulars:
Annual budget figures for (₹ In lakhs):

Raw Materials	480
Direct wages	240
Overheads	180
	900
Sales	1,000

Additional Information:

a) Average stock level of raw materials – 18 days
b) Credit sales: 20 days credit is normal
c) Finished goods are held in stock for a period of 10 days before they are released for sale
d) Process period is 12 days
e) The company enjoys 30 days credit facilities for purchase.
f) Estimated cash and bank balance: 10% of total working capital

Assumptions: (a) 1 year = 360 days
(b) Raw materials are introduced at the beginning of manufacturing process while labour and overhead accrue evenly.

[C.U. B.Com (H), 2019]

Solution

Cost Block Per Day for Each Component: (₹)	Materials	WIP	Finish
Materials - [4,80,000/360]	1,333	1,333	1,333
Labour - [2,40,000/360] [50% for WIP]		333	667
Overhead - [1,80,000/360] [50% for WIP]		250	500
	1,333	1,917	2,500

Statement showing working capital requirement (₹):

	Block period (days) (a)	Amount blocked per week (b)	Amount a × b
Current Assets:			
Raw materials	18	1,333	24,000
Work in process (WIP)	12	1,917	23,000
Finished goods	10	2,500	25,000
Debtors [at cost]	20	2,500	50,000
Total (A)			1,22,000
Current Liabilities:			
Creditors	30	1,333	40,000
Total (B)			40,000
Working capital requirement excluding cash (A – B)			82,000
Add: Estimated cash and bank balance (82,000 × 10/90)			9,111
			91,111

Example 17

Estimate the Working Capital requirement for the coming year from the following information of a manufacturing company. Expected annual sales is 1,30,000 units of ₹10 per unit. The anticipated ratios of cost to selling price are as follows: Raw materials 50% and Direct wages 15%. Budgeted overhead is ₹52,000 per annum including ₹10,000 for depreciation. Planned stock will include raw-material for ₹50,000 and 7,500 units of finished goods. Credit allowed to debtors is 4 weeks. Credit expected to be received from suppliers is 3 weeks. Overhead and wages payment will be made 1 week after their incurrence. Material will stay in the process for 2 weeks. Cash in hand to be maintained is 10% of total Working Capital. Assume that production is carried on evenly throughout the year. Raw Materials are introduced at the beginning of the process and wages and overhead accrue evenly during processing.

[C.U B.Com.(H), 2010]

Solution

Production and sales per week (units) = (1,30,000/52) =				2,500
Cost block per week for each component:		Materials	WIP	F.Goods
Materials -	2,500 × 5	12,500	12,500	12,500
Labour - [50% of 45,000 for WIP]	2,500 × 1.50		1,875	3,750
cash Overhead - [50% for WIP]	42,000/52		404	808
		12,500	14,779	17,058

Statement showing working capital requirement (₹):

	Block period (weeks) (a)	Amount blocked per week (b)	Amount axb
Current Assets:			
Raw materials [50,000(given)/12,500 = 4]	4	12,500	50,000
Work in process (WIP)	2	14,779	29,558
Finished goods [7,500/2,500]	3	17,058	51,173
Debtors [at cost]	4	17,058	68,231
Total (A)			1,98,962
Current Liabilities:			
Creditors	3	12,500	37,500
Outstanding wages & overhead	1	4,558	4,558
Total (B)			42,058
Working capital requirement excluding cash (A-B)			1,56,904
Add: Expected cash (2,24,750 × 10/90)			17,434
Cash cost of working capital			1,74,338

Example 18

With the following information prepare a statement showing the Working Capital required to finance a level of activity of 10,400 units per annum:

a) Selling price at the rate of ₹5 per unit.
b) The expected ratios of cost to selling prices are as follows:
   i. Raw material 40%
   ii. Direct wages 10%
   iii. Overheads, 30%
   iv. Profit, 20%
c) Raw materials are expected to remain in store for an average period of 2 months before being used for production, and materials are in process on an average period of 6 weeks.
d) Finished goods will stay in store approximately for 6 weeks before dispatch to customers.
e) Credit allowed to debtors is for a period of 2 months.
f) Credit allowed by creditors is for a period of 2 months.
g) Lag in payment of wages and overheads are for a period of 2 weeks.
h) Cash in hand and bank is expected to be ₹10,000. It may be noted that production is carried on evenly during the year and wages and overheads accrue similarly. Assume 4 weeks a month.

[C.U. B.Com (H), 2012]

Solution

Production and sales per week (units) = (10,400/52) =			200
Cost block per week for each component:	Materials	WIP	F.Goods
Materials - (200 × 5 × 40%)	400	400	400
Labour - (200 × 5 × 10%) [50% of 45,000 for WIP]		50	100
Overhead - (200 × 5 × 30%) [50% for WIP]		150	300
	400	600	800

Statement showing working capital requirement (₹):			
	Block period (weeks) (a)	Amount blocked per week (b)	Amount a×b
Current Assets:			
Raw materials	8	400	3,200
Work in process (WIP)	6	600	3,600
Finished goods	6	800	4,800
Debtors [at cost]	8	800	6,400
Total (A)			18,000

(Continued)

Current Liabilities:			
Creditors	8	400	3,200
Outstanding wages & overhead	2	400	800
Total (B)			4,000
Working capital requirement excluding cash (A – B)			14,000
Add: Expected cash			10,000
Cash cost of working capital			24,000

Example 19

A manufacturing company has a capacity to produce 60,000 units p.a. The cost structure at that capacity and selling price p.u. are given as follows:

Materials	₹5	
Labour	₹2	
Overhead	₹5	(60% variable; of the fixed overhead ₹30,000 represents depreciation)
	₹12	
Profit	₹3	
Selling Price	₹15	

The other details are –

- Raw material storage period – 2 months; Processing time – 1 month and Finished goods in store – 1 month.
- Debtors and creditors turnover are 6 and 12 times a year.
- Lag in payment of overhead is half month.

Assuming that the company will be able to utilise 80% of its capacity, estimate the working capital requirement on cash cost basis.

[C.U. B.Com(H), 2016]

Solution

Expected annual production = 80% of 60,000 = 48,000 units; so, 4,000 p.m.		
Overhead cost break up:		
Variable per unit (60% of ₹5)		3
Fixed part: Total (40% of 5) × 60,000	1,20,000	
[as p.u. is expressed for 60,000 units]		
Less: Depreciation	30,000	
Cash fixed overhead	90,000	
Cash fixed overhead per unit = 90,000/48,000 =		1.875
		4.875

Cost block per month for each component (₹):		Materials	WIP	F.Goods
Materials -	4,000 × 5	20,000	20,000	20,000
Labour - [50% of 45,000 for WIP]	4,000 × 2		4,000	8,000
Cash Overhead - [50% for WIP]	4,000 × 4.875		9,750	19,500
		20,000	33,750	47,500

Statement showing working capital requirement (₹):

	Block period (weeks) (a)	Amount blocked per week (b)	Amount a×b
Current Assets:			
Raw materials	2	20,000	40,000
Work in process (WIP)	1	33,750	33,750
Finished goods	1	47,500	47,500
Debtors [at cost] (12/6 = 2 months)	2	47,500	95,000
Total (A)			2,16,250
Current Liabilities:			
Creditors (12/12 = 1 month)	1	20,000	20,000
Outstanding overhead	1/2	19,500	9,750
Total (B)			29,750
Working capital requirement (A – B)			1,86,500
Cash cost of working capital			1,86,500