CHAPTER 5
Working Capital Management

- **Working Capital**
  - **A firm's investment in short-term assets – cash, marketable securities, inventory, and accounts receivable.**
  - **All the short term assets used in daily operations.**

Basic Definitions and Concepts

- **Gross Working Capital (WC): Total current assets used in operations.**
- **Net Working Capital: Current assets – Current liabilities.**
- **Working Capital Policy: basic policy decisions as to**

  (1) the level of each type of current asset, and (2) how current assets will be financed.
- **Working Capital Management: Controlling cash, inventories, and A/R, plus Short-Term liability management.**
  - **Setting the WC policy and carrying out the policy in day-to-day operations**

5.1 Working Capital Policy

Selected Ratios--ABC *plc*.

	Industry	ABC
Current	1.75x	2.25x
Quick	0.83x	1.20x
Debt/Assets	58.76%	50.00%
Turnover of cash & securities	22.22x	16.67x
DSO (days)	45.00	32.00
Inv. turnover	4.82x	7.00x
F. A. turnover	11.35x	12.00x
T. A. turnover	2.08x	3.00x
Profit margin	2.07%	3.50%
ROE	10.45%	21.00%

ABC appears to have large amounts of working capital given its level of sales.

How does ABC's working capital policy compare with the industry?

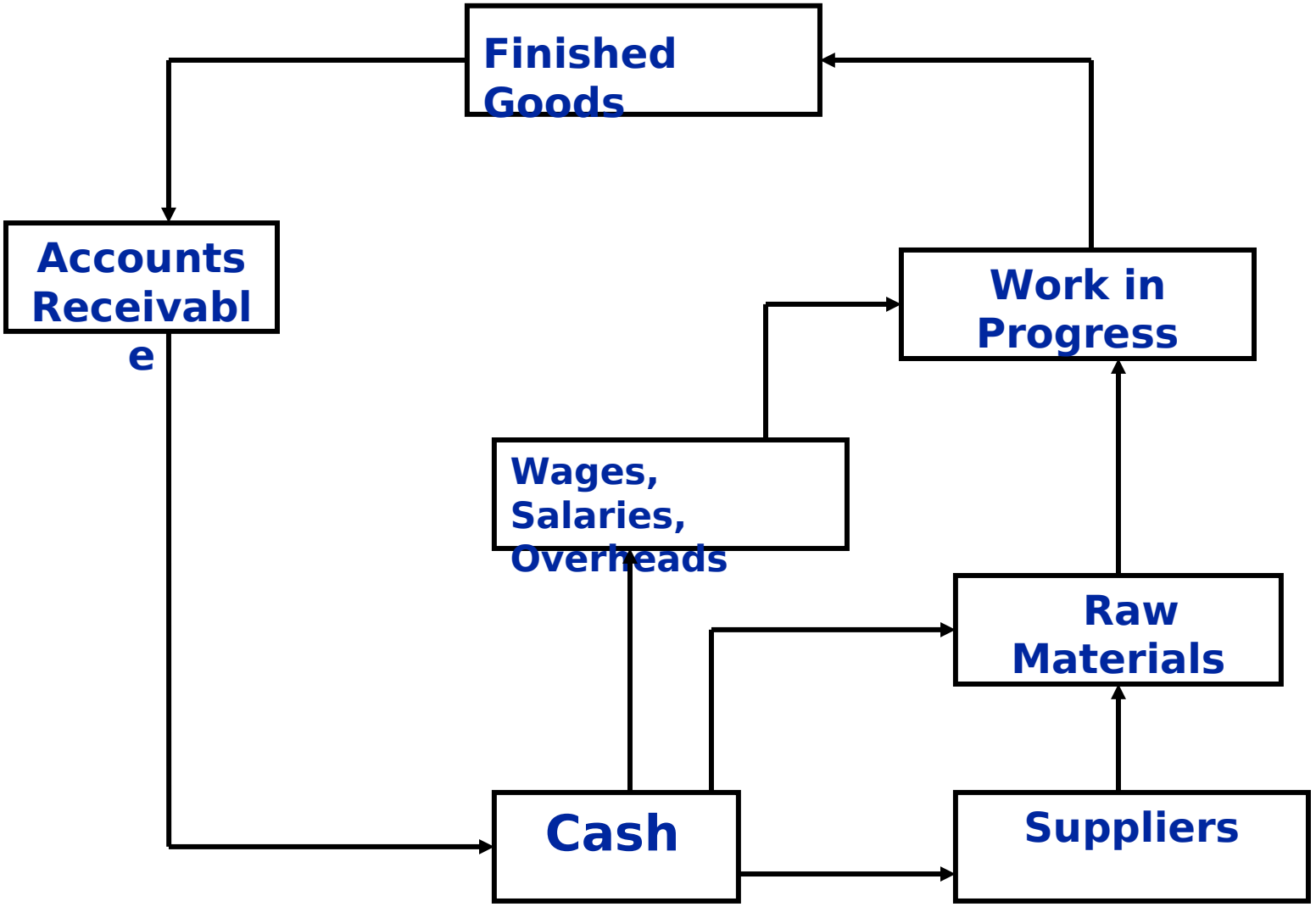
- **Working capital policy is reflected in current ratio, quick ratio, turnover of cash and securities, inventory turnover, and DSO.**
- **These ratios indicate ABC has large amounts of working capital relative to its level of sales. ABC is either very conservative or inefficient.**

Is ABC inefficient or just conservative?

- A conservative (relaxed) policy may be appropriate if it leads to greater profitability.
- However, ABC is not as profitable as the average firm in the industry. This suggests the company has excessive working capital.

5.1.1 Characteristics of Current Assets

- Timing : short life span,
- Swift transformation into other asset

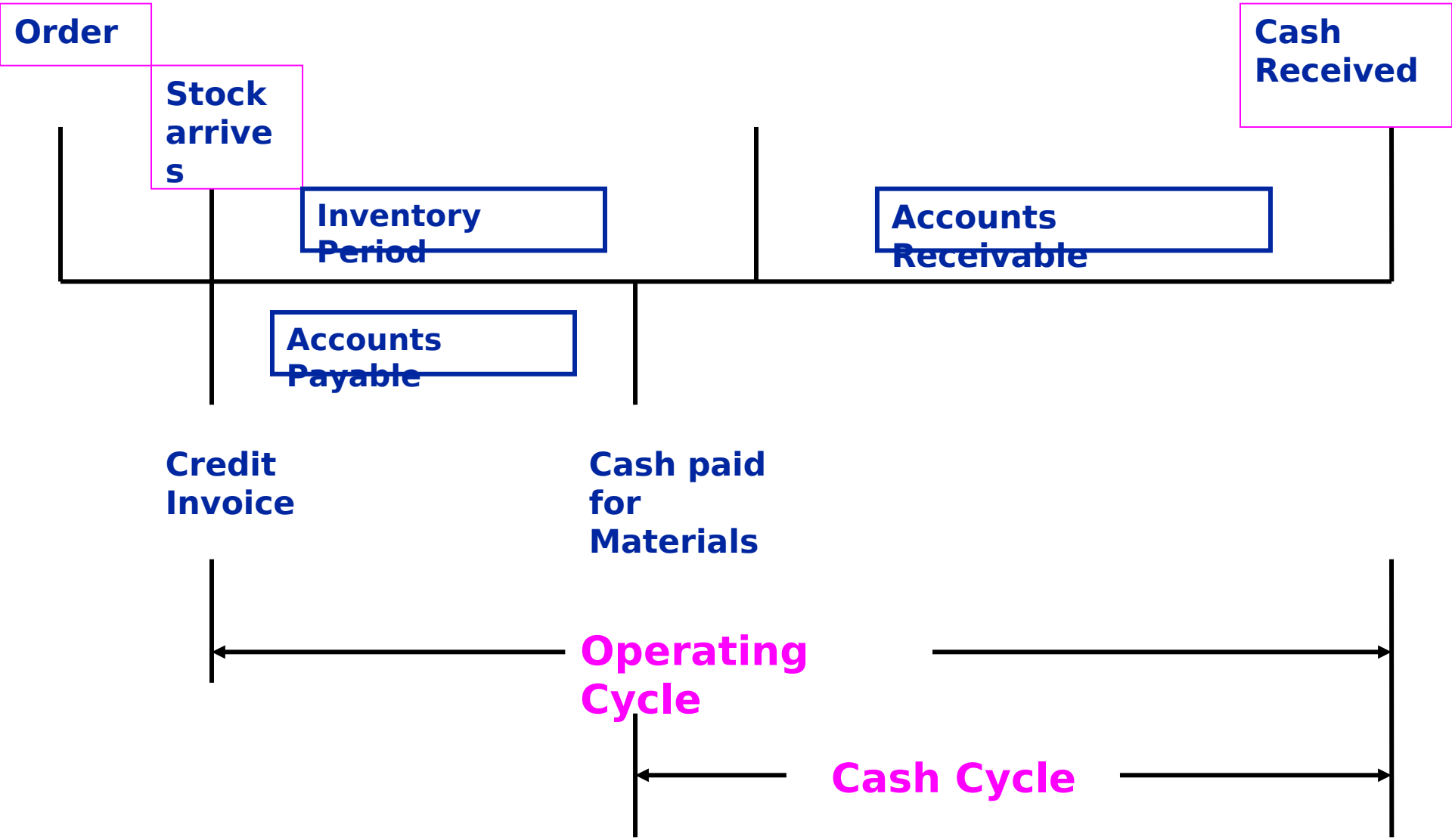


5.1.2 Operating Cycle and Cash Cycle

Investments in working capital are influenced by four key events in the production and sales cycle of the firm:

- **Purchase of raw materials,**
- **Payment for raw materials,**
- **Sale of finished goods**
- **Collection of cash sales**

Operating Cycle and Cash Cycle



5.1.3 Factors affecting WC Requirements

1. **Sales Volume**: some level of WC is required to support steady sales.
2. **Nature of business:** length of operating cycle
3. **Market condition**: Competition can guide WC policy (credit sales, stock levels)
4. **Conditions of Supply**: prompt and adequate supply lowers level of inventory and lead time (JIT).

5.1.4 Cash Requirement for WC

As a finance manager, one will be interested in figuring out how much cash to arrange to meet the working capital need of the firm.

Step 1. **Estimation of the cash cost of various current assets required by the firm**

Step 2. **Deduct the current liabilities from the cash cost of current assets**

5.2 Cash and Liquid Management

All money items and sources that are immediately available to help pay a firm's bills

Treasury bills: unconditional promise by the government's treasury agent

Commercial Paper: short-term unsecured promissory notes issued by firms

Certificate of Deposit: represents a negotiable receipt of funds deposited in a bank for a fixed period

5.2.1 How large a cash balance is needed?

1. **Transaction needs:** A firm needs cash to carry out the day-to-day functions of the business
2. **Contingency needs:** For unexpected occurrences or emergencies that require cash
3. **Opportunity needs:** The chance to profit from having cash available

5.2.2 Forecasting Cash Flow

Determining the amounts and timing of future inflows and outlays of cash.

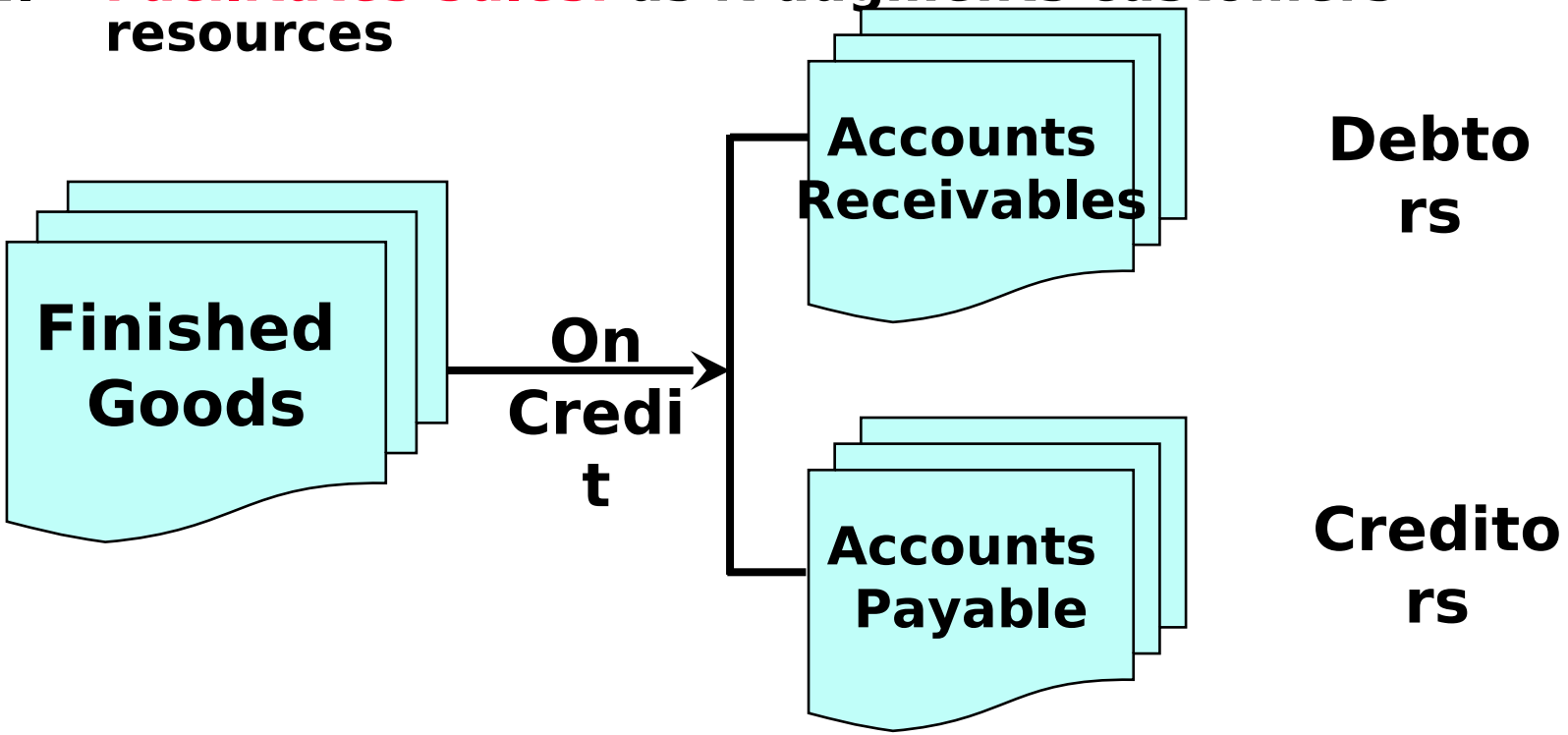
Failure of forecast casts risks such as:

1. **Default: unable to pay interest or principal on borrowings**
2. **Overdue bills: failure to pay short term obligations (A/P)**
3. **Lost savings on purchases: loss of discounts on cash purchases**

5.3 Credit Management

Why Credit?

1. **Competition:** causes firms to sell on credit to attract customers
2. **Facilitates Sales:** as it augments customers resources



5.3 Credit Management (cont'd)

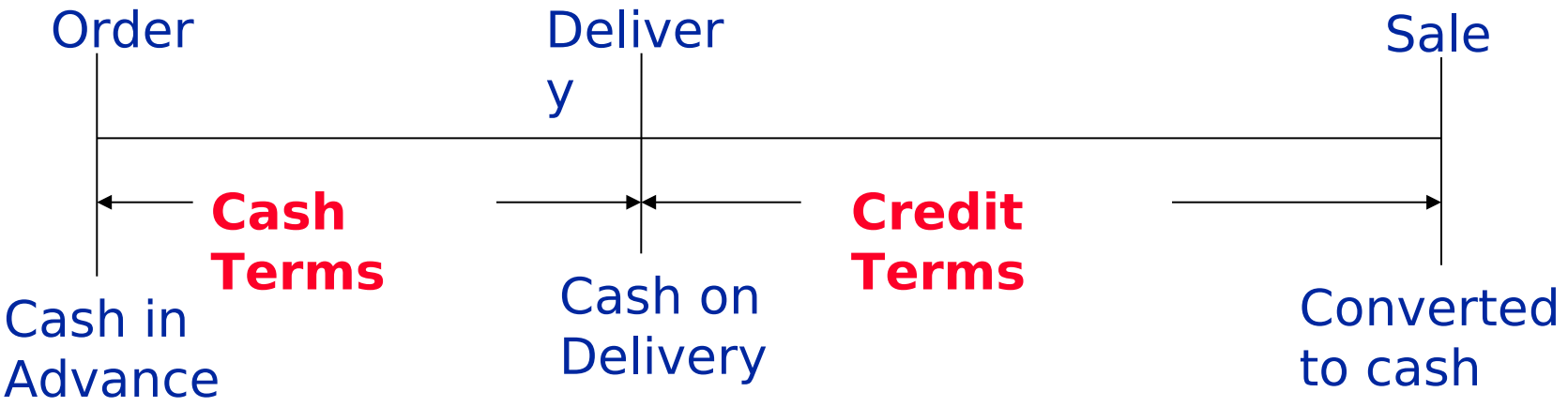
Accounts Receivable makes a major component of a firms working Capital Needs,

Investment in A/R depends on:

1. **How much the firm sales on credit, and**
2. **How long it takes to collect the receivables:**

5.3.1 Terms of Payment

Terms of payment vary widely in practice.



1. **Cash Terms- typically used when goods are made to order**
2. **Credit Terms**

5.3.1 Terms of Payment (Cont'd)

Credit Terms can be:

i. **Open Account:** seller ships goods and sends the invoice

ii. **Bill of Exchange:** a more secure arrangement that represents an unconditional order by the seller asking the buyer to pay on demand or at certain future date, the amount specified on it

iii. **Consignment:** agent relationship between the seller and the buyer

iv. **Letter of Credit:** issued by a bank on behalf of its customer to the seller.

- **Lower Credit risk & uncertainty, safety to the buyer**

5.3.2 Costs of Maintaining Receivables

The willingness to allow credit sales involve certain costs :

i. **Financing the Receivables**
ii. **Administrative and collection expenses**
iii. **Bad Debt loss**

5.3.3 Policies for Managing Receivables

The firm should establish its receivable policies after carefully considering both the benefits and costs of different policies.

i. **Profit:** Costs (tied up, collection, bad debt, discounts) should be compared with additional sales as a consequence of a proposed policy

Degree of relaxing a policy as determined by residual income:

$$\Delta R = \Delta S(p) - \Delta S(r) - \Delta I(k)$$

ii. **Growth in Sales:** growth is so important aside from profits, it should be viewed as a separate factor in determining receivable policies

5.3.4 Credit Policy Variables

The credit policies have a bearing on the level of sales, bad debt loss, discounts taken by customers, and collection expenses. The important dimensions of credit policy are:

i. **Credit Standards:** What standard should be applied in accepting or rejecting an account for credit granting? Can range from **Liberal to stiff credit policy …**

ii. **Credit Period:** Has a direct proportionality with sales

iii. **Cash Discount:** Firms generally offer cash discounts to induce customers to make prompt payments.

iv. **Collection Effort:** aimed at timely collection of the R & consists of:

- **Monitoring the state of receivables,**
- **Dispatch of letters to customers whose due date is approaching,**
- **Electronic and telephonic advice to customers around the due date,**
- **Threat of legal action to overdue accounts,**
- **Legal action against overdue accounts.**

5.4 Inventory Management

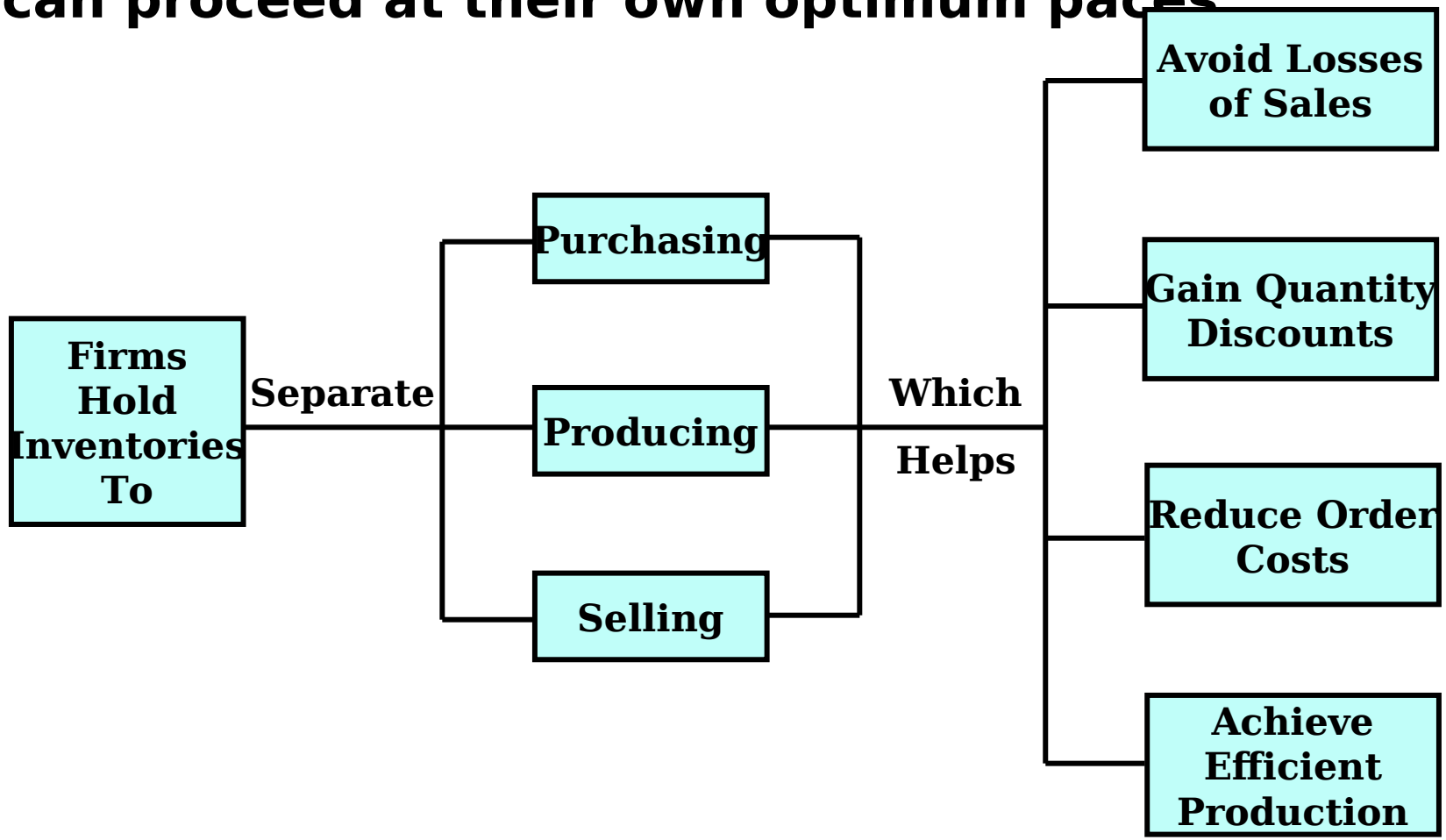
Defn: Goods held for eventual resale by the firm.

Three types of inventories:

i. **Raw Materials**
ii. **Goods in Process:** materials committed to the production process but have not been completed
iii. **Finished Goods:** ready for sale. Final output of the production process. "Merchandise inventory"

5.4.1 Benefits of holding inventory

Inventories are used to provide cushions so that the purchasing, production, and sales functions can proceed at their own optimum paces



5.4.1 Benefits of holding inventory (Cont'd)

i. **Avoiding Losses of Sales:** Ability of a firm to give quick service and to provide prompt delivery is closely tied to the proper management of inventory

ii. **Gaining Quantity Discounts:** to make bulk purchases of goods at large discounts. **The cost of maintaining the inventory however, should be less than the discount**.

iii. **Reducing Order Costs:** Forms must be typed, checked, approved and mailed; when goods arrive, they must be accepted, inspected and counted.

iv. **Achieving Efficient Production Runs:** If the firm has to change setups frequently, it would experience high unit costs of production

5.4.2 Costs of holding inventory

The effective management of inventory involves a tradeoff between having too little and also too much inventory.
Inventory costs:

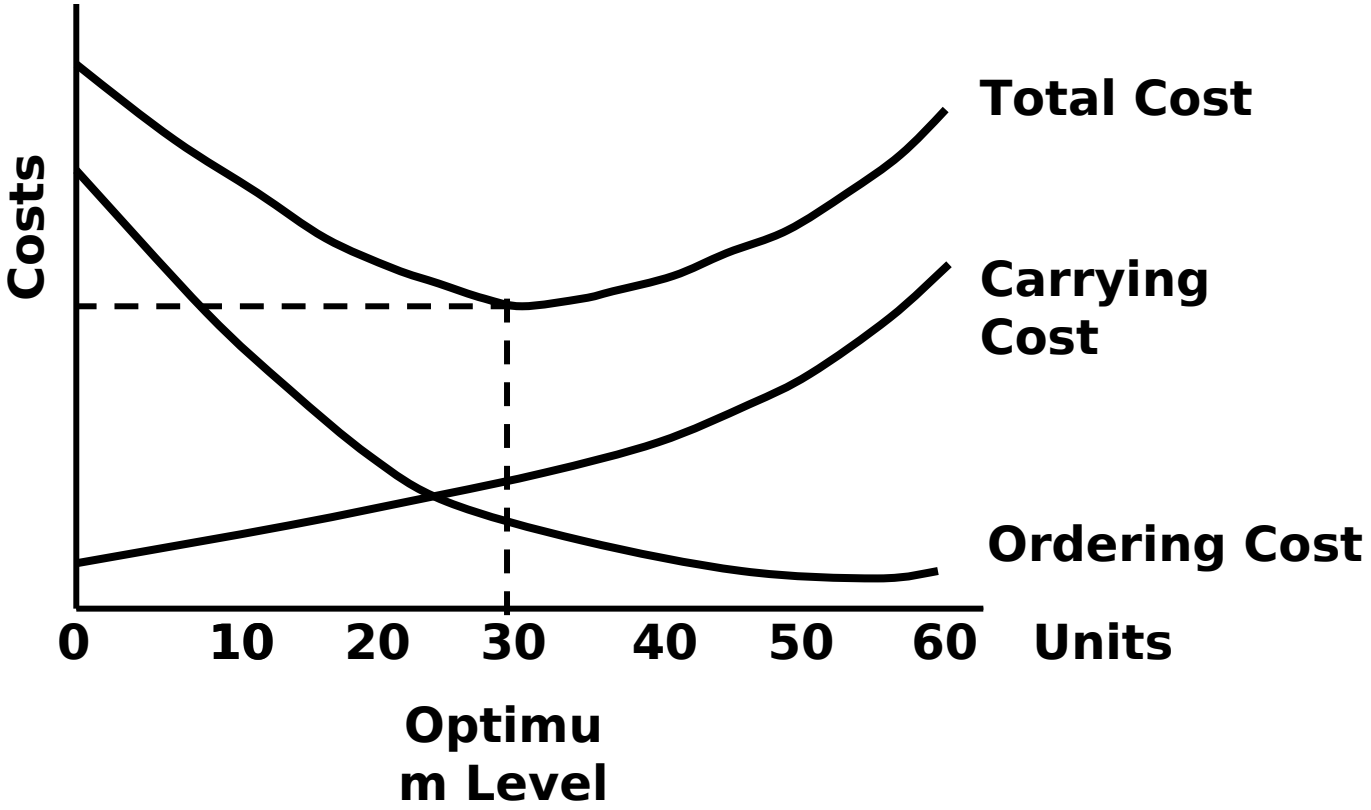
i. **Ordering Costs:** requisitioning, preparation of purchase order, expediting, transport and receiving and placing in storage, set-up costs
ii. **Carrying Costs:** interest on capital locked up in inventory, storage and handling costs, insurance, depreciation, and property taxes.
iii. **Shortage Costs:** arise when inventories are short of requirement for meeting the needs of production or the demand of customers.
    - Loss of sales, loss of customer goodwill, disruption of production schedules.

5.4.3 Inventory Management – Minimizing Costs

- **The goal of effective inventory management is to minimize the total costs that are associated with ordering and holding inventories.**

- **Choose the level of inventory with the lowest total cost after estimating the different expenses with varying inventory levels.**

5.4.3 Inventory Management – Minimizing Costs (Cont'd)



The two basic questions relating to inventory mgt

- **Size of the Order:** Q optimal
- **The Level to Order:** Q level

i) Order Quantity Economic Order Quantity (EOQ)

- **The Economic Order Quantity refers to the order size that will result in the lowest total of order and carrying costs for an item of inventory.**
  - Order costs increase as number of orders increase
  - Carrying costs increase as large stocks are kept

Variables in the EOQ model:

U: The forecast usage/demand for goods or raw materials for a year is known,

Q: Quantity Ordered,

F: Cost per Order,

C: Percent Carrying Cost

P: Price per Unit,

i) Order Quantity Economic Order Quantity (EOQ)

$$TC = \frac{U}{Q}(F) + \frac{Q}{2}(P)(C)$$

The total cost of ordering and carrying is minimized when the derivative of the above equation is equated to zero:

$$\frac{dTC}{dQ} = -\frac{UF}{Q^2} + \frac{PC}{2} = 0 \qquad Q^2 = \frac{2UF}{PC}$$

$$Q = \sqrt{\frac{2FU}{PC}}$$

i) Order Quantity Economic Order Quantity (EOQ)

Example: Given the following for a company:

U= Annual sale= 20,000 Units

F= fixed cost per order = Birr 2,000

P= Purchase price per unit= Birr 12

C= Carrying cost = 25% of inventory value

$$Q = \sqrt{\frac{2FU}{PC}}$$

$$Q = \sqrt{\frac{2x2{,}000x20{,}000}{12x0.25}} = 5{,}164 units$$

ii) Order Level Economic Order Quantity (EOQ)

- If the usage rate of materials and lead time for procurement are known with certainty then;

The ordering level = Lead time in days for procurement X Average daily usage

End of Chapter 5