

Introduction to Working Capital Management

Difference in the management of fixed assets and current assets

- **First**, in managing fixed assets, **time is a very important factor**; consequently, discounting and compounding techniques play a significant role in capital budgeting and a minor one in the management of current assets.
- **Second**, the large holding of current assets, reduces the overall **profitability**. Thus, a risk-return trade-off is involved in holding current assets.
- **Third**, levels of fixed as well as current assets depend upon expected sales, but it is only the current assets which can be adjusted with sales fluctuations in the short run. Thus, the firm has a greater degree of **flexibility** in managing current assets.

Concepts of Working Capital

- **Gross working capital (GWC)**

GWC refers to the firm's total investment in current assets.

Current assets are the assets which can be converted into cash within an accounting year (or operating cycle) and include cash, short-term securities, debtors, (accounts receivable or book debts) bills receivable and stock (inventory).

Concepts of Working Capital

Net working capital (NWC)

- **NWC** refers to the difference between current assets and current liabilities.
- **Current liabilities** (CL) are those claims of outsiders which are expected to mature for payment within an accounting year and include creditors (accounts payable), bills payable, and outstanding expenses.
- NWC can be positive or negative.
 - Positive NWC = $CA > CL$
 - Negative NWC = $CA < CL$

Concepts of Working Capital

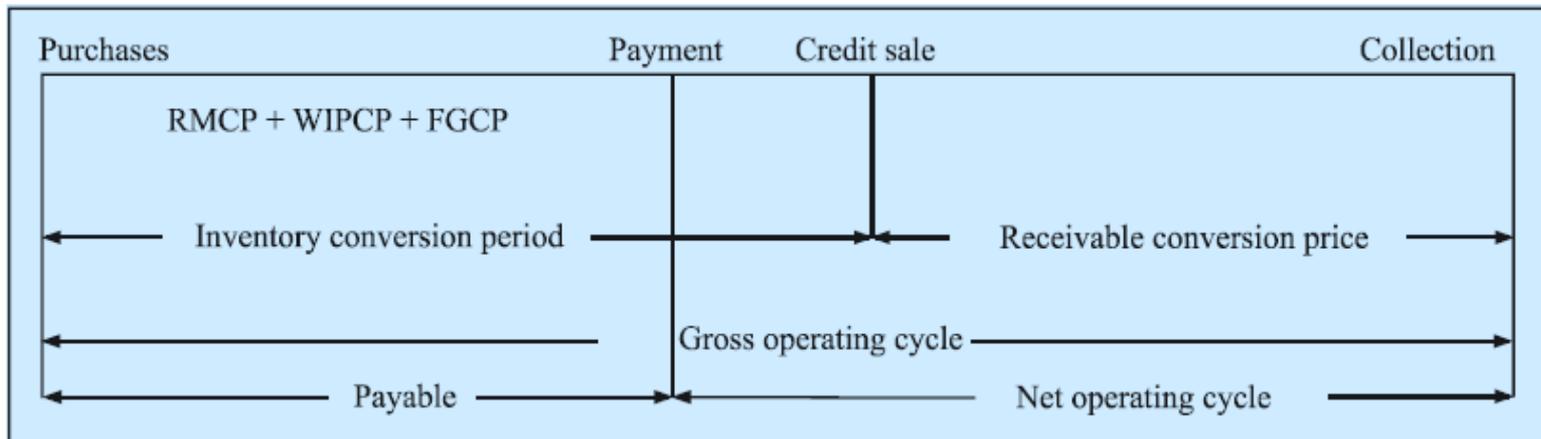
- GWC focuses on
 - Optimisation of investment in current
 - Financing of current assets
- NWC focuses on
 - Liquidity position of the firm
 - Judicious mix of short-term and long-term financing

Operating Cycle

- Operating cycle is the time duration required to convert sales, after the conversion of resources into inventories, into cash. The operating cycle of a manufacturing company involves three phases:
 - *Acquisition of resources* such as raw material, labour, power and fuel etc.
 - *Manufacture of the product* which includes conversion of raw material into work-in-progress into finished goods.
 - *Sale of the product* either for cash or on credit. Credit sales create account receivable for collection.

Cont...

- The length of the operating cycle of a manufacturing firm is the sum of:
 - **Inventory conversion period (ICP).**
 - **Debtors (receivable) conversion period (DCP).**



Operating cycle of a manufacturing firm

Gross Operating Cycle (GOC)

- The firm's gross operating cycle (GOC) can be determined as inventory conversion period (ICP) plus debtors conversion period (DCP). Thus, GOC is given as follows:

$$\text{Gross operating cycle} = \text{Inventory conversion period} + \text{Debtors conversion period}$$

$$\text{GOC} = \text{ICP} + \text{DCP}$$

Inventory conversion period

↗ Inventory conversion period is the total time needed for producing and selling the product.

Typically, it includes:

- **raw material conversion period (RMCP)**
- **work-in-process conversion period (WIPCP)**
- **finished goods conversion period (FGCP)**

Debtors (receivables) conversion period (DCP)

- Debtors conversion period (DCP) is the average time taken to convert debtors into cash. DCP represents the average collection period. It is calculated as follows:

$$\text{Debtors conversion period (DCP)} = \frac{\text{Debtors}}{\text{Credit sales}/360} = \frac{\text{Debtors} \times 360}{\text{Credit sales}}$$

Creditors (payables) deferral period (CDP)

- Creditors (payables) deferral period (CDP) is the average time taken by the firm in paying its suppliers (creditors). CDP is given as follows:

$$\begin{aligned} \text{Creditors} \\ \text{deferral} \\ \text{period (CDP)} &= \frac{\text{Creditors}}{\text{Credit purchases}/360} \\ &= \frac{\text{Creditors} \times 360}{\text{Credit purchases}} \end{aligned}$$

Cash Conversion or Net Operating Cycle

- Net operating cycle (NOC) is the difference between gross operating cycle and payables deferral period.

$$\text{Net operating cycle} = \text{Gross operating cycle} - \text{Creditors deferral period}$$

$$\text{NOC} = \text{GOC} - \text{CDP}$$

- Net operating cycle is also referred to as **cash conversion cycle**.

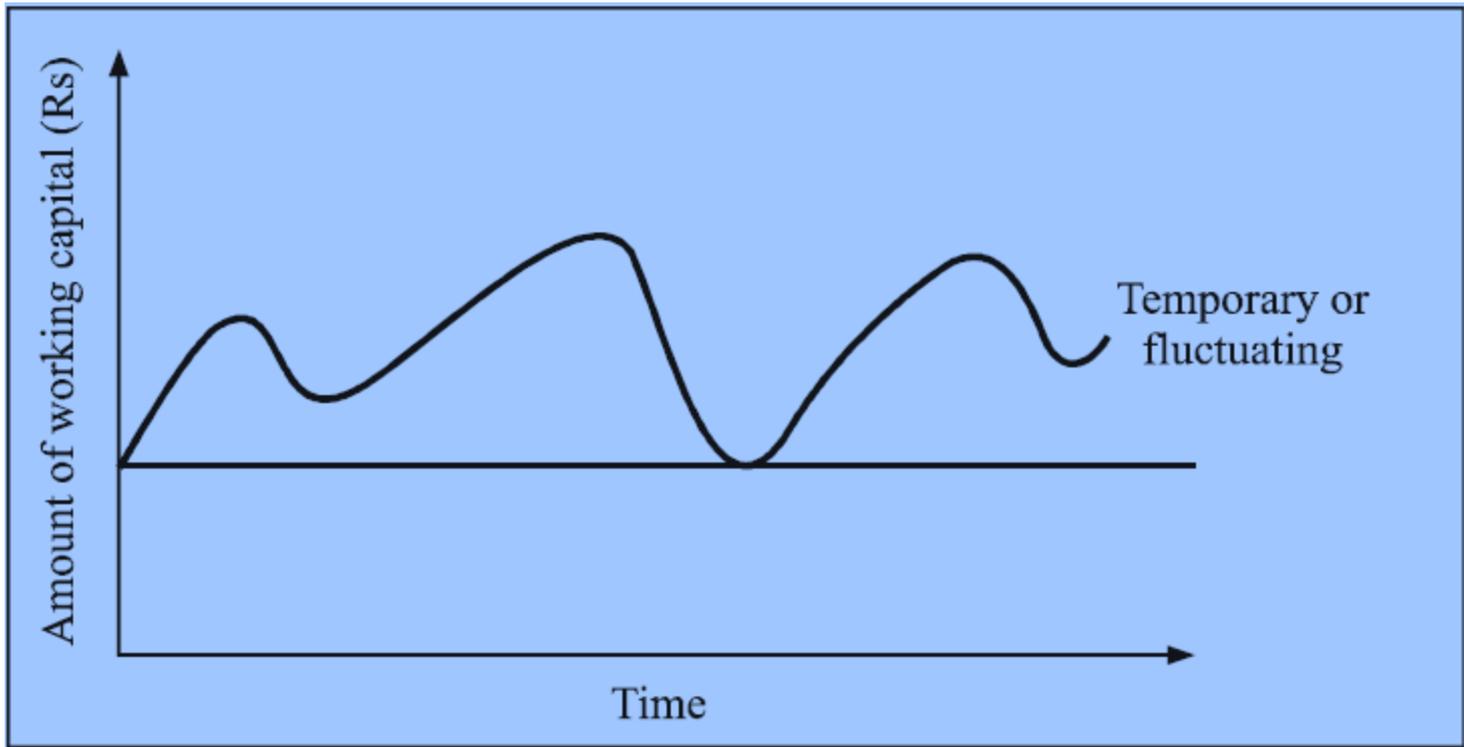
PERMANENT AND VARIABLE WORKING CAPITAL

- **Permanent or fixed working capital**

A minimum level of current assets, which is continuously required by a firm to carry on its business operations, is referred to as permanent or fixed working capital.

- **Fluctuating or variable working capital**

The extra working capital needed to support the changing production and sales activities of the firm is referred to as fluctuating or variable working capital.



Permanent and temporary working capital

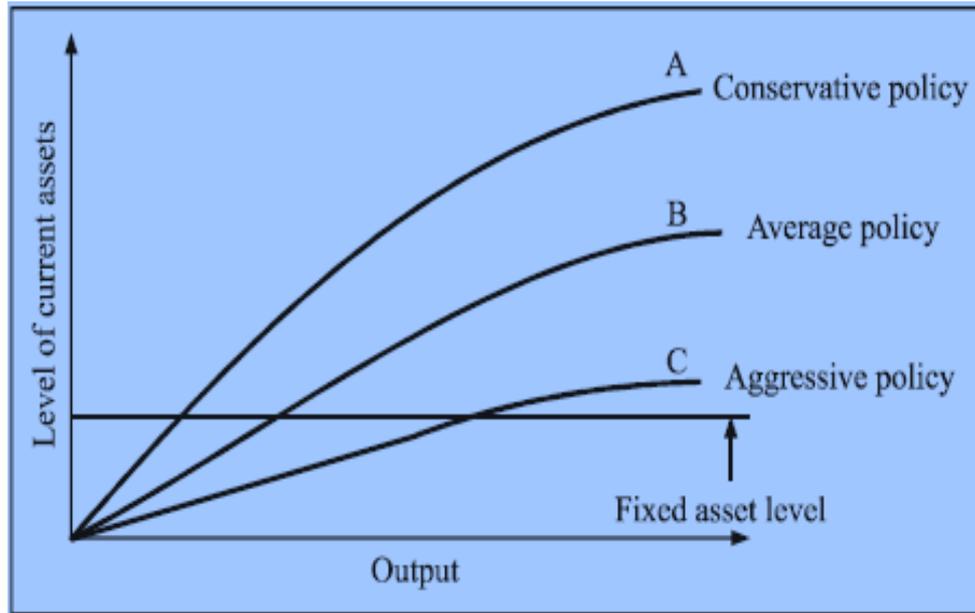
Determinants of Working Capital

1. Nature of business
2. Market (growth) and demand
3. Technology/ Length of manufacturing cycle
4. Manufacturing policy (Steady or Variable production policy)
5. Credit policy
6. Suppliers' credit
7. Operating efficiency
8. Inflation

Issues in Working Capital Management

- Current Assets to Fixed Assets Ratio
- Liquidity *vs.* Profitability: Risk–Return Trade-off
- The Cost Trade-off

Current Assets to Fixed Assets Ratio



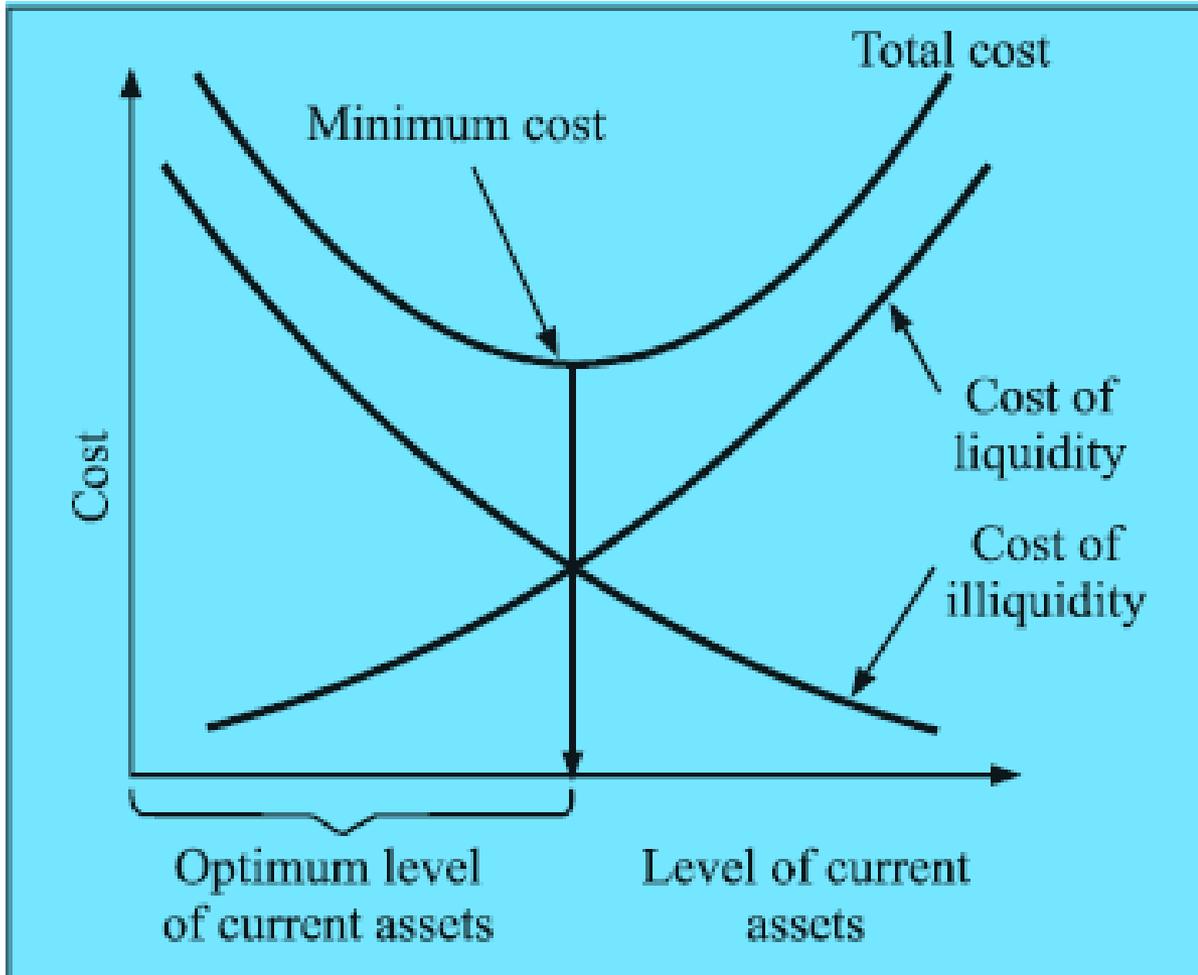
Alternative current asset policies

- Conservative Policy implies greater liquidity and lower risk
- Aggressive Policy implies low CA/FA, low liquidity and higher risk.

Liquidity vs. Profitability: Risk–Return Trade-off

	Profitability (Return)	Liquidity
Increasing the use of Current Liabilities (less costly than long term liability)	Higher	Lower
Increasing the use of Current Assets (e.g., cash, inventory)	Lower	Higher

The Cost Trade-off



- Cost of illiquidity is the cost of holding insufficient current assets
- Difficulty in honoring obligations
- Forced to borrow at high rates of interest
- May affect creditworthiness, credit policy, sales, etc.

Estimating Working capital

Method 1: Current assets holding period

- To estimate working capital requirements on the basis of average holding period of current assets and relating them to costs based on the company's experience in the previous years. This method is essentially based on the operating cycle concept.
- One month's supply of inventory (raw material, semi-finished goods and finished material) and debtors and operating cost.

Method 2: Ratio of sales

- To estimate working capital requirements as a ratio of sales on the assumption that current assets change with sales.
- 25-35% of annual sales

Method 3: Ratio of fixed investment

- To estimate working capital requirements as a percentage of fixed investment.

10-20% of fixed capital investment

	<i>Firm A (₹)</i>	<i>Firm B (₹)</i>
Material cost:		
Raw material consumed	248,000	248,000
<i>Less: By-product</i>	<u>68,800</u>	<u>68,800</u>
Net material cost	179,200	179,200
Manufacturing cost		
Labour	171,200	171,200
Maintenance	160,000	160,000
Power and fuel	57,600	57,600
Factory overheads	240,000	240,000
Depreciation	<u>160,000</u>	<u>320,000</u>
Total manufacturing cost	<u>788,800</u>	<u>948,800</u>
Total product cost	<u>968,000</u>	<u>1,128,000</u>
Annual sales	<u>1,448,000</u>	<u>1,448,000</u>
PBIT	480,000	320,000
Investment	1,600,000	3,200,000
Period	1 year	1 year
Plant life	10 year	10 year
PBDIT	640,000	640,000
ROI [PBIT/ (investment – depreciation)]	33.3%	11.1%

Current Asset Holding Period

- Total WC Requirement = Inventory + debtors + operating cash
- One month's inventory cost = Raw Material + Semi-finished material + Finished Material
- One month's semi-finished cost = one month's raw material + half of normal conversion cost for one month
- One month's semi-finished cost = one month's raw material + [(labour cost + maintenance cost + power cost + fuel cost) / 2] / 12
- One month's Finished material = Total Product cost / 12
- One month's debtors = Annual sales / 12
- One month's operating cash = Total Product cost / 12

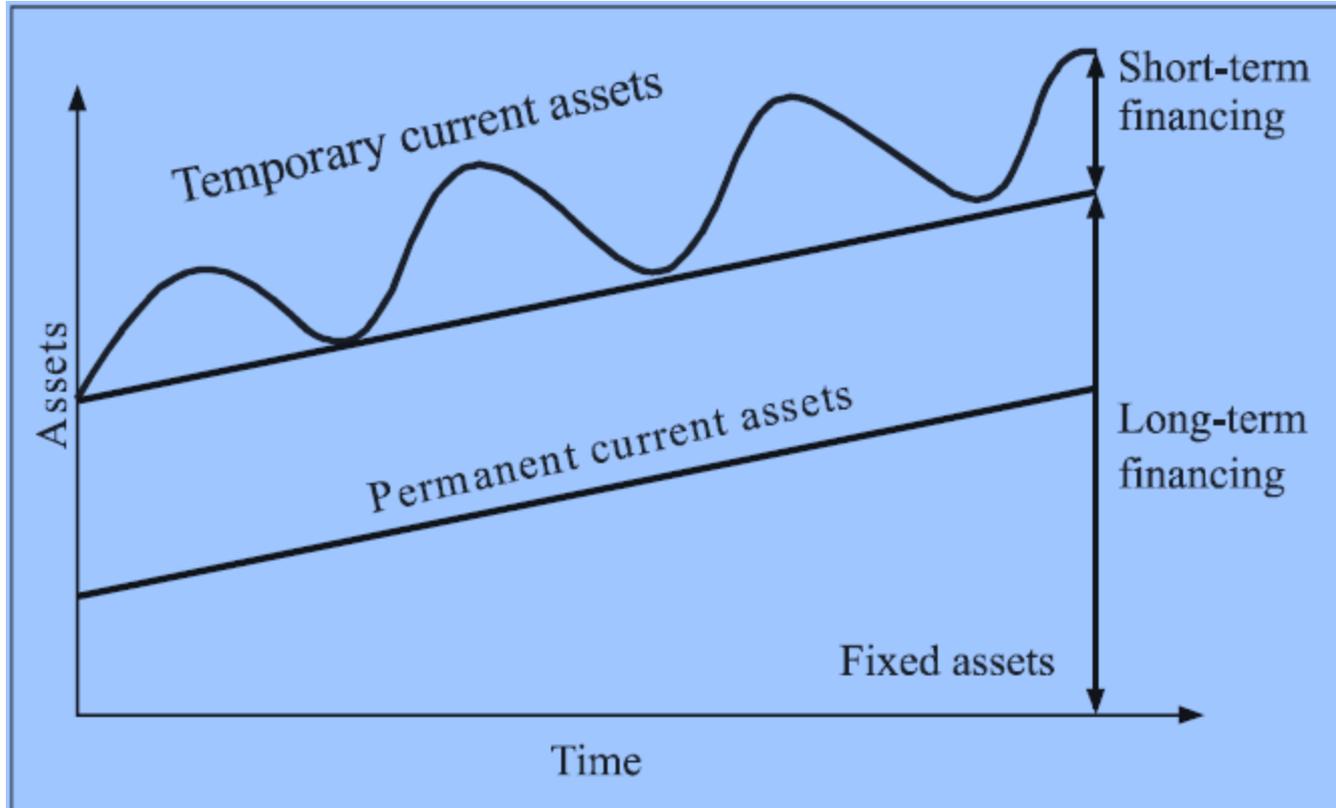
Working Capital Finance Policies

- Long-term (Ordinary shares, Preference shares, long term debt, reserves and surplus)
- Short-term (working capital funds from banks, commercial papers)
- Spontaneous (trade credit, outstanding expenses)

Working Capital Finance Policies

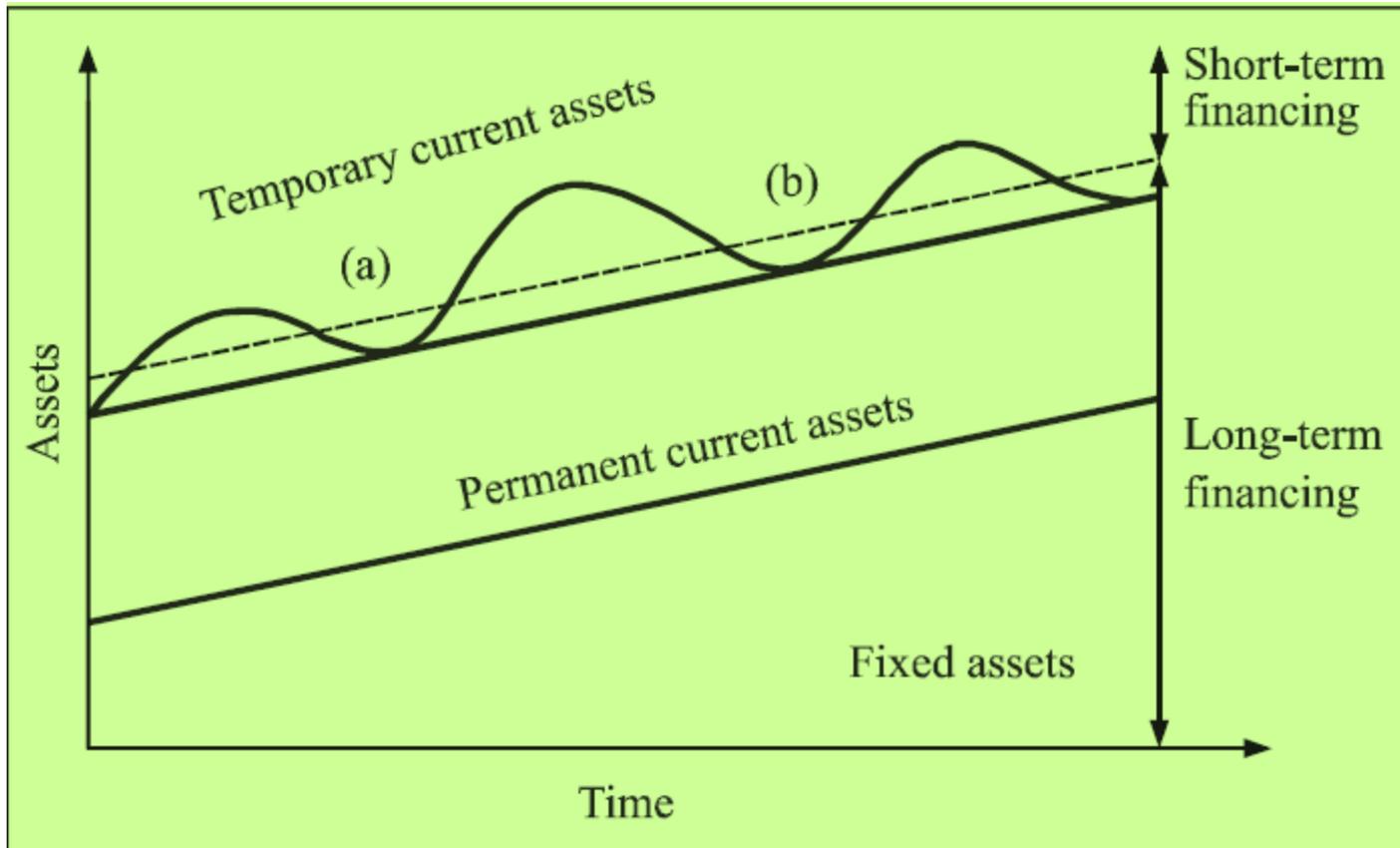
- Matching Approach / Hedging Approach
- Conservative Approach
- Aggressive Approach

Matching Approach



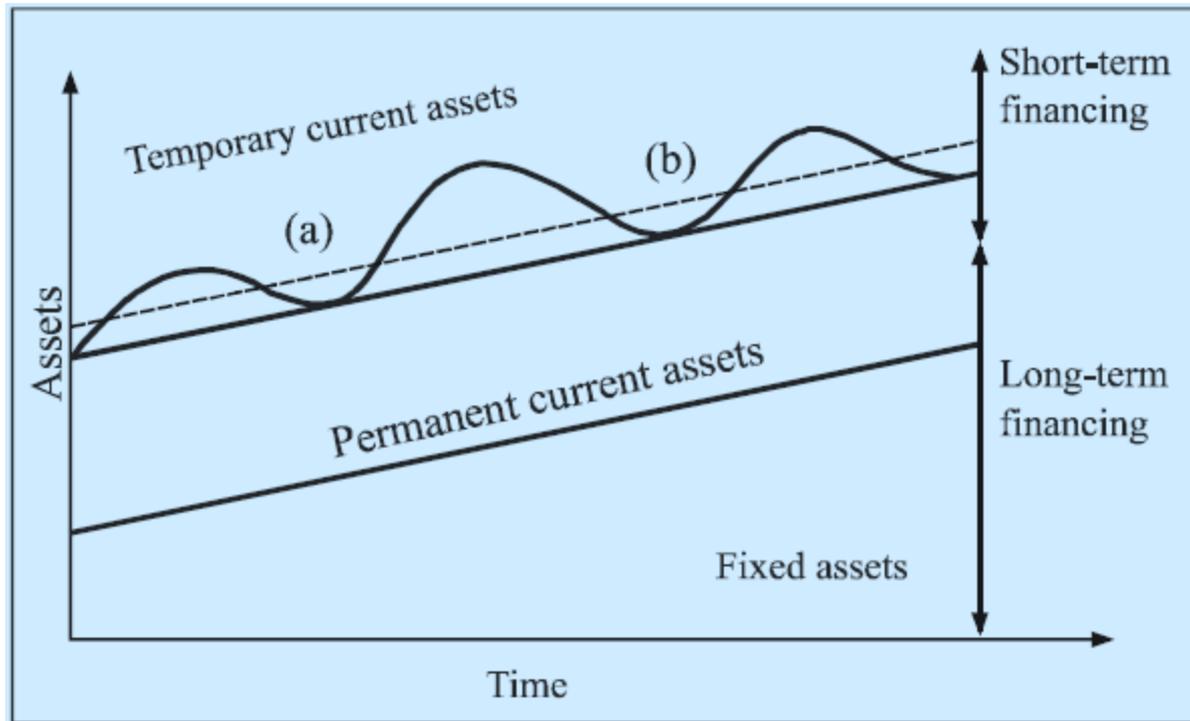
Financing under matching plan

Conservative Approach



Conservative financing

Aggressive Approach



Aggressive financing

Short-term vs. Long-term Financing: A Risk-Return Trade-off

- Cost
- Flexibility
- Risk
- Risk-return trade-off