Working Capital Management

Helena Sůvová ©
helsu@centrum.cz

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Course: Corporate Finance

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Content of the lecture

- Working Capital Terminology
- Working Capital Decisions
- Cash Conversion Cycle
- Importance of Working Capital
- Working Capital Strategy
- Inventory management
- Summary of the lecture
- Assignments for the tutorial
Working Capital Terminology

- **Working capital** (operating capital), sometimes called gross working capital, simply refers to the firm's total current assets.
- **Short-term financial management** includes mgmt of current assets and current liabilities, including accounts payable (trade credit), notes payable (bank loans), and accrued liabilities.
- Typical current assets include: cash and cash equivalents, accounts receivable, inventory.
- Net working capital = current assets - current liabilities.
- Current assets are closely related to sales. Moreover influenced by the size of the firm, the nature of the firm, firm's market position etc.
Working Capital Decisions

• Working capital policy/strategy refers to decisions
  – Target levels of each category of current assets
  – How current assets will be financed
  – Flexible rate financing versus fixed rate financing

• Working capital management = setting working capital policy and carrying out that policy in day-to-day operations
Working Capital Decisions

- The basic working capital decisions include in day-to-day operations the following areas:
  1. manage collections from customers and disbursement to suppliers, employees, taxes
  2. bank and credit relations
  3. liquidity management – determinate expected cash surplus or deficit
  4. receivables management – firm’s credit policy, collection procedures
  5. inventory management – investments in inventory and financing

- Q: Which financial ratios reflect working capital management?
Cash Conversion Cycle
(Working Capital / Operating Cycle)

Injections of cash

CASH

Cash withdrawals

GOODS SOLD
debtor generated & then cash received

GOODS PRODUCED

PAYMENTS -
to suppliers for raw materials to workers-wages

Working capital cycle
The aim of WCM: minimize the CCF
Cash Conversion Cycle

• Operating cycle = inventory collection period + avrg receivables collection period
• Cash conversion cycle = operating cycle – payable deferral period……
• …. quick and convenient way to analyse ongoing liquidity
• How can we calculate cash conversion cycle?
  – accounts receivable turnover = net credit sales/avrg accounts receivable
  – receivable collection period = 365/accounts receivable turnover
  – inventory turnover = cost of goods sold/ avrg inventory
  – inventory conversion (collection) period = 365/inventory turnover ratio
  – payables turnover = (cost of goods sold + general, selling, administrative expenses)/current liabilities
  – payable deferral period = 365/payables turnover
Importance of Working Capital

• Why do firms have working capital?
  – Under perfect markets a firm would hold exactly enough current assets and the value of the firm would be independent of its working capital decisions.
  – But the world is not perfect…

• Current assets typically > 40 % of total assets => large investment

• Working capital accounts are the most manageable

• The firm’s well-being shows up first in its working capital accounts and the flow of cash

• Working capital management must ensure that a firm can meet its short-term maturity obligations
Working Capital Strategy – in terms of volume

- Working Capital Strategy in terms of volume:
  - There is a theoretical optimum for working capital.....=> moderate working capital strategy
  - Working Capital > optimum => + higher safety (lower risk)
    - lower rate of return
  - = conservative working capital strategy
  - Working Capital < optimum => - lower safety (higher risk)
    - ? rate of return
  - rate of return depends upon the degree of reduction in sales
  - = aggressive working capital strategy
Working Capital Strategy

- **Aggressive strategy**
  - Safety stock
  - Required minimum of current assets

- **Conservative strategy**
  - Safety stock
  - Required minimum of current assets
  - Total current assets

Total current assets
Working Capital Strategy – in terms of financing

- Idealized model for agriculture

  - Fixed assets growing steadily
  - Current assets jump at season

- In real world different patterns
- But seasonal patterns exist and cause fluctuations
Working Capital Strategy

• Permanent current assets – some (minimum) level of current assets that is always maintained

• Matching principle:
  – Permanent assets (\(=\) fixed assets + permanent current assets) financed with permanent sources of financing
  – Temporary assets – temporary financing
  – The idea is to match the cash flow generating characteristics with the maturity of the financing
Working Capital Strategy

• Working capital strategy .. in terms of financing
  – Moderate: Match the maturity of the assets with the maturity of the financing.
  – Aggressive: Use short-term financing to finance permanent assets.
  – Conservative: Use permanent capital for permanent assets and temporary assets.
Working Capital Strategy – Moderate and Aggressive

- Fluctuating current assets
- Permanent current assets
- Fixed Assets
- Short-term (temporary) financing
- Permanent (L-T financing) Equity + LT debt

Lower dashed line, more aggressive.
Working Capital Strategy – Conservative

- Permanent current assets
  - Permanent (L-T financing)
  - Equity + LT debt
- Zero or very low S-T debt
- Fixed Assets

Years

$
Inventory Management

• Inventory management … control of investments in inventories

• Common major determinants of inventory level:
  – level of sales
  – length and technical nature of production process
  – durability, perishability

• Examples:
  – Large inventories: machinery, precious metals
  – Seasonal: agriculture, canning
  – Low: oil and gas production, baking
Inventory Management

- Ways of improvement in inventory control?
- Effective inventory mgmt = turning over inventory as quickly as possible without losing sales from inventory stockouts (return versus risk)

- **EOQ approach**
- Costs of storage and carrying rise with larger and less frequent orders
- Costs of placing orders are lower with larger and less frequent orders
- ! Find a good classification of costs and determinate the minimum of costs
# Inventory Management

<table>
<thead>
<tr>
<th><strong>A. Carrying costs</strong></th>
<th><strong>B. Ordering costs</strong></th>
<th><strong>C. Costs related to safety stocks</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>storage</td>
<td>cost of placing order or production setup costs</td>
<td>loss of sales</td>
</tr>
<tr>
<td>insurance</td>
<td>shipping and handling costs</td>
<td>loss of customer goodwill</td>
</tr>
<tr>
<td>cost of tied up capital</td>
<td>quantity discounts taken or lost</td>
<td>disruption or production schedules</td>
</tr>
<tr>
<td>depreciation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Prevailing character:**
  - Carrying costs: variable
  - Ordering costs: fixed
  - Costs related to safety stocks: fixed
Inventory Management

• **Economic order quantity (EOQ) model**
  - S... usage in units per period
  - O...order cost per order
  - C ...carrying cost per unit per period
  - Q...quantity order

• **Order cost** = O . number of orders = O . S/Q

• **Carrying cost** = C . Q/2

• (it is supposed that inventory is depleted at a constant rate)

• **Total cost** = O . S/Q + C . Q/2

• We are looking for the quantity Q that minimizes total costs
Inventory Management

- $Q = \sqrt{\frac{2OS}{C}}$ .. basic EOQ model

- EOQ model = technique for determining the optimal order size, i.e. order size that minimizes total order costs and carrying cost
Inventory Management

Other approaches to inventory management:

• The ABC system

<table>
<thead>
<tr>
<th>Size of investment in the type of inventory</th>
<th>Level and intensity of monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>A high</td>
<td>Perpetual – usually daily</td>
</tr>
<tr>
<td>B middle</td>
<td>Periodic (weekly, monthly)</td>
</tr>
<tr>
<td>C low</td>
<td>Unsophisticated, unregular</td>
</tr>
</tbody>
</table>

• Just-in-Time system

• Computerized systems for resource control
Summary

• Working capital management involves management of current assets and current liabilities
• Net working capital = current assets – current liabilities
• Cash conversion cycle is a way to analyse the liquidity and helps to set the level of net working capital.
• Conservative versus aggressive working capital strategy/policy
• Inventory management = control of investments in inventories
Assignments for the tutorial

1. Give your reaction: „Merely increasing the level of current assets does not necessarily reduce the riskiness of the firm, rather, composition of the current assets is important to consider.“ (Q 11.1.)

2. How does seasonal nature of a firm’s sales influence the level of current assets and the decision amount of short-term credit? (Q 11.2.)

3. What is the advantage of matching the maturities of assets and liabilities (fixed assets – long term financing; current assets – ST financing)? What is the disadvantage? (Q 11.3.)

4. There have been times when short-term rates were higher than long-term rates. Does this imply that a firm should use only long-term debt and no short-term? (Q 11.4.)
Assignments for the tutorial

5. Define and explain:
   - working capital, net working capital
   - cash conversion cycle
   - permanent current assets
   - seasonal, or temporary current assets
   - matching principle

6. A firm’s cash conversion cycle is 40 days. The receivables turnover is 8, payables turnover is 10.
   - What is the firm’s inventory turnover?
   - What are accounts receivable if credit sales are 920 000 EUR?

7. What was the net working capital of CEZ in 2005 and 2004? What is the main source of CEZ’s short-term financing? Can we recognize whether CEZ’s working capital strategy is conservative or aggressive?
Assignments for the tutorial

8. The Warner Flooring sales 1.2 mil. USD. Fixed assets total 500,000 USD, it wishes to maintain 60% debt ratio, interest cost is 10% on both S-T and L-T debt. Three alternatives regarding projected current assets: 1) aggressive (current assets = 45% of sales), 2) average (50% of sales), 3) conservative (60% of sales). Expected EBIT is 12% of sales, tax rate is 40%.

a) What is the expected ROE under each strategy?

b) There is an assumption that earnings rate and level of expected sales are independent of current asset policy. Is this a valid assumption?

c) How would the overall riskiness of the firm vary under each policy? (P 11.2.)
Assignments for the tutorial

9. Inventory management: Describe the basic nature of the fundamental inventory control model, discussing specifically the nature of increasing costs, decreasing costs and total costs.

10. What are the probable effects of the following decisions on inventory holdings?
   - Changing the structure of suppliers
   - Greater use of intermediate goods for production instead of raw materials
   - Substantial increase of the number of styles produced
   - Starting to manufacture for specific orders

11. EOQ analysis: Tiger Corp purchases 1,200,000 units per year of one component. The fixed cost per order is 25$. The annual carrying cost of the item is 27% of its 2$ cost. a) Determine the EOQ model under: (1) no changes, (2) order cost of zero, and (3) carrying cost of zero. b) What do your answers illustrate about the EOQ model. Explain.