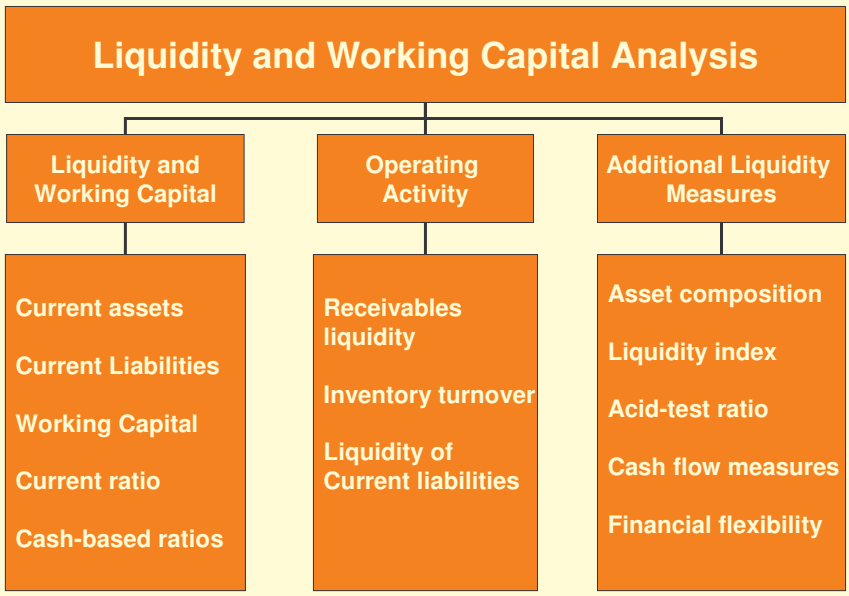
Liquidity & Working Capital Analysis

8

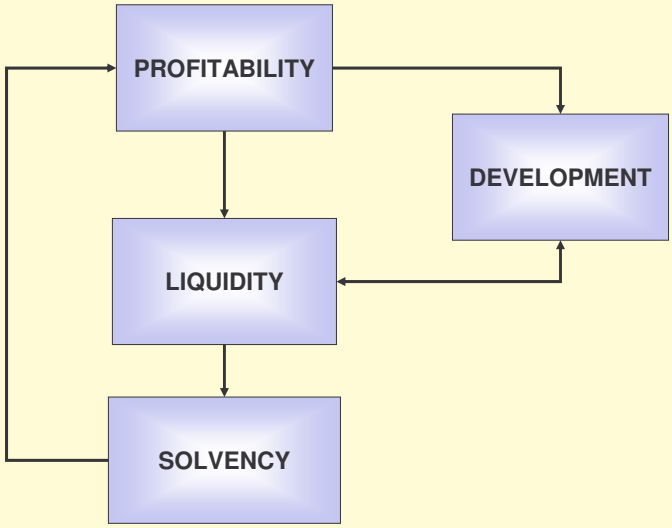
Lecture

Lecture 9: Agenda



Liquidity and Working Capital

Basics



Liquidity and Working Capital

Basics

Company Liquidity refers to the ability to meet short-term obligations

Liquidity is the ability to convert assets into cash or to obtain cash

Short term is a period up to one year, though it is identified with the normal operating cycle of a company

Liquidity and Working Capital

Basics

Liquidity is a matter of degree

Lack of liquidity can limit:

- Advantages of favorable discounts
- Profitable opportunities
- Management actions
- Coverage of current obligations

Severe illiquidity often precedes:

- Lower profitability
- Restricted opportunities
- Loss of owner control
- Loss of capital investment
- Insolvency and bankruptcy

Liquidity and Working Capital

Current Assets

Current assets are cash and other assets reasonably expected to be (1) realized in cash, or (2) sold or consumed, during the longer of one-year or the company's operating cycle

Current assets include:

Cash -- ultimate liquid asset

Cash equivalents -- temporary investments of excess cash

Marketable securities -- debt or equity securities held as s-t investments

Accounts receivable -- amounts due from credit sales

Inventories -- items held for sale in the **normal course** of business

Prepaid expenses -- advance payments for services and supplies

Liquidity and Working Capital

Current Liabilities

Current liabilities are obligations expected to be satisfied within a relatively short period of time, usually one year

Current liabilities include:

Accounts payable
Notes payable
Short-term bank loans
Tax payable
Accrued expenses
Current portion of long-term debt

Liquidity and Working Capital

Working Capital

Working capital is

- defined as the excess of current assets over current liabilities
- Widely used measure of short-term liquidity
- Deficient when current liabilities exceed current assets
- In surplus when current assets exceed current liabilities
- A liquid reserve to meet contingencies and uncertainties
- A margin of safety for creditors
- A constraint for technical default in many debt agreements

Liquidity and Working Capital

Working Capital

Working capital more relevant when related to other key variables such as

- ✧ Sales
- ✧ Total assets

Working capital is of limited value as an absolute amount

Liquidity and Working Capital

Current Ratio

$$\textit{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

Current Ratio Reflects on:

- *Current liability coverage* -- assurance in covering current liabilities
- *Buffer against losses* -- margin of safety for shrinkage in noncash current assets
- *Reserve of liquid funds* --margin of safety against uncertainties and shocks to cash flows

Liquidity and Working Capital

Current Ratio

Some important qualifications

1. Liquidity depends to a large extent on **prospective cash flows**
2. **No direct relation** between working capital account balances and patterns of future cash flows
3. **Managerial policies** are directed **primarily at efficient and profitable asset utilization** and secondly at liquidity
4. Cash flow forecasts and pro forma financial statements are preferred over the current ratio for liquidity and solvency analysis
5. Current ratio is a **static measure** of the ability of current assets to satisfy current liabilities

Liquidity and Working Capital

Current Ratio

Reasons for using the current ratio:

1. Understandability
2. Simplicity in computation
3. Data availability

Two important elements must be evaluated and measured before the current ratio can usefully form a basis of analysis:

1. Quality of both current assets and current liabilities
2. Turnover rate of both current assets and current liabilities

Liquidity and Working Capital

Current Ratio - Applications

Comparative Analysis

Two useful tools in analyzing the trend in the current ratio

Trend analysis -- components of working capital and the current ratio are converted to indexes and examined over time

Common-size analysis -- composition of current assets is examined over time

Liquidity and Working Capital

Current Ratio - Applications

Rule of Thumb Analysis (2:1)

> 2:1 → superior coverage of current liabilities (but not too high, suggesting inefficient use of resources and reduced returns)

< 2:1 → deficient coverage of current liabilities

Liquidity and Working Capital

Cash-Based Ratio of Liquidity

Cash to Current Assets Ratio

$$\frac{\text{Cash} + \text{Cash equivalents} + \text{Marketable securities}}{\text{Current assets}}$$

Larger the ratio, the more liquid are current assets

Liquidity and Working Capital

Cash-Based Ratio of Liquidity

Cash to Current Liabilities Ratio

$$\frac{\text{Cash} + \text{Cash equivalents} + \text{Marketable securities}}{\text{Current liabilities}}$$

Larger the ratio, the more cash available to pay current obligations

Operating Activity Analysis of Liquidity

Accounts Receivable Liquidity

Accounts Receivable Turnover

$$\frac{\text{Net sales on credit}}{\text{Average accounts receivable}}$$

Measures the speed in converting accounts receivable to cash

Measure of quality and liquidity of receivables

Operating Activity Analysis of Liquidity

Accounts Receivable Liquidity

Operating Activity Analysis of Liquidity

Accounts Receivable Liquidity

Accounts Receivable Collection Period

$$\text{Collection period} = \frac{360}{\text{Accounts receivable turnover}}$$

Measures the number of days it takes, on average, to collect accounts (and notes) receivables.

Operating Activity Analysis of Liquidity

Accounts Receivable Liquidity

Days' Sales in Receivables (Alternative to Collection Period)

$$\text{Ending Account Receivable} \div \frac{\text{Sales}}{360}$$

Operating Activity Analysis of Liquidity

Accounts Receivable Liquidity

Temporal Trend Analysis

Trend in:

1. **Collection period over time**
2. $\dfrac{\text{Provision for doubtful accounts}}{\text{Gross accounts receivable}}$

Operating Activity Analysis of Liquidity

Inventory Turnover

Inventory Turnover

$$\frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Measures the average rate of speed inventories move through and out of a company

Measure of quality and liquidity of inventories

(a trade-off exists)

Operating Activity Analysis of Liquidity

Inventory Turnover

Days to Sell Inventory

$$\frac{360}{\text{Inventory turnover}}$$

Useful in assessing purchasing and production policies—**shows the number of days a company takes in selling *average* inventory for that year**

Alternative computation-- **Days' Sales in Inventory**

$$\frac{\text{Ending inventory}}{\text{Cost of average day's sales}}$$

where the cost of average day's sales is:

$$\frac{\text{Cost of goods sold}}{360}$$

Shows the number of days required to sell ***ending*** inventory

Operating Activity Analysis of Liquidity

Inventory Turnover - Illustration

Selected financial information from Macon Resources, Inc., for the end of Year 8 is reproduced below:

Sales	$1,800,000
Cost of goods sold	1,200,000
Beginning inventory	200,000
Ending inventory	400,000

Inventory turnover ratios using *average* inventory are computed as:

$$\textit{Inventory}\ \text{turnover ratio} = \frac{\$1{,}200{,}000}{(\$200{,}000 + \$400{,}000)/2} = 4$$

$$\textit{Days}\ \text{to sell inventory ratio} = \frac{360}{4} = 90\textit{days}$$

Inventory turnover ratios based on *ending* inventory equal:

$$\text{Cost of average day's sales} = \frac{\$1{,}200{,}000}{360} = \$3{,}333$$

$$\text{Days' sales in inventory} = \frac{\$400{,}000}{\$3{,}333} = 120\ \textit{days}$$

Operating Activity Analysis of Liquidity

Inventory Turnover

Conversion Period (Operating Cycle):

Days' to Sell Inventory + Collection Period

Measure of the speed with which inventory is converted to cash

Operating Activity Analysis of Liquidity

Liquidity of Current Liabilities

Quality of Current Liabilities

- Must be judged on their degree of **urgency** in payment
- Must be aware of **unrecorded liabilities** having a claim on current funds (i.e. wages, insurances, etc.)

Operating Activity Analysis of Liquidity

Accounts Payable Liquidity

Accounts Payable Turnover

$$\frac{\text{Purchases}}{\text{Average accounts payable}}$$

Measures the speed at which a company pays for purchases in account

Operating Activity Analysis of Liquidity

Accounts payable Liquidity

Days' Purchases in Accounts Payable

$$\text{Days' purchases in accounts payable} = \frac{\text{Accounts payable}}{\text{Purchases} \div 360}$$

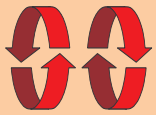
Represents the average days of credit obtained by the company from its suppliers

(remembering that: ***Purchases = Adjusted COGS+ Ending Inventory – Beginning Inventory***)

Liquidity and Working Capital

Current Ratio - Applications

Net Trade Cycle Analysis



Working capital requirements are affected by:

- its desired inventory investment and
- the relation between credit terms from suppliers and those extended to customers

Net Trade Cycle **= Conversion Period (Operating Cycle) – Days' Purchases in Accounts Payable**

The longer the trade cycle, the higher is the working capital requirement

Liquidity and Working Capital

Current Ratio - Applications

Net Trade Cycle—Illustration

Selected financial information from Technology Resources, Inc., for the end of Year 1 is reproduced below:

Sales for Year 1	$360,000
Receivables	40,000
Inventories*	50,000
Accounts payable†	20,000
Cost of goods sold (including depreciation of $30,000)	320,000

*Beginning inventory is $100,000.
†We assume these relate to purchases included in cost of goods sold.

We estimate Technology Resources' purchases as:

Purchases = Adjusted COGS + EI – BI = 320,000-30,000+100,000-50,000=240,000

The net trade cycle for Technology Resources is computed as (in days):

$$\text{Accounts receivable} = \frac{\$40,000}{\$360,000 \div 360} = 40.00 \text{ days}$$

$$\text{Inventories} = \frac{\$50,000}{\$320,000 \div 360} = 56.24 \text{ days}$$

96.24 days

$$\text{Less: Accounts payable} = \frac{\$20,000}{\$240,000 \div 360} = 30.00 \text{ days}$$

$$\text{Net trade cycle (days)} = 66.24 \text{ days}$$

Additional Liquidity Measures

Asset Composition

Composition of current assets is an indicator of working capital liquidity

Use of common-size percentage comparisons facilitates this analysis

Additional Liquidity Measures

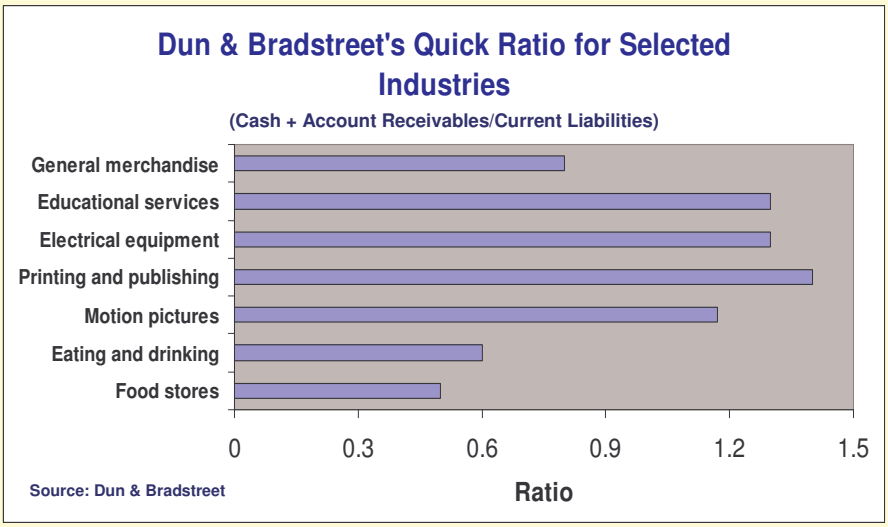
Acid-Test (Quick) Ratio

$$\frac{\text{Cash} + \text{Cash equivalents} + \text{Marketable securities} + \text{Accounts receivable}}{\text{Current liabilities}}$$

Is a more stringent test of liquidity vis-à-vis current ratio

Additional Liquidity Measures

Acid-Test (Quick) Ratio



Additional Liquidity Measures

Cash Flow Measures

Cash Flow Ratio

$$\frac{\text{Operating cash flow}}{\text{Current liabilities}}$$

A ratio of 0.40 or higher is common for healthy companies

Additional Liquidity Measures

Financial Flexibility

Financial flexibility - ability of a company to take steps to overcome unexpected interruptions in the flow of funds

Focus of analysis:

- Ability to borrow from various sources
- To raise equity capital
- To sell and redeploy assets
- To adjust the level and direction of operations to meet changing circumstances
- Levels of prearranged financing and open lines of credit