Corporate Issuers

Working Capital and Liquidity

Exam Focus

- Cash conversion cycle
  - Explain the components of the cash conversion cycle and how they can be changed
- Liquidity
  - Identify primary and secondary sources of liquidity, explain factors affecting liquidity, and measure and evaluate liquidity
- Managing working capital and liquidity
  - Examine different working capital management and funding approaches

Cash Conversion Cycle

Business operations (e.g., manufacture and sale of tangible goods)

- The **operating cycle** includes purchasing materials, manufacturing inventory (with raw materials), selling finished goods, and collecting cash from customers. The cycle may occur once or numerous times during a year.
- The **cash conversion cycle** is a timeline for how long inventory, accounts receivable, and accounts payable remain on the balance sheet.
  - Calculated as: days of inventory on hand (DOH) + days sales outstanding (DSO) – days payable outstanding (DPO)
  - Interpretation: the amount of time between a company paying its suppliers and receiving cash from its customers

Cash Conversion Cycle: Example

Identify the issuer with the longest cash conversion cycle and explain the effects of that length on that issuer relative to the other issuers.

	Issuer A	Issuer B	Issuer C
Days of inventory on hand	20	35	15
Days payables outstanding	15	10	5
Days sales outstanding	30	25	30
Cash conversion cycle			

Shortening the Cash Conversion Cycle

Methods include:

- Reduce DOH: canceling products with low demand, main "just-in-time" inventory levels, analyze data carefully to refine customer demand forecasts and stocking levels
- Reduce DSO: provide early payment discounts; encourage cash, debit card, and credit card payments (they usually settle immediately/quickly); mandate up-front deposits; charge late charges; tighten credit standards
- Increase DPO: negotiating supplier contracts for longer terms in exchange for larger volumes (questionable success as it depends on the level of power the issuer can exert on its suppliers)

Early Payment Discounts: Example

An issuer with limited cash flow is deciding which of its suppliers' credit terms are least costly. Which of the following credit terms offered to the issuer by its suppliers have the lowest effective interest rate?

A. 1/10, net 50.

B. 2/15, net 40.

C. 3/15, net 60.

$$\text{EAR of supplier financing} = \left[\left(1+\frac{\text{discount\%}}{100\% - \text{discount\%}}\right)^{\frac{\text{days in year}}{\text{payment period} - \text{discount period}}}\right] - 1$$

EAR A = =

EAR C = =

EAR B = =

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Working Capital

Total working capital: current assets – current liabilities

Net working capital (usually as % of sales):
current assets (excluding cash and marketable securities) – current liabilities (excluding short-term and current debt)

Because receivables and inventories usually comprise much of current assets, and payables usually comprise much of current liabilities, a short (long) cash conversion cycle usually means a low (high) ratio of working capital to sales.

In general, it is better to hold less working capital and either use capital elsewhere on higher-return projects or return capital to investors.

Working Capital: Example

Consider the following balance sheet for an issuer:

Cash	100	Accounts payable	980
Marketable securities	20	Accrued expenses	70
Accounts receivable	600	Short-term debt	1,000
Inventory	800	Long-term debt	2,000
Prepaid expenses	30	Shareholders' equity	8,000
PP&E	10,000		
Intangibles	500		
Total assets	12,050	Total liabilities and equity	12,050

Working Capital: Example

The issuer's net working capital is *closest* to:

A. −500.

B. 380.

C. 500.

Liquidity

Liquidity is its nearness (within 12 months) to cash or settlement; assets and liabilities are presented on the balance sheet in descending order of liquidity.

Current asset: Cash is the most liquid asset, while inventories are usually the least liquid current asset.

Current liability: Accrued payroll (e.g., to be paid in a few days) is more liquid than short-term debt (e.g., not required to be repaid until six months from now).

Liquidity for an issuer = ability to meet short-term liabilities

Primary Sources of Liquidity

Cash and marketable securities on hand

Borrowings: includes banks and suppliers' trade credit; temporary liquidity sources that eventually need to be repaid

Cash flow from the business: the most important long-term liquidity source, monitored using the statement of cash flows

Calculating Cash Flow

Cash flow from operations

- Cash received from customers
- + Interest and dividend received on financial investments
- – Cash paid to employees and suppliers
- – Taxes paid to governments
- – Interest paid to lenders

Free cash flow

- Cash flow from operations
- – Investments in long-term assets

Calculating Free Cash Flow: Example

Statement of Cash Flows: Lucor Corporation		
Net income	1,000	
Cash flow from operations		1,400
Cash flow from investing		(700)
Investment in long-term assets	(800)	
Cash flow from financing		500
Funds from debt issue	600	
Total net cash flow		1,200

Lucor's free cash flow for this period is *closest* to:

A. 200.

B. 600.

C. 700.

Free cash flow =

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Secondary Sources of Liquidity

1. Suspending or discontinuing dividends
2. Deferring or lowering capital spending
3. Issuing equity
4. Renegotiating contract terms
5. Selling assets
6. Filing for bankruptcy protection

Drag on Liquidity (Lagging Cash Inflows)

1. Uncollected receivables
2. Obsolete inventory
3. Borrowing constraints

Pull on Liquidity (Accelerating Cash Outflows)

1. Making payments early
2. Lowered credit limits
3. Limits on short-term lines of credit
4. Weak liquidity positions

Identifying Drags and Pulls on Liquidity: Example

Keown Corporation is experiencing liquidity challenges. As an analyst, you note three recent trends related to Keown's working capital:

- An increase in average days sales outstanding (DSO).
- An increase in days of inventory on hand (DOH).
- An increase in credit limits by lenders.

Which trend does not contribute to the firm's liquidity challenges?

A. The change in average days sales outstanding.

B. The change in days of inventory on hand.

C. The change in credit limits.

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Liquidity Ratios

Current ratio: current assets / current liabilities

- General guideline is for current ratio > 1 so that all short-term liabilities are covered

Quick ratio: (cash + short-term marketable securities + receivables) / current liabilities

- Excludes inventory as it is arguably less readily convertible to cash

Cash ratio: (cash + short-term marketable securities) / current liabilities

- The most conservative of the three measures
- Cash ratio > 1 suggests the company could cover all of its short-term obligations without needing to wait to sell inventory or collect receivables

Liquidity Calculations: Example

Balance Sheet Licht Vernieuwend NV €'m					
	20X2	20X1		20X2	20X1
Cash	40	45	Accounts payable	130	140
Marketable securities	70	90	Accrued expenses	30	15
Accounts receivable	85	90	Short-term loan	60	70
Inventory	130	66	Long-term debt	400	400
Prepaid accounts	10	15	Equity	805	706
Net PP&E	1,000	950			
Intangibles	90	75			
Total assets	1,425	1,331	Total L&E	1,425	1,331

Liquidity Calculations: Example

What is the net working capital change from 20X1 to 20X2 and what is the primary driver?

€'m	20X2	20X1
Accounts receivable		
Inventory		
Prepaid accounts		
Accounts payable		
Accrued expenses		
Net working capital		

The change was caused mainly by the increased investment of

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Liquidity Calculations: Example

Based on the current ratio and the quick ratio, **determine** and **discuss** the change in liquidity.

Current ratio = current assets / current liabilities

20X1 =

20X2 =

Based on the current ratio, liquidity has

Quick ratio = (cash + ST marketable securities + receivables) / current liabilities

20X1 =

20X2 =

Based on the quick ratio, liquidity has

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Liquidity Calculations: Example

It makes more sense to look at liquidity using the more conservative ratio (quick ratio) by measuring the company's ability to settle near-term obligations using more liquid assets (e.g., cash, ST marketable securities, receivables) and omitting less liquid assets (e.g., inventory).

Working Capital Management Approach (Conservative)

- Larger current asset balances relative to sales; more reliance on long-term debt and equity
- **Advantages:** more stable and long-term financing with costs known up front; greater certainty of having sufficient working capital to acquire the needed inventory; longer debt repayment terms and greater resilience during turbulent markets
- **Disadvantages:** generally greater cost of debt and equity; the presence of long-term debt may impair flexibility of business operations

Why choose conservative approach?

- Start-up company that is less able to obtain short-term financing
- Expect interest rates to be stable or rising

Working Capital Management Approach (Aggressive)

- Smaller current asset balances relative to sales; more reliance on short-term debt
- **Advantages:** generally lower financing costs; borrowing amounts only as needed; lesser impairment of flexibility of business operations
- **Disadvantages:** less certainty of financing costs due to high fluctuation of short-term interest rates (rollover risk, especially during turbulent markets); less financial flexibility

Why choose aggressive approach?

- Able to forecast sales and cash needs very accurately
- Expect interest rates to be stable or falling
- Able to easily sell inventory and quickly collect accounts receivable

Working Capital Management Approach (Moderate)

- Medium current asset balances relative to sales; balanced use of long-term debt (e.g., stable and predictable needs) and short-term debt (e.g., less predictable seasonal or growth-based needs)
- **Advantages:** less costly than conservative approach and less risky than aggressive approach; some flexibility regarding short-term financing
- **Disadvantages:** less certainty in obtaining short-term financing and of financing costs during turbulent markets

Why choose moderate approach?

- Able to forecast base cash needs accurately with some uncertainty for variable needs
- Desire for lower financing costs, and yet a moderate amount of financial flexibility

Working Capital Management: Example

Classify each of the following in terms of approaches to working capital management:

	Conservative	Aggressive
Greater level of inventory relative to sales		
Greater reliance on long-term financing		
Greater level of cash on hand		
Greater level of marketable securities		
Greater reliance on short-term loans		

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Short-Term Funding Needs: Example

Keown Corporation is considering an increase in the line of credit it offers to new customers as its sales manager believes doing so will lead to increased sales. What would be the expected impact on Keown's short-term funding needs if this change were made?

A. The company would reduce its inventory levels.
B. The company would likely collect faster, reducing its receivables.
C. The company would have an increased need for working capital.
D. The company could pay its suppliers sooner, reducing its accounts payable.
E. The company would not see any change in working capital needs as a result of the change.

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Solutions

Cash Conversion Cycle: Example

Identify the issuer with the longest cash conversion cycle and explain the effects of that length on that issuer relative to the other issuers.

	Issuer A	Issuer B	Issuer C
Days of inventory on hand	20	35	15
Days payables outstanding	15	10	5
Days sales outstanding	30	25	30
Cash conversion cycle	35	50	40

Issuer B is more reliant on alternative financing to support its operations relative to the other issuers.

Early Payment Discounts: Example

An issuer with limited cash flow is deciding which of its suppliers' credit terms are least costly. Which of the following credit terms offered to the issuer by its suppliers have the lowest effective interest rate?

A. 1/10, net 50.
B. 2/15, net 40.
C. 3/15, net 60.

$$\text{EAR of supplier financing} = \left[\left(1+\frac{\text{discount\%}}{100\% - \text{discount\%}}\right)^{\frac{\text{days in year}}{\text{payment period} - \text{discount period}}}\right] - 1$$

$$\text{EAR A} = \left[\left(1+\frac{1\%}{100\% - 1\%}\right)^{\frac{365}{50-10}}\right] - 1 = 0.096 \text{ or } 9.6\%$$

$$\text{EAR B} = \left[\left(1+\frac{2\%}{100\% - 2\%}\right)^{\frac{365}{40-15}}\right] - 1 = 0.343 \text{ or } 34.3\%$$

$$\text{EAR C} = \left[\left(1+\frac{3\%}{100\% - 3\%}\right)^{\frac{365}{60-15}}\right] - 1 = 0.280 \text{ or } 28\%$$

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Working Capital: Example

The issuer's net working capital is *closest* to:

A. −500.
B. 380.
C. 500.

\+ Current assets, excluding cash and marketable securities
− Current liabilities, excluding short-term and current debt
= Net working capital

600+800+30
980+70
= 380

-2

Calculating Free Cash Flow: Example

Statement of Cash Flows: Lucor Corporation		
Net income	1,000	
Cash flow from operations		1,400
Cash flow from investing		(700)
Investment in long-term assets	(800)	
Cash flow from financing		500
Funds from debt issue	600	
Total net cash flow		1,200

Lucor's free cash flow for this period is *closest* to:

A. 200.

B. 600.

C. 700.

Free cash flow = cash flow from operations – investment in long-term assets = 1,400 – 800 = 600

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Identifying Drags and Pulls on Liquidity: Example

Keown Corporation is experiencing liquidity challenges. As an analyst, you note three recent trends related to Keown's working capital:

- An increase in average days sales outstanding (DSO).
- An increase in days of inventory on hand (DOH).
- An increase in credit limits by lenders.

Which trend does not contribute to the firm's liquidity challenges?

A. The change in average days sales outstanding.

B. The change in days of inventory on hand.

C. The change in credit limits.

Increasing credit limits is not a pull on liquidity; it is the opposite by providing liquidity

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Liquidity Calculations: Example

What is the net working capital change from 20X1 to 20X2 and what is the primary driver?

€'m	20X2	20X1
Accounts receivable	85	90
Inventory	130	66
Prepaid accounts	10	15
Accounts payable	(130)	(140)
Accrued expenses	(30)	(15)
Net working capital	65	16

The change was €49m caused mainly by the increased inventory investment of €64m.

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Liquidity Calculations: Example

Based on the current ratio and the quick ratio, **determine** and **discuss** the change in liquidity.

Current ratio = current assets / current liabilities

$$20X1 = \frac{(45 + 90 + 90 + 66 + 15)}{(140 + 15 + 70)} = 1.36$$

$$20X2 = \frac{(40 + 70 + 85 + 130 + 10)}{(130 + 30 + 60)} = 1.52$$

Based on the current ratio, liquidity has increased.

Quick ratio = (cash + ST marketable securities + receivables) / current liabilities

$$20X1 = \frac{(45 + 90 + 90)}{(140 + 15 + 70)} = 1.00$$

$$20X2 = \frac{(40 + 70 + 85)}{(130 + 30 + 60)} = 0.89$$

Based on the quick ratio, liquidity has decreased.

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Working Capital Management: Example

Classify each of the following in terms of approaches to working capital management:

	Conservative	Aggressive
Greater level of inventory relative to sales	✓	
Greater reliance on long-term financing	✓	
Greater level of cash on hand	✓	
Greater level of marketable securities	✓	
Greater reliance on short-term loans		✓

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Short-Term Funding Needs: Example

Keown Corporation is considering an increase in the line of credit it offers to new customers as its sales manager believes doing so will lead to increased sales. What would be the expected impact on Keown's short-term funding needs if this change were made?

A. The company would reduce its inventory levels.
B. The company would likely collect faster, reducing its receivables.
C. The company would have an increased need for working capital.
D. The company could pay its suppliers sooner, reducing its accounts payable.
E. The company would not see any change in working capital needs as a result of the change

The company would likely require greater short-term funding to support the expected increase in required inventory AND accounts receivable resulting from the increase in sales.

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