LCL | LUXEMBOURG CENTRE FOR LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Working capital and cash conversion cycle

LCL Executive Education Workshop

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After this session, you should …

- … know the basics of working capital and working capital requirements.
- … be aware of the impact of supply chain decisions on working capital.
- … know how to calculate the cash-to-cash cycle.
- … be able to interpret the cash-to-cash cycle.
- … understand the difference in analyzing working capital and the cash-to-cash cycle.

Agenda

1. Working Capital
    1. Why is it relevant?
    2. Working capital and SC operations
2. Cash-to-cash cycle
    1. Calculation
    2. Interpretation

Working Capital

Working Capital (WC)

- Working Capital
  - A basic measure of both a company's efficiency and its short-term financial health
  - Tightly coupled with “net working capital” or “working capital ratio”

- Working Capital = Current Assets – Current Liabilities

- Primary components:
  - Accounts Receivable, Inventory, Accounts Payable
  - Cash, Short Term Investments, Short Term Debt

Supply Chain can impact these

…not so much

Some examples

	Starbucks 2017	Villeroy & Boch 2017	Delhaize 2017	MAN Trucks 2017	Lufthansa 2017	Air France KLM 2017
Current assets						
Current liabilities						
Working Capital						

Why is Working Capital important?

- Working Capital → the resources being used for daily operations of the business
- Analyzing Working Capital
  - Positive Working Capital if Current Assets > Current Liabilities
  - Negative Working Capital if Current Assets < Current Liabilities
- Which is better?

It depends…

Positive Working Capital

- Positive Working Capital enables the firm to continue its operations and to satisfy both maturing short-term debt and upcoming operational expenses

- Basically….they can pay their current bills when due

Negative Working Capital

- Sometimes called a **working capital deficiency (or deficit)**

- Negative working capital means that there are not enough current assets (cash, accounts receivable, inventory) to satisfy their current liabilities (accounts payable, maturing short-term debt and upcoming operational expenses)

- This can be good or this can be bad
  - Good: company collects revenues before having to pay for materials used to generate the revenues.
  - Bad: company cannot convert assets into cash quick enough to pay off liabilities. A company can have assets & profits but lack liquidity if assets can't readily be converted to cash.

Managing Negative Working Capital

- A Negative working capital situation (CA < CL) can be managed if:
  - The non-cash portion of working capital – accounts receivable, accounts payable – are actively used
    - The firm operates with **OPM (other people's money)**
    - Get paid by customers before you have to pay suppliers
  - For example, in subscription-based revenue businesses (such as newspapers) – the company gets paid in advance, long before the firm has to deliver the services or pay suppliers

Working Capital Requirements

- How much working capital is necessary to properly operate?
- Enough working capital is…..enough to:
  - Operate the business
  - Serve the customers
  - Deal with some variation in cash flows
  - “Too much” – they are not an efficient user of resources
  - “Not enough” – may indicate potential cash flow problems if the timing of cash flows is delayed, accelerated
- But to fully understand these needs, one would need to understand the timing of the operational cash flows
  - From the time of purchasing materials to production and sale of product
  - From the time of purchasing materials to the time of payment to suppliers
  - From the time of product sale to collection of payment from customer

Options for Managing Working Capital

- Collect receivables quickly
  - Consider creating sales terms and conditions to provide incentive to pay early (e.g. 2% discount if paid within 10 days)
- Stretch out payables as long as possible – but beware of damaging supplier relationship
  - Consider creating purchasing terms and conditions to establish 60 or 90 day payable cycle
- Maintain inventory levels at lowest level to service the business need
- Possibly convert current liabilities to long-term liabilities

Working Capital & SCM

- SC responsible for one primary component of WC
  - Inventory
- SC has impact on two other primary components
  - Accounts Receivable
  - Accounts Payable
- SC actions
  - Maintain minimal but necessary inventory levels to serve business needs while keeping inventory ‘fresh’ / ‘current’
  - Support policies and terms that allow quick collection of receivables
  - Support policies and terms that delay payment to suppliers (while maintaining supplier health)

SC Finance Practices & Impact on WC

SC Finance Practice	Advantages & Disadvantages
Extended payment terms from suppliers	Longer time to pay supplier helps WC but may come at the expense of higher unit cost
Discount for early payment by customers	Faster payment from customer increases cash in WC but lower revenue from discount hurts operating profit
Finance Raw Materials & WIP purchases for small suppliers	Assures supply but this increases liabilities raises cost & WC requirements
3PL finances Vendor Managed Inventory (VMI)	Lower inventory recorded on books reduces WC requirements but 3PL adds to operating cost
Discount for early payment to suppliers	Lowers unit cost but reduces cash available to satisfy liabilities
Extended payment terms for customers	May help get additional volume from customer but increases WC requirements

Cash-to-Cash Cycle

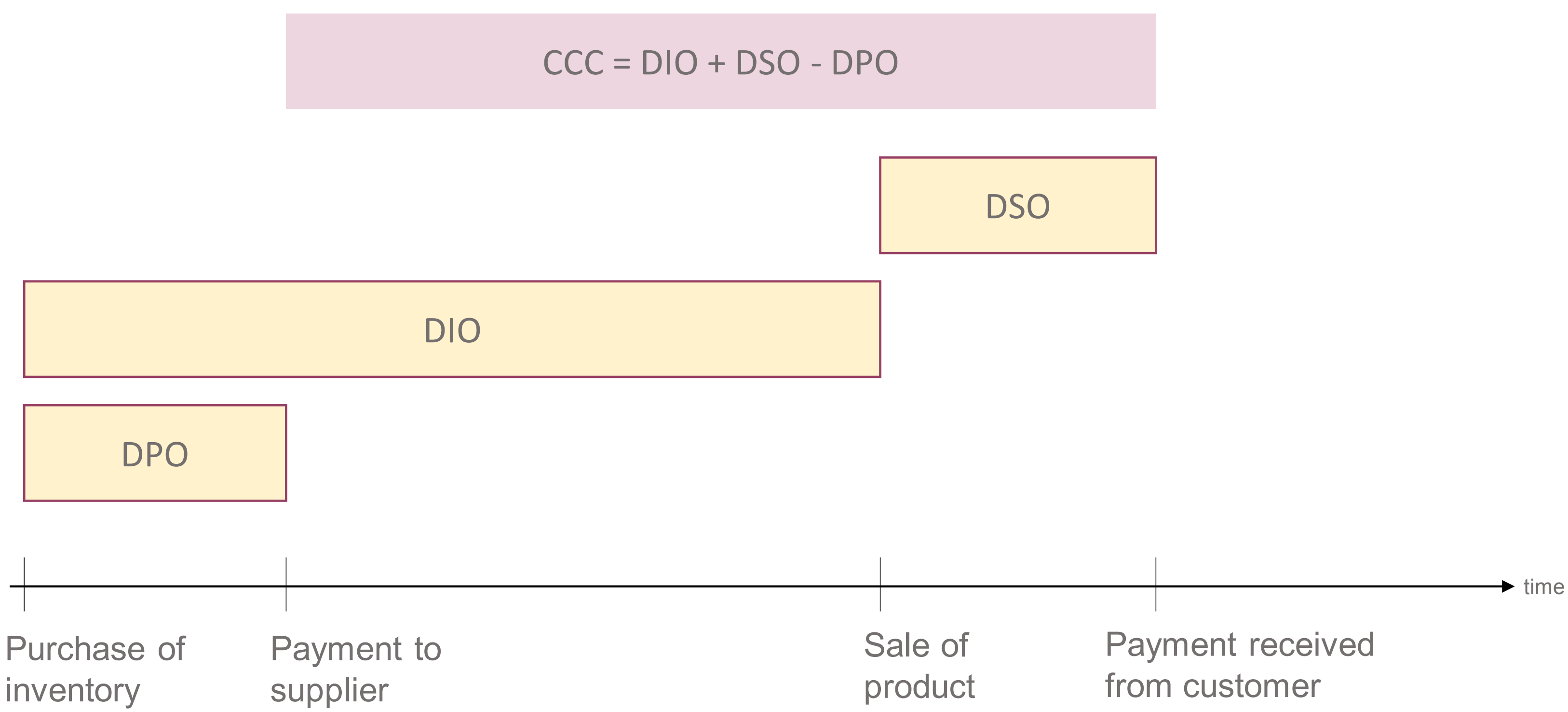
Cash Conversion Cycle (CCC)

- Cash Conversion Cycle
  - Also known as the "cash" or "operating" cycle.
  - A liquidity measure.
  - Expresses the amount of time (in days) that a company uses to sell inventory, collect receivables and pay its accounts payable.
  - Measures the number of days that a company's cash is tied up in the production and sales process of its operations, and the benefit it gets from payment terms from its creditors.
  - The shorter the cycle, the more liquid the company’s working capital position.

Cash Conversion Cycle (CCC) Components

- Cash Conversion Cycle = DIO + DSO - DPO
  - Days of Inventory Outstanding (DIO) measures how long it takes a company to turn inventory into sales.
  - Days of Sales Outstanding (DSO) measures how long it takes a company to receive payment on Accounts Receivable.
  - Days of Payables Outstanding (DPO) measures how long it takes a company to pay its Accounts Payable.

Cash Conversion Cycle (CCC) Components



Days of Inventory Outstanding (DIO)

- DIO = (Average Inventory/Cost of Sales*) x 365
  - A financial measure of a company's performance that tells investors how long it takes a company to turn its inventory (including raw materials and WIP) into sales.
    - Sometimes called Days Sales In Inventory (DSI)
  - Equals the average inventory divided by Cost of Sales per day
    - Inventory is recorded at cost, so Cost of Sales is used
  - Which is better? High DIO or low DIO? Pros and Cons?
  - <u>In general, a lower/shorter DIO is better, but it varies by industry. Best to understand reasons for high/low DIO</u>….
    - But a firm may choose to have a higher DIO recognizing the need for a longer production and sales cycle for custom products for example

*Cost of sales, aka COGs

Days of Payables Outstanding (DPO)

- DPO = (Average Accounts Payable/Cost of Sales) x 365
  - A company's average payable period
  - DPO is an indicator of how long a company is taking to pay its trade creditors.
  - Accounts Payables to suppliers are recorded at cost of the materials, so COGS (Cost of Sales) is used.
  - Which is better? High DPO or low DPO? Pros and Cons?
  - When would it make sense to have a low DPO?
    - In general, a longer DPO is better, provided the firm is not damaging the relationships with suppliers or supplier performance by extending the payment

Days of Sales Outstanding (DSO)

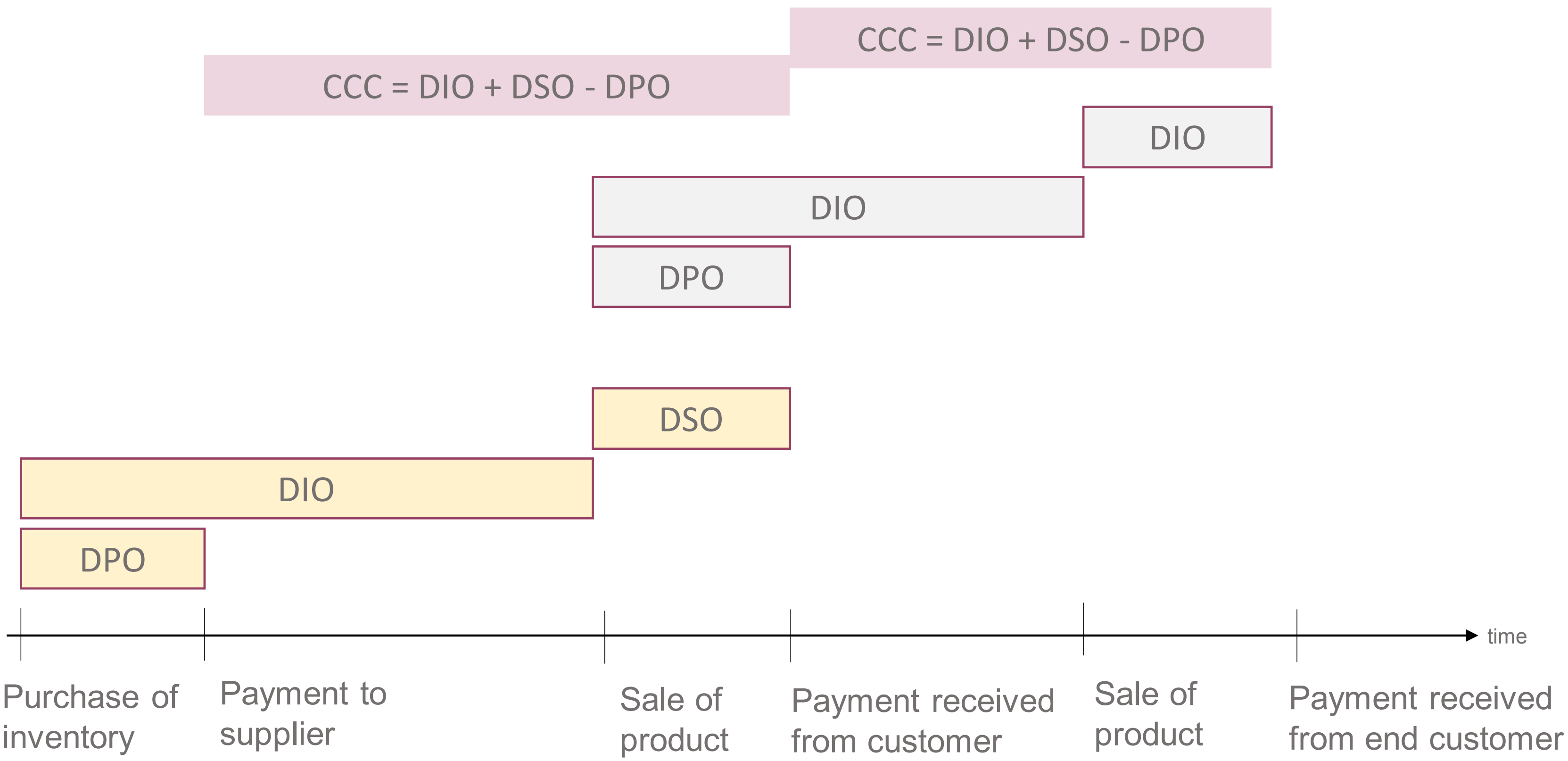
- DSO = (Avg Accounts Receivable/Total Sales*) x 365
  - Measure of average # of days that the company takes to collect revenue after sale
  - DSO is typically looked at either quarterly or yearly (90 or 365 days)
  - Accounts Receivable are credit sales to customers, so Total (credit) Sales is used
  - Which is better? High DSO or low DSO? Pros and Cons?
    - Generally, a low DSO is better because it takes a company fewer days to collect than having a high DSO
    - A high DSO might indicate the firm providing financial support to suppliers…or the need to sell to less credit-worthy customers

* If the business uses cash, then one should separate out credit sales from cash sales because cash sales are not 'outstanding'

Back to our examples

	Starbucks 2017	Villeroy & Boch 2017	Delhaize 2017	MAN Trucks 2017	Lufthansa 2017	Air France KLM 2017
Cost of Sales						
Inventory starting						
Inventory ending						
Average inventory						
A/P starting						
A/P ending						
average A/P						
Sales						
A/R starting						
A/R ending						
average A/R						
DIO						
DPO						
DSO						
CCC						
	CASH !		CASH !		CASH !	CASH !

A supply chain perspective on CCC



Take away points

- Working capital represents the resources utilized to operate the business
- Positive working capital is generally better than negative working capital
  - But it depends on quality of inventory, timing of cash flows
- The supply chain has control of inventory and influence on two other critical elements of working capital: accounts receivable and accounts payable.
- DIO: Days of inventory outstanding
- DSO: Days of sales outstanding
- DPO: Days of payables outstanding

Jointly indicate how long a company needs to finance its operations

- The CCC can provide useful input into the timing of working capital requirements