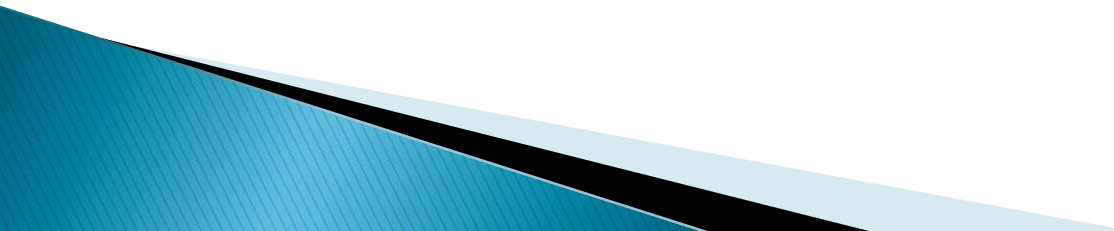


Working (current, circulating)  
capital



# Main questions

1. The concept and structure of working capital
  2. Current assets and their characteristics
  3. Calculation of the need for working capital
- 

# Working capital is


- the part of the property of the enterprise, turning over during one production cycle;
- is used as in production cycle (raw materials, details, fuel, energy and instruments) so in commercial relations (finished goods, cash and debts)

The main difference between working capital and other types of capital is that working capital, by definition, circulates through the business, unavailable for other uses. It's not machinery, land, and buildings, which are fixed assets. Rather, it's the rhythmic needs of the business: inventory building up then being sold, waiting on money to come back in from sales, paying bills, renewing inventories, and starting all over again.

# Working capital

Some economists define working capital as the entire short-term assets or current assets, which include cash, tradable stock, inventory, and accounts receivable. Companies use working capital to fulfill their business needs in order to conduct operational activities.

Hence, without sufficient working capital, business activities cannot be performed optimally. This condition may disrupt, or even halt, operational activities. Working capital is crucial because every business activity begins with it. A mistake in financial decisions, either in fund search or use, may endanger the company's operational activities.

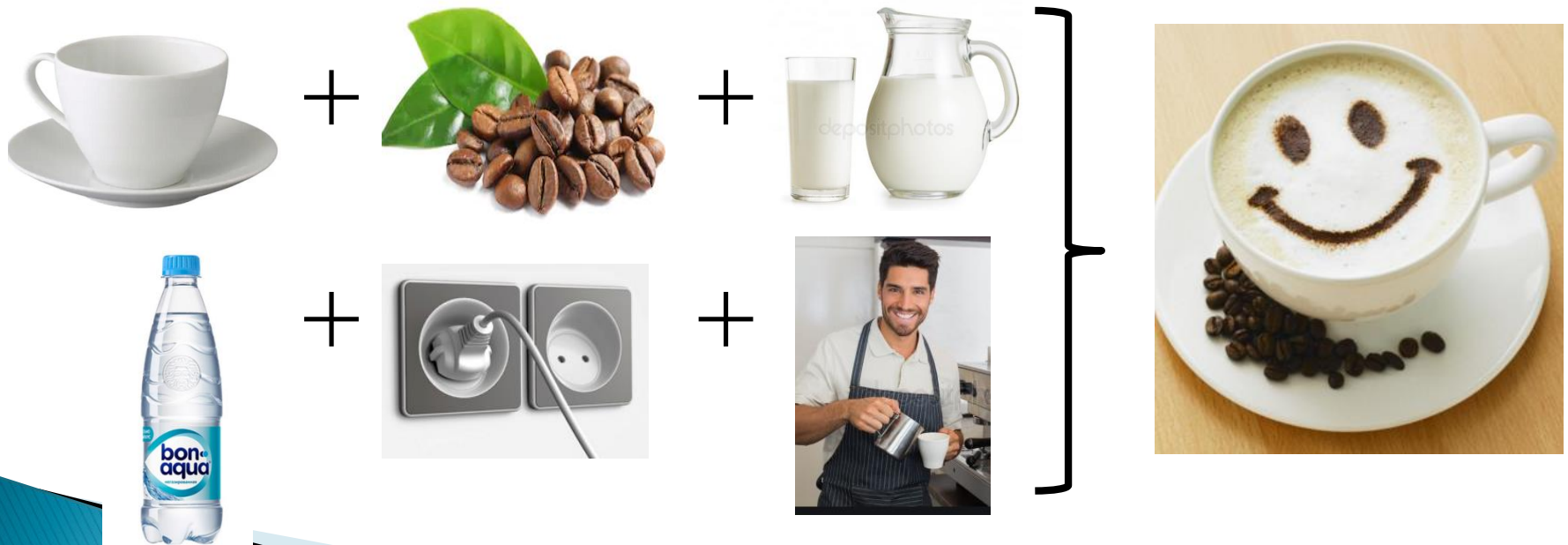


# Working capital cycle



# Current assets are

- used in production process;
- involved in the production process single time;
- transformed within the production process;
- completely transferring their value to finished products in each production cycle



# Current non-cash assets include

- Inventories (raw materials, auxiliary materials, fuel, energy, containers, spare parts for repairs, etc.)
- Work-in-progress (Goods in production, semi-finished goods);
- Prepaid (Deferred) expenses – expenses incurred in the accounting period but payable in the future (for example, expenses for production preparation and development of new products)



# Convertible current assets include

- Finished goods in the inventory;



- Finished goods in transitions;



- Cash;



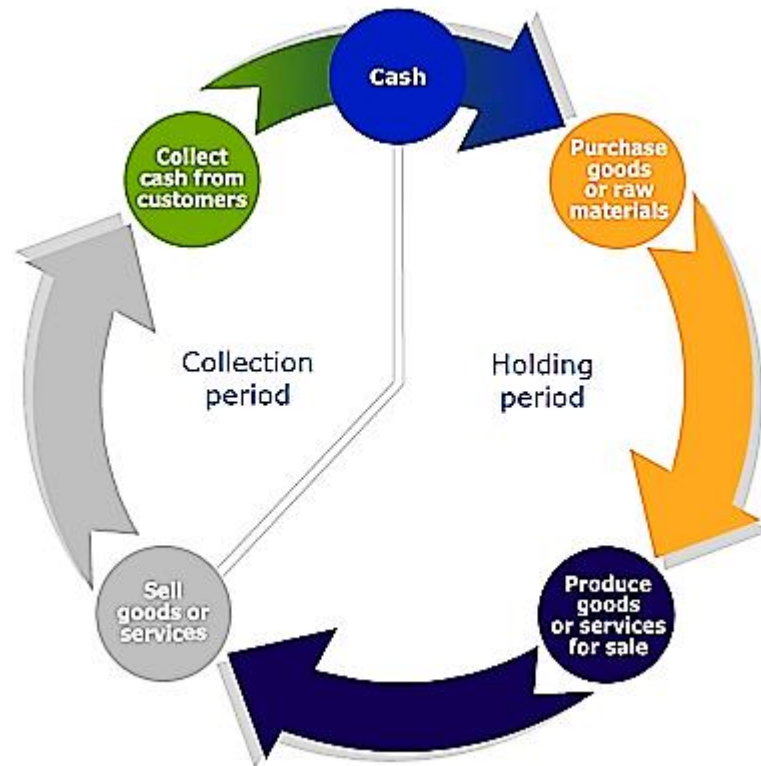
- Debts for sold finished goods






# Cash current assets

- are used to buy non-cash current capital, and received after finished goods sale;
- are not included in the value of finished goods;
- are performing as the carriers of already created value.



# Cash current assets include

- petty cash (small amount of cash that use in operation for small and immediate expenses),
  - cash on hand (come from cash sales or cash collection from the firm's customers; usually not allow making payment to suppliers before it banks in or transfers to petty cash),
  - cash in the bank (current account, savings account, fixed-term deposit or similar),
  - cash advance,
  - short term loan,
  - accounts receivables,
  - Inventories,
  - short term staff loan,
  - short term investment,
  - prepaid expenses
- 

# Working capital is also classified as

1. **Permanent Working Capital**: a compulsory working capital for any company to function well within one accounting period. This type of working capital can be categorized into two types, namely:
  - (a) Primary working capital, which refers to the minimum amount of working capital required to ensure business sustainability;
  - (b) Normal working capital, which refers to the amount of working capital required to run production activities under normal capacity. There is no strict definition of 'normal capacity', as it depends on the company's condition.
2. **Variable Working Capital**: refers to the amount of working capital required in a particular situation, which has changeable amount based on the situational change in one period. Variable working capital can be categorized into three types:
  - (a) Seasonal working capital, which refers to the changing amount of working capital as a result the change in season;
  - (b) Cyclic working capital, which refers to the changing amount of working capital as a result of the change in product demand;
  - (c) Emergency working capital, which refers to the changing amount of working capital as a result of unexpected incidents, such as fire, flood, earthquake, and labor strike.

# Working capital financing



# Basic Definitions

- ▶ Gross working capital:  
Total current assets (TCA).
- ▶ Net working capital (NWC):  
Current assets (CA) – Current liabilities (CL).
- ▶ Net operating working capital (NOWC):  
Operating CA – Operating CL =  
(Cash + Inv. + A/R) – (Accruals + A/P),  
where  
Inv. – Inventory, A/R – Accounts receivable, A/P –  
Accounts payable

# Working capital calculation

## ▶ Current Assets

This is what a company currently owns—both tangible and intangible—that it can easily turn into cash within one year or one business cycle, whichever is less.

More obvious categories include:

- checking and savings accounts;
- highly liquid marketable securities such as: stocks, bonds, mutual funds, ETFs (exchange-traded fund is a basket of securities that tracks an underlying index);
- money market accounts (an interest-bearing account at a bank or credit union);
- cash and cash equivalents (value of a company's assets that are cash or can be converted into cash immediately; include bank accounts and debt securities with maturities of less than 90 days);
- accounts receivable (the balance of money due to a firm for goods or services delivered or used but not yet paid for by customers),
- inventory,
- other shorter-term prepaid expenses (prepayments for a period less than 1 year).

Other examples include current assets of discontinued operations and interest payable.

**CURRENT ASSETS DO NOT INCLUDE LONG-TERM OR ILLIQUID INVESTMENTS SUCH AS CERTAIN HEDGE FUNDS, REAL ESTATE, OR COLLECTIBLES.**

# Working capital calculation

## ▶ Current Liabilities

In similar fashion, current liabilities include all the debts and expenses the firm expects to pay within a year or one business cycle, whichever is less.

This typically includes:

- all the normal costs of running the business such as rent, utilities, materials and supplies;
- interest or principal payments on debt;
- accounts payable (company's obligation to pay off a short-term debt to its creditors or suppliers);
- accrued liabilities (expense that a business has incurred but has not yet paid);
- accrued income taxes (Accrued income is revenue that's been earned, but has yet to be received, and if the taxation is based on the accrued income principle).

Other current liabilities include dividends payable, capital leases due within a year, and long-term debt that is now coming due.

# Working capital calculation

Working capital is calculated by using the current ratio, which is current assets divided by current liabilities. **A ratio above 1 means current assets exceed liabilities, and generally, the higher the ratio, the better.**

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

## Working Capital Example: Coca-Cola

- ▶ For the fiscal year ending December 31, 2017, The Coca-Cola Company (KO) had current assets valued at \$36.54 billion. They included cash and cash equivalents, short-term investments, marketable securities, accounts receivable, inventories, prepaid expenses, and assets held for sale.
- ▶ Coca-Cola had current liabilities for the fiscal year ending December 2017 equaling \$27.19 billion. The current liabilities included accounts payable, accrued expenses, loans and notes payable, current maturities of long-term debt, accrued income taxes, and liabilities held for sale.

According to the information above, the company's current ratio is 1.34:

$$\$36.54 \text{ billion} \div \$27.19 \text{ billion} = 1.34$$



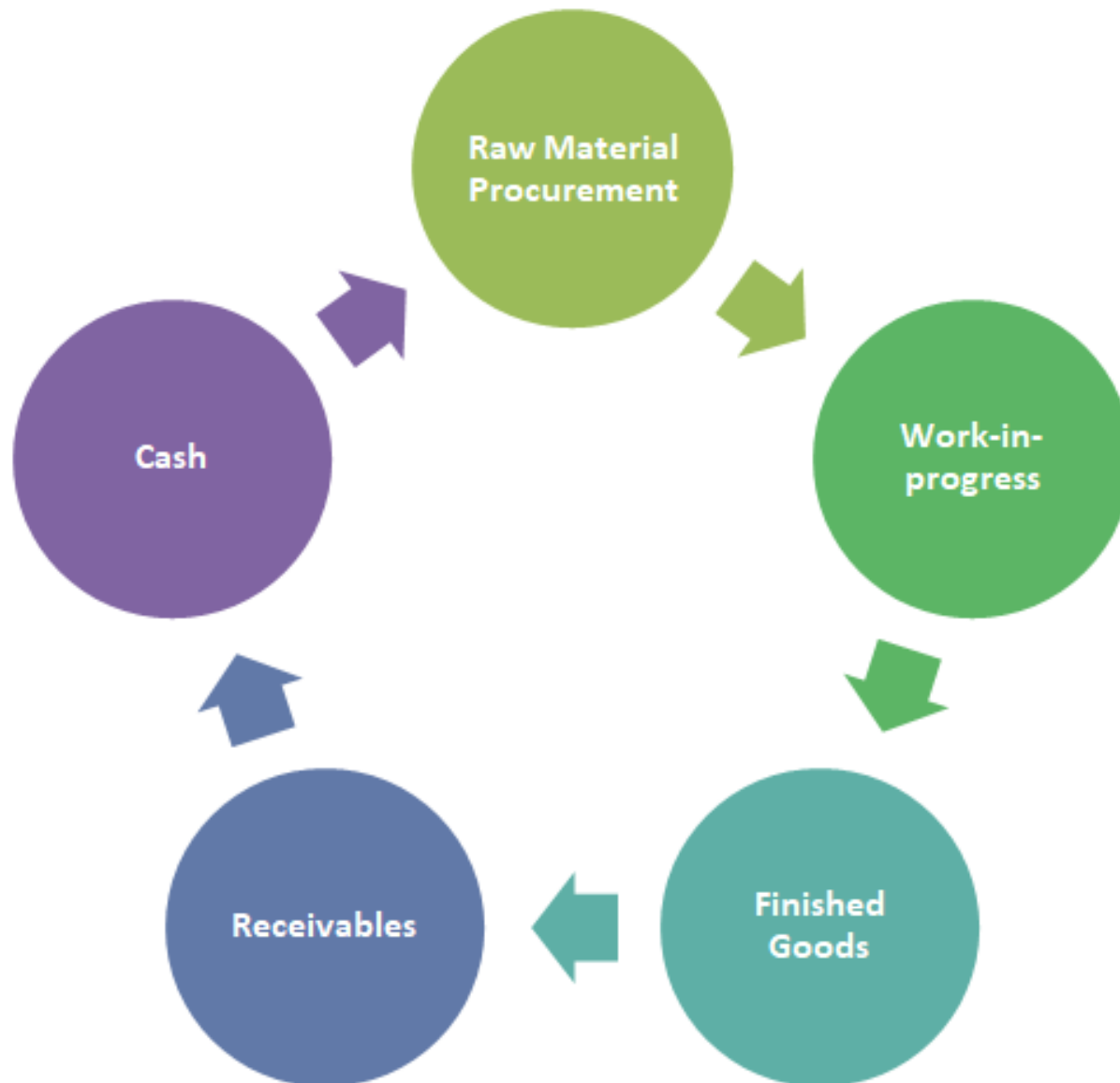
# What is Operating Cycle?

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The operating cycle (Cash Cycle) of a company is an activity ratio measuring the average period of time required for turning the company's inventories into cash. This process of producing or purchasing inventories, selling finished goods, receiving cash from customers and using that cash to purchase/produce inventories again is a never-ending cycle, as long as the company remains in operation.

This cycle provides an insight on the operating efficiency of the company. This is useful in estimating the Cash cycle in working capital requirement for maintaining or growing an organization's operations. Shorter Cash cycle indicate that company recovers its investments quicker and hence has less cash tied up in working capital. However, OC varies across industries, sometimes extending to more than a year for some sectors, for example, shipbuilding companies.

## Operating Cycle Diagram (Cash cycle)



## Gross vs Net Operating Cycle

Gross operating cycle (GOC) is the time period after raw material purchase till its transformation to cash. As per operating cycle formula, the time can be divided into inventory holding period and receivables collection period. Here inventory holding period comprises raw material holding period, work-in-process period and finished goods holding period.

- Gross Operating Cycle Formula = Inventory Holding Period + Receivables Collection Period
- Or Gross OC = Raw Material Holding Period + Work-In-Process Period + Finished Goods Holding Period + Receivables Collection Period

## Gross vs Net Operating Cycle

Net Operating cycle (NOC) refers to the time period between paying for inventory and cash collected through the sale of receivables. It is also known as Cash conversion cycle (CCC).

- Net Operating Cycle Formula = Gross Operating Cycle - Creditor's Payment Period
- The net OC is considered a more logical approach since payables are viewed as a source of operating cash or operating cycle in working capital for the company.

# Operating Cycle Calculation

$\text{NOC (days)} = \text{Days Inventory Outstanding (DIO)} + \text{Days Sales Outstanding (DSO)} - \text{Days Payable Outstanding (DPO)}$

## #1 – Days Inventory Outstanding

Days inventory outstanding is the average number of days required for the company to convert its inventory into sales. A lower DIO speaks of the efficient use of the inventory since it signifies lower holding period and little chance of inventory becoming obsolete. Automobile companies usually maintain just-in-time production system by maintaining minimum inventory levels and thus lower DIO. However, some companies may choose higher DIO to service customer orders at a shorter time and thus maintain a competitive niche.

## #1 – Days Inventory Outstanding

- $DIO = 365 / \text{Inventory Turnover}$

Where,  $\text{Inventory Turnover} = \frac{\text{Annual Cost of Goods Sold}}{\text{Average Inventory cost}}$

and  $\text{Average Inventory Cost} = \frac{(\text{Beginning of the year inventory} + \text{End of year inventory})}{2}$

The average figure is taken for all Balance Sheet items while computing this Cycle to maintain consistency between numerator and denominator which have both income statement and balance sheet items. While income statement measures activities for the whole year, balance sheet provides the value of the item as on a particular day.

## #1 – Days Inventory Outstanding

DIO can be broken up into raw material holding period, work-in-process period and finished goods holding period.

- Raw Material Holding Period =  $365 * (\text{Average raw material inventory}) / (\text{Annual consumption of raw material})$
- Work-In-Process Period =  $365 * (\text{Average work-in-process inventory}) / (\text{Annual cost of goods sold})$
- Finished Goods Holding Period =  $365 * (\text{Average finished goods inventory}) / (\text{Annual cost of goods sold})$

## #2 – Days Sales Outstanding

Days Sales Outstanding or receivables collection period is the average number of days taken by a company to collect cash from its credit sales. It gives an indication of the efficiency of the collection department and the bargaining power of the seller. While lower DSO increases the cash flow and liquidity, higher DSO may indicate less aggressive credit terms to boost sales but could run the risk of higher bad debts.

- $DSO = 365 / \text{Receivables Turnover}$

Where  $\text{Receivables Turnover} = \text{Net Credit Sales} / \text{Average Accounts}$

Receivable



## #3 – Days Payable Outstanding

Days Payable outstanding or the creditor's payment period is the average number of days taken by a company to pay its invoices from trade creditors. DPO gives an indication of the efficiency in cash flow management of a company. While longer payment periods would leave higher free cash flow with the company, future credit terms may be less favorable for the company and discounts for timely payments may not be available. If DPO of a company is lower than industry benchmark, that would indicate that the company is not using its cash as efficiently as its competitors.

- $DPO = 365 / \text{Payables Turnover}$

Where  $\text{Payables Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Accounts Payable}}$

# Definitions (Continued)

- ▶ Working capital management:

Includes both establishing working capital policy and then the day-to-day control of cash, inventories, receivables, accruals, and accounts payable.

The management of these components, such as cash, accounts receivable, and inventory, requires the consideration of turnover period and component content amount.

In conclusion, working capital management can be described as the process of managing each of the working capital components in order to produce positive outcome for the company. Turnover period is an important aspect in the management of working capital. For efficiency purpose, the company must ensure that the working capital turnover within a period does not take too long. The amount of working capital components will determine the amount of the company's current assets. Therefore, corporate decision on the amount of working capital will determine the amount of current assets.

# Definitions (Continued)

The role of working capital management is based on its two functions, which are:

- (1) Supporting production activities and sales, acting as a bridge between inventory purchase expense and sales, and receiving payment;
- (2) Closing fixed expense or funds with no direct relation to production or sales.

Working capital management requires monitoring a company's assets and liabilities to maintain sufficient cash flow.

The strategy involves tracking three ratios: the working capital ratio, the collection ratio, and the inventory ratio.

Keeping those three ratios at optimal levels ensures efficient working capital management.

# Definitions (Continued)

The working capital ratio (*current ratio*) is calculated as current assets divided by current liabilities. It is a key indicator of a company's financial health as it demonstrates its ability to meet its short-term financial obligations.

- ▶ Although numbers vary by industry, a working capital ratio below 1.0 generally indicates that a company is having trouble meeting its short-term obligations. That is, the company's debts due in the upcoming year would not be covered by its liquid assets. In this case, the company may have to resort to selling off assets, securing long-term debt, or using other financing options to cover its short-term debt obligations.
- ▶ Working capital ratios of 1.2 to 2.0 are considered desirable, but a ratio higher than 2.0 may suggest that the company is not effectively using its assets to increase revenues. A high ratio may indicate that the company is not securing financing appropriately or managing its working capital efficiently.

# Definitions (Continued)

The collection ratio is a measure of how efficiently a company manages its accounts receivables. The collection ratio is calculated as the product of the number of days in an accounting period multiplied by the average amount of outstanding accounts receivables divided by the total amount of net credit sales during the accounting period.

The collection ratio calculation provides the average number of days it takes a company to receive payment after a sales transaction on credit. If a company's billing department is effective at collections attempts and customers pay their bills on time, the collection ratio will be lower. The lower a company's collection ratio, the more efficient its cash flow.

# Definitions (Continued)

The Inventory Turnover Ratio is the final element of working capital management (e.g. inventory management). To operate with maximum efficiency and maintain a comfortably high level of working capital, a company must keep sufficient inventory on hand to meet customers' needs while avoiding unnecessary inventory that ties up working capital.

Companies typically measure how efficiently that balance is maintained by monitoring the inventory turnover ratio. The inventory turnover ratio, calculated as revenues divided by inventory cost, reveals how rapidly a company's inventory is being sold and replenished. A relatively low ratio compared to industry peers indicates inventory levels are excessively high, while a relatively high ratio may indicate inadequate inventory levels.

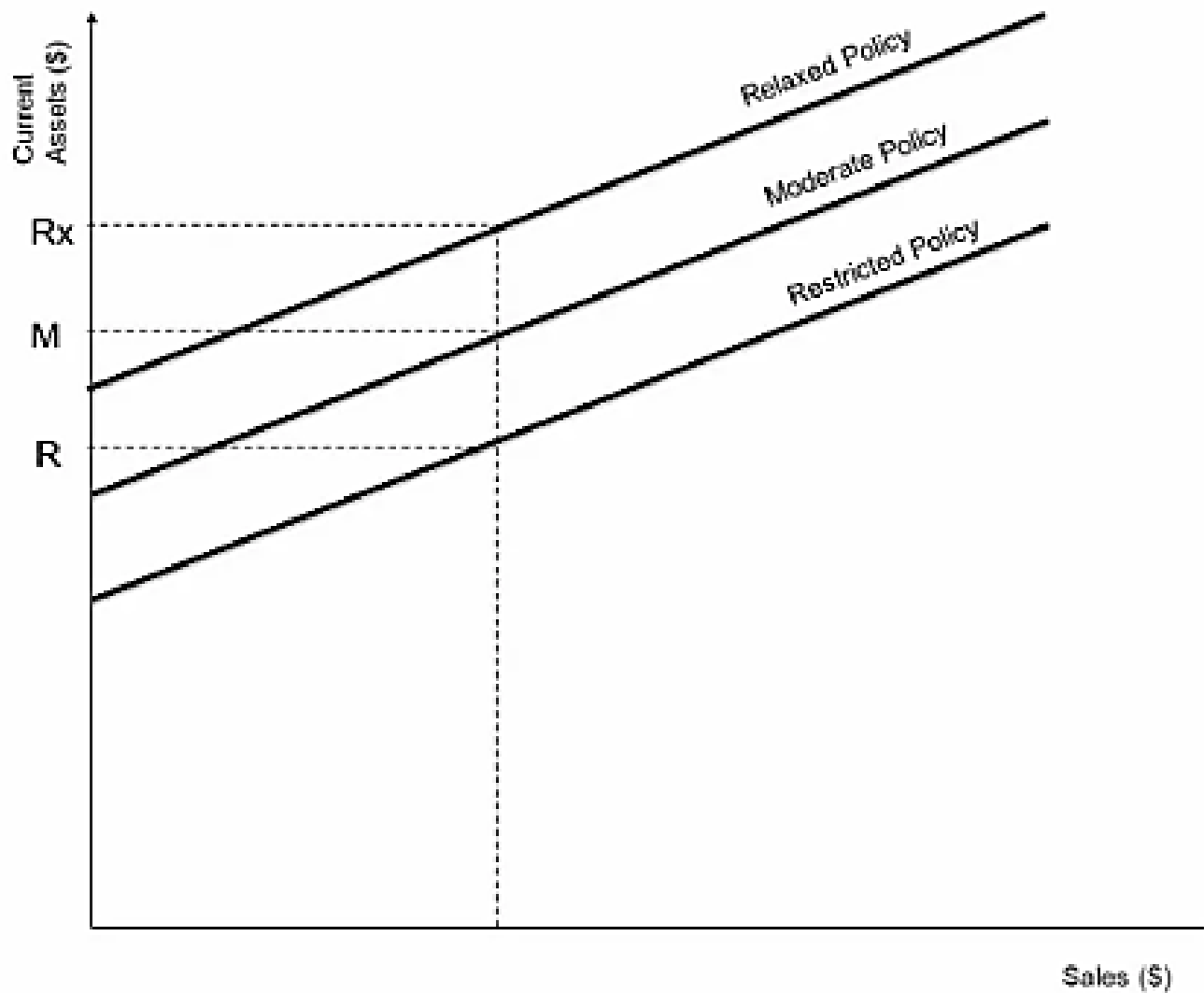
# Definitions (Continued)

- ▶ Working capital policy:
  - The level of each current asset.
  - How current assets are financed.

The most commonly followed working capital policies are:

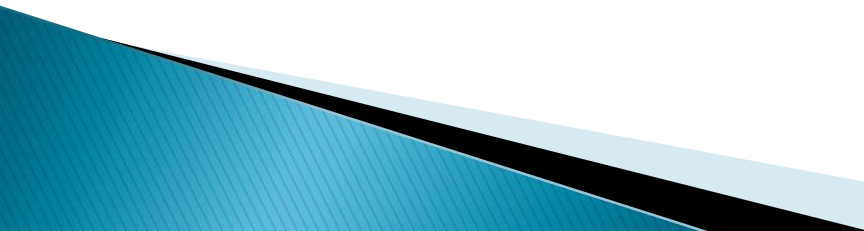
1. Aggressive (e.g. Restricted) Policy is a high-risk one. Owing to the risk factors, returns are also higher. To follow this, a business must minimise its current assets or the amount of debt its owed to. Here, there are no debtors- payments are collected in time and are eventually invested in business. Creditors' payments are delayed to the maximum. Doing so, sometimes might land up with possibilities to sell out company assets to clear debts. This type of working capital policy is mostly followed by companies looking for brisk growth.
2. Conservative (e.g. Relaxed) policy is convenient for businesses with low-risk appetite. In this policy, credit limits are pre-set to a specific amount. Also, such policies refrain doing business on credit with any debtor who defaults. Generally, a conservative working capital policy is followed to keep the company assets and liabilities in sync with each other, with the assets value on the higher side, in case of sudden exigencies.
3. Matching (e.g. Moderate) policy is a hybrid between a working capital management policy and a working capital financing policy. Businesses generally follow this policy when they want their working capital to be less; thereby utilizing or investing the money elsewhere.

# Three types of working capital policy compare

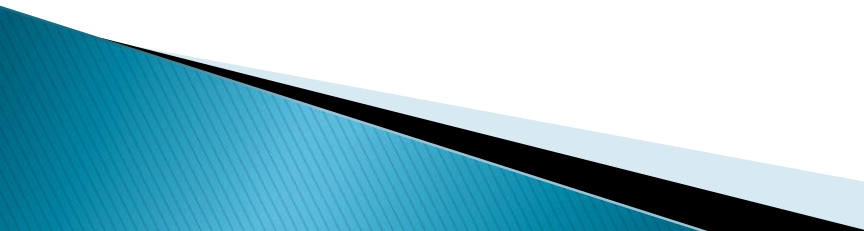




# How does working capital policy describe the firms' position?

- ▶ Working capital policy is reflected in a firm's current ratio, quick ratio, turnover of cash and securities, inventory turnover, and DSO.
  - ▶ If these ratios indicate that firm has large amounts of working capital relative to its level of sales, it may follow a relaxed policy. A relaxed policy may be appropriate if it reduces risk more than profitability.
  - ▶ If not, the firm has to change its business processes to solve the problems
- 

# Cash Management: Cash doesn't earn interest, so why hold it?

- ▶ **Transactions:** Must have some cash to pay current bills.
  - ▶ **Precaution:** “Safety stock.” But lessened by credit line and marketable securities.
  - ▶ **Compensating balances:** For loans and/or services provided.
  - ▶ **Speculation:** To take advantage of bargains, to take discounts, and so on. Reduced by credit line, marketable securities.
- 

# What's the goal of cash management?

- ▶ To have sufficient cash on hand to meet the needs listed on the previous slide.
- ▶ However, since cash is a non-earning asset, to have not one dollar more.



# Cash Management

## Know your cash cycle

Cash may not show up for 30, 60 or 90 days. The longer it takes to collect, the more of your own or borrowed money you will need to use.



## Cash drives everything.

*Employees, suppliers, landlords, tenders are constants.*

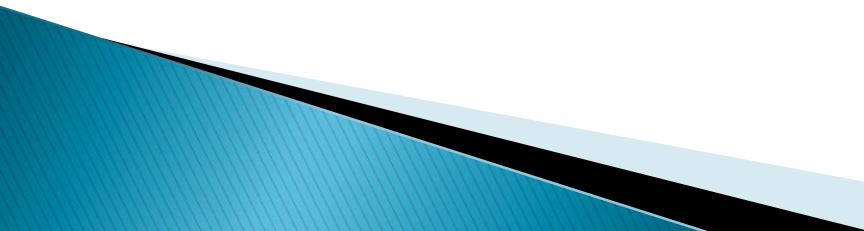
*Suppliers may ask for payment before you turn them into a sale.*

*Match customer payment terms to your suppliers terms whenever possible.*

Get deposits or retainers whenever possible.



# Ways to Minimize Cash Holdings

- ▶ Use lockboxes.
  - ▶ Insist on wire transfers from customers.
  - ▶ Synchronize inflows and outflows.
  - ▶ Use a remote disbursement account.
  - ▶ Increase forecast accuracy to reduce the need for a cash “safety stock.”
  - ▶ Hold marketable securities instead of a cash “safety stock.”
  - ▶ Negotiate a line of credit (also reduces need for a “safety stock”).
- 

# Cash Budget: The Primary Cash Management Tool

- ▶ Purpose: Uses forecasts of cash inflows, outflows, and ending cash balances to predict loan needs and funds available for temporary investment.
  - ▶ Timing: Daily, weekly, or monthly, depending upon budget's purpose. Monthly for annual planning, daily for actual cash management.
- 