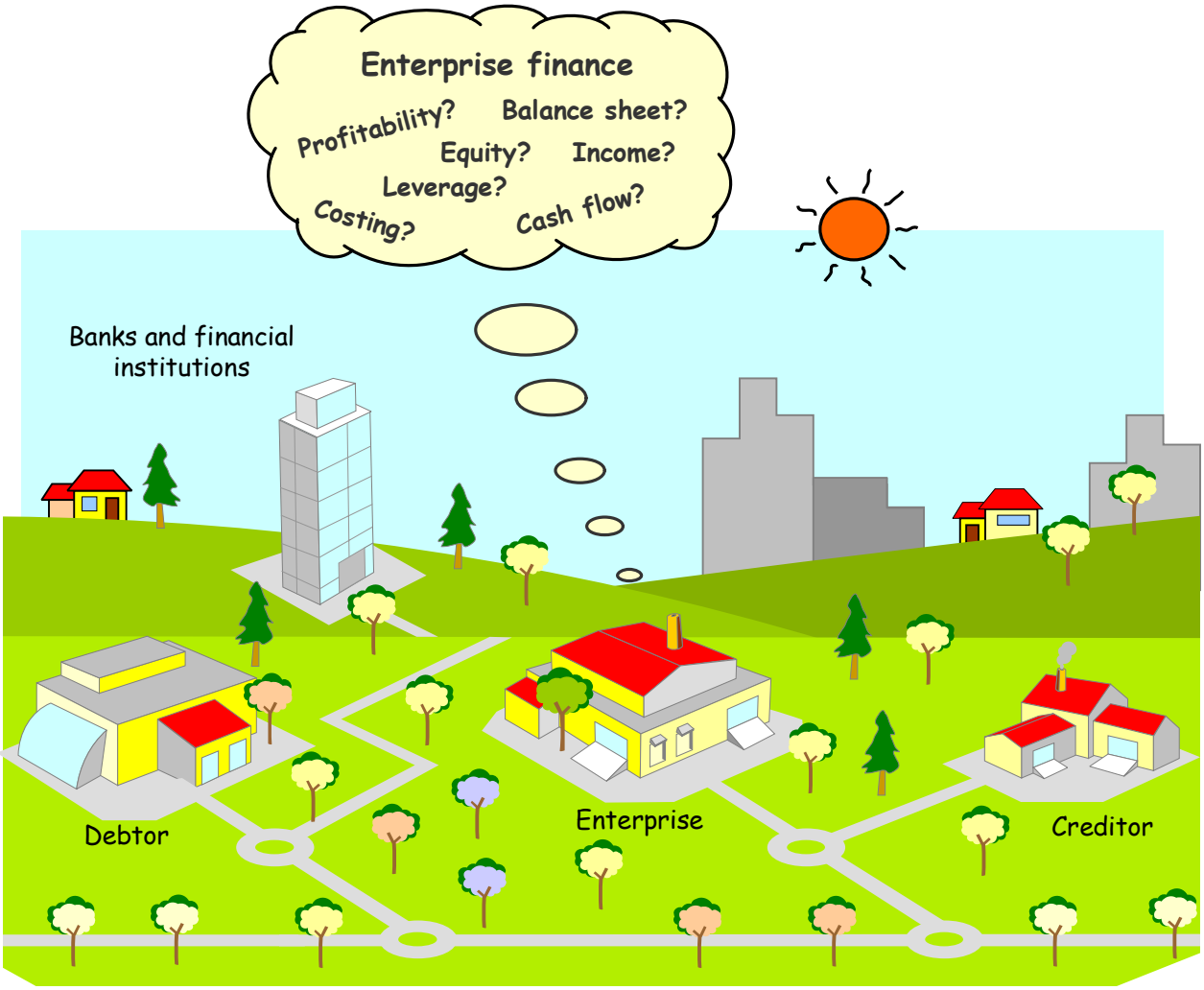
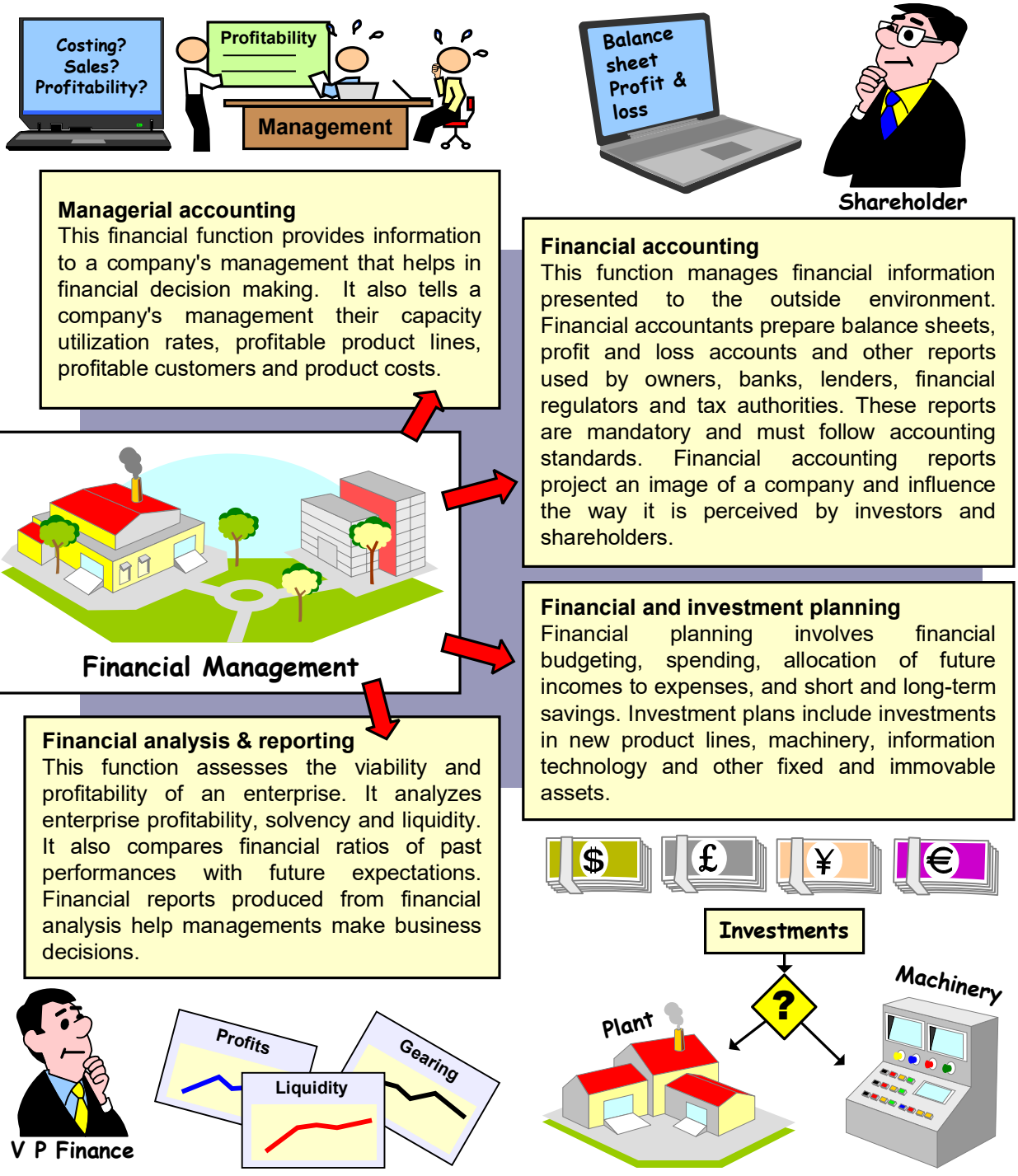
Section E

Financial Management



127 - Overview of Financial Management

Financial management deals with the planning, accounting, budgeting, analysis and reporting of enterprise finances. It helps meet operational requirements, optimize cash flows and report profits. Financial management includes managing finances in the short and long-term. This important managerial function has a direct and immediate effect on the working of an enterprise.



Managerial accounting
This financial function provides information to a company's management that helps in financial decision making. It also tells a company's management their capacity utilization rates, profitable product lines, profitable customers and product costs.

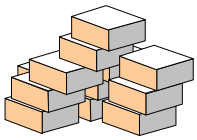
Financial accounting
This function manages financial information presented to the outside environment. Financial accountants prepare balance sheets, profit and loss accounts and other reports used by owners, banks, lenders, financial regulators and tax authorities. These reports are mandatory and must follow accounting standards. Financial accounting reports project an image of a company and influence the way it is perceived by investors and shareholders.

Financial and investment planning
Financial planning involves financial budgeting, spending, allocation of future incomes to expenses, and short and long-term savings. Investment plans include investments in new product lines, machinery, information technology and other fixed and immovable assets.

Financial analysis & reporting
This function assesses the viability and profitability of an enterprise. It analyzes enterprise profitability, solvency and liquidity. It also compares financial ratios of past performances with future expectations. Financial reports produced from financial analysis help managements make business decisions.

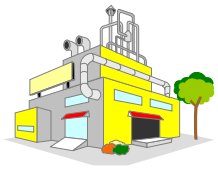
128 - The Balance Sheet (Financial Statement)

A balance sheet provides a financial snapshot of a company's assets (what it owns) and liabilities (what it owes) on a particular date. Assets show how money is used and liabilities show how it was procured. Both sides of the balance sheet must balance out, where total assets must always equal total liabilities. A balance sheet is meaningful when accompanied by the profit and loss (income) and cash flow statements.



Inventories

Liquid assets



Long-term assets

Bob's Furniture - Balance sheet for the year ended 31 December 2011

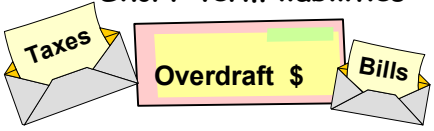
Assets ($)		Liabilities ($)	
Fixed Assest		**Fixed Liabilities**	
Land	10,000	Loans from financial institutions	20,000
Buildings	8,000	Other loans	10,000
Plant and machinery	6,000		
Fixtures and fittings	2,000		
Motor vehicles	5,000		
Intangible assets	1,000		
Current Assets		**Current Liabilities**	
Cash on hand	2,000	Trade accounts payable	6,000
Cash in banks	5,000	Other accounts payable	4,000
Investments	4,000	Bank overdrafts	1,000
Accounts receivable	6,000	Provision for taxation	1,000
Deposits	4,000	Provision for expenses	2,000
Employee advances	1,000	Interest payable on fixed liabilities	3,000
Prepaid expenses	1,000	**Owners Equity**	
Finished products	2,000	Common stock; 10000 shares @ $ 1 / share	10,000
Work-in-progress	1,000	Capital reserves	1,500
Raw materials	2,000	Retained earnings	2,000
Supplies	5,00		
TOTAL	**60,500**	**TOTAL**	**60,500**

Long-term liabilities

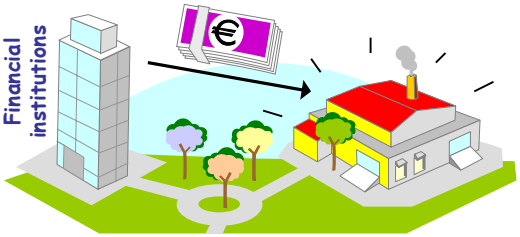
Current and fixed liabilities are also called **outside liabilities**

Shareholders funds (stockholders funds)

Short-term liabilities



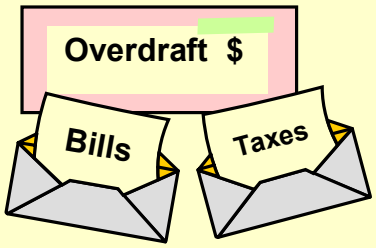
Assets = Outside Liabilities + Owners Equity



Long-term assets (Fixed assets)
Land
Buildings
Office equipment
Plant and machinery
Furniture
Fixtures and fittings
Motor vehicles
Intangible assets

Long-term liabilities (Fixed liabilities)
Loans from financial institutions
Bonds payable
Contributed capital
Mortgage payable
Pension liabilities

Shareholders funds
Common stock
Preferred stock
Paid-in capital
Capital reserves
Retained earnings



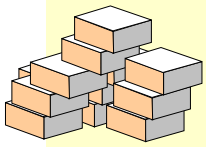
Liquid assets (Current assets)
Cash on hand
Cash in Banks
Investments
Marketable securities
Accounts receivables
Notes receivable
Deposits
Employee advances
Prepaid expenses

Short-term liabilities (Current liabilities)
Trade accounts payable
Other accounts payable
Bank overdrafts
Provision for taxation
Provision for expenses
Interest payable on fixed liabilities
Notes payable
Warranty obligations
Accrued expenses
Customer deposits
Unearned revenue

Additional information

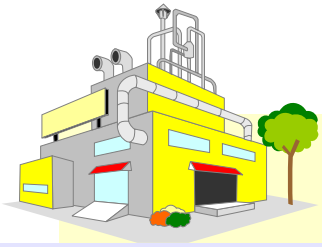
A balance sheet also needs to report the following:

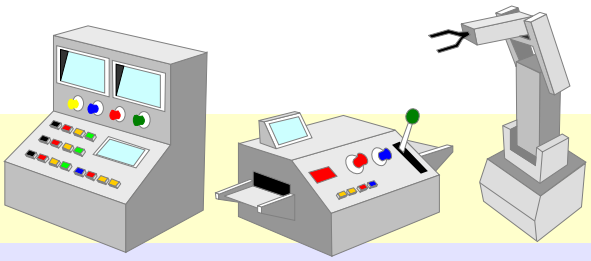
1. Depreciation method used
2. Inventory valuation method
3. Contingent assets and liabilities
4. Comparative data
   - Balance sheet (2 years)
   - Income statement (3 years)
   - Net sales (5 years)
   - Cash dividends (5 years)
5. Management discussion – Useful information impacting sales, liquidity, capital, etc.
6. Market prices and dividends of common stock.
7. Other information
   - Pension and insurance plans
   - Stock options of employees
   - Purchase commitments
8. Mergers, acquisitions, spin-offs, issuance of bonds and stocks, litigation settlements, major damages to plant, machinery and property.
9. Any other information about events in the organization that may be of use to shareholders.



Inventories (Current assets)
Finished products
Work-in-progress
Raw materials
Supplies

129 - The Assets Side



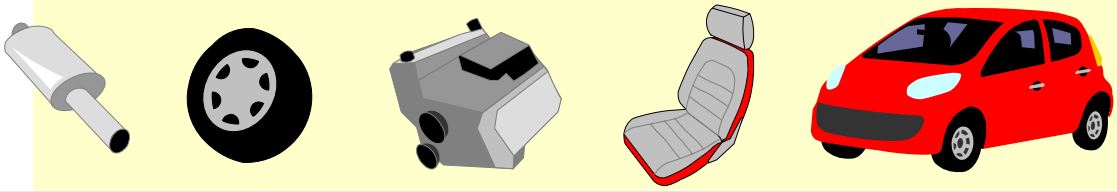


Fixed Assets	How valued
Land	At cost or value
Buildings, Plant and machinery, Fixtures and fittings, Motor vehicles	At cost less depreciation
Intangible assets	At market value

Fixed Assets (Long-term assets)
These assets are usually used over a period of time. They are rarely converted into cash during the life of a business. Intangible assets include patents, trademarks and brand equity. Brands that command strong brand equities are sometimes valued highly as intangible assets.

Current Assets	How valued
1. Liquid assets	
Cash on hand, Cash in Banks	At cost
Investments	Cost/resale vale
Accounts receivables, Employee advances	At value minus provision for doubtful debts
Deposits, Prepaid expenses	At cost

Liquid Assets (Short-term assets)
These are assets that will most likely be converted into cash within a year. The liquidity of current assets shows how easily they can be converted into cash. Cash on hand and cash in banks are the most liquid of all assets. Current assets vary in value in the day-to-day operation of a business.



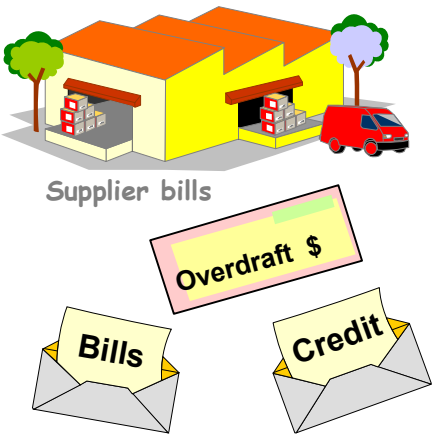
	How valued
2. Inventories	
Finished products, Work in progress, Raw materials, Supplies	at cost or market value, whichever is lower

Inventories (Short-term assets)
All inventories such as raw materials, work in progress inventories and finished goods. Inventories are valued at lower estimates as companies cannot be certain about earning a profit on them before they have been sold.

130 - The Liabilities Side

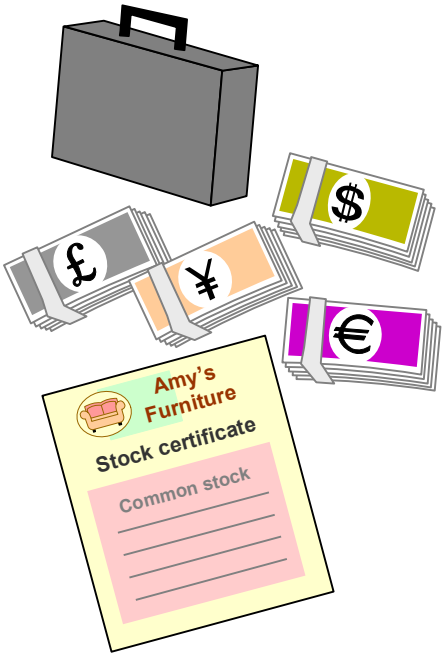
Fixed liabilities: Loans from financial institutions / other loans / other long-term liabilities

They represent an organization's obligation to be paid in the long-term. They are a source of long-term finance for an enterprise. An enterprise uses such long-term finance to buy fixed assets like land, building, plant and machinery and other assets. Usually, fixed assets are placed as security to get such long-term finance. When enough fixed assets are not available to offer as security, financial institutions usually lend long-term finance at high interest rates.



Current liabilities: Trade accounts payable / other accounts payable / bank overdrafts / provision for taxation / provision for expenses / interest payable on fixed liabilities

They represent the low cost finance available to a firm. It needs to be paid in the short-term, usually within one year. Bank overdrafts, which are small advances from banks, and supplier bills (trade accounts payable) have to be paid of within one year. Current liabilities are usually met from current assets. A company meets its working capital requirements (short-term finance to operate the business) when it has enough current assets to meet its current liabilities.



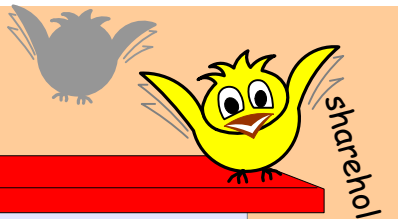
Owners equity or shareholders equity or stock holders equity: Stock / capital reserves / retained earnings

Common and preferred stock represent the portion of a company owned by shareholders, in the form of shares or stock. Shares are investments made in an enterprise by shareholders for the entire life of the enterprise. The number of shares issued by an enterprise is based on its approved capital. This is what it is legally authorized to issue. Retained earnings are profits earned out of regular operations and not given of as dividends. Profits produced, not from regular business operations, but from activities such as the sale of fixed assets or revaluation of fixed assets are capital reserves. Capital reserves and retained earnings are cumulative profits held in the business. Although owners equity is shown as money owed to them, it will never be fully paid to them. It is paid only after liquidating all assets and paying of all liabilities. Profits increase owners equity and losses decrease its value.

131 - Window Dressing the Balance Sheet

Companies usually dress up their finances before reporting financial statements. In most cases, this helps present a better financial outlook to shareholders and financial institutions.

If a company feels that shareholders are likely to view its liquidity as being inadequate, it may take short-term loans from banks. This increases the cash balance and current assets. While this also increases current liabilities, the company's liquidity appears stronger.



Amy's Furniture - Balance sheet for the year ended 31 December 2011

Assets ($)	Liabilities ($)
Fixed Assets	**Fixed liabilities**
Land	Loans from financial institutions
Buildings	Other loans
Plant and machinery	
Fixtures and fittings	**Current liabilities**
Motor vehicles	Trade accounts payable
Intangible assets	Other accounts payable
Current Assets	Bank overdrafts
Cash on hand	Provision for taxation
Cash in Banks	Provision for expenses
Investments	Interest payable on fixed liabilities
Accounts receivables	
Deposits	**Owners equity**
Employee advances	Common stock
Prepaid expenses	Capital reserves
Finished products	Retained earnings
Work in progress	
Raw materials	
Supplies	
TOTAL	TOTAL

An enterprise may offer attractive cash discounts to induce cash payments. The company, therefore, reduces its accounts receivables and increases the cash balance. At the expense of profitability in the short-term, the company can portray a healthy picture on accounts receivables.

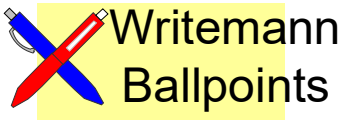
A company may issue fresh stock in case its leverage is viewed as being excessive. This increased equity base reduces its leverage giving it the opportunity to take in long-term debt. The increased equity (lower leverage) could help lower borrowing costs as well.

A business may offer attractive trade discounts and push the sales force to liquidate maximum stocks of finished products. This shows higher cash reserves, better liquidity and a stronger quick-ratio even though profitability may suffer in the short-term.

An organization may just delay payment of trade accounts to show higher cash balances in the statement. While delayed payments can attract penalties, higher cash balances represent greater liquidity.

132 - The Income Statement

The income statement, also called the profit and loss account, is a document that is attached to the balance sheet. It summarizes details about sales, costs and the profit or loss a firm has made during the financial year. The statement contains details about the gross profit, operating profit, profit before tax and net profit.



Income statement for the year ended 31 December 2011 (compared with year ended December 2010)

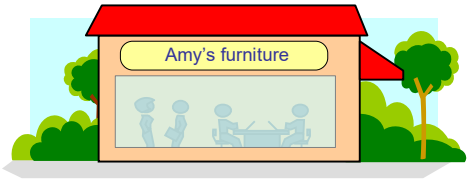
	Income statement ($)	2010	2011
1	Sales	10,000	12,000
2	*Less* Cost of sales	7,500	8,500
3	Gross Profit	2, 500	3, 500
	Less Selling and administrative expenses		
4	Selling	800	900
	Administrative	500	700
5	Operating Profit	1,200	1,900
6	*Less* Non operating expenses	300	400
7	Profit before tax	900	1,500
8	*Less* Tax	90	150
9	Net profit	810	1,350
	Retained earnings		
	Net profit balance brought forward	500	1,110
	Net profit	810	1,350
	Dividend to shareholders	200	300
	Balance carried forward to balance sheet	1,110	2,160

1. Amounts invoiced or billed to customers for products and services delivered.
2. Costs directly involved in producing goods or services – Raw materials, overheads, wages, etc. It excludes period costs.
3. Sales minus cost of sales
4. Expenses involved in running the business – Office staff, sales force, commissions, stationery, telephone, utilities, postage and courier, etc.
5. Gross profit minus selling and administrative expenses
6. Expenses that are not directly related to the operation of the business, such as interest on loans taken, depreciation.
7. Operating profit minus non operating expenses
8. Tax on income
9. Profit before tax minus tax. This is the amount available to shareholders as dividends or retained in the business as a surplus. This is the income after all expenses and taxes have been deducted. This is commonly referred to as the bottom line.

133 - Measuring Liquidity

An enterprise is liquid when current liabilities (short-term liabilities) are met from current assets. Current assets minus current liabilities is the working capital of an enterprise. Companies are liquid as long as they have working capital. Liquidity shows that an enterprise can meet its immediate financial obligations. The current and quick ratios are two measures of liquidity. For an enterprise, liquidity is more important than profitability.

Amy's Furniture



Balance sheet - Amy's furniture

For the year ended 31 Dec, 2010

Assets ($)		Liabilities ($)	
Fixed assets	25	Fixed liabilities	20
Current assets	100	Current liabilities	75
		Owners equity	30
Total	125	Total	125

100 – 75 = 25

Current ratio
(Working capital ratio)

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

$$= \frac{100}{75} = 1.33$$

With working capital ratios lesser than 1, companies risk not paying all their current liabilities (including bills) out of their current assets. A preferred current ratio is 2, where a company can safely meet its working capital requirements.

The quick ratio (also called the acid test ratio) shows whether a company can pay of its current liabilities from its quick or liquid assets. Quick assets include all current assets minus inventories. Quick ratios of over 1 suggest that a company can meet it current liabilities out of its quick assets (cash and near cash assets). Very high current and quick ratios suggest that a company that has more finance than it put to use efficiently. It can also mean that an enterprise is holding too much inventory or other current assets. It also points to extending too much credit to customers, leading to huge receivables. It may also suggest having excessive cash. High current and quick ratios are a sign that a reorganization of enterprise finances is necessary to use assets more efficiently.

Balance sheet - Amy's furniture

For the year ended 31 Dec, 2010

Assets ($)		Liabilities ($)	
Fixed assets	25	**Fixed liabilities**	20
Current assets		**Current liabilities**	75
Quick assets	75	**Owners equity**	30
Inventories	25		
Total	125	**Total**	125

Quick ratio
(Acid test ratio)

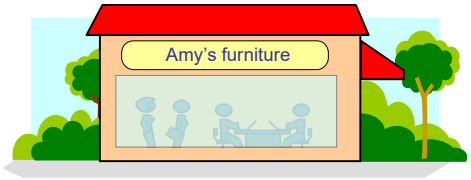
$$= \frac{\text{Quick assets}}{\text{Current liabilities}}$$

$$= \frac{75}{75} = 1$$

134 - Solvency and Gearing

An enterprise is solvent when it meets its outside liabilities (fixed and current liabilities) from its total assets. A high solvency ratio suggests that the owners equity makes up a significant portion of total liabilities. A higher proportion of owners equity in total liabilities shows that an enterprise meets its outside liabilities from its total assets easily. A high solvency ratio represents low risk as more owners equity is available in the enterprise. It also presents an opportunity to borrow more debt (outside liabilities), should the need arise.

Amy's Furniture



Balance sheet - Amy's furniture

For the year ended 31, Dec, 2010

Assets ($)		Liabilities ($)	
Fixed assets	25	Fixed liabilities	20
Current assets	100	Current liabilities	75
		Owners equity	30
Total	125	Total	125

125 – 95 = 30

Solvency Ratio

$$= \frac{\text{Equity}}{\text{Total assets}} \times 100$$

$$= \frac{30}{125} \times 100 = 24\%$$

The higher this percentage, the easier it is to borrow long-term debt.

Gearing, leverage or the debt-equity ratio refers to the ratio of owners equity to outside liabilities or borrowed money (fixed and current liabilities). Accounting standards in some countries allow companies to calculate gearing as the ratio between owners equity to fixed liabilities (long-term liabilities) only. With high gearing, the proportion of equity is low and outside liabilities are high. This makes it difficult for an enterprise to borrow long-term debt. Low gearing on the other hand refers to high equity as a ratio to outside liabilities. Such an enterprise can borrow more outside liabilities, if needed.

Amy's Furniture

Balance sheet - Amy's furniture

For the year ended 31, Dec, 2010

Assets ($)		Liabilities ($)	
Fixed assets	25	Fixed liabilities	20
Current assets	100	Current liabilities	75
		Owners equity	30
Total	125	Total	125

Debt-equity ratio

$$= \frac{\text{Outside liability}}{\text{Equity}}$$

$$= \frac{95}{30} = 3.16$$

High gearing	=	Low owners equity High outside liabilities High risk	**Low gearing**	=	High owners equity Low outside liabilities Low risk

135 - Measuring Profitability

The return on capital is a measure of profits generated from capital invested in an enterprise. Capital employed equals fixed liabilities plus owners equity. Current liabilities represent short-term credits extended to an enterprise and are therefore not considered capital employed. The return on capital shows how an enterprise is able to produce profits from capital invested. The return on shareholders funds or equity measures net profits earned in a year against owners equity employed in an enterprise. The return on equity is an important indicator as it influences shareholder investment into an enterprise. The higher this return, greater the shareholders interest in investing into an enterprise.

Balance sheet – Sams Ice cream

For the year ended 31, Dec, 2010

Assets ($)		Liabilities ($)	
Fixed assets	6000	Fixed liabilities (@10% yearly)	5000
Current assets	1000	Current liabilities	750
		Owners equity	1250
Total	**7000**	**Total**	**7000**

Income statement – Sams Ice cream

For the year ended 31, Dec, 2010

Details	($)
Sales	12,000
Cost of sales	8,500
Gross profit	**3,500**
Selling & administrative expenses	1,600
Operating profit	**1,900**
Non operating expenses	400
Profit before tax	**1,500**
Tax	750
Net profit	**750**

Retained earnings	($)
Net profit balance brought forward	0
Net profit	750
Dividend to shareholders	500
Balance carried forward to balance sheet	250

Return on capital

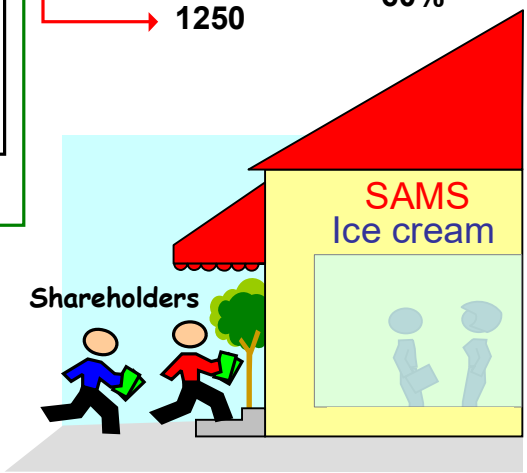
$$= \frac{\text{Profit before tax} + \text{Interest on fixed liabilities} \times 100}{\text{Capital employed}}$$

$$= \frac{1500 + 500 \times 100}{6250} = 32\%$$

Return on equity

$$= \frac{\text{Net profit} \times 100}{\text{Owners equity}}$$

$$= \frac{750 \times 100}{1250} = 60\%$$



136 - Measuring Earnings

The earnings per share indicator measures earnings after taking away shareholder dividends from the net profit. This may not accurately reflect earnings, as the number of shares issued to shareholders is not necessarily an indicator of profitability. The measurement also does not include bonus shares issued. This indicator is used as a variation to the return on equity indicator.

Balance sheet – Sams Ice cream

For the year ended 31, Dec, 2010

Assets ($)		Liabilities ($)	
Fixed assets	6000	Fixed liabilities	5000
Current assets	1000	Current liabilities	750
		Owners equity	
		1. Common stock of 1000 shares @ $ 1 per share	1000
		2. Retained earnings	250
Total	**7000**	**Total**	**7000**

Income statement – Sams Ice cream

For the year ended 31, Dec, 2010

Details	($)
Sales	12,000
Cost of sales	8,500
Gross profit	**3,500**
Selling & administrative expenses	1,600
Operating profit	**1,900**
Non operating expenses	400
Profit before tax	**1,500**
Tax	750
Net profit	**750**

Retained earnings	($)
Net profit balance brought forward	0
Net profit	750
Dividend to shareholders	500
Balance carried forward to balance sheet	250

Earnings per share (EPS)

$$= \frac{\text{Net profit - Dividend}}{\text{Number of shares}}$$

$$= \frac{750 - 500}{1000}$$

= $ 0.25 per share

The Price - earnings ratio is an indicator of market expectations about future earnings. Companies that report high price-earnings ratios are seen as those that offer better financial prospects and therefore have the potential to attract investments.

Price-earnings ratio

$$= \frac{\text{Market price of shares}}{\text{Earnings per share}}$$

$$= \frac{3}{0.25} = 12$$

*Assume that the market price per share is $ **3**.*

In the example shown above, if $ 3 is paid per share, it shows the shares are selling at 12 times the earnings. Viewed differently, 12 years of earnings at the current earning of $ 0.25 per share have been bought.

137 - Measuring Turnover

The **asset turnover ratio** measures the number of times assets have been turned over to generate sales. It shows the ability of an enterprise to create income from all the assets at their disposal. High asset turnover ratios show that an enterprise is able to generate revenues from its pool of assets. The **return on sales** or **profit margin ratio** measures a management's ability to increase profits while keeping costs under control. This shows the percentage profit earned on every single unit value of sale. High profit margin ratios show that an enterprise is able to post high profits.

Balance sheet for the year ended 31 December 2010

Balance sheet – Sams Ice cream

For the year ended 31, Dec, 2010

Assets ($)		Liabilities ($)	
Fixed assets	6000	Fixed liabilities	5000
Current assets	1000	Current liabilities	750
		Owners equity	1250
Total	**7000**	**Total**	**7000**

Asset turnover ratio

$$= \frac{\text{Sales or income}}{\text{Total assets}}$$

$$= \frac{12000}{7000} = 1.71$$

Return on sales ratio

$$= \frac{\text{Operating profit}}{\text{Total sales}} \times 100$$

$$= \frac{1900}{12000} \times 100 = 15.83\ \%$$

Income statement – Sams Ice cream

For the year ended 31, Dec, 2010

Details	($)
Sales	12,000
Cost of sales	8,500
Gross profit	**3,500**
Selling & administrative expenses	1,600
Operating profit	**1,900**
Non operating expenses	400
Profit before tax	**1,500**
Tax	750
Net profit	**750**

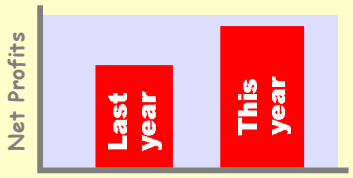
Retained earnings	($)
Net profit balance brought forward	0
Net profit	750
Dividend to shareholders	500
Balance carried forward to balance sheet	250

138 - The Cash Flow Statement

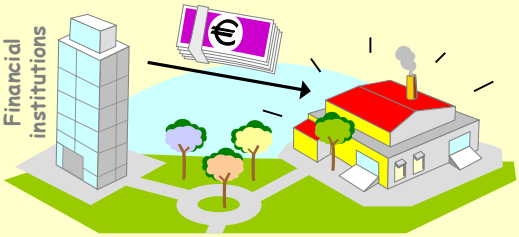
Also called the funds flow statement, it measures changes to a company's finances from one balance sheet to another. It shows how money has come into an enterprise (sources) and how it has been spent (uses). Cash flows have an enormous impact on the survivability of a business enterprise. An increase in the overall finance of a company does not necessarily suggest better financial health. A better indicator of enterprise financial health is the manner in which finance is procured and put to use.

Sources of finance

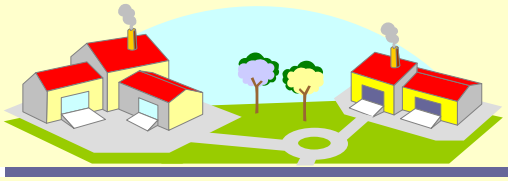
1. Increase in net profits



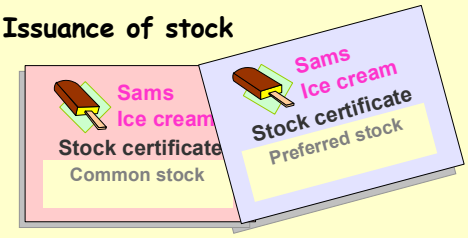
2. New loans



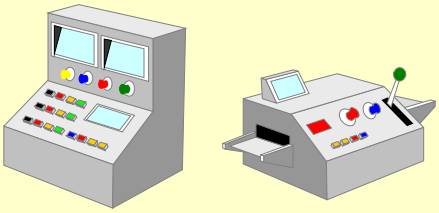
3. Sale of fixed assets



4. Issuance of stock

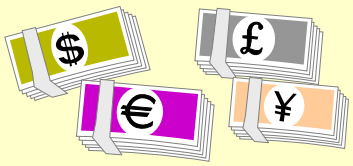


5. Depreciation of assets

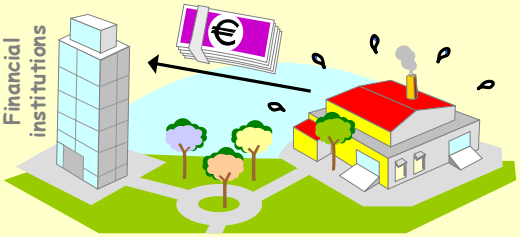


Uses of finance

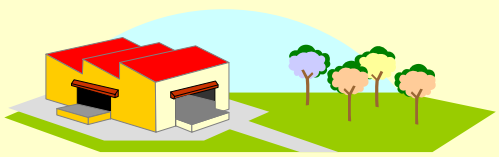
1. Increase in working capital



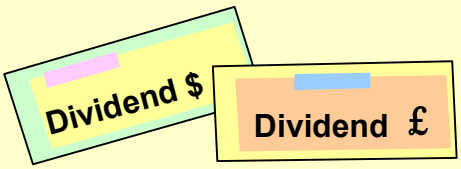
2. Repayment of loans



3. Purchase of fixed assets



4. Payment of dividends



Inputs to computing a cash flow statement

1. Net profit or net loss
2. Changes in the balance sheet accounts
3. Dividends paid out to shareholders.

Biofarm medical – Cash flow calculation

Balance sheet – For the year ended 31, December 2011

Assets ($)	2010	2011
Fixed assets		
Land	3000	3000
Buildings	5000	5000
Plant and machinery	4000	5000
Motor vehicles	2000	3200
Total – (A)	**14000**	**16200**
Less Depreciation	600	900
Total – (B)	**13400**	**15300**
Current assets		
Cash on hand	1000	1200
Cash in Banks	3000	3500
Accounts receivables	12000	11500
Employee advances	1000	1500
Prepaid expenses	500	700
Finished products	3000	3500
Work in progress	1500	2000
Raw materials	2300	2300
Total – (C)	**24300**	**26200**
Grand Total (B+C)	**37700**	**41500**

Liabilities ($)	2010	2011
Fixed liabilities		
Loans from financial institutions	5500	5000
Total – (A)	**5500**	**5000**
Current liabilities		
Accounts payable	15500	15600
Bank overdrafts	1500	1800
Provision for taxation	3000	2500
Provision for expense	1500	3000
Interest	1000	1200
Total – (B)	**22500**	**24100**
Owners equity		
Common stock at $ 1 per share	7000	8300
Capital reserves	1000	1000
Retained earnings	1700	3100
Total – (C)	**9700**	**12400**
Grand Total (A+B+C)	**37700**	**41500**

(900 – 600)

{(5000 – 4000) + (3200 – 2000)}

(8300 – 7000)

(5500 – 5000)

Biofarm Medical

Cash flow statement ($) Year ended 31 Dec 2011

Sources of cash	
Net profit (after depreciation)	2050
New stocks issued	1300
Depreciation (added back)	300
Total	**3650**
Uses of cash	
Purchase of fixed assets	2200
Increase in working capital	300
Dividends	650
Repayment of fixed liabilities	500
Total	**3650**

Net working capital ($)

	2010	2011
Current Assets	24300	26200
Current liabilities	22500	24100
Working capital	**1800**	**2100**

Increase in working capital

2100 – **1800** = **300**

Income statement ($) - Year ended 2011

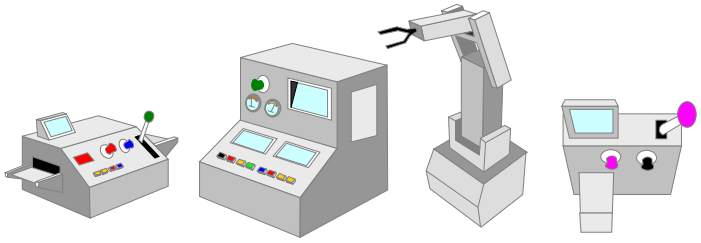
Details	2010	2011
Sales	33850	36550
- Cost of sales	20800	22000
Gross profit (GP)	**13050**	**14550**
- Selling & admin. exp	3800	4000
Operating profit (OP)	**9250**	**10550**
- Non operating expenses	5000	6000
Profit before tax (PBT)	**4250**	**4550**
- Tax	3000	2500
Net profit (NP)	**1250**	**2050**
Retained earnings		
Net profit brought forward	1400	1700
+ Net profit	1250	2050
	2650	**3750**
- Dividend to shareholders	950	650
Bal. carried forward to BS	**1700**	**3100**

1. Net income or profits + 2. Decrease in fixed assets + 3. Increase in liabilities + 4. Increase in capital stock		1. Net losses + 2. Increase in fixed assets + 3. Decrease in liabilities + 4. Decrease in capital stock + 5. Payment of dividends
Total sources of finance	***less***	**Total uses of finance**

= Net cash flow

Computing cash flow based on nature of activity

In many countries, according to accounting standards, companies have to report cash flow statements in prescribed formats. These standards expect companies to report cash flows classified into operating, investing and financial activities.

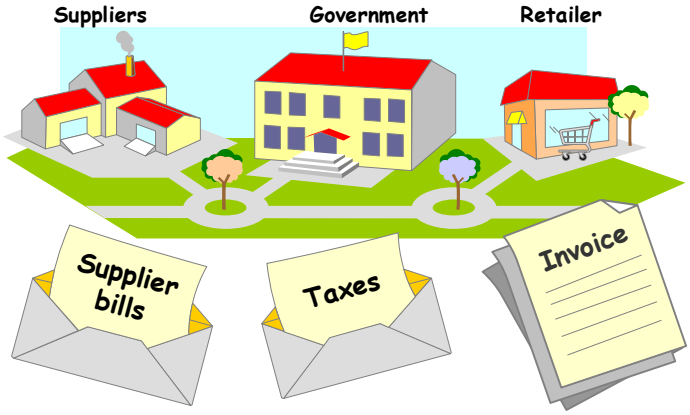


Investing activities

Include activities specifying the sale or purchase of fixed and long-term assets. Such activities include the sale or purchase of land and building, plant and machinery, motor vehicles and other assets.

Financing activities

These include transactions with the owners of an enterprise, such as, issuance of stock, payment of dividends and all activities that do not affect the net income. Loans taken from creditors, repayment of loans and payment of dividends are financing activities as well.



Operating activities

Include all transactions affecting net income, changes to current assets, depreciation, changes in current liabilities (except debts to lenders) and dividends payable. Also includes accounts payable, taxes and expenses and other routine transactions with customers, suppliers and the government.

Balance sheet for the year ended 2011 compared with 2010

Assets ($)	2010	2011	Change	Type
Fixed Assets				
Land	3000	3000	0	
Buildings	5000	5000	0	
Plant & machinery	4000	5000	+1000	Investing
Motor vehicles	2000	3200	+1200	Investing
Total (A)	**14000**	**16200**		
Less Depreciation	600	900	+300	Operating
Total (B)	**13400**	**15300**		
Current Assets				
Cash on hand	1000	1200	**+200**	
Cash in Banks	3000	3500	**+500**	
Receivables	12000	11500	-500	Operating
Emp. advances	1000	1500	+500	Operating
Prepaid exp	500	700	+200	Operating
Finished products	3000	3500	+500	Operating
Work in progress	1500	2000	+000	Operating
Raw materials	2300	2300	0	
Total (C)	**24300**	**26200**		
TOTAL (B+C)	**37700**	**41500**		

Liabilities ($)	2010	2011	Change	Type
Fixed liabilities				
Loans from financial institutions	5500	5000	-500	Operating
Total (A)	**5500**	**5000**		
Current liabilities				
Accounts payable	15500	15600	+100	Operating
Bank overdrafts	1500	1800	+300	Financing
Provision for taxation	3000	2500	-500	Operating
Provision for expenses	1500	3000	+1500	Operating
Interest payable on fixed liabilities	1000	1200	+200	Operating
Total (B)	**22500**	**24100**		
Owners Equity				
Common stock at $ 1 per share	7000	8300	+1300	Financing
Capital reserves	1000	1000	0	
Retained earnings	1700	3100	**+1400**	
Total (C)	**9700**	**12400**		
TOTAL (A+B+C)	**37700**	**41500**		

= Net income ($ 2050) less dividend ($ 650). Net income = source, dividend = usage.

Income statement ($) - Year ended 2011

Sales	36550
Gross profit (GP)	14550
Operating profit (OP)	10550
Profit before tax (PBT)	4550
Net profit (NP)	**2050**
Retained earnings	
Earnings brought forward	1700
+ Net Income	**2050**
- Dividend to shareholders	650
Bal. carried forward to Balance Sheet	**3100**

Sources and uses of cash ($)

Sources of cash ($)	Change	Effect
Net income		**+2050**
Depreciation (added back)	+300	+300
Accounts receivable	-500	+500
Trade accounts payable	+100	+100
Bank overdrafts	+300	+300
Provision for expenses	+1500	+1500
Interest on fixed liabilities	+200	+200
Common stock	+1300	+1300
Total		**6250**
Uses of cash ($)	**Change**	**Effect**
Plant & machinery	+1000	-1000
Motor vehicles	+1200	-1200
Employee advances	+500	-500
Prepaid expenses	+200	-200
Inventory	+1000	-1000
Repayment of fixed liabilities	-500	-500
Provision for taxation	-500	-500
Dividends		-650
Total		**-5550**

Net cash flow ($) = 6250 – 5550 = 700

Biofarm Medical

Cash flow statement ($)

Year ended **31, Dec, 2011**

Cash flow from operating activities	
Net income	**2050**
Depreciation (added back)	300
Accounts receivables	500
Employee advances	-500
Prepaid expenses	-200
Finished goods inventory	-500
WIP inventory	-500
Trade accounts payable	100
Provision for taxation	-500
Provision for expenses	1500
Interest on fixed liabilities	200
Net cash flow (a)	**2450**
Cash flow from investing activities	
Plant and machinery	-1000
Motor vehicles	-1200
Net cash flow (b)	**-2200**
Cash flow from financing activities	
Repayment of fixed liabilities	-500
Bank overdrafts	300
Common stock	1300
Dividends	-650
Net cash flow (c)	**450**

Opening cash balance = 4000
Net increase in cash = a + b + c = 700
Ending cash balance = 4700

139 - Classification of Costs

1. Classifying costs based on the type of cost

Manufacturing or Product costs

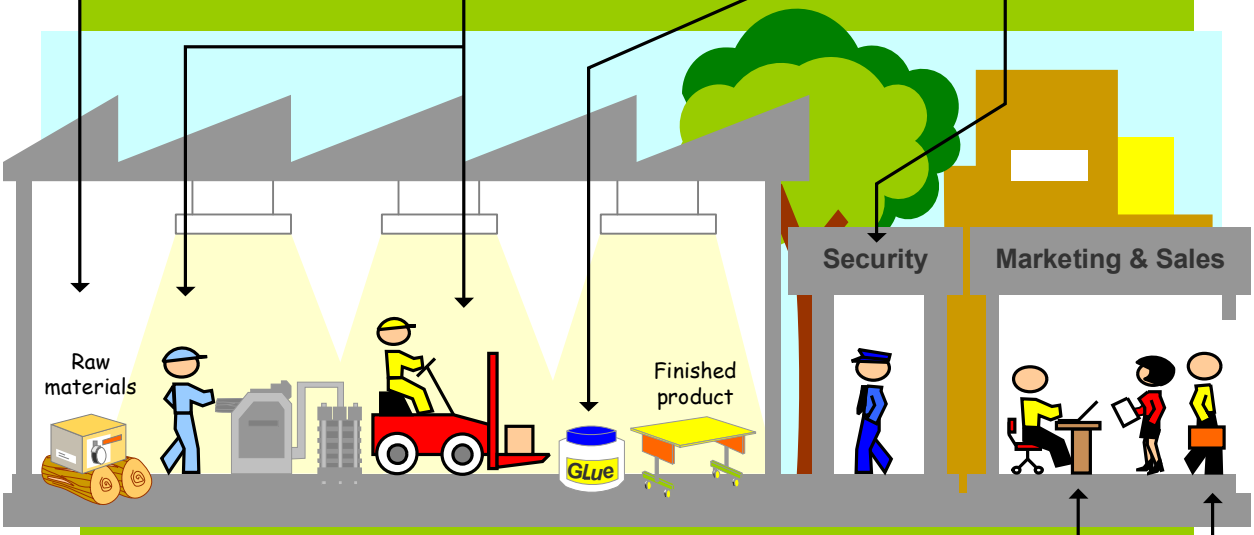
Manufacturing overhead
This includes indirect material costs and indirect labor costs, maintenance and repair, electricity and lighting, security, depreciation of manufacturing facilities, subcontracting costs and all other costs involved in operating a facility.

Direct Materials
Costs pertaining to materials that constitute finished products. They include raw materials and subassemblies that go into producing finished products.

Direct Labor
Labor costs that are directly associated with the manufacture of products or services. Labor costs that can be traced back to products and services.

Indirect materials
Insignificant material costs that cannot be traced back to products or groups of products.

Indirect labor
Labor costs that cannot be traced back to products. Include costs incurred towards security, maintenance, handlers and other costs.



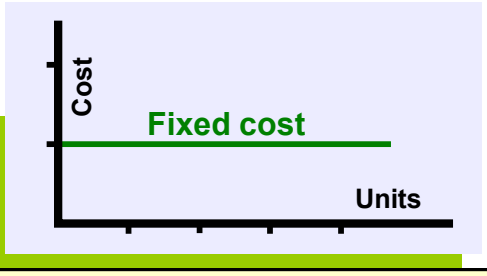
Administrative costs
Executive compensation, general accounting expenses, secretarial expenses, public relations.

Marketing and selling costs
Includes shipping costs, sales personnel salaries, commissions, travel expenses, advertising and promotion costs, warehousing costs.

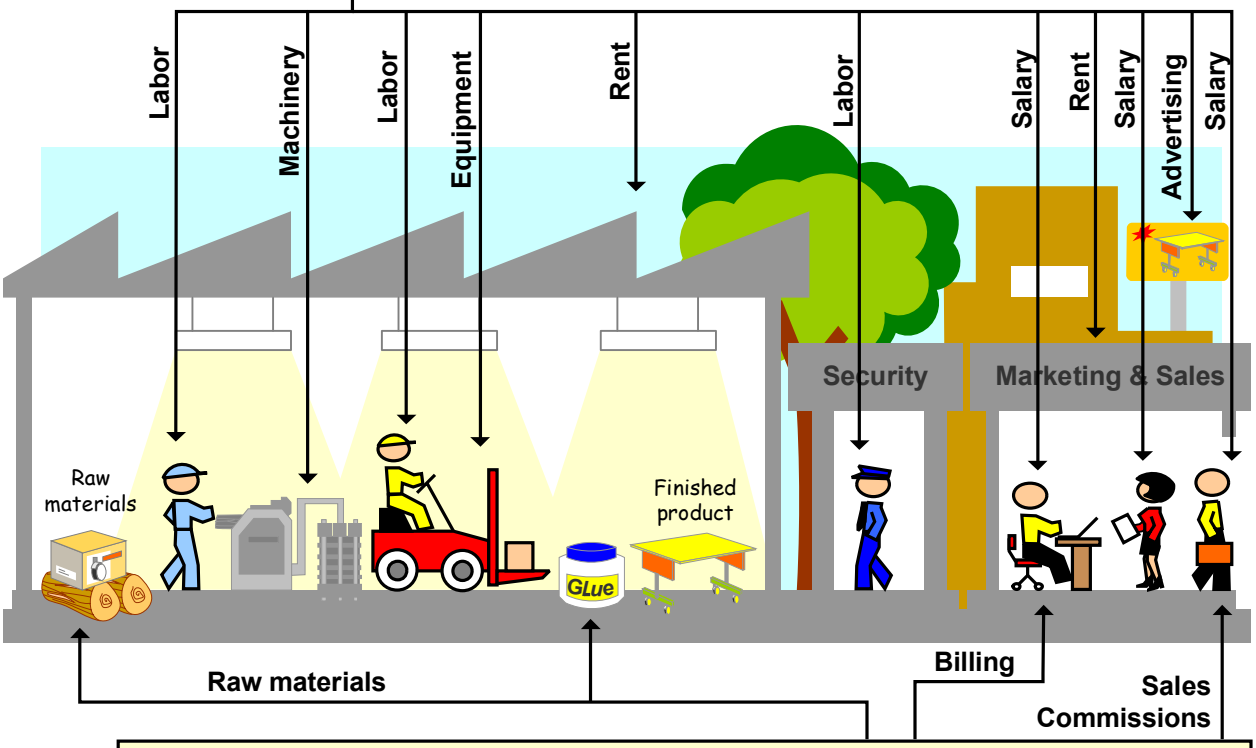
Non-manufacturing or period costs

2. Classifying costs based on the fixed and variable nature of cost

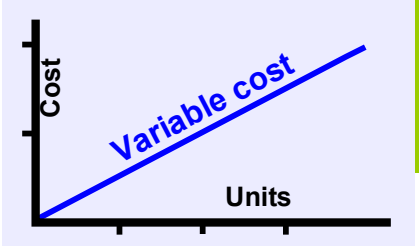
Factory rent ($)	Units produced	Cost per unit ($)
2000	1	2000
2000	20	100
2000	30	67



Fixed costs
All costs an enterprise incurs whether it manufactures or sells a product. Such costs include rent, salaries, interest on capital, advertising costs and others. While total fixed costs remain constant, the fixed cost per unit decreases as the number of units produced increases.



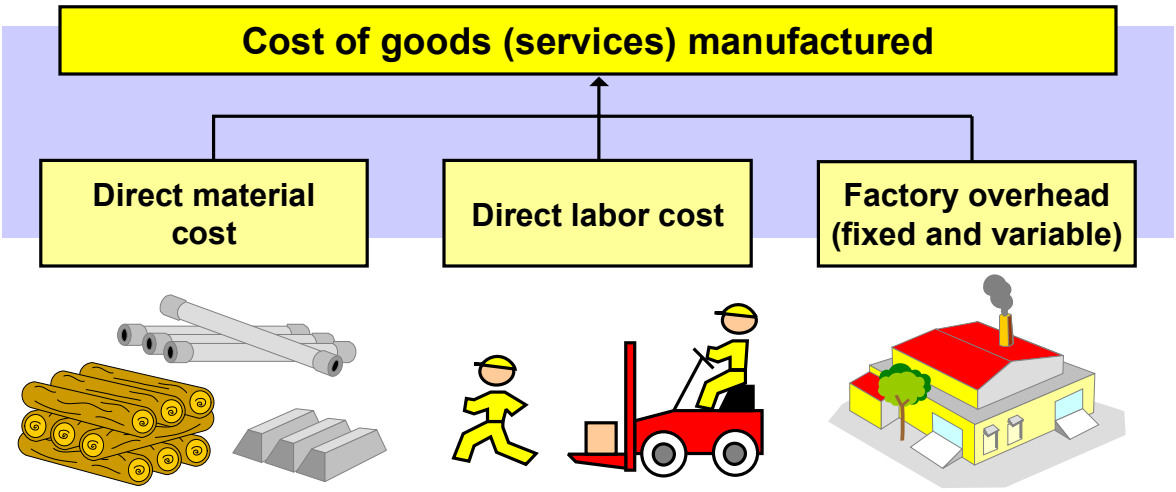
Variable costs
All costs the company incurs towards direct raw materials, shipping costs, sales commissions, billing costs and others. The total cost of direct raw materials varies depending on the number of units produced. As the number of units produced increases, so do the total variable costs. However, the per unit variable cost is usually uniform.



Number of units produced	Unit raw material cost ($)	Total variable costs ($)
1	10	10
20	10	200
30	10	300

140 - Absorption Costing

A common costing method that includes direct materials, factory or manufacturing overhead (fixed and variable) and direct labor into the total product cost. This accounting method is also called full costing. Job order costing and process costing are the two types of absorption costing methods.

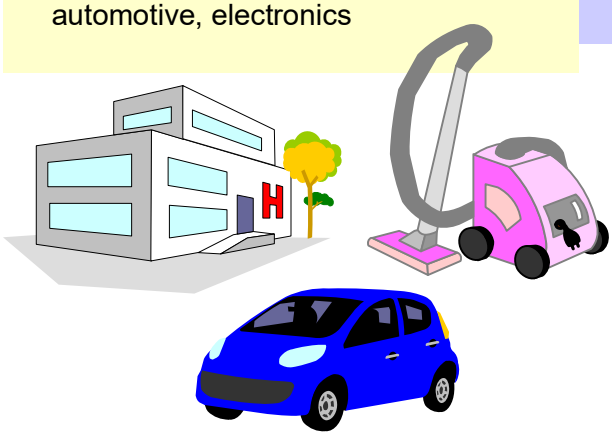


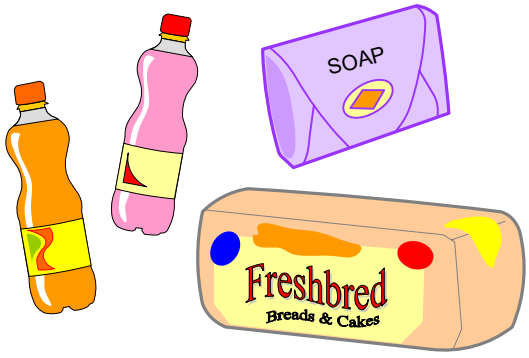
JOB ORDER COSTING

1. For batch produced goods
2. Production is sequential
3. Production relies on labor skills
4. Costing focuses on a specific job
5. When a company offers different products and services
6. Labor and material costs are charged to a specific job
7. When each job is different and consumes different amounts of materials, labor and overhead costs
8. Suitable for industries such as furniture, machining, healthcare, automotive, electronics

PROCESS COSTING

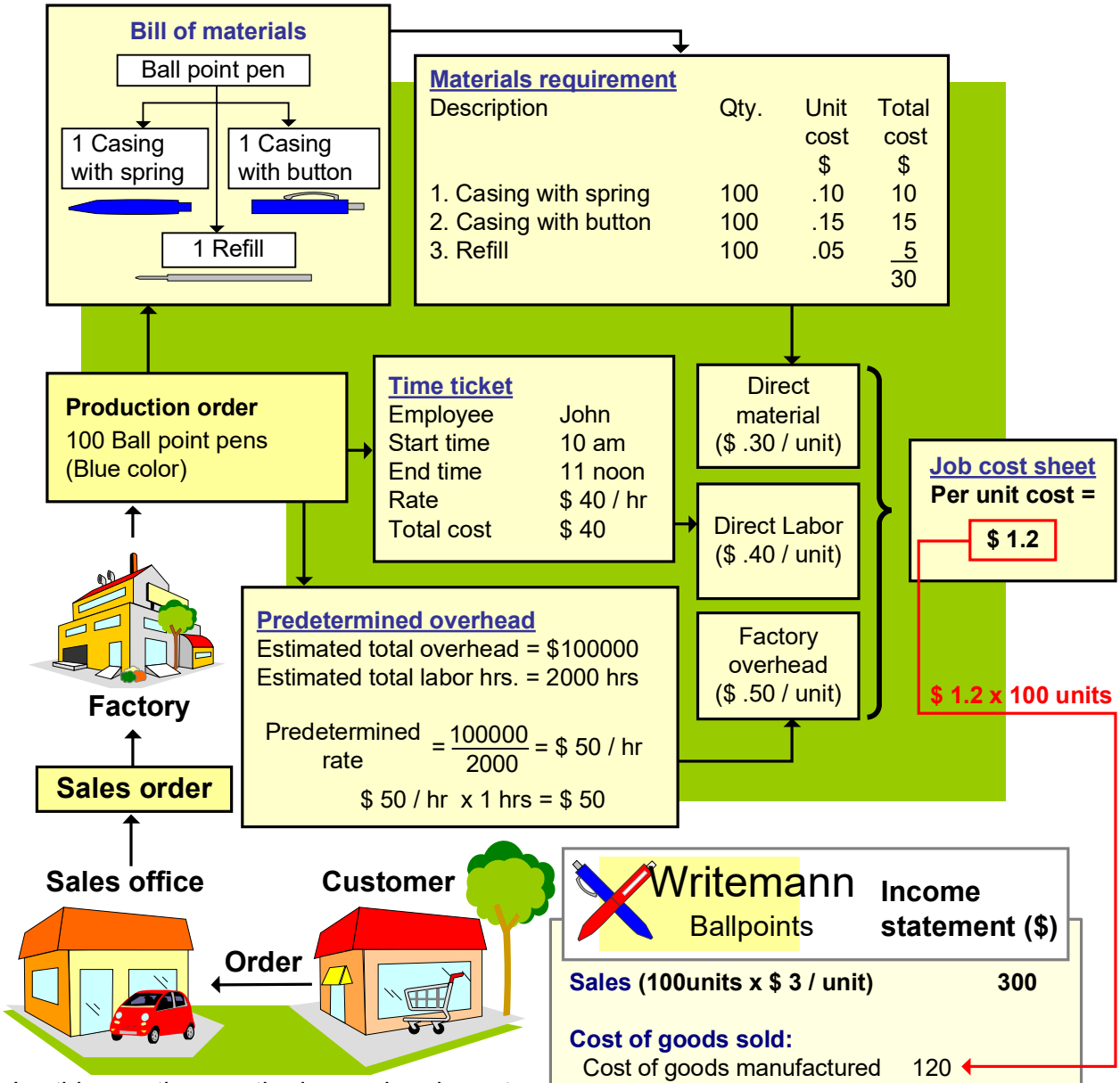
1. For mass produced goods
2. Production is continuous
3. Production is highly automated
4. Costing focuses on the process
5. When the company makes products that are homogeneous
6. Labor and material costs are charged to specific departments
7. Production is standardized and the cost pattern for a production run is similar
8. Suitable for industries such as petroleum products, beverages, food products, soaps, paints, cement





Job Order Costing

This job order costing method is useful for products produced in small batches. This costing method attaches costs to a particular job as each batch varies in its consumption of direct materials, labor and processing times. A job cost sheet records all the costs (direct materials, direct labor and overhead) for each job.



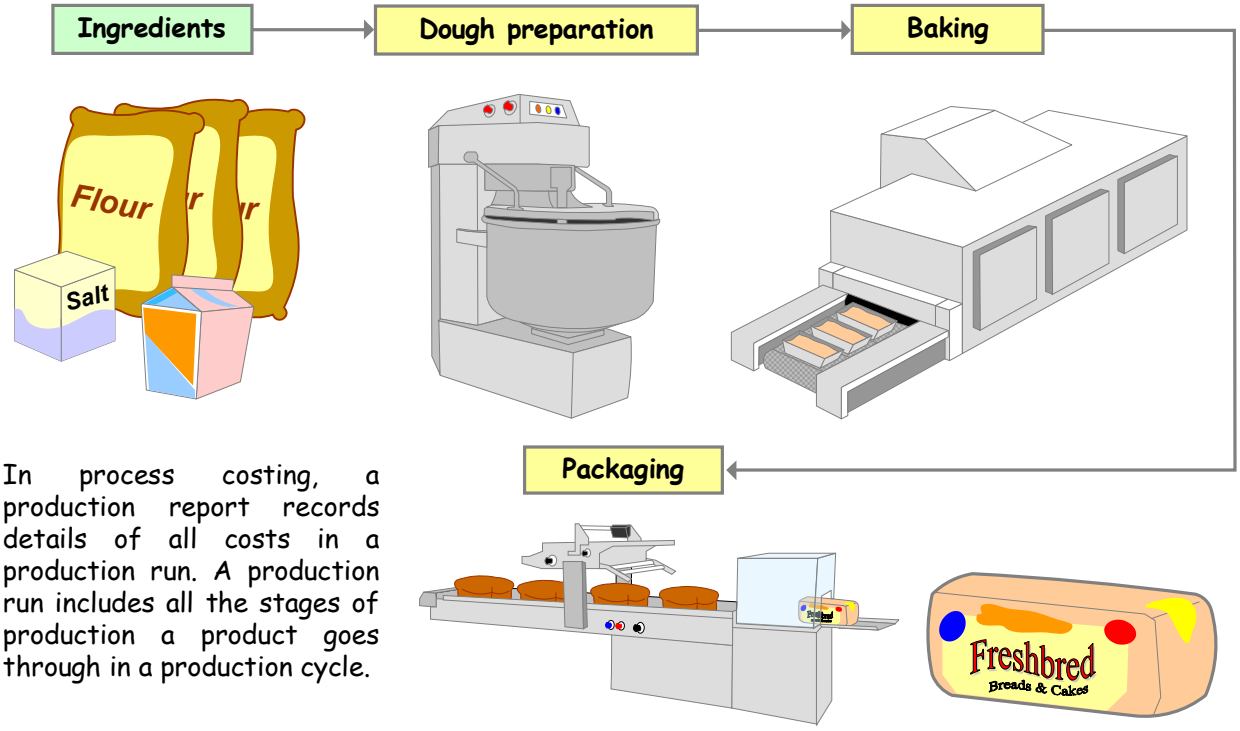
In this costing method, overhead costs include the fixed and variable manufacturing overhead. As each job varies in its complexity, time taken and costs incurred, the costing for each job is done separately. It is suitable for industries like furniture, computers, machinery and other custom products and services.

Writemann Ballpoints — Income statement ($)

Sales (100units x $ 3 / unit)			**300**
Cost of goods sold:			
Cost of goods manufactured		120	
Ending inventory	***Less***	0	
Cost of goods sold		**120**	**120**
Gross Profit			**180**
Selling expenses	***Less***	**50**	
Administrative exp.	***Less***	**20**	
		70	**70**
Income from operations			**110**

Process Costing

Process costing is an absorption costing method used for costing standardized products made in large volumes using continuous production systems. Cost measurement in this method focuses on the process. Costs calculation is done at each step of the process. The cost of each step is divided by the number of units to calculate the individual unit cost. Individual costs at each step are calculated to arrive at the unit total cost.



In process costing, a production report records details of all costs in a production run. A production run includes all the stages of production a product goes through in a production cycle.

Dough preparation ($)	
1. Materials (500 loaves)	
a. Flour (150 kgs)	**15**
b. Salt	**5**
c. Additives	**10**
2. Labor hours	
1 hr. ($ 40/hr.)	**40**
3. Predetermined overhead	
($10/hr x 1 hr.)	**10**
Total	**80**

Cost / Loaf = 80/500 = $0.16

Baking ($)	
1. Materials	**0**
2. Labor hours	
1 hr. ($ 40/hr.)	**40**
3. Predetermined overhead	
($ 20/hr x 1 hr.)	**20**
Total	**60**

Cost / Loaf = 60/500 = $0.12

Packaging ($)	
1. Materials (500 loaves)	
Packaging	**15**
2. Labor hours	
1 hr. ($ 40/hr.)	**40**
3. Predetermined Overhead	
($10/hr x 1 hr.)	**10**
Total	**65**

Cost / Loaf = 65/500 = $0.13

In reality, there exists work-in-progress inventory at the end of a period as all materials are not fully converted into products. The cost value assigned to such work-in-progress inventory is based on the percentage of conversion it has undergone.

Freshbred
Breads & Cakes

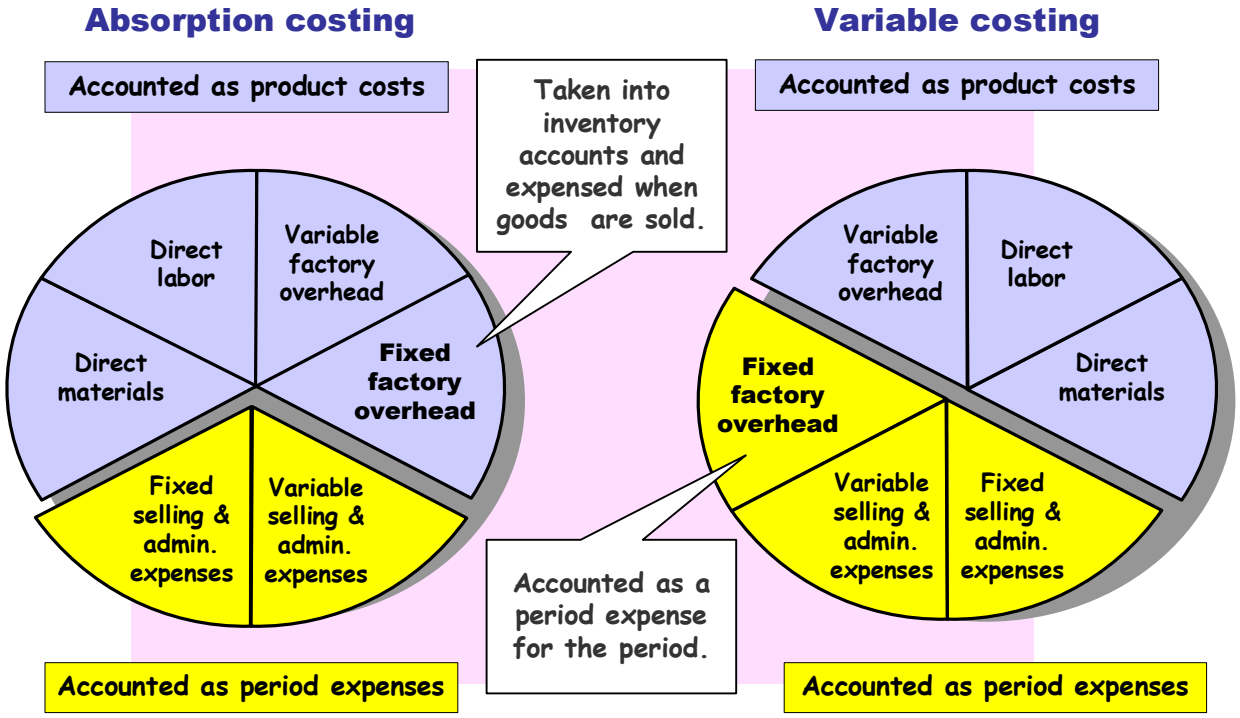
Total cost per loaf
= 0.16 + 0.12 + 0.13 = $ 0.41

141 - Variable Costing

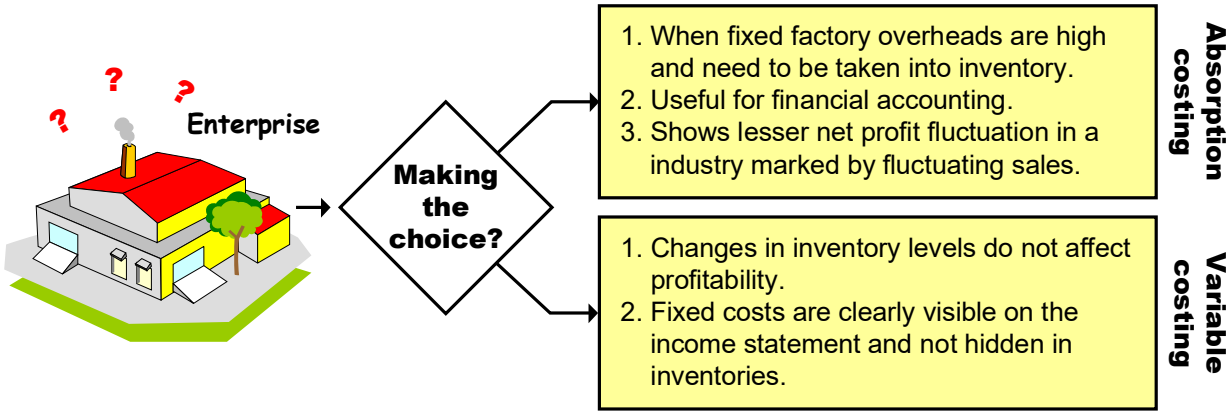
Variable costing is a costing method that includes direct materials, direct labor and the variable manufacturing overhead into the total product cost. This accounting method is also called marginal costing. Variable costing differs from absorption costing in the way product costs are calculated. Here, only variable manufacturing overhead costs are considered. Fixed manufacturing overhead costs are treated as period costs. This significantly affects product cost, income and value of inventory.

Variable and absorption costing

In variable costing, the fixed factory (manufacturing) overhead is accounted as a period expense during the period in which it has occurred. In absorption costing, however, the fixed factory overhead is a product cost that is expensed with only when goods associated with it are sold.



Some advantages in the costing methods



Writemann
Ballpoints

For example, Writemann ballpoints, a company that manufactures ball point pens has the cost structure ($) as shown to the right.

Cost details

Product Pens

Yearly production 10,000 units

Variable cost / pen ($)	
Direct material cost	0.30
Direct labor cost	0.40
Variable factory overhead	0.20
Variable selling & admin expense	0.20

Fixed costs ($)	
Fixed factory overhead	3,000
Fixed selling & admin expense	1,000

Absorption costing method

Product Pens

Yearly production 10,000 units

Direct material cost				0.30
Direct labor cost				0.40
Variable factory overhead				0.20
Fixed factory overhead				
$	3,000	÷ Units	10,000	0.30
Total unit product cost				**1.20**

Variable costing method

Product Pens

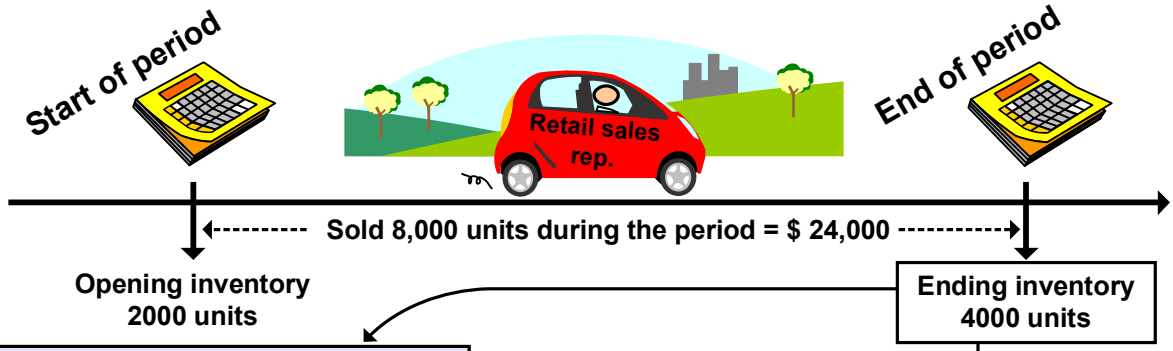
Yearly production 10,000 units

Direct material cost	0.30
Direct labor cost	0.40
Variable factory overhead	0.20
Total variable production cost	**0.90**

In both methods, the fixed and variable selling and administrative expenses are treated as period expenses for the periods in which they occur.

However, in the variable costing method, the fixed factory overhead of $ 3,000 is accounted as a period expense against income for the period.

Assume: The sales price is $ 3 per pen and 8,000 pens have been sold from the 10,000 pens produced. The opening inventory is 2000 pens.



In the absorption costing method, 4000 unsold pens have a fixed factory overhead component of $ 1200 ($ 0.30 x 4000 units), which is carried forward to the next year in inventory. The ending inventory value is $ 4,800 ($ 1.20 x 4000 units).

Whereas, in the variable costing method, the ending inventory value is $ 3,600 ($ 0.90 x 4000 units), which is lower than that of the absorption costing method as only variable factory overhead costs are taken into the product cost.

Comparing absorption and variable costing methods

Absorption costing ($)

Sales	8,000	Pens	x $	3	Unit sales price		24,000
***Minus* Cost of goods sold**							
Opening inventory	2,000	Pens x $	1.2	Unit cost		2,400	
+ Cost of manufactured goods	10,000	Pens x $	1.2	Unit cost		12,000	
Saleable inventory	12,000	Pens x $	1.2	Unit cost		14,400	
– Ending inventory	4,000	Pens x $	1.2	Unit cost		4,800	
Cost of goods sold						9,600	9,600
Gross income							14,400
***Minus* Selling & administrative expenses**							
Variable selling & admin. exp.	8,000	Pens x $	0.20	per pen		1,600	
+ Fixed selling & admin. exp.						1,000	
Selling & administrative expenses						2,600	2,600
Net income							11,800

Variable costing ($)

Sales	8,000	Pens	x $	3	Unit sales price		24,000
***Minus* variable cost of goods sold**							
Opening inventory	2,000	Pens x $	0.90	Unit cost		1,800	
+ Variable manufacturing costs	10,000	Pens x $	0.90	Unit cost		9,000	
Saleable inventory	12,000	Pens x $	0.90	Unit cost		10,800	
– Ending inventory	4,000	Pens x $	0.90	Unit cost		3,600	
Cost of goods sold	8,000	Pens x $	0.90	Unit cost		7,200	
+ Variable selling & admin. exp.	8,000	Pens x $	0.20	per pen		1,600	
Total variable costs						8,800	8,800
Contribution							15,200
***Minus* Fixed expenses**							
Fixed manufacturing overhead						3,000	
Fixed selling & admin. exp.						1,000	
Total fixed expenses						4,000	4,000
Net income							11,200

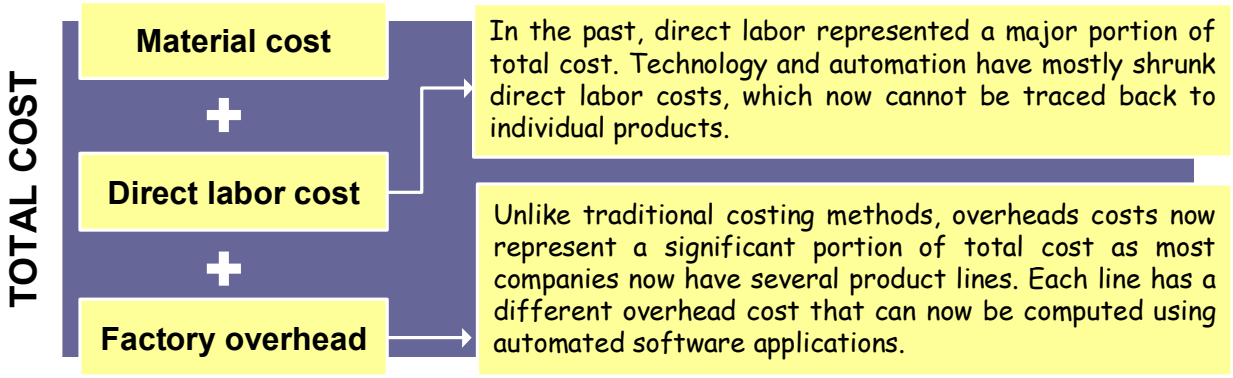
The difference in the ending inventory value between the two costing methods ($ 4800 – $3600 = 1200) is due to the fixed manufacturing overhead of $ 0.30 that has been expensed with, in the absorption costing method ($ 1200 / 4000 ending inventory = $ 0.30). The net income values from both the methods differ as well.

142 - Activity Based Costing

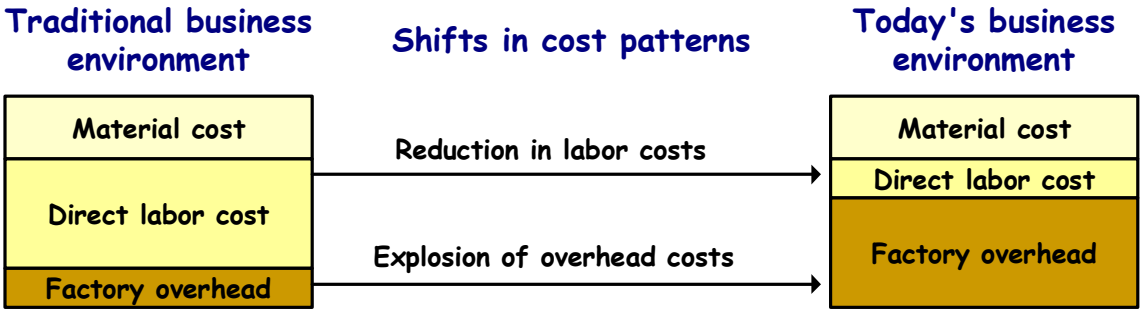
ABC is a costing system that costs products based on the activities that go into producing them. ABC is mainly an internal method of costing to present managers with more accurate details on costs.

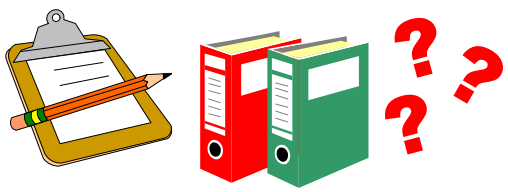
Traditional costing

Today's manufacturing environment

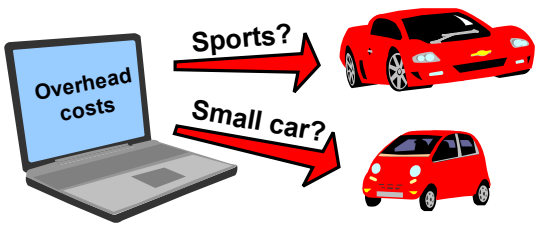


Traditional methods of costing have largely presented a distorted view about costs either by under costing or over costing products. In traditional business environments, variances in overhead costs did not severely impact total costs as they made up a small portion of the total cost. An explosion in overhead costs because of multiple product lines and increased automation have hastened the need to track indirect costs going into activities to produce specific products.





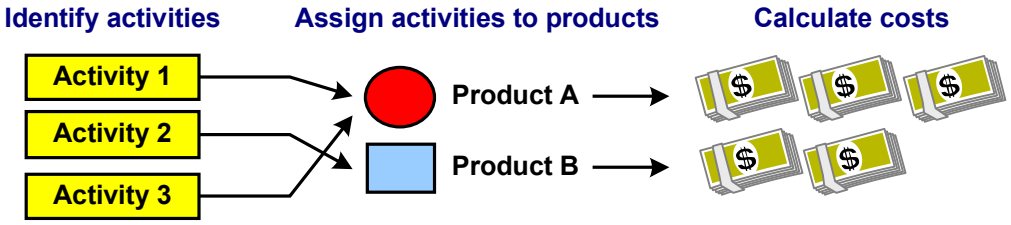
Traditionally, companies had to rely on manual methods for recording overhead costs which made it a cumbersome and inaccurate effort.



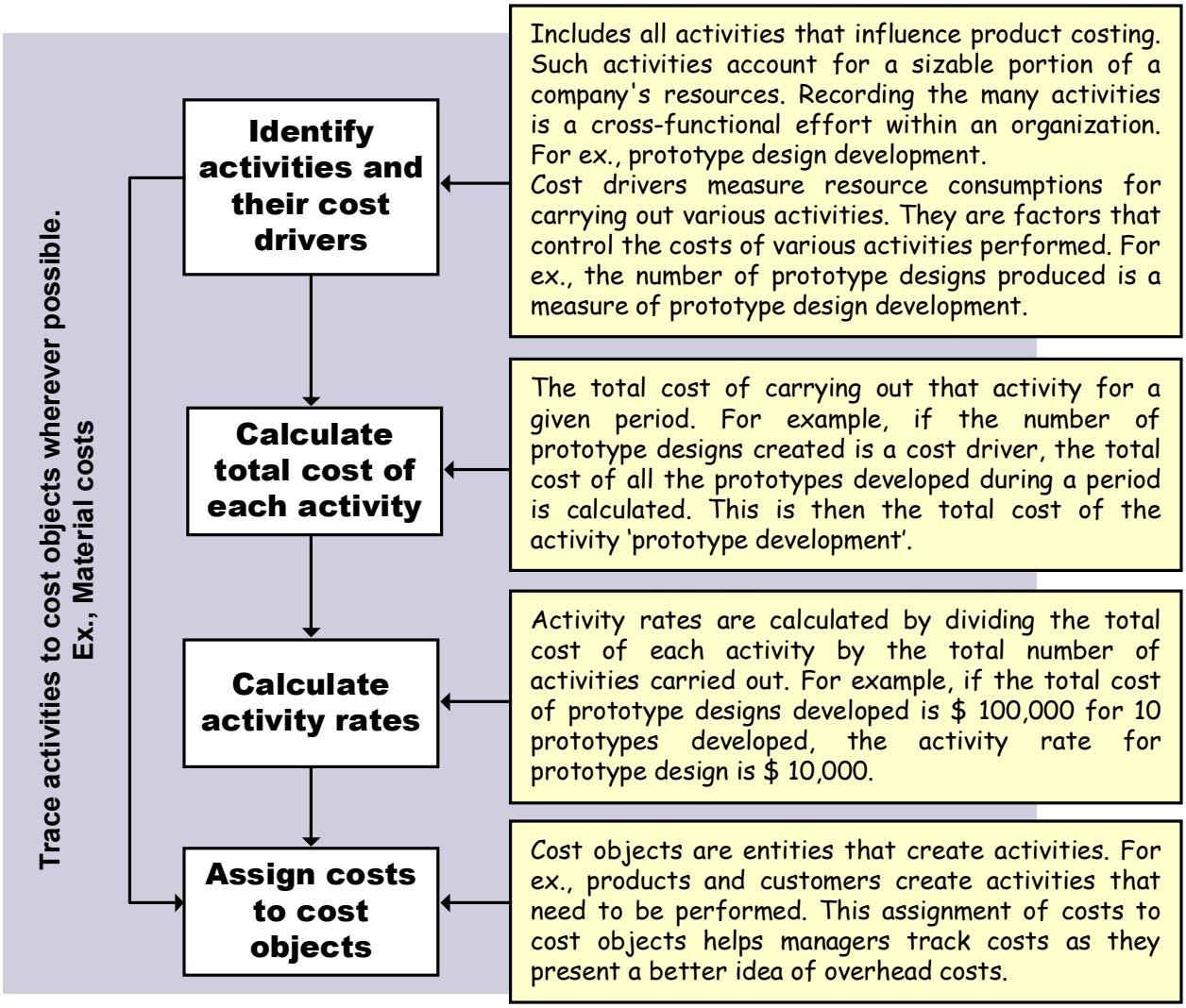
Modern software applications can now trace overhead costs to individual products or product lines to present accurate costing data.

Activity-based-costing (ABC) starts of by identifying the various activities undertaken in an enterprise, to manufacture products and services. The cost of resources needed to perform these activities are then assigned to products and services that need these activities. In this costing method, indirect costs (overheads) that impact product costing are assigned into direct costs.

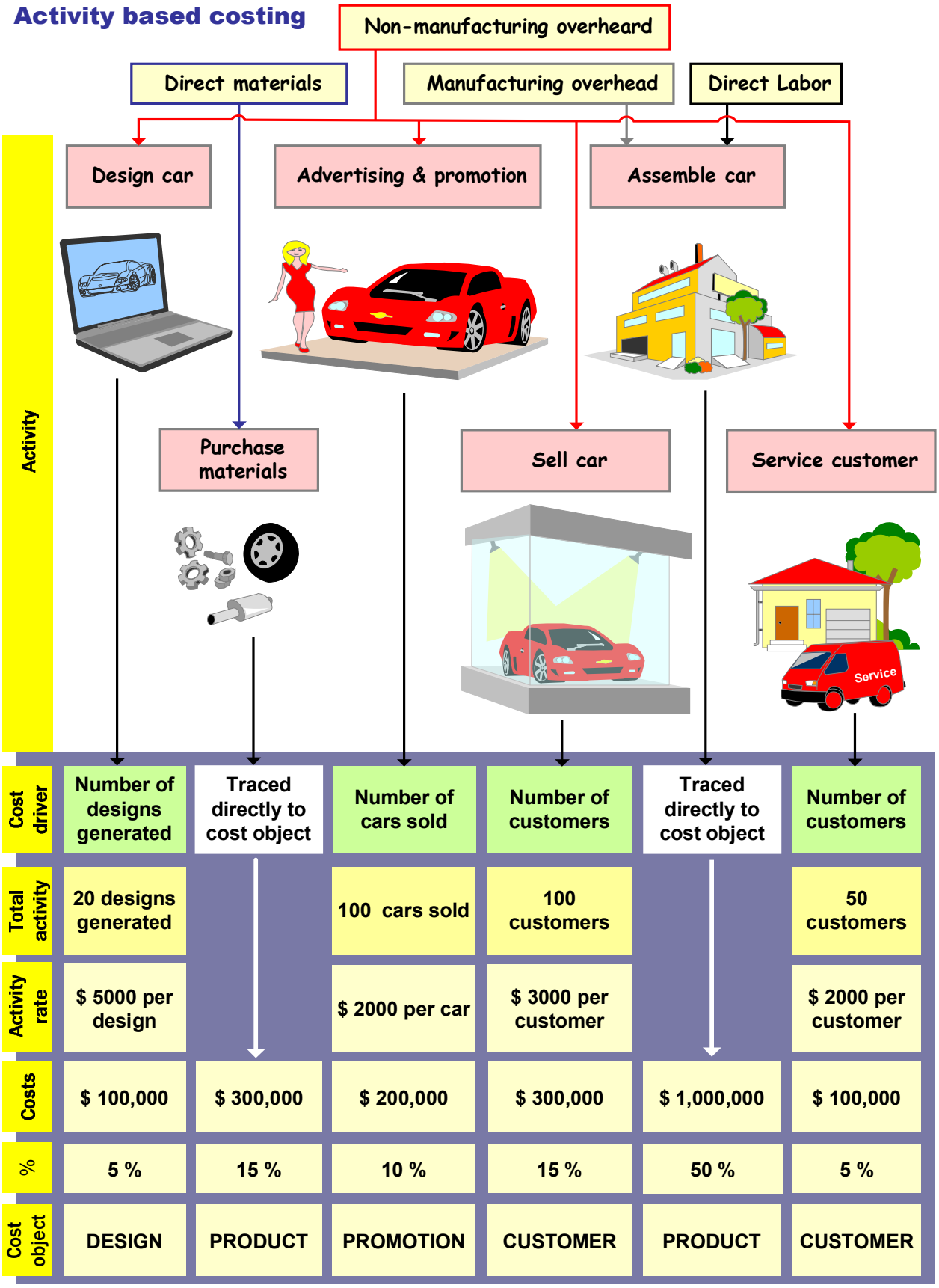
Traditionally, indirect costs were not tracked and assigned to products as the few products offered in the range consumed somewhat similar amounts of overhead costs. With ABC, an organization can track indirect costs and calculate the actual cost of its products and services. This helps identify unprofitable products for discontinuation from the range and reduce prices of overpriced products.



Implementing an activity based costing system



Activity based costing

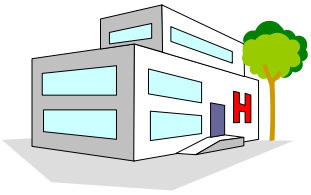


Cost driver	Number of designs generated	Traced directly to cost object	Number of cars sold	Number of customers	Traced directly to cost object	Number of customers
Total activity	20 designs generated		100 cars sold	100 customers		50 customers
Activity rate	$ 5000 per design		$ 2000 per car	$ 3000 per customer		$ 2000 per customer
Costs	$ 100,000	$ 300,000	$ 200,000	$ 300,000	$ 1,000,000	$ 100,000
%	5 %	15 %	10 %	15 %	50 %	5 %
Cost object	DESIGN	PRODUCT	PROMOTION	CUSTOMER	PRODUCT	CUSTOMER

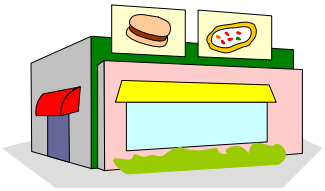
143 - Standard Costing

Standard costing is a performance measurement system that calculates the standard cost of an item for a period. It then compares actual costs against these standards. The standard cost of an item is the benchmark against which actual costs and material consumptions are evaluated and corrected, in case of variances. The standard cost of an item is the predetermined unit cost of an item used for managerial planning and control.

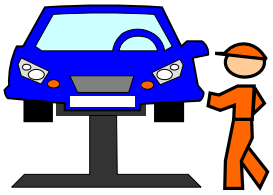
Establishing the standard cost



Hospitals establish the standard cost of each occupied bed per day.



Fast-food companies establish standard costs of burgers and other items.



Service companies compute the standard cost of a car service.

Auto companies have standard costs for their different models.

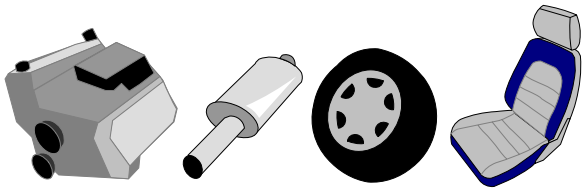
Ways to establish standard costs of products

1. Using ideal standards
Computing costs considering ideal conditions. Represents optimum levels of efficiency under perfect operating environments.

2. Using normal standards
Computing costs using existing operating conditions. Represents attainable levels of efficiency under given normal conditions.

Companies usually opt for standard costing of products under normal conditions as it is more realistic and does not demotivate employees by setting unattainable cost performance goals.

The standard cost of an item



For example, the standard cost of a car is the sum total of its unit standard material cost, unit standard labor cost and unit standard manufacturing overhead cost.

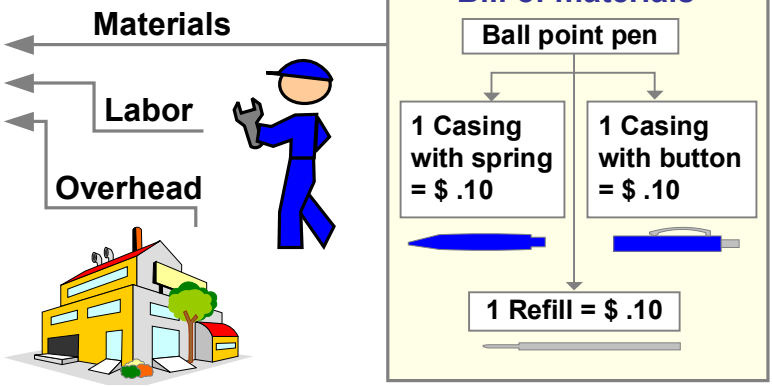
Standard unit material cost: The cost of materials needed to produce one single unit of the item. (Standard direct materials price x standard direct materials quantity)

Standard unit labor cost: The cost of labor to produce one single unit of the item. (Standard direct labor rate x standard direct labor hours)

Standard manufacturing overhead cost: Manufacturing overhead to produce one single unit of the item.

Ex. Standard cost of a single ball point pen ($)

Direct unit material cost	.30
Direct unit labor cost	.05
Overhead cost	.05
Standard cost price	**.40**
Profit margin	.60
Sales price	1.00

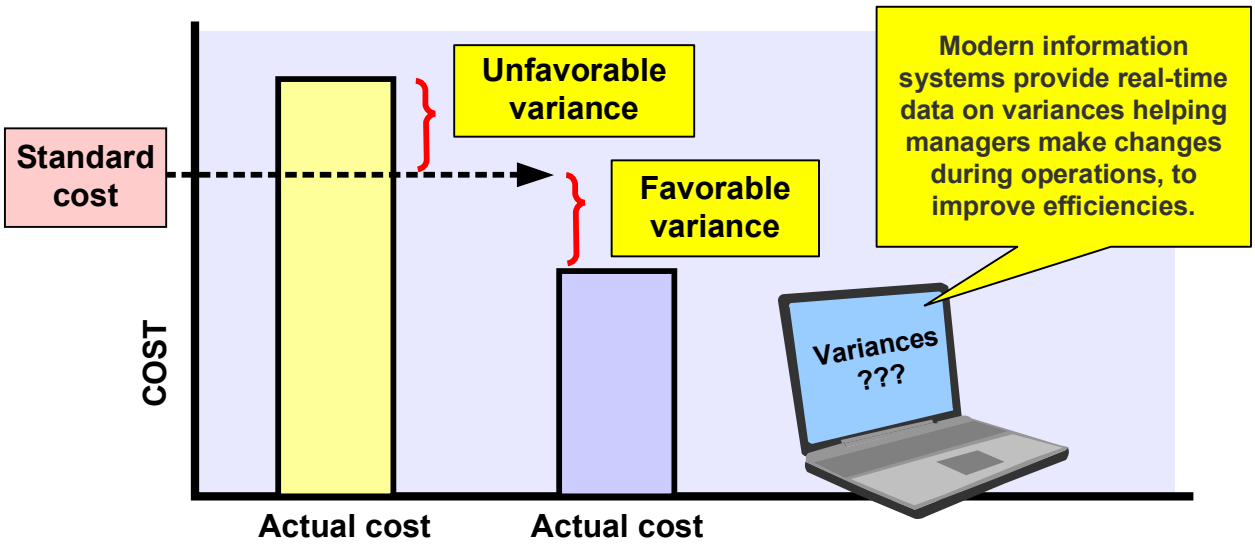


Benefits of standard costing

1. Improves managerial efficiency as it provides a benchmark for comparing costs, instead of comparing costs to past performances.
2. Simplifies bookkeeping as standard costs of materials, labor and overhead are charged to jobs instead of computing actual costs for each job.
3. Makes employees more cost conscious and therefore keep costs within limits.
4. Useful when setting sales prices of items.

Analyzing variances between standard and actual costs

Variances occur when there are differences between standard costs used in costing systems and actual costs incurred. Actual costs are reflected in financial statements. A standard cost variance is the amount by which actual costs differ from standard costs.



Unfavorable Variances

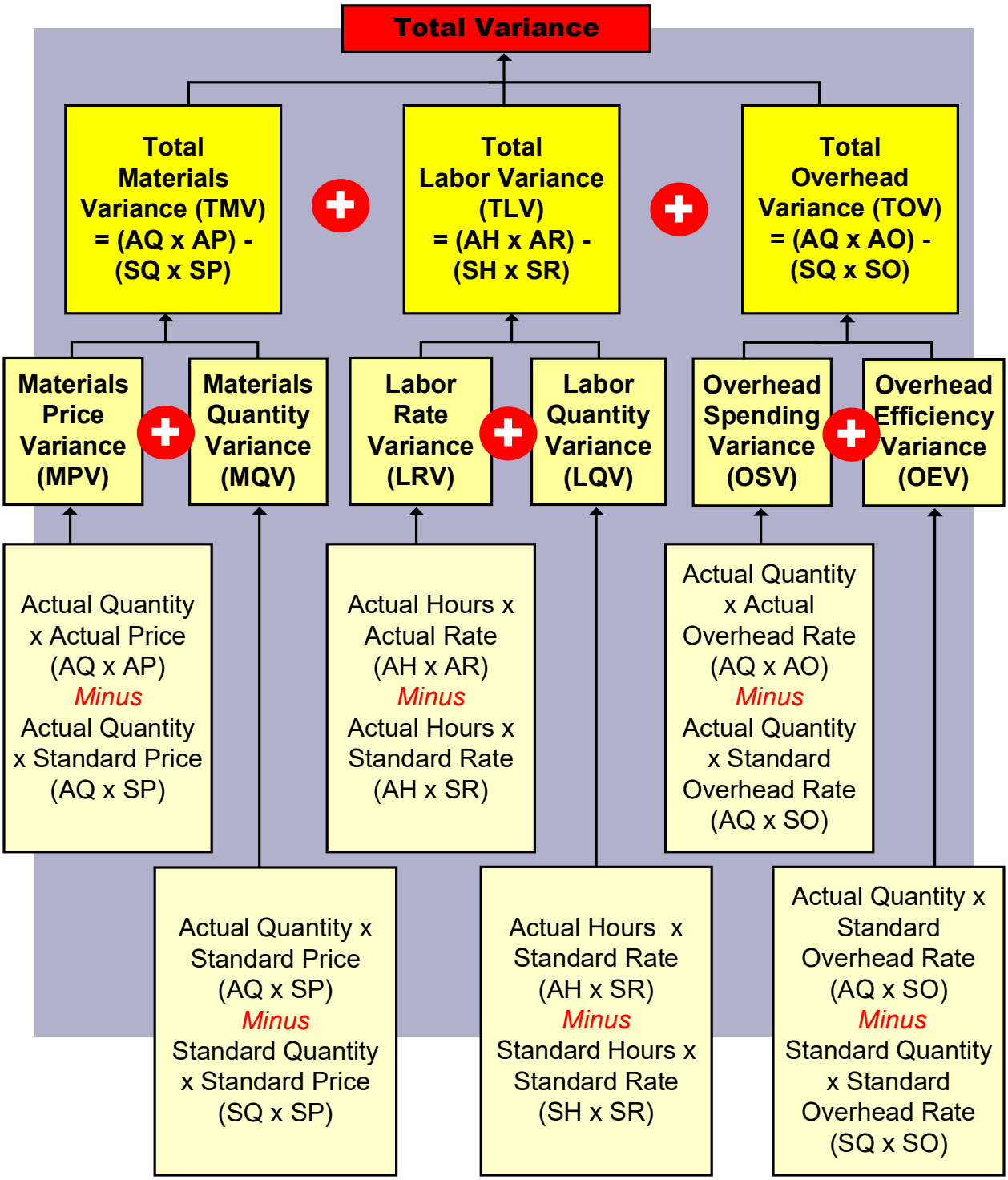
Occur when actual costs are greater than standard costs. This increases the cost of a product because of inefficiencies in operations or price increases in direct and indirect materials.

Favorable Variances

Occur when actual costs are lower than standard costs. This decreases the cost of a product because of increased operational efficiencies or price reductions in direct and indirect materials.

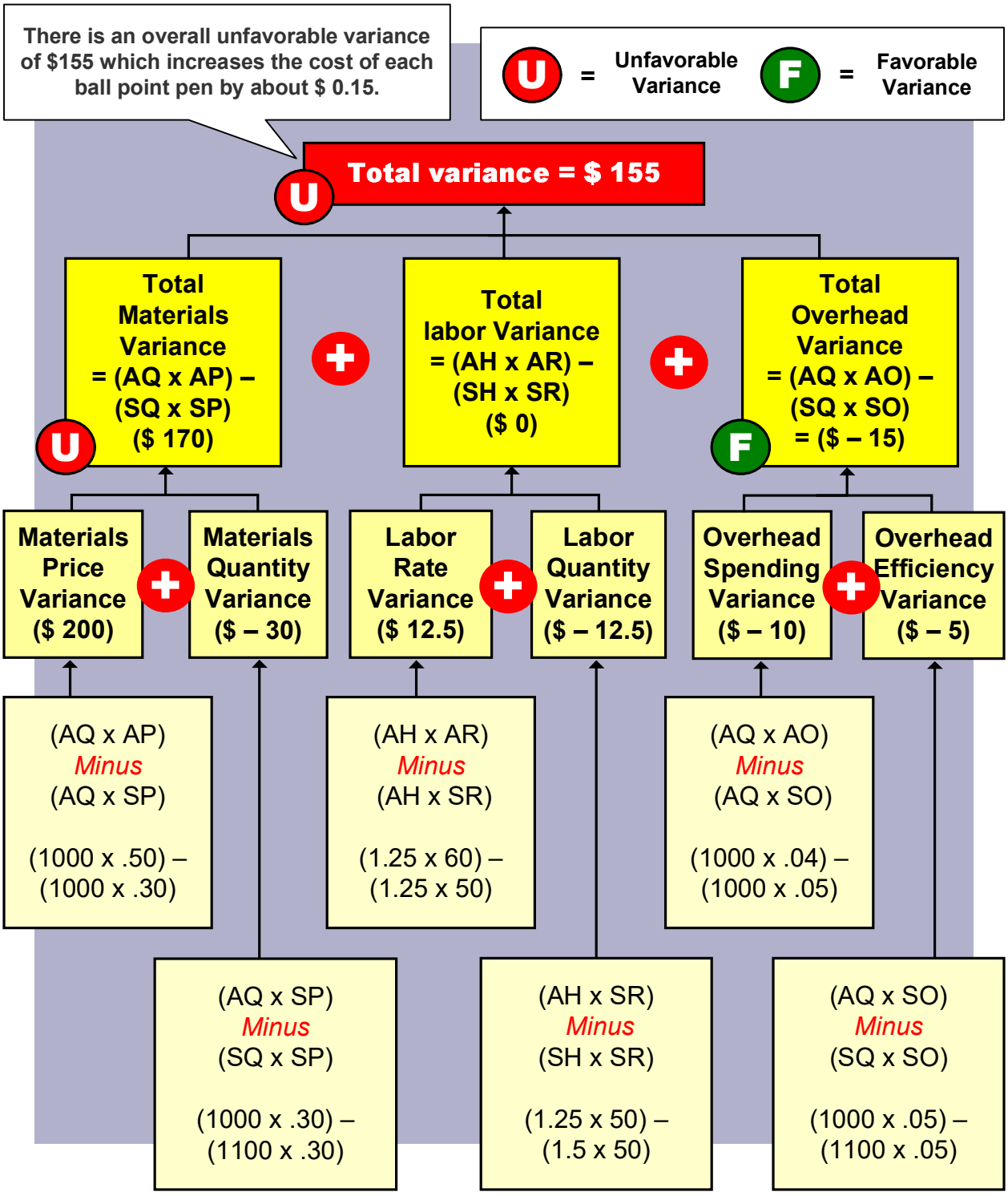
144 - Variance Analysis

Variance analysis identifies differences between actual and standard costs. In today's dynamic business environment, variances are unavoidable and need to be measured to take corrective actions wherever necessary. Once cost components are identified, variances can be categorized into price and quantity variances.



Example: Assume the following data in the manufacture of ball point pens.

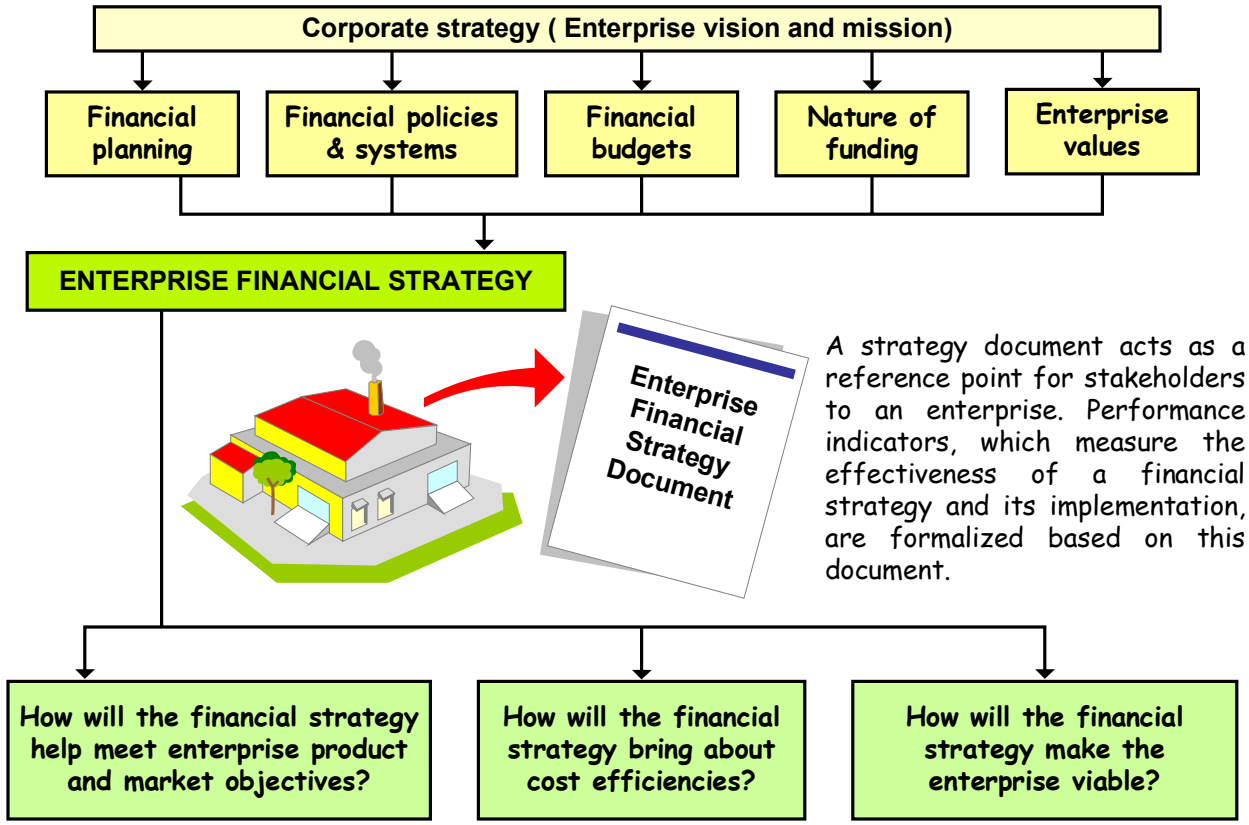
1. Actual quantity (AQ)	= 1000 units	1. Standard quantity (SQ)	= 1100 units
2. Actual price (AP)	= $.50 / unit	2. Standard price (SP)	= $ 0.30 / unit
3. Actual hours (AH)	= 1.25 hrs	3. Standard hours (SH)	= 1.50 hrs
4. Actual labor (AR)	= $ 60 / hr	4. Standard labor rate (SR)	= $ 50 / hr
5. Actual overhead (AO)	= $ .04 / unit	5. Standard overhead (SO)	= $ .05 / unit



145 - The Enterprise Financial Strategy

A financial strategy shows how investments and resources in an enterprise are procured, managed, evaluated and reported. A financial strategy document outlines the context, reality and framework within which a company's finances work, to make it sustainable and viable. The strategy also sets priorities to the financial commitments of an enterprise.

What goes into the financial strategy?



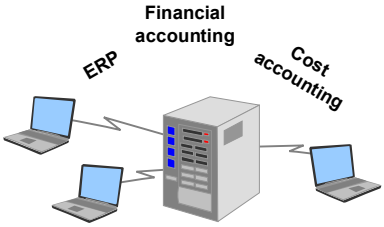
A strategy document acts as a reference point for stakeholders to an enterprise. Performance indicators, which measure the effectiveness of a financial strategy and its implementation, are formalized based on this document.

Making the financial strategy functional and workable

When an enterprise has finalized its financial strategy and document, it needs to implement the strategy successfully. The necessary technologies and skills need to be put in place with clearly defined performance measures.

What indicators need to be measured to best evaluate the success of the financial strategy?

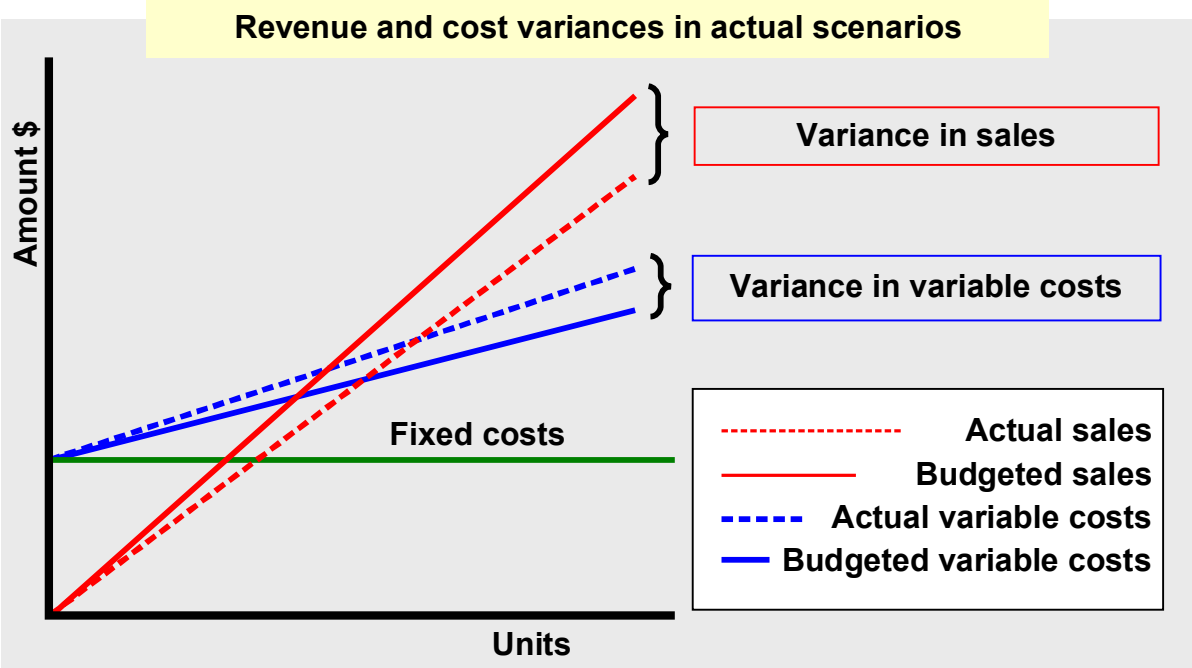
Is the enterprise staffed with people having the necessary skills to carry out the strategy? How is change managed?

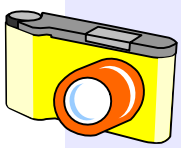


Is the needed technology and infrastructure in place to record relevant financial and accounting indicators?

146 - Flexible Budgets

Flexible budgets use budgeted revenues and costs based on actual levels of output achieved during a budget period. In actual business environments, changes to variable costs and selling prices usually take place. Flexible budgets adjust to such changes in costs and prices. Static budgets, on the other hand, rely on the level of activity planned at the start of a budget period. Flexible budgets provide the flexibility to set revisions in budgets when companies are just not too sure of setting budget levels. This is especially true of start-up companies and new businesses.



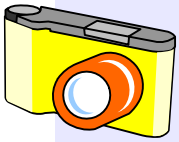


Sharpedge Cameras

Consider for example, Sharpedge cameras, whose static budgeted costs and sales for a budget period are as under. (In the example, variable and fixed period costs are not considered)

		Amount ($)
1. Sales (Selling price of $100 x 1000 units)		**100,000**
2. Variable costs (per unit)		
1. Direct materials	20	
2. Direct labor	10	
3. Overhead	10	
Total / unit	40	
Total variable costs ($ 40 x 1000 units)		(Less) **40,000**
3. Fixed costs (for a range of 800 units to 1500 units)		(Less) **20,000**
Budgeted operating income		**40,000**

As per the static budget, Sharpedge cameras has planned for an operating income of $ 40,000 for the budget period, from sales of $ 100,000.



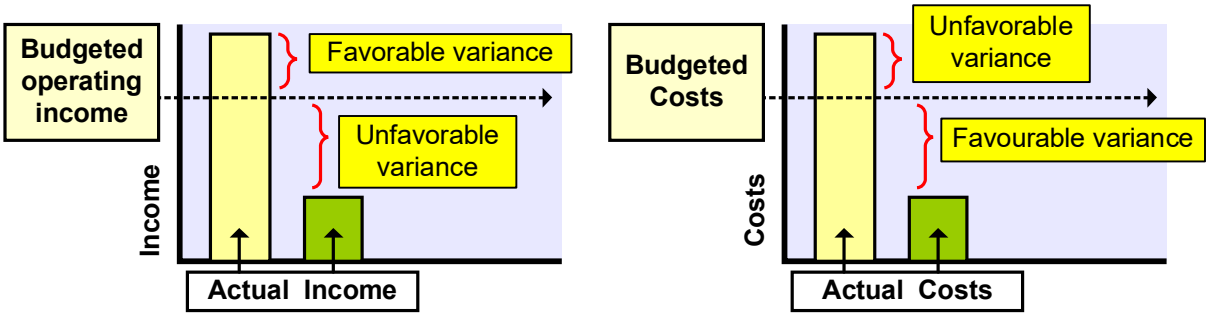
Sharpedge Cameras

Assume, that Sharpedge cameras manufactured and sold 1400 units at an average price of $ 90 per unit. There are changes to its actual variable costs, as shown below.

		Amount ($)
1. Actual sales (selling price of $ 90 x 1400 units)		**126,000**
2. Variable costs (per unit)		
1. Direct materials	20	
2. Direct labor	12	
3. Overhead	10	
Total / unit	42	
Total variable costs ($ 42 x 1400 units)		(Less) **58,800**
3. Fixed costs		(Less) **20,000**
Actual operating income		**47,200**

Static budget variance ($) (Budgeted vs Actual)

	Budgeted	Actual	Variance	
1. Sales revenue	**100,000**	**126,000**	**26,000**	Static budget variance (level 1)
2. Total variable costs	**- 40,000**	**- 58,800**	**18,800**	
3. Fixed costs	**- 20,000**	**- 20,000**	**0**	Static budget variance (level 0)
Operating income	**40,000**	**47,200**	**7,200**	

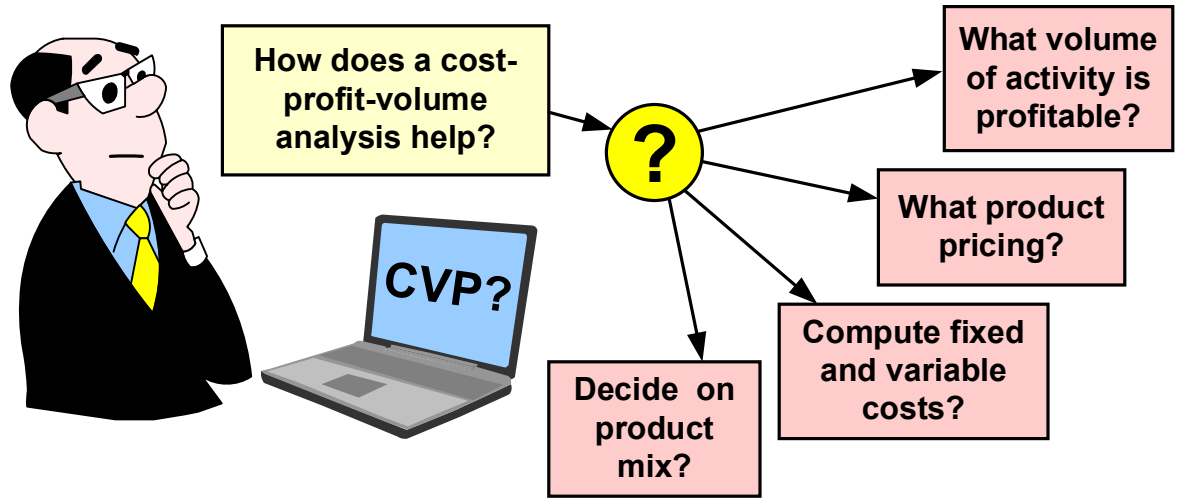


Flexible budget variance ($) (based on actual unit sales of 1400 units)

	Flexible Budget	Actual	Variance	Variance type
	Based on budgeted price per unit & budgeted costs			
1. Sales revenue	**140,000**	**126,000**	**14,000**	**Unfavorable**
2. Total variable costs	**- 56,000**	**- 58,800**	**2,800**	**Unfavorable**
Contribution	**84,000**	**67,200**	**16,800**	**Unfavorable**
3. Fixed costs	**- 20,000**	**- 20,000**	**-**	
Operating income	**64,000**	**47,200**	**16,800**	**Unfavorable**

147 - Cost-Volume-Profit Relationships

Cost-Volume-Profit (CVP) relationships help in analyzing the impact of cost, volume and prices on the profitability of an enterprise. CVP relationships help a company decide on its product mix and pricing. They also help in estimating volumes at which a business needs to perform, to be profitable. CVP analysis helps in controlling business operations in the immediate and long-term as well.

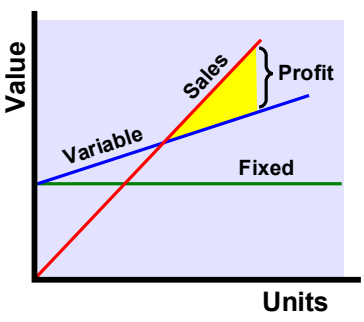


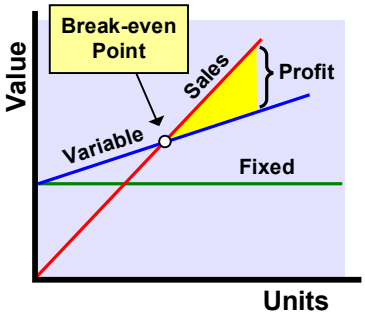
Tools to analyze CVP relationships

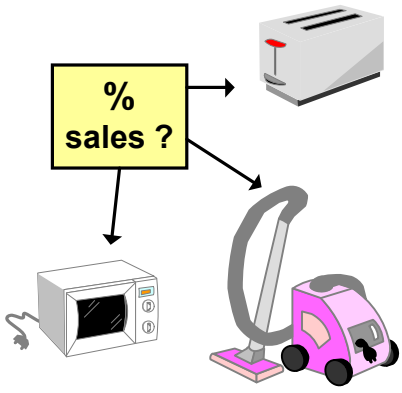
Profit-volume & contribution analysis
Helps analyze the impact of changes in prices, costs and volumes on profits. PVC relationships are represented using graphs. A contribution analysis helps in analyzing the impact of change in sales on contribution margins.

Break-even analysis
A break-even analysis helps calculate the break-even point and gauge the impact of changes in costs and prices on the break-even point. It helps determine the break-even sales limit, the point at which a business makes no profit and incurs no loss.

Sales mix analysis
A sales mix analysis is used to calculate the contribution margin and break-even point given a company's sales mix. It helps understand the impact of a sales mix on contribution margins and profitability.







148 - Profit-Volume & Contribution Analysis

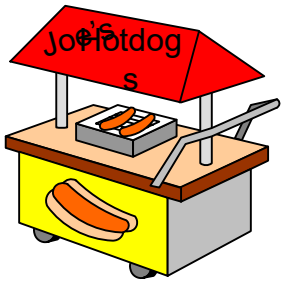
A profit-volume and contribution analysis helps in analyzing the impact of changes in prices, costs and volumes on profits. A contribution analysis helps analyze the impact of changes in sales on contribution margins.

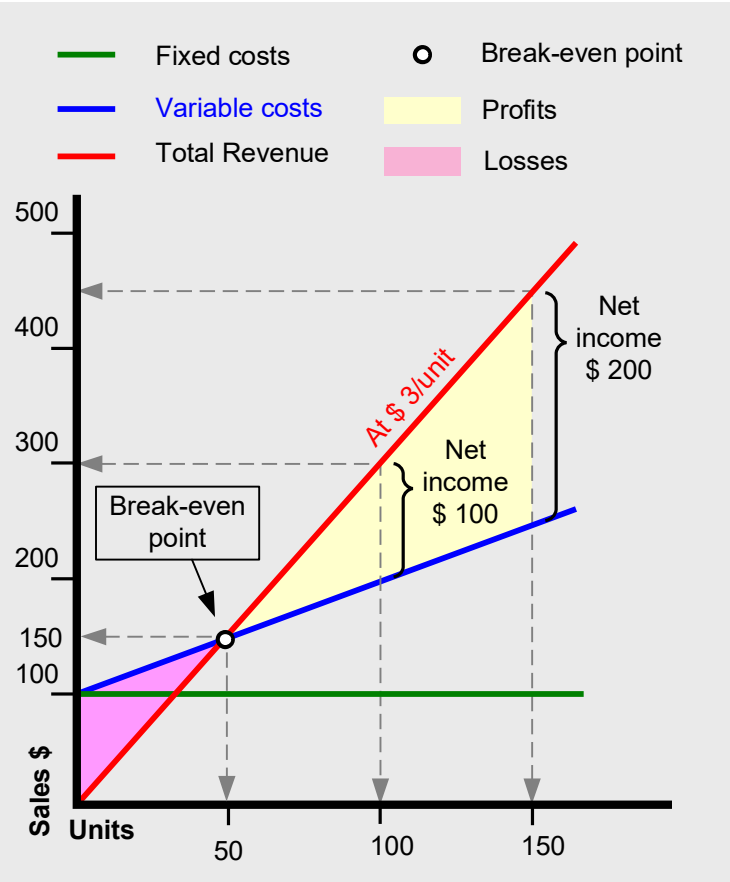
Consider for example Joe's Hotdogs, which sells hotdogs priced at $ 3 each. Joe's fixed cost, for rentals and other charges, is $ 100 and variable costs amount to $ 1 for each hotdog. Joe's calculation, of contributions and profits at different sales levels, is shown below.

Net income

Day: 15 Feb 2011 — Price per dog ($): 3

Details					
Sales (units)	1	50	51	100	150
Sales ($)	3	150	153	300	450
Less variable costs ($)	1	50	51	100	150
Contribution margin ($)	2	100	102	200	300
Less Fixed cost ($)	100	100	100	100	100
Net income ($)	-98	0	2	100	200





For every hotdog sold over the break-even point of 50, the net income on each hotdog is $ 2. If Joe's sold 150 hotdogs, the net income is calculated as,

$$(150 - 50) \times \$\ 2 = \$\ 200.$$

The per unit contribution is $ 2. For a total sale of 150 hotdogs the total contribution is,

$$150 \times \$\ 2 = \$\ 300.$$

The total contribution to sales is expressed as a ratio called the contribution ratio (CM ratio).

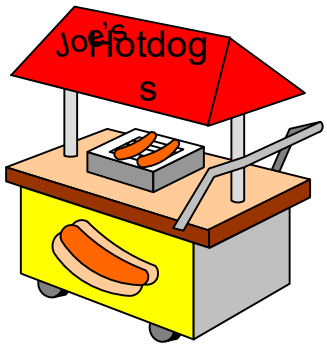
$$= \frac{\text{Contribution}}{\text{Sales}} = \frac{\$\ 300}{\$\ 450} = 75\ \%$$

This shows that, for every value increase in sales there is 75% increase in total contribution.

149 - Break-Even Analysis

A break-even analysis serves to show the impact of costs, total sales and unit sales prices on profits. It is used to calculate the break-even point (BEP). The BEP is where an enterprise makes no profit and incurs no loss. This is the point where sales equal costs (fixed and variable). If sales exceed the BEP the business makes a profit and if sales fall below this point the business incurs a loss.

Consider for example Joe's Hotdogs, with a fixed cost of $100 towards rentals and other charges. The variable cost (material costs) of each hotdog is $1. The sales price of each hotdog is $3. Joe's Hotdogs can plot its break-even point as shown below in the table. The break-even point in units is 50 hotdogs at a total dollar value of $ 150.

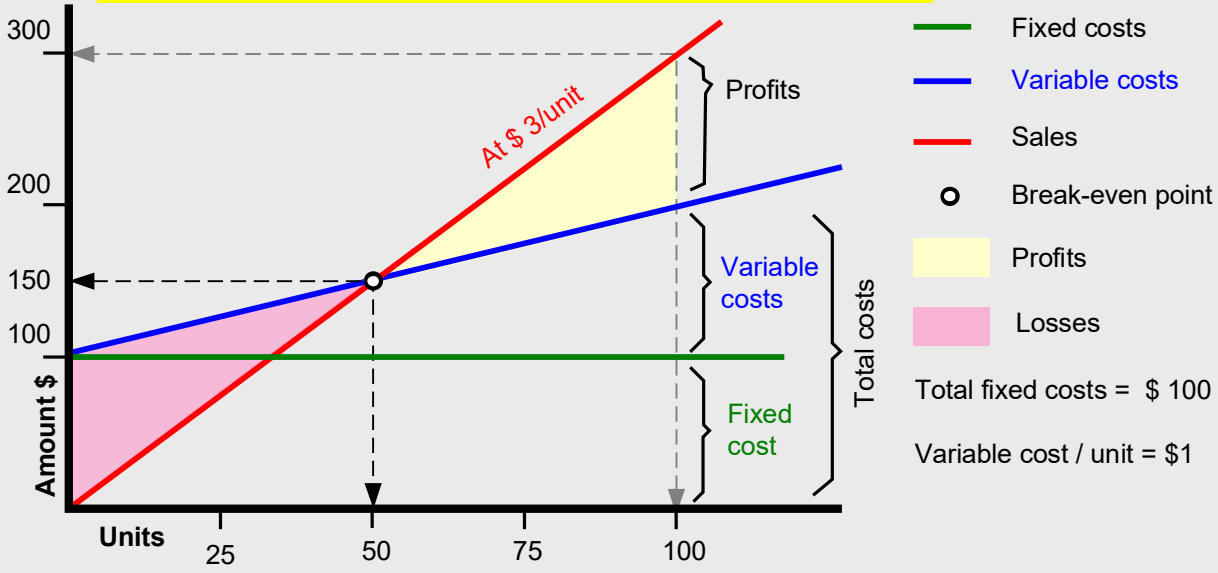


Breakeven point

Sales	Sales	Fixed costs	Variable costs	Total cost	Profit / Loss
Units	$	$	$	$	$
A	B	C	D	E (C+D)	F (B-E)
20	60	100	20	120	– 60
40	120	100	40	140	– 20
50	150	100	50	150	0
60	180	100	60	160	20
80	240	100	80	180	60
100	300	100	100	200	100

Loss
BEP
Profit

Graphical representation of break-even point



The break-even analysis simulates cost-volume-profit relationships for different sales prices, costs and output levels. The break-even point can be calculated using formulas, as shown under. Consider for example Joe's Hotdogs, where Joe needs to conduct a break-even analysis to calculate the break-even point for different pricing alternatives.

Contribution (per unit) = selling price (per unit) – variable cost (per unit)

1. At selling price of $2/unit = $2 - $1= $1/unit
2. At selling price of $3/unit = $3 - $1= $2/unit
3. At selling price of $4/unit = $4 - $1= $3/unit

Break even point (for output) = fixed cost / contribution per unit

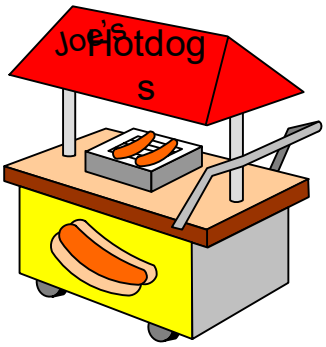
1. At selling price of $2/unit = $100 / ($2 - $1) = 100 units
2. At selling price of $3/unit = $100 / ($3 - $1) = 50 units
3. At selling price of $4/unit = $100 / ($4 - $1) = 33 units

Break even point (for sales) = fixed cost / contribution (per unit) x selling price (per unit)

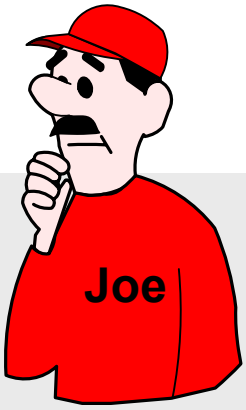
1. At selling price of $2/unit = $100/($2 - $1)x $2 = $ 200
2. At selling price of $3/unit = $100/($3 - $1)x $3 = $ 150
3. At selling price of $4/unit = $100/($4 - $1)x $4 = $ 133

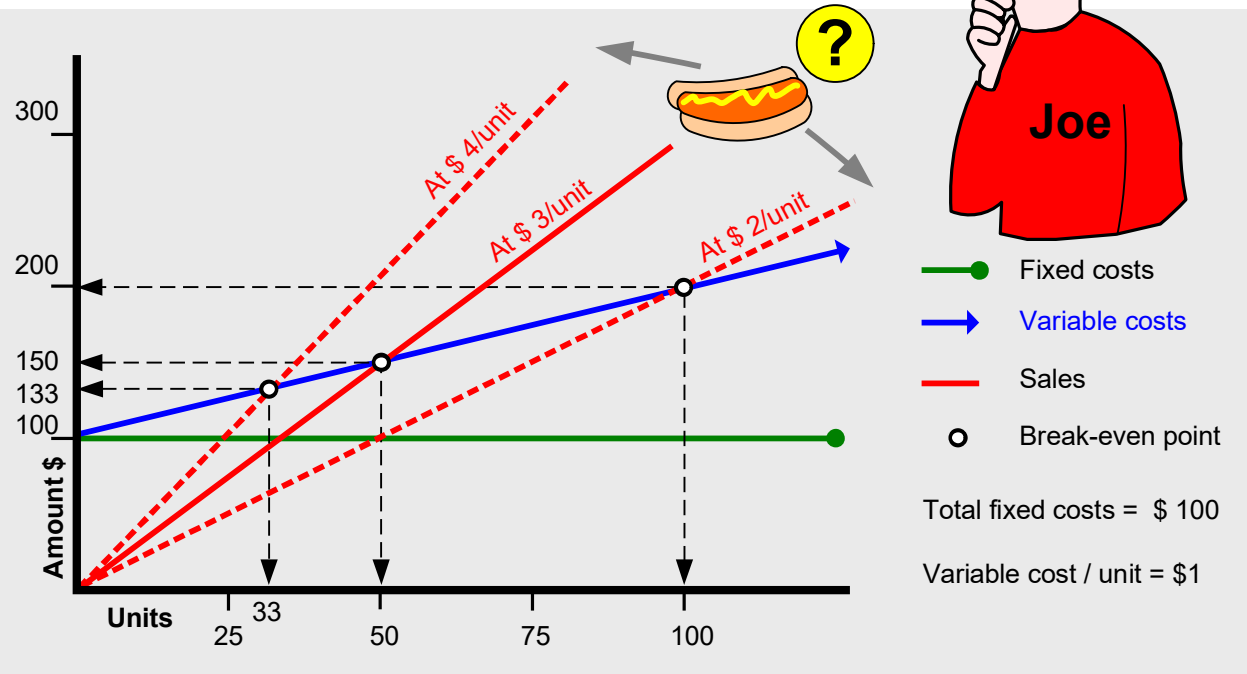
Total Profits = total sales – total costs)

1. $200 – $200 = 0 (if 100 units are sold at $2/unit)
2. $300 – $200 = $ 100 (if 100 units are sold at $ 3/unit)
3. $400 – $200 = $ 200 (if 100 units are sold at $ 4/unit)



Depending on market conditions, Joe can either lower or increase the price of each hotdog. The break-even point would then vary depending on the sales price and influence profitability as well. Alternatively, instead of increasing or decreasing the sales price of each hotdog, Joe can aim to reduce total costs (fixed and variable) to improve profitability.

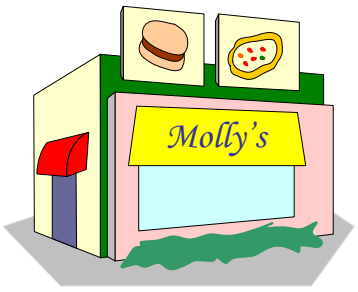




150 - Sales Mix Analysis

The sales mix of an enterprise is represented by the combination of products and the proportions in which they are sold. Some of the products sold may yield high margins while others could bring in lower returns. The proportion in which a company sells its products, or the sales mix, has a direct impact on profitability. A sales mix analysis calculates the effect of a sales mix on the profitability of a business.

Consider for example Molly's fast food, which sells burgers and pizzas. The net income calculation for each day is shown below. The price of a burger is $ 2 and the price of a pizza is $ 5. The variable expense for each burger is $ 1, and for each pizza $ 1.50. The fixed cost per day is $ 200.



Net income

Day: 15 Feb 2011

Head	Burgers ($)	Pizza ($)	Total ($)
Sales	200	500	700
Less variable expenses	100	150	250
Contribution margin	100	350	450
Less Fixed cost			200
Net income			250

$$\text{Contribution margin ratio} = \frac{\text{Contribution}}{\text{Sales}} = \frac{\$\ 450}{\$\ 700} = \mathbf{65\ \%}$$

$$\text{Break-even sales} = \frac{\text{Fixed cost}}{\text{CM ratio}} = \frac{\$\ 200}{0.65} = \mathbf{\$\ 308\ per\ day}$$

Consider days when Molly's fast food sold more burgers than pizzas. On such days, the variable expenses, contribution and breakeven values would look different, as show to the right.

Net income

Day: 20 Feb 2011

Head	Burgers ($)	Pizza ($)	Total ($)
Sales	500	200	700
Less variable expenses	250	60	310
Contribution margin	250	140	390
Less Fixed cost			200
Net income			190

$$\text{Contribution margin ratio} = \frac{\$\ 390}{\$\ 700} = \mathbf{56\ \%}$$

$$\text{Break-even sales} = \frac{\$\ 200}{0.56} = \mathbf{\$\ 357\ per\ day}$$

A business needs to be oversee its sales mix regularly as the combination of products sold has a direct impact on contribution and profitability.

151 - Depreciation

Depreciation is the decline in an asset's value because of use, passage of time, wear and tear and several other reasons. Depreciation divides the cost of an asset across its useful life. It also represents the portion of an asset's cost used up to generate revenues during the period of use, which will never be recovered through resale. A depreciation method shows the manner in which the value of an asset reduces.

Depreciation methods

1. Straight-line method

In this simple and preferred method, at first, an enterprise estimates the resale value of an asset at the end of its useful life. The depreciation expense is then deducted in equal instalments over the period of its useful life.

For example, an asset that costs £ 5,000 has a useful life of 4 years with an estimated resale value of £ 1,000 at the end of 4 years. Its annual depreciation expense is calculated as shown in the table to the right.

Computing the depreciation expense:

$$= \frac{\text{Cost of fixed asset – re-sale value}}{\text{Useful life (number of years)}}$$

$$= \frac{£\ 5000 – £\ 1000}{4 \text{ years}} = \textbf{£ 1000 per year}$$

Depreciation (£) – Straight-line method

Cost

Asset: Machine A

Year	Beginning value	Depreciation expense	Cumulative Depreciation	Ending Value
1	5000	1000	1000	4000
2	4000	1000	2000	3000
3	3000	1000	3000	2000
4	2000	1000	4000	1000

Resale

2. Double-declining-balance method

Consider the example from above, where a business has an asset that costs £ 5,000 with a useful life of 4 years. It has an estimated resale value of £ 1,000 at the end of 4 years. At first, the straight-line depreciation rate is calculated. Since the asset has a useful life of 4 years, the straight-line depreciation rate equals £ 1,000, which is 20% of the original cost. With the double-declining-balance method, the rate of 20% is doubled and a 40% depreciation rate is used. The asset is then depreciated by providing for a higher rate of depreciation in the first year and decreasing rates in later years. This is indicative of the fact that assets are more useful when new.

To ensure that the depreciated value does not fall below the resale or scrap value, a subtraction may be needed in the last year to bring about this adjustment.

Depreciation (£) – Double-declining-balance method

Cost

Asset: Machine A

Year	Beginning value	Depreciation rate	Depreciation expense	Cumulative Depreciation	Ending Value
1	5000	40%	2000	2000	3000
2	3000	40%	1200	3200	1800
3	1800	40%	720	3920	1080
4	1080	1080-1000	80	4000	1000

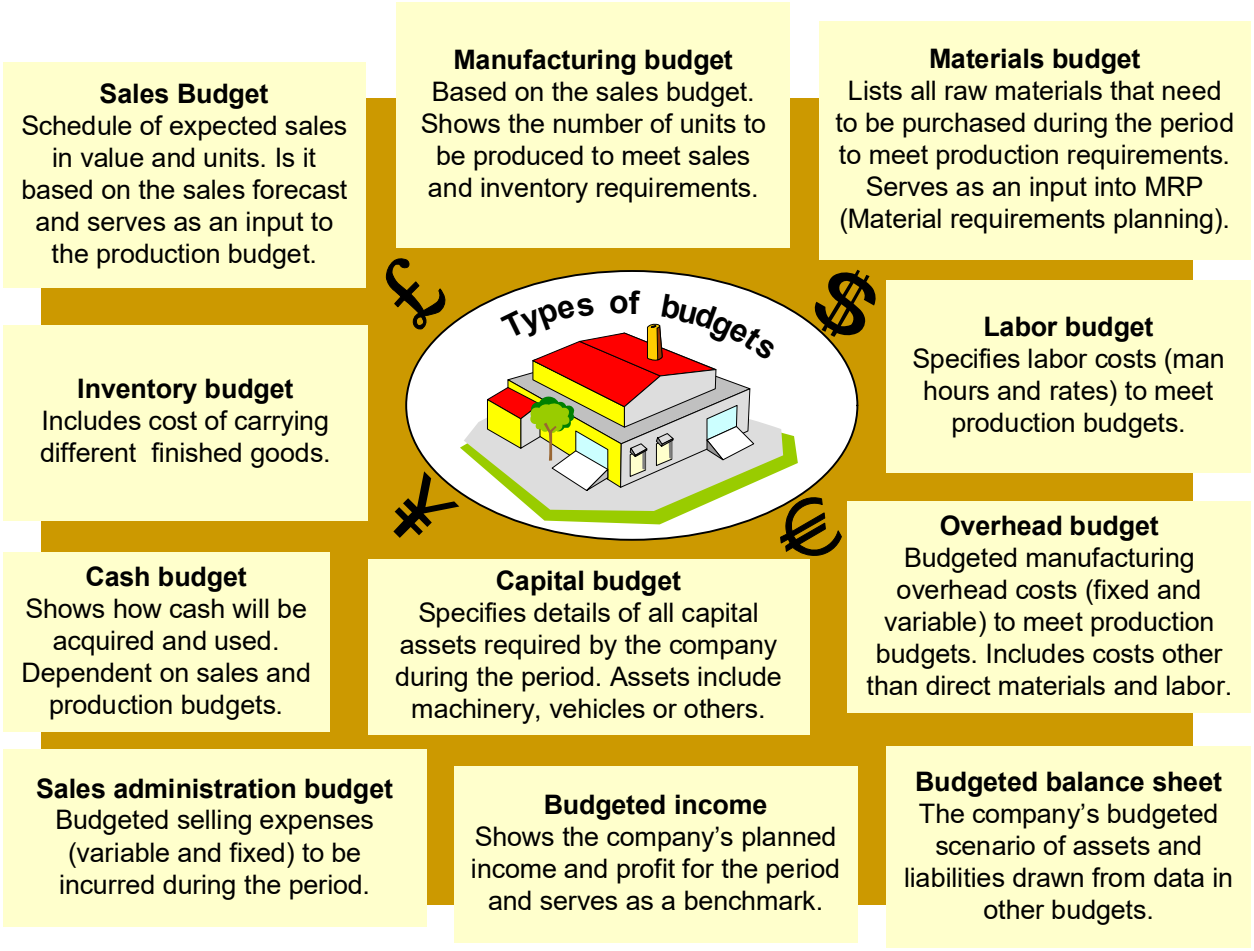
Resale

152 - The Budgetary Process

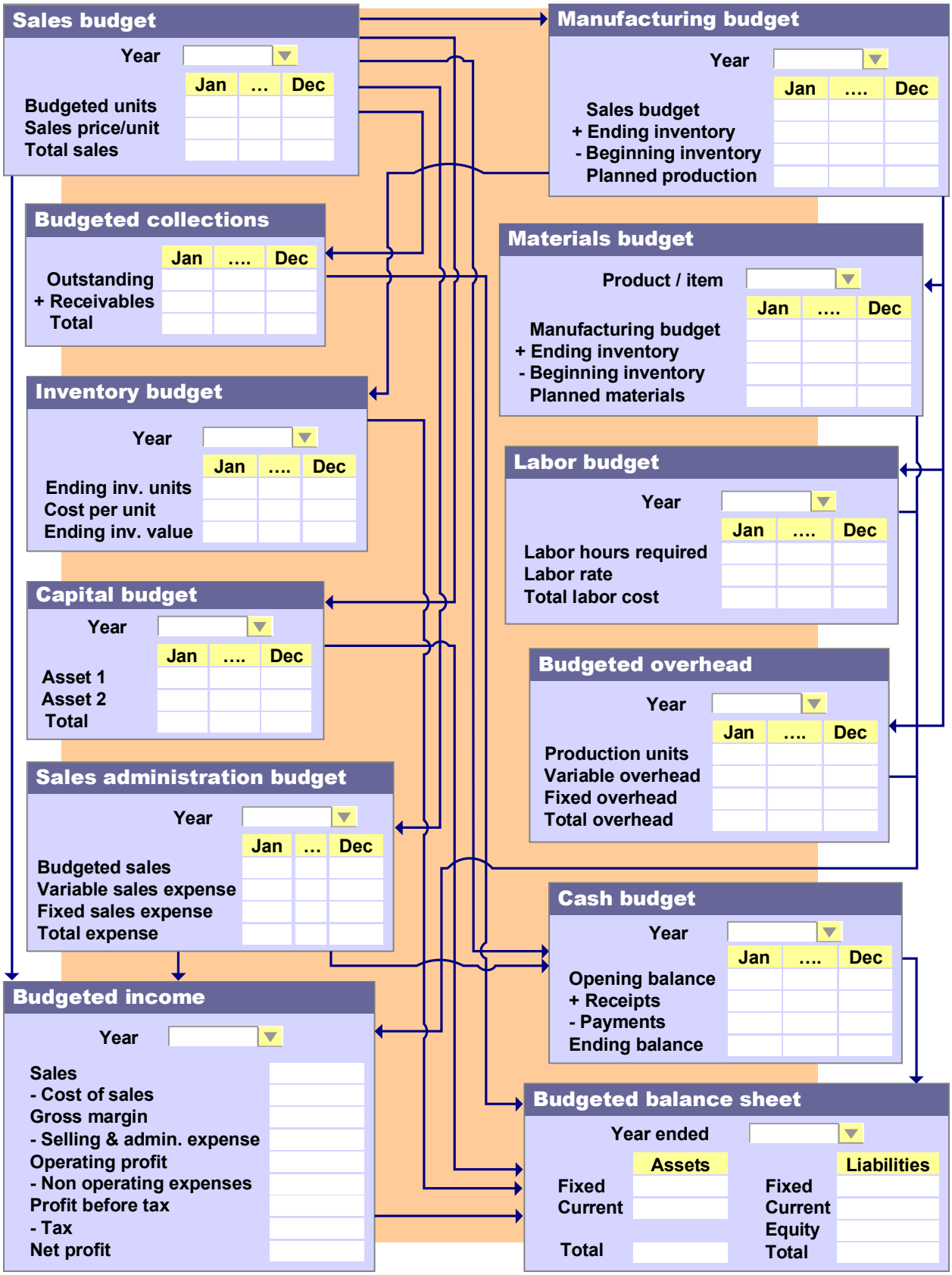
Budgets are futuristic quantifiable plans of an enterprise. Budgetary control involves the use of budgets to control the many activities carried out by a company. Actual costs and revenues are measured against budgets to control variances, if any, to achieve specified financial objectives. Budgets help in realizing the financial objectives set out by a company.

Budgets help by:

1. Providing benchmarks against which performance can be measured.
2. Providing a means for managements to communicate plans and objectives.
3. Identifying those activities where resources need to be allocated.
4. Streamlining activities in an organization towards a common specified objective.
5. Getting employees to focus their efforts towards achieving exact quantitative objectives.



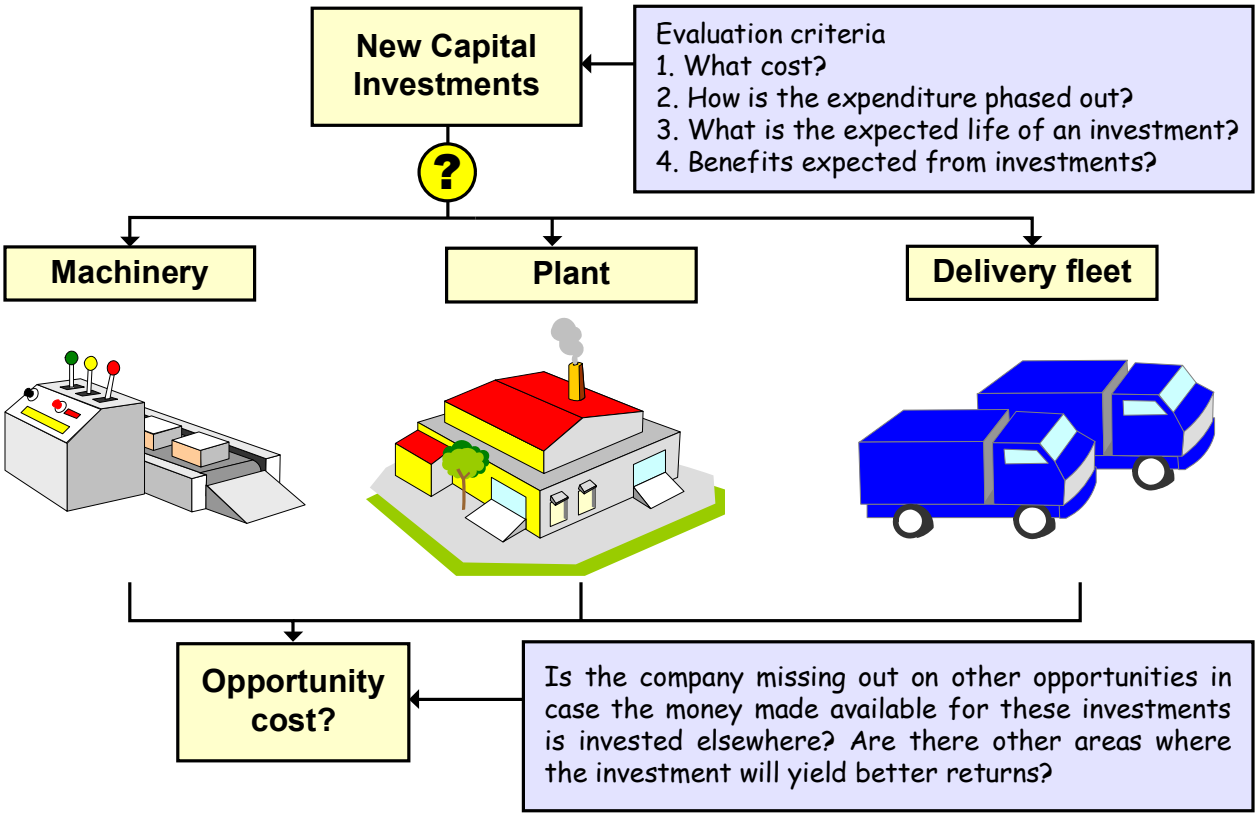
The budgeting process and control



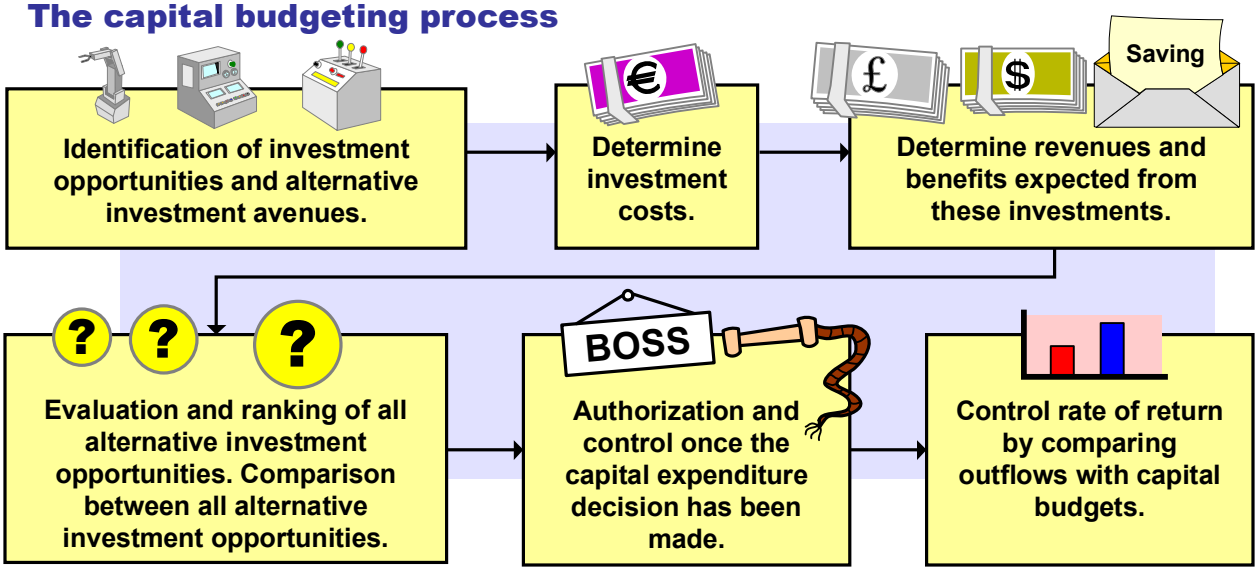
153 - Capital Budgeting

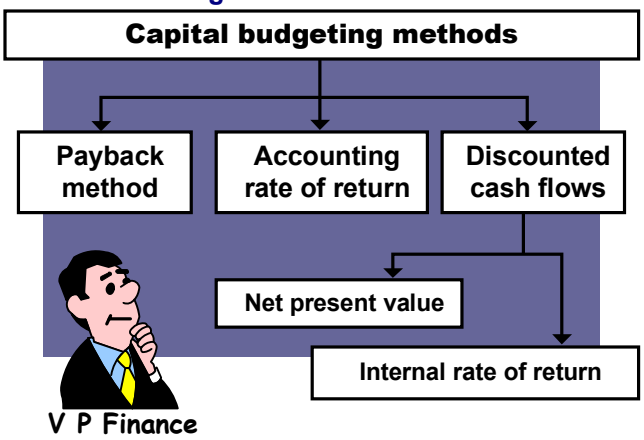
Capital budgeting is also called investment appraisal. It is a planning process used to find out if it is profitable to follow a company's capital investments into machinery, new products, research and development and other activities. It is a process that analyses cash flow requirements for new capital, investments and expenses. It is also used to appraise likely benefits from such capital investments.

Evaluating new investments



The capital budgeting process



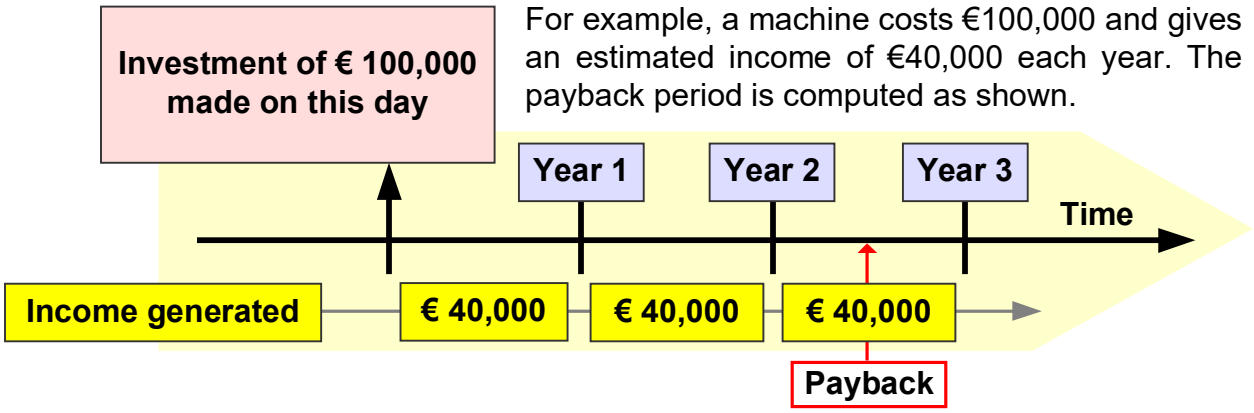


An enterprise needs to appraise its investment decisions using these methods to have a clear idea about returns and payback periods.

Payback method

This method calculates the time taken for an investment to be recovered. For this calculation, an enterprise needs to be certain about returns expected in future. The payback on investment takes place anytime during the year and not necessarily at the end of the year. This method helps point to the exact day when the payback is likely to take place, assuming the returns are as estimated.

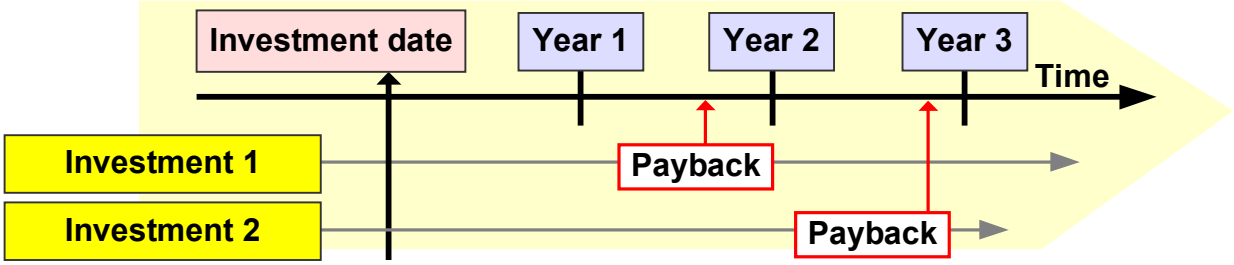
For example, a machine costs €100,000 and gives an estimated income of €40,000 each year. The payback period is computed as shown.



$$\text{Payback} = \frac{\text{Time period (days / weeks/ months) x Initial investment}}{\text{Total income generated during the period}}$$

$$\text{Payback} = \frac{36 \text{ months x } € 100{,}000}{€ 120{,}000} = 30 \text{ months} = \mathbf{2\,½ \text{ years}}$$

The payback method is a quick and easy way to compare the worthiness of several different investments and assess their payback periods. Investments that are not paid back within expected limits may either be postponed or not considered.

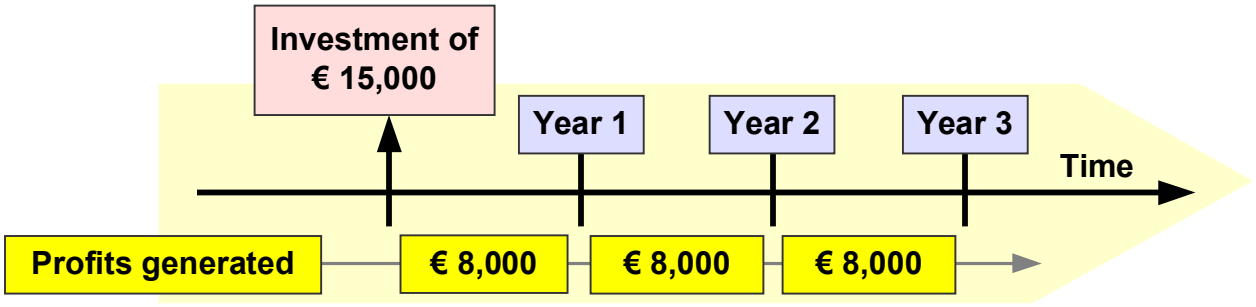


Accounting rate of return (ARR)

The accounting rate of return measures profits likely to be generated by an investment against the cost of investment. This is not a time related method and only measures profitability against investments made.

$$\text{ARR} = \frac{\text{Annual profit}}{\text{Initial investment cost}}$$

For example, a machine costs €15,000 and generates profits of €8,000 per year for the next 3 years.



Total profit – Investment = € 24,000 – € 15,000 = € 9,000

Average annual profit = $\frac{€\ 9{,}000}{3\ \text{years}}$ = € 3,000 / year

ARR = $\frac{€\ 3{,}000}{€\ 15{,}000}$ x 100 = **20 %**

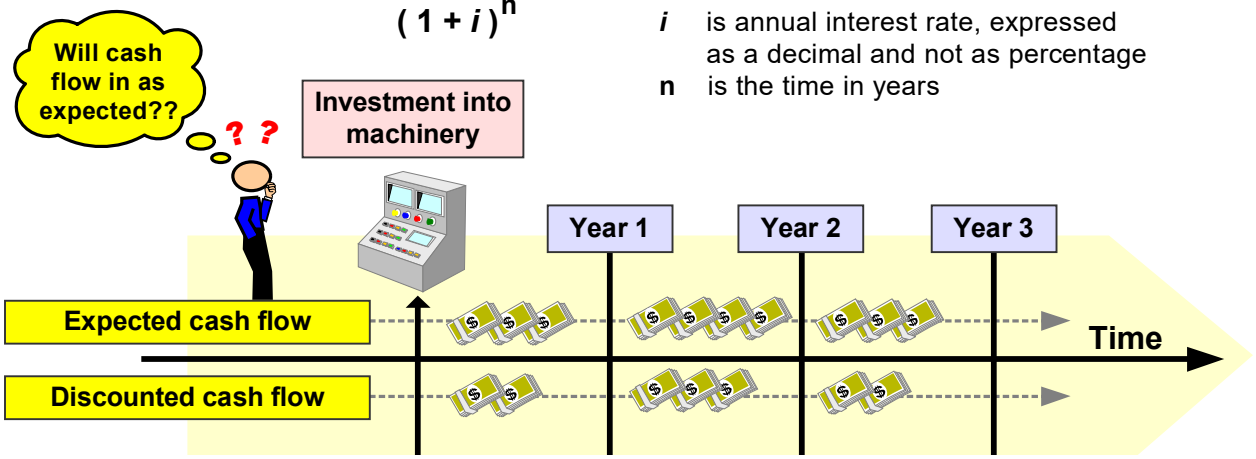
The accounting rate of return helps in making an easy comparison between several different investment options.

Discounted cash flow

This method calculates future cash inflows in terms of their present values. The present value is the discounted value of a cash flow expected in the future. By discounting future cash flows from investments to their present values, a more correct image about the value of a cash flow is projected. The present value of an investment is computed over several years, at a given rate of interest.

$$\text{Present value} = \frac{Fv}{(1+i)^n}$$

Where,
Fv is future value or future cash flow
i is annual interest rate, expressed as a decimal and not as percentage
n is the time in years



For example, a person buying a house for €50,000, against a loan taken out at an annual interest of 10%, expects to sell it for €65,000 at the end of 2 years. This realizes €5,000 on an investment of €50,000 at a 10% return on investment after deducting interest.

However, the present value of the house shows an entirely different picture.

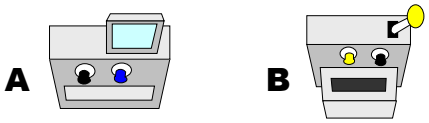
$$\text{Present value} = \frac{€\ 65{,}000}{(1 + 0.10)^2} = €\ 53{,}719$$

Present value – initial cost = € 53,719 – € 50,000 = € 3,719
This return of € 3,719 is a 7.5 % return on investment compared to the expected return of 10%. This discounted value of a future expected cash inflow presents a true picture on the rate of return and the present worth of future cash flows. As a general rule, if the net present value minus the initial cost is negative, it suggests that an investment is not worthwhile and an alternative investment is worth considering.

Positive present value: Returns are greater that required rate of return
Zero present value: Returns equal required rate of return
Negative present value: Returns are less than required rate of return

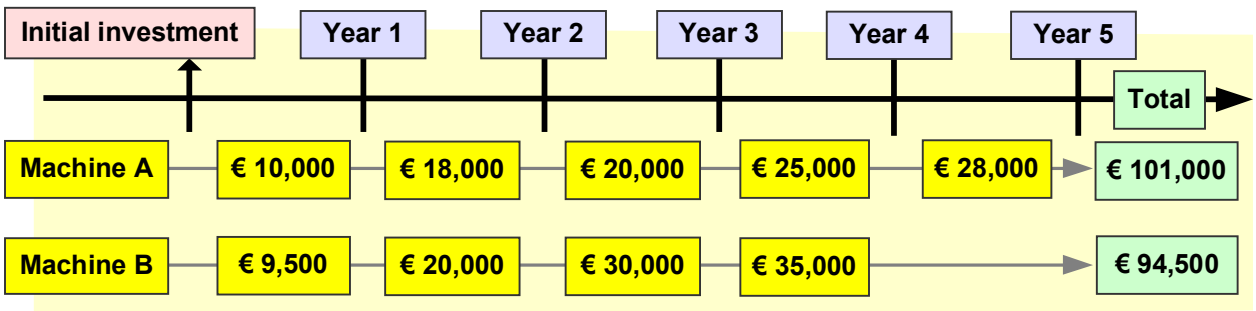
Net present value

In this method, the present values of cash flows during several years are added. This is then measured against the initial investment to see if the desired rate of return is realized. If the rate of return is according to company policy then the investment is considered acceptable.
For example, a business is considering adding capacity by buying either machine 'A' or 'B'. The details of the machines are as under;



Asset evaluation		
Annual Interest charged	10.00 %	
	Machine A	Machine B
Price	70,000	65,000
Useful life	5 years	4 years

The company needs to make a decision on this purchase. The cash flows expected from these machines during their useful lives are shown below.



From an early assessment, both the machines realize high returns on investments, as shown to the right. However, the situation is different when present values of cash inflows are worked out.

Return on investment

	Machine A	Machine B
Cash flow	101,000	94,500
Cost	70,000	65,000
Difference	31,000	29,500
ROI %	44	45

Computing the net present value

Net present value

Product: Machine A
Interest: 10.00 %
Years: 5

Year	Cash flow (€)	Present value (€)
0	-70,000	-70,000
1	10,000	9,091
2	18,000	14,876
3	20,000	15,026
4	25,000	17,075
5	28,000	17,386
Net present value		3,454

Net present value

Product: Machine B
Interest: 10.00 %
Years: 4

Year	Cash flow (€)	Present value (€)
0	-65,000	-65,000
1	9,500	8,636
2	20,000	16,529
3	30,000	22,539
4	35,000	23,906
Net present value		6,610

Machine 'B' presents a better alternative for the company as it realizes a return on investment of over 10%. Machine 'A' realizes a positive return on investment as well. The returns, however, are a lot lesser than those of machine 'B'. By computing the present values of both alternatives a more correct picture is presented on returns from expected cash flows.

Internal rate of return

In this method, the net present value of an investment is discounted till it is equal to zero. This method ensures investments exactly equal returns generated from them.

Internal rate of return

Product: Machine B
Interest: 13.81 %

Year	Cash flow (€)	Present value (€)
0	-65,000	-65,000
1	9,500	8,347
2	20,000	15,441
3	30,000	20,351
4	35,000	20,861
Net present value		0

The calculation for machine 'B', from the earlier example, is worked out at an interest rate of 13.81%.

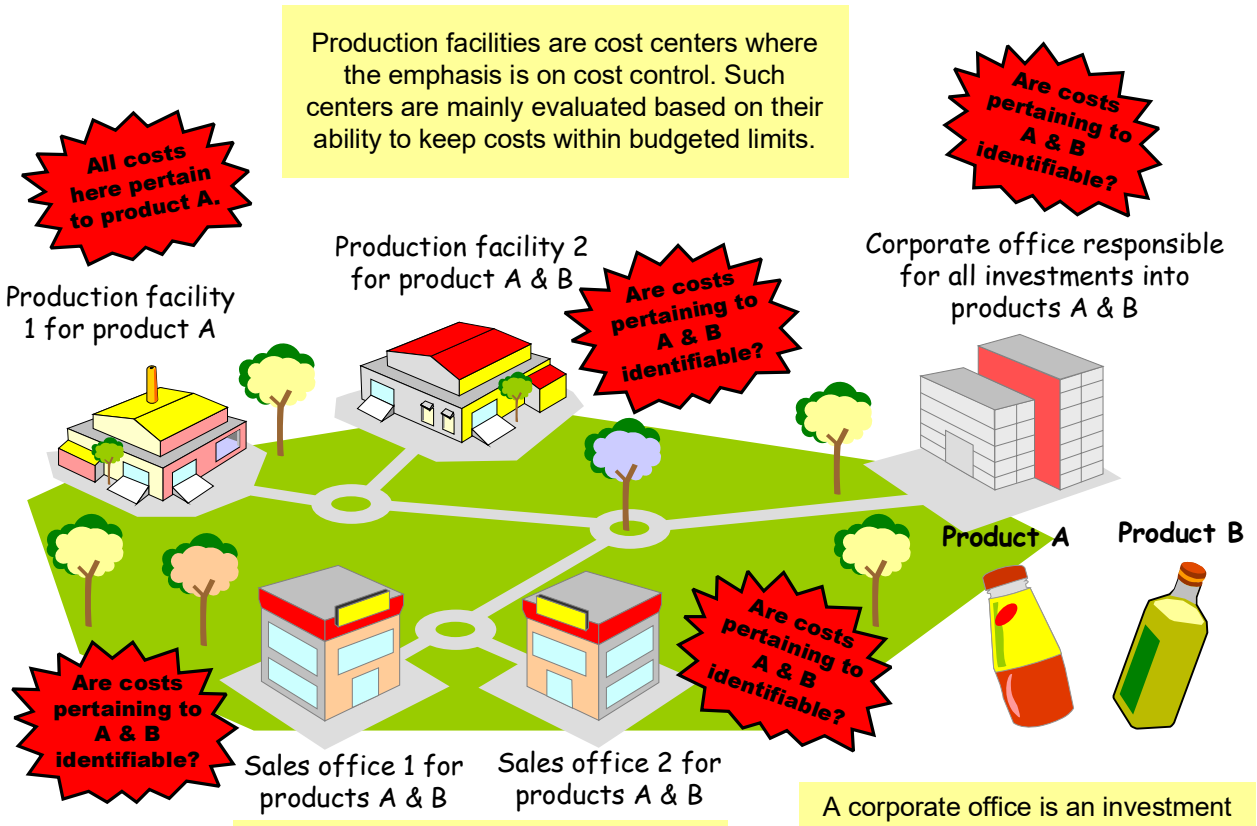
At this interest rate of 13.81% the NPV of future cash flows is zero. This shows the maximum limit at which the company can borrow money for its investment, where the projected cash inflow equals cash outflow. This rate marks the maximum cost at which the enterprise can invest into capital without incurring a loss.

154 - Reporting and Controlling Finances

Financial reporting and control refers to the way in which a company is organized internally to report financial data and for controlling operations. Depending on the size of an organization and the scale of its operations, a company needs to plan the way it manages costs, revenues and investments.

How are costs accounted for?

The problem of sharing costs comes in when companies have multiple product lines produced at several locations. A common cost structure used across a company can distort costs by assigning a lager portion to products or centers that in reality are costing lesser. Such a cost structure can also assign lesser costs to some products and centers which in reality cost much more and are actually unprofitable.



How does the enterprise report and control finances?

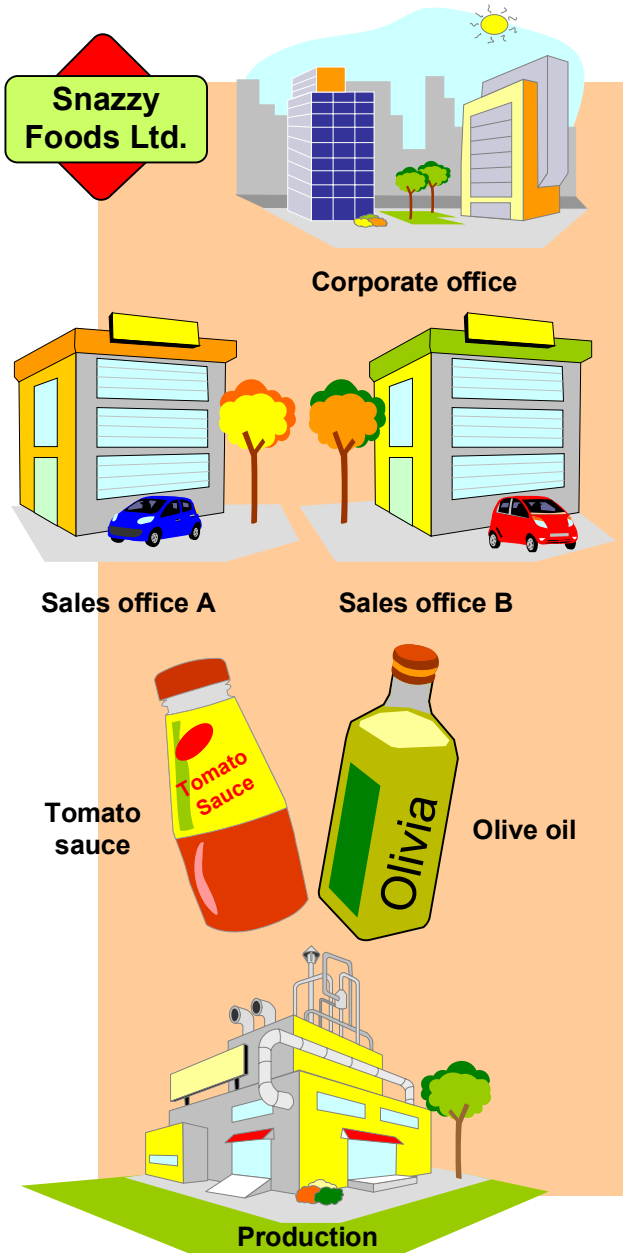
Segment reporting	
Profit center - Sales	
Cost center - Costs	
Investment center - ROI	

Product-wise reporting	Sales	Costs	ROI
Product A			
Product B			

Consider for example, Snazzy Foods Ltd., a firm that produces tomato sauce and has added another product, olive oil, into its range. The company produces both products at a single factory and uses different resources and assets for producing them. It sells both the products through two sales offices. The corporate office is located in a metropolitan city. The business is segmented into two divisions, the tomato sauce division and the olive oil division. The company uses an absorption costing system. Their costing method pools in all overhead expenses into a single company-wide overhead amount for both the products.

In the recently concluded financial year, the bottom-line was a cause of concern as the firm had incurred a net loss. The financial, costing, sales and income details are presented below.

The company advertised heavily to promote its olive oil. The product manager of the tomato division had complained on several occasions that the product costing did not reflect costs correctly, and the tomato division was bearing many costs pertaining to the olive oil division. To have a better idea about costs, the accounting department was asked to look into this and come up with answers. The findings of the accounting department are presented in the pages that follow.



Income statement for the year ($)

Head	Total
Sales	**28,500**
Less Cost of sales	12,300
Gross margin	**16,200**
Less Selling & admin.	14,000
Operating profit	**2,200**
Less Non op. exp.	3,000
Profit before tax	**-800**

Sales

Product	Units	Price ($)	Total ($)
Tomato sauce	9,000	1.5	13,500
Olive oil	6,000	2.5	15,000
Total sales	**15,000**		**28,500**

Cost / bottle ($) – Tomato sauce

Materials	0.30
Labor	0.10
Overhead	0.30
Total	**0.70**

Cost / bottle ($) – Olive oil

Materials	0.50
Labor	0.20
Overhead	0.30
Total	**1.00**

Cost of goods sold

Product	Units	Cost ($)	Total ($)
Tomato sauce	9,000	0.70	6,300
Olive oil	6,000	1.00	6,000
Total sales	**15,000**		**12,300**

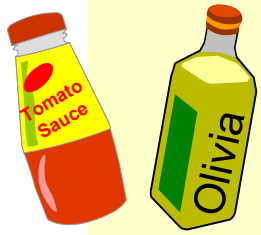
A reworking of product and activity costs and the classification under fixed and variable heads had revealed interesting cost data to the company, as presented below. New manufacturing overhead rates were calculated as well for each of the products, based on processing times.

Costs ($) – Tomato sauce

Variable costs	Total
Materials	0.30
Labor	0.10
Variable manufacturing overhead	0.05
Variable manufacturing cost	**0.45**
Variable selling & admin. expenses	0.20
Total variable cost per bottle	**0.65**
Fixed costs	**Total**
Fixed manufacturing overhead	
9,000 Bottles x $ 0.15	1,350
Fixed selling & admin. expenses	2,650
Total fixed cost	**4,000**

Costs ($) – Olive oil

Variable costs	Total
Materials	0.50
Labor	0.20
Variable manufacturing overhead	0.10
Variable manufacturing cost	**0.80**
Variable selling & admin. expenses	0.90
Total variable cost per bottle	**1.70**
Fixed costs	**Total**
Fixed manufacturing overhead	
6,000 Bottles x $ 0.35	2,100
Fixed selling & admin. expenses	4,150
Total fixed cost	**6,250**



Fixed selling and administration expenses ($)

	Tomato sauce	Olive oil
Common fixed cost	2,150	2,150
Advertising	500	2,000
Total	**2,650**	**4,150**

Common fixed ($) expenses not traceable to product

Total cost A	1,100
Total cost B	1,400
Total cost C	1,800
Total	**4,300**

Fixed selling and administrative costs not traceable to any product.

= $ 4,300 ÷ 2 = $ 2,150 per product.

Expenses ($) – Sales office A

Head	Total
Salaries	1,000
Expenses	100
Total	**1,100**

Expenses ($) – Sales office B

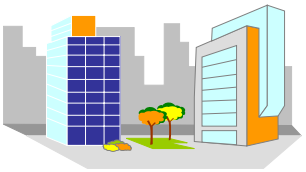
Head	Total
Salaries	1,200
Expenses	200
Total	**1.400**

Expenses ($) – Sales office C

Head	Total
Salaries	1,200
Expenses	600
Total	**1,800**

Expenses ($) – Advertising

Head	Total
T. sauce	2000
Olive oil	500
Total	**2,500**



The company management had evaluated the data presented by the accounting function and noted the following observations;

Total product costs

For the tomato sauce, the variable cost of $ 0.65 and fixed cost of $ 0.44 ($4000 ÷ 9000 bottles) suggests the total product cost is reasonable and under control.

For the olive oil, the variable cost of $1.70 and fixed cost of $1.04 ($6,250 ÷ 6000 bottles) suggests the total product cost is high. The higher variable selling cost is because of higher commissions and the extra promotional push. The fixed cost is high as well because of the increased advertising and a higher manufacturing overhead.

Selling and administrative expenses

Sales office A

With overall expenses at $1100, this office has its expenses under control.

Sales office B

At $1400, this office has higher expenses than that of office A.

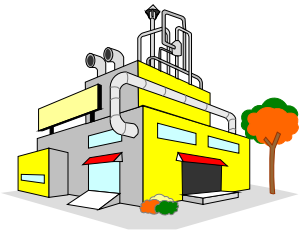
Corporate office

This office, at $1800 has abnormally high expenses.

Advertising expenditure

At $500, the advertising expense incurred for tomato sauce is about 4% of sales. This seems to be reasonable according to company norms. However, the advertising expenses of $2000 incurred for olive oil works out to 10% of sales. This according to company norms seems high. The product manager had clarified the increased advertising was because the product was new on the market.

Fixed manufacturing overhead



The fixed manufacturing overhead cost of $0.15 per bottle for the tomato sauce and $0.35 for the olive oil suggest that these costs are under control. The higher manufacturing overhead for olive oil is due to the extra operations and increased processing times needed for producing olive oil.

From the data presented by the accounting department, the income statements for both the products, tomato sauce and olive oil, are computed as shown.

Income statement – Tomato sauce ($)						
Sales	9,000 Bottles	x $ 1.5	Unit sales price			13,500
***Minus* Variable costs**						
Variable manufacturing costs	9,000 Bottles	x $ 0.45	Unit cost	4,050		
+ Variable selling & admin. exp.	9,000 Bottles	x $ 0.20	Unit cost	1,800		
Variable costs				5,850	5,850	
Contribution					7,650	
***Minus* Fixed costs**						
Fixed manufacturing overhead	9,000 Bottles	x $ 0.15	Unit cost	1,350		
Fixed selling & admin. expenses				2,650		
Fixed costs				4,000	4,000	
Net income					3,650	
***Minus* Non operating expenses**	$ 3,000	÷ 2	Products		1,500	
Profit before tax					2,150	

Income statement – Olive oil ($)						
Sales	6,000 Bottles	x $ 2.5	Unit sales price			15,000
***Minus* Variable costs**						
Variable manufacturing costs	6,000 Bottles	x $ 0.80	Unit cost	4,800		
+ Variable selling & admin. exp.	6,000 Bottles	x $ 0.90	Unit cost	5,400		
Variable costs				10,200	10,200	
Contribution					4,800	
***Minus* Fixed costs**						
Fixed manufacturing overhead	6,000 Bottles	x $ 0.35	Unit cost	2,100		
Fixed selling & admin. expenses				4,150		
Fixed costs				6,250	6,250	
Net income					-1,450	
***Minus* Non operating expenses**	$ 3,000	÷ 2	Products		1,500	
Profit before tax					-2,950	

Company profit before tax = $ 2150 (+) $ - 2,950 = $ - 800

Obviously, olive oil was the one dragging company profits into the negative. As evaluated in the earlier section, high product costs because of high variable manufacturing costs and high variable selling and administration expenses of the olive oil segment were impacting company profits adversely. As pointed out by the product manager handling the tomato sauce division, pooling costs into a common manufacturing overhead and a common selling and administrative expense presented a distorted view of costs. The product tomato sauce is a healthy contributor to company profits, seen after reallocating costs.

The clarity provided on costs has prompted the company into taking some decisions for the future. It was not all dark and gloomy as tomato sauce proved to be a winner.

For the tomato sauce, while the variable cost of $0.65 seemed reasonable, the company has planned the following measures.
1. To reduce raw material costs slightly by $0.05, through tighter negotiations with suppliers.
2. To double the advertising and promotional spend.
3. Increase variable selling costs by $0.10 per bottle, towards commissions to agents.

With these changes, the company hopes to sell 15,000 tomato sauce bottles during the present year and register healthy profits on this product.

For olive oil, the unit variable cost of $1.70 and the fixed cost of $1.04 ($ 6,250 ÷ 9000 bottles) is high. The company has some alternatives planned out to reduce costs.
1. Lowering of raw material costs by $ 0.10 through renegotiations with suppliers.
2. Cut the advertising budget by half, to $1000.
3. Reduce commissions on sales by $ 0.25 per bottle to drive down variable costs.
4. Look to increase the sales price by $ 0.25 per bottle.

Knowing the product sold well during the first year of introduction (6,000 bottles), the company gauged the changes if carried out would not affect sales. Even if the company sold 6,000 bottles the following year, the results would be as shown below.

Cost reductions and price increase

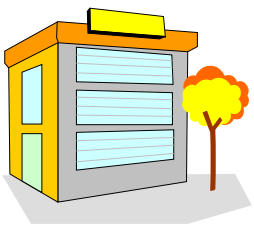
1. Raw material cost reduction ($ 0.10 x 6,000 bottles)	= $ 600
2. Reduction in advertising spending	= $ 1,000
3. Reduction in commission ($ 0.25 x 6,000 bottles)	= $ 1,500
4. Price increase ($ 0.25 x 6,000 bottles)	= $ 1,500
Total	**$ 4,600**

The company hopes that these cost declines and price increase would more than offset the loss incurred during the last year.

The method an enterprise selects to report its income and costs internally depends on the nature of business, the accounting infrastructure and other factors. An enterprise may choose to report income and costs in the following ways.

Customer-wise

Product-wise



Profit center-wise

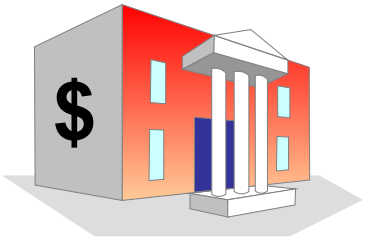
Region-wise

155 - Sourcing Finance

An organization's need for finance may arise from immediate working capital requirements and long-term investments it wishes to make. An enterprise needs to be well aware of its financial needs and the period over which it is needed. It then has to raise the finance from the right sources. When raising finance, a company needs to consider the amount of debt and equity it wants to employ, the cost at which the finance is raised and the terms associated with getting this finance.

Sources of finance

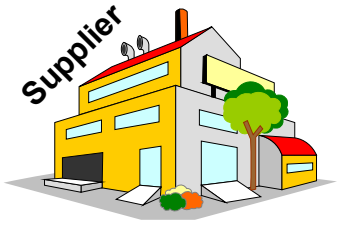
1. Bank finance

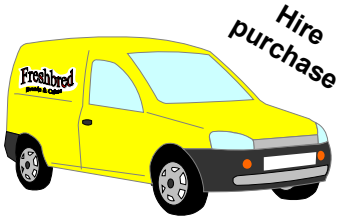


a) Term loan: The principal balance remains unchanged and the borrower only pays interest.
b) Commercial mortgage: The borrower transfers interest in property to a lender as security for a debt.
c) Factoring and invoice discounting: Accounts receivable are sold to a bank at a discount, for immediate cash.
d) Leasing: A company enters a contract with a bank to use assets owned by the bank, by paying a fee or rent.
e) Trade finance: The buyer's bank provides a line of credit to a seller, guaranteeing for payment on presentation of certain documents.
f) Bank credit: A loan given by a bank. The debtor agrees to pay the loan back later.
g) Overdraft: When the withdrawal from a back account exceeds the balance available in the account.

2. Supplier credit

By delaying payments for goods received from suppliers and by renegotiating terms for some invoices. Supplier credits are a source of quick short-term finance to keep operations going. For creditworthy companies, suppliers extend such credits with the hope of securing bulk orders.



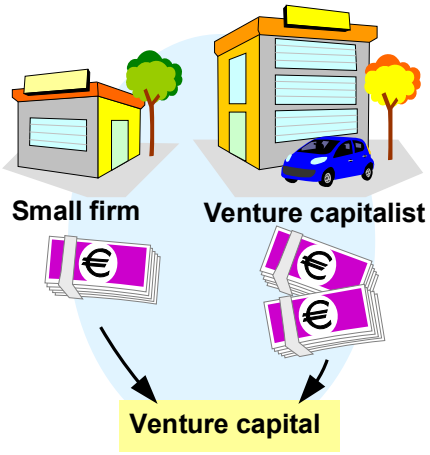


3. Hire purchase

When a company hires assets from a seller, but can buy them when all instalments are paid up. This method of financing involves high interest rates. This is an expensive form of financing for a company.

4. Advance payments and shorter credit limits

By insisting on advance payments for orders and extending shorter credit limits to dealers and customers. This coupled with supplier credit helps a company meet its working capital requirements by providing the immediate short-term finance.

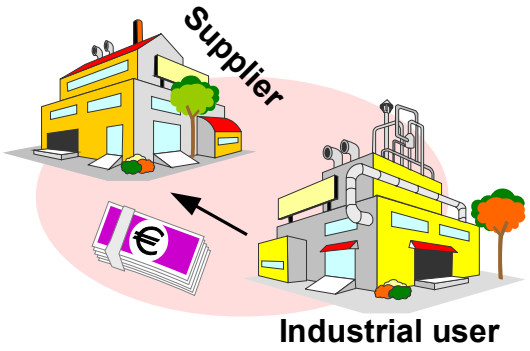


5. Venture capital

Capital raised from banks or other venture capitalists who provide private equity for high-potential, early stage, high growth oriented companies or products. Venture capitalists hope to earn a profit, mainly by selling companies they have invested into. Smaller companies can access finance from a venture capital without the burden of high fixed payments. Usually, the venture capitalist insists on a controlling stake in the company invested into. It is common for venture capitalists to back smaller software companies in software development.

6. Inter-company loans

Companies deposit balances with one another, when needed, either directly or through brokers. For example, a industrial user may deposit finance with a supplier company on agreed terms (ex., better prices). This also ensures a steady supply of raw materials when the supplier cannot meet its working capital requirements. Alternatively, a supplier may deposit finance with a business user.

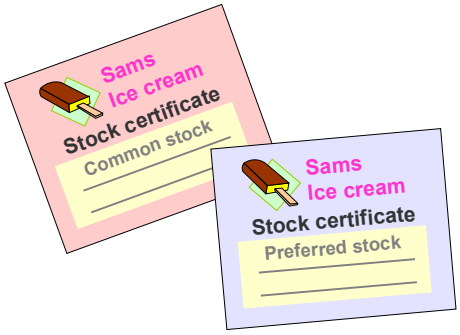


7. Friends and relatives

Friends and relatives are important sources of short-term financing for a company. Mostly, friends and relatives are aware of the creditworthiness of a company and are willing to extend financing when needed.

8. Equity capital

Usually, equity accounts for the largest portion of long-term finance available with a company. Equity capital can be created by raising finance in the open market, by the issuance of rights shares to existing shareholders or by internally financing from retained earnings. However, such financing may not be available immediately.



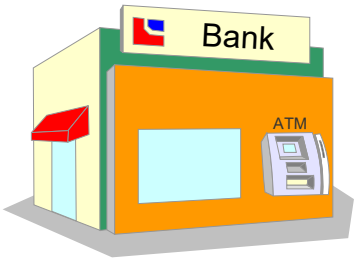
9. Debentures, bonds, loan stock or notes

These are instruments used by companies to borrow finance from the public. Holders of such instruments are extending loans to companies. Such instruments may either be convertible (converted into stock) or nonconvertible.

156 - Banks and Banking

Most banks are profit making entities that are licensed by governments to carry out the core activities of lending and borrowing money. Banking activities can be classified into retail banking, investment banking, commercial banking and private banking.

Retail banks

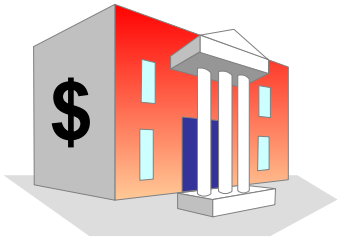


Transact direct with individual customers. Services include savings and checking accounts, personal loans, mortgages, debit and credit cards, others.

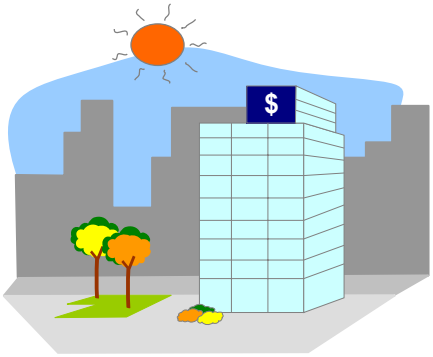
Private bank

Provide personalized banking, financial, investment and wealth management services to individuals and families of high net worth.

Commercial banks



A bank or division that transacts mainly with large businesses. Services also include provision of letters of credit, guarantees and bonds.

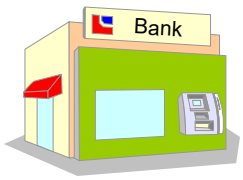


Investment banks

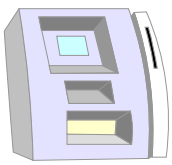
Handle mergers and acquisitions, offer services such as trading of derivatives, foreign exchange, selling of securities in capital markets and issuance of bonds. Also deal with hedge funds, pension and mutual funds. Services may also include risk management, management of investments and corporate strategy. Technology plays an important role in investment banking, with many banks developing in-house financial software programs to manage operations. Investment banking relies heavily on electronic trading.

Banking channels

Branch office



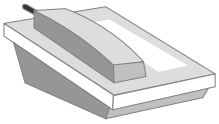
ATM



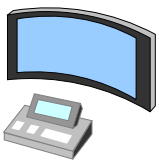
Online banking

Mobile banking

Telephone banking



Video banking



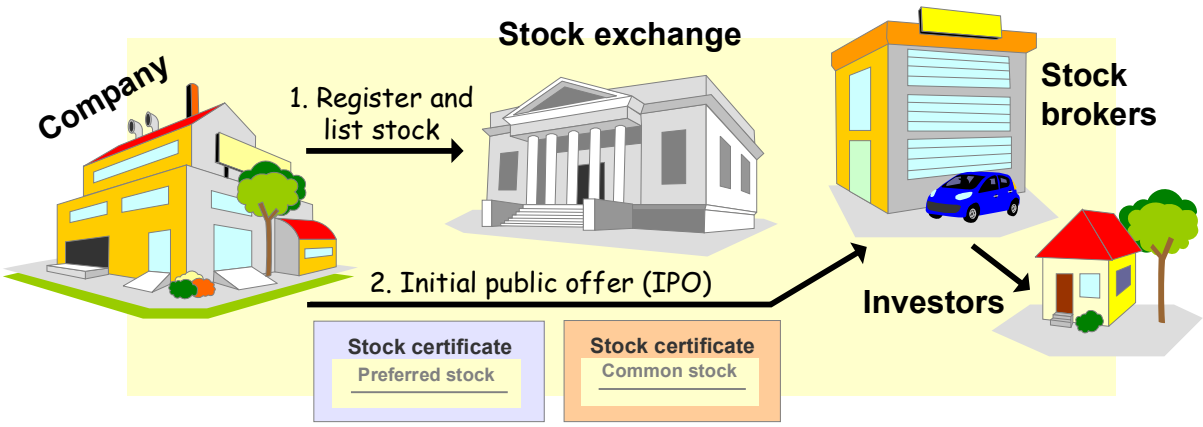
157 - Securities

Securities are negotiable instruments that hold a financial value and represent ownership (stocks and shares), debt (bonds, debentures, banknotes), or rights to ownership (derivatives). Securities are traded in financial markets through exchanges (stock and futures exchanges), electronic networks and through brokers and dealers. Securities are issued through physical certificates, book and electronic entries.

1. Securities that represent ownership

Equity

This represents ownership in a company through stocks and shares and a claim to company profits and assets. Stock certificates, which are binding legal documents specify the value of shares owned by a shareholder.



2. Securities that represent debt

Bonds and debentures

Represent medium to long-term debt instruments. Companies procure long-term loans through bonds and debentures. Unlike stock, interest is payable on bonds. Bonds need to be returned later.

Bank notes

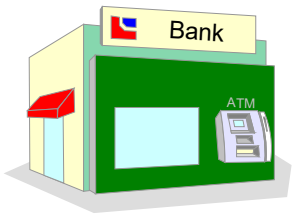
Promissory notes made by a bank payable to the bearer of the note on demand.

Deposits

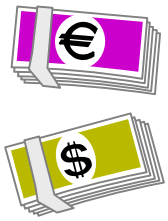
Bank accounts that allow account holders to deposit and withdraw money. These amounts are a liability to banks as they owe this money to account holders.

Promissory notes, notes

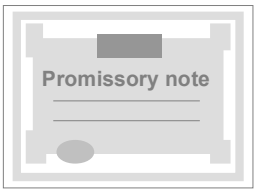
Written contracts between parties, where one party (the issuer) unconditionally promises to pay a sum of money to the other party (a payee); either on demand, at a future date or based on agreed terms.



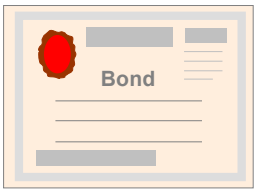
Bank deposits



Bank notes



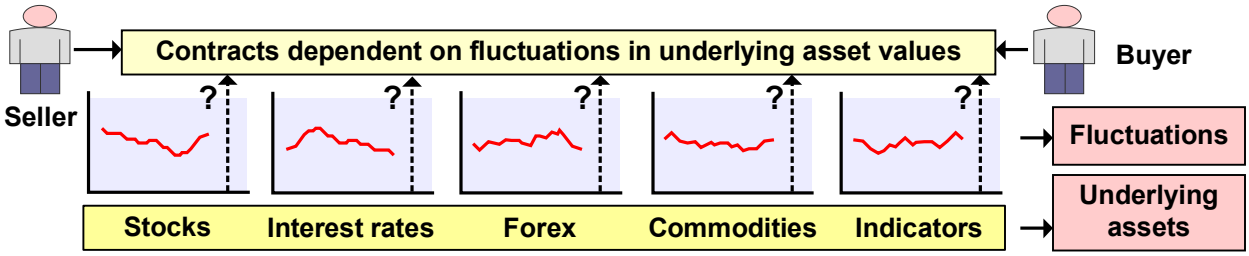
Promissory notes



Bonds

3. Derivatives: Securities that represent a right to ownership

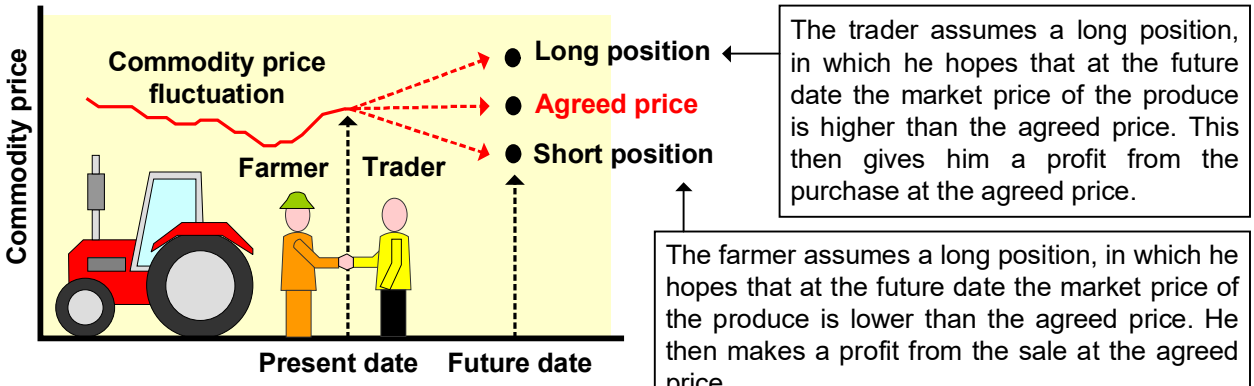
Derivatives are financial instruments whose values are derived from changes in values of other underlying assets. Two or more parties enter contracts that are dependent on variations in the values of these underlying assets. The most common underlying assets are stocks, interest rates, foreign exchange, commodities and economic indicators. The common derivative types are forward contracts, futures, swaps and options. Derivatives are used to hedge risks, to lock in an arbitrage or risk free profit and to speculate on future market directions.



A) Forward contracts

A contractual agreement between parties to sell or buy assets at some point in the future, but at a price agreed (forward price) in the present date. This price represents the price applicable if the contract is negotiated in the present date. Forward contracts are traded over-the-counter.

In the example shown below, a farmer and trader agree on prices in the present date for supplies to be made at a future date.

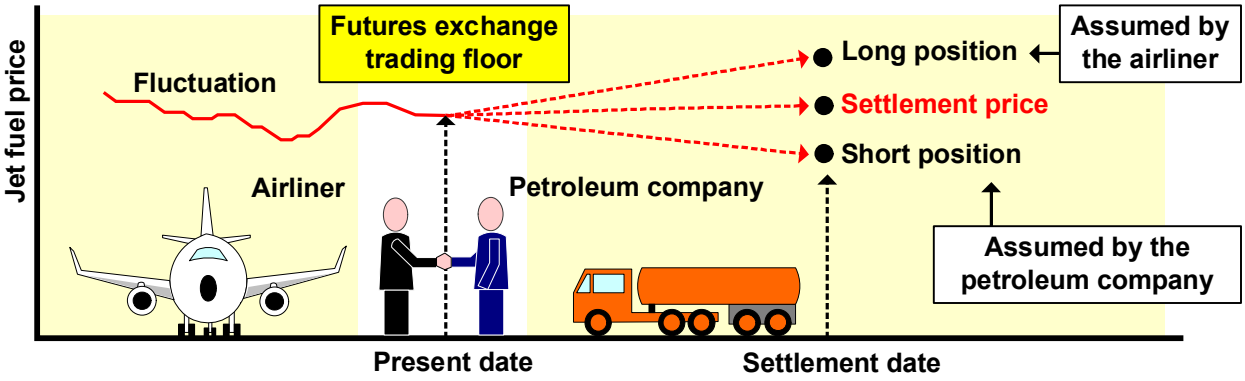


B) Future contracts or futures

A contractual agreement made between parties on the floor of a futures exchange to buy and sell commodities or financial instruments, but with deliveries at a future date (settlement date). The agreed price (settlement price) is usually determined by prevailing markets prices. Both the parties in a futures contract are obliged to make and take delivery of a commodity or financial instrument on the delivery date. The parties have to fulfil their obligations on the settlement date.

Unlike forward contracts, future contracts are exchange traded derivatives. The futures exchange house acts as a counterparty to all future contracts traded between parties. The credit risk associated with futures is lesser when compared to forwards as they are exchange traded and legally binding contracts.

In the example shown below, an airliner enters into a futures contract with a petroleum company for the supply of jet fuel at a future date. They enter into the contract on the trading floor of a futures exchange. They agree on a settlement price for the delivery of a mentioned quantity and quality on the settlement date, based on existing market prices and forces. Both parties have to meet their obligations on the settlement date.



C) Options

A contractual agreement made between parties, either on the floor of a futures exchange or at over-the-counter markets, to buy or sell an underlying asset before expiration of the option. The buyer of an option has the right, but not the obligation to purchase the underlying asset before the option expires. The buyer of the option can opt out if he is not interested at the later date, by foregoing a premium which the seller of the option collects. Options are of two types; put options and call options. A call option gives buyers of the option (holders) the right to purchase or sell an asset in case the value of the asset is more than the strike price, before expiration of the option. A put option gives the buyers of the option (holders) the right to buy or sell an asset in case the value of the asset is lesser than the strike price, before expiration of the option. Sellers of options (called writers) are obligated to sell or purchase assets in case the buyers of options (holders) wish to exercise their rights to buy or sell. The strike price is the price at which the buyer of a call option has the right to purchase, or, the buyer of a put option has the right to sell. This is also referred to as the exercise price.

For example, the alternatives available to A (owner of stock) and B, to either buy or sell the options are as under:

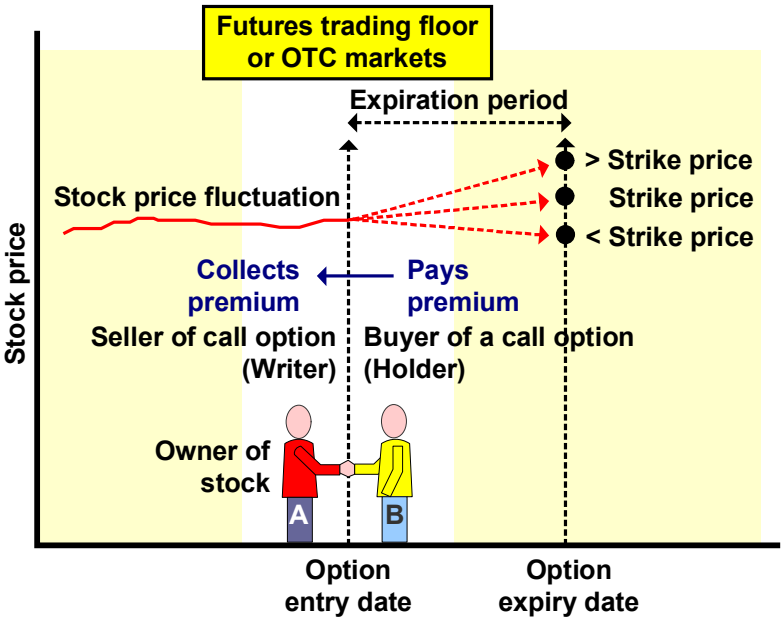
	Call option	Put option
Owner of stock (A)	**As seller of call option (Writer)** • Collects premium • Obligated to sell to B in case B exercises his right to purchase	**As buyer of put option (Holder)** • Pays premium • Has a right to sell • Not obligated to sell to B
B	**As buyer of call option (Holder)** • Pays premium • Has a right to purchase • Not obligated to purchase	**As seller of put option (Writer)** • Collects premium • Obligated to purchase from A in case A exercises his right to sell

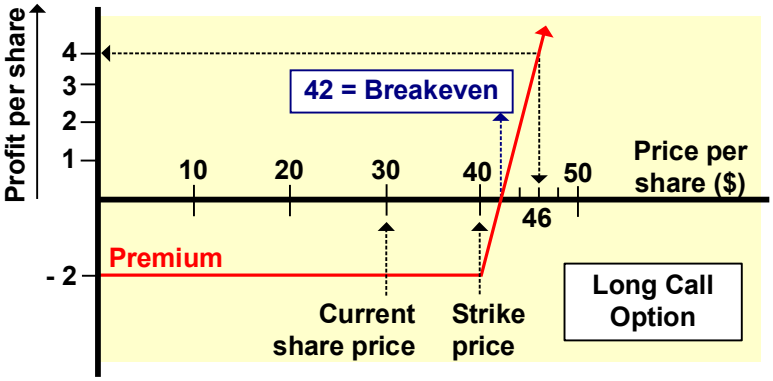
Call option: For example, 'A' has 100 shares currently valued at $30 per share. 'A' sells a stock call option to 'B' as shown below.

1. Strike price of $40 / share
2. Premium of $2 / share
3. Option validity of 3 months.

For this, 'B' pays $200 (premium of $2 per share x 100 shares) and buys the call option from 'A'. The break-even price per share for 'B' is $42 per share ($40 price per share + $2 premium per share).

Scenario 1: If at the end of the expiration period the price of each share is $46, 'B' can exercise the call option by "trading in" the options for the actual stock. 'B' could profit by buying the shares at $40 and reselling them in the market at $46, for a profit of $6 a share (net profit $4 = $6 - $2 premium).





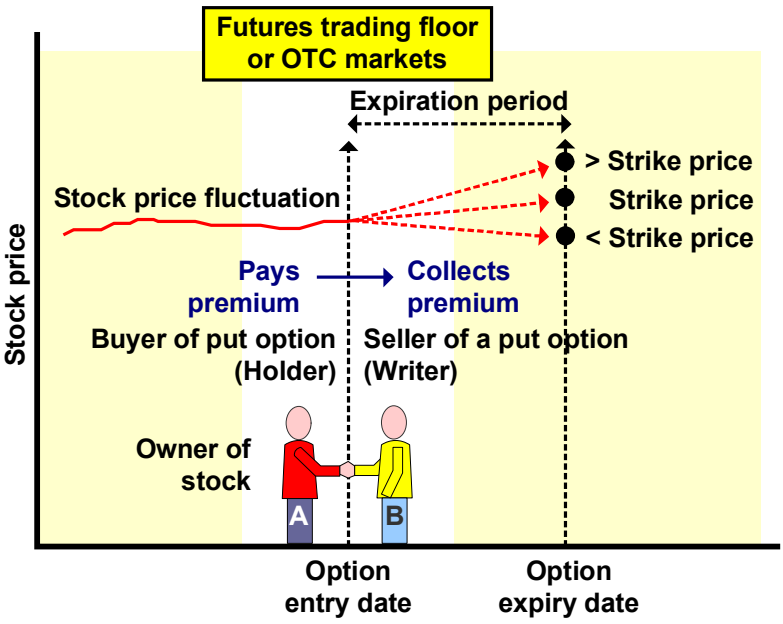
Alternatively, he may hold the stock knowing that it was bought at a discount compared to its present value.

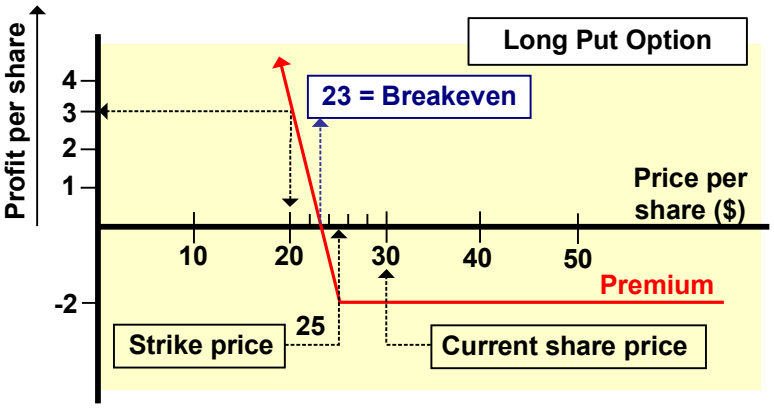
Scenario 2: If at the end of the expiration period, the price of the share is $46 and the premium per share has increased to $6, 'B' may choose to profit by trading out (closing out) of the position. This would mean that 'B' profits only from the premium ($6 - $2 = $4 x 100 shares = $400).

Scenario 3: If at the end of the expiration period the price per share is $35, then the option contract is worthless as the stock price has not reached the strike price. In this case 'B' loses the premium.

The buyer of a call option assumes a long position, in which he hopes the price of the asset would rise above the strike price for him to earn profits by leveraging larger asset values with smaller premiums. The seller of a call option on the other hand assumes a short position, in which he hopes the asset value will not rise above the strike price, for him to profit from the premium collected.

Put option: For example, 'A' has 100 shares currently valued at $30 per share. 'A' plans to sell his stock to 'B' after 3 months at a strike price of $25 per share. 'A' is buying a put option from 'B' where 'A' is the buyer of the option and 'B' the seller.
For this, 'A' pays $200 (premium of $2 per share x 100 shares) and buys the put option from 'B'. The breakeven price per share for 'A' is $23 per share ($25 strike price - $2 premium per share).
Scenario 1: If at the end of the expiration period the price of the share is $20, 'A' can exercise the stock option by selling the stock to 'B' at $25 per share. 'B' has the obligation to buy the stock at $25 per share, which is higher than the price per share in the market. 'A' benefits from this option with a profit of $5 per share and net profit of $ 3 per share ($5 profit - $2 premium = $3).



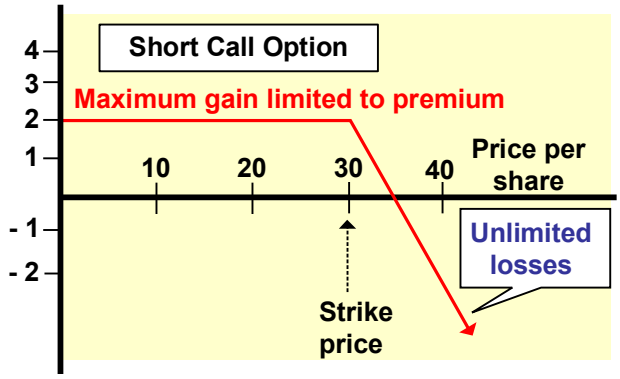


Scenario 2: If at the end of the expiration period the price per share is $ 35, then the option contract is worthless as the stock price has not reached the strike price. In this case 'A' loses the premium.

The buyer of a put option assumes a short position, in which he hopes the price of the asset would fall below the strike price for him to earn a profit. The seller of a call option on the other hand assumes a long position, in which he hopes the asset value will not fall below the strike price, for him to profit from the premium collected.

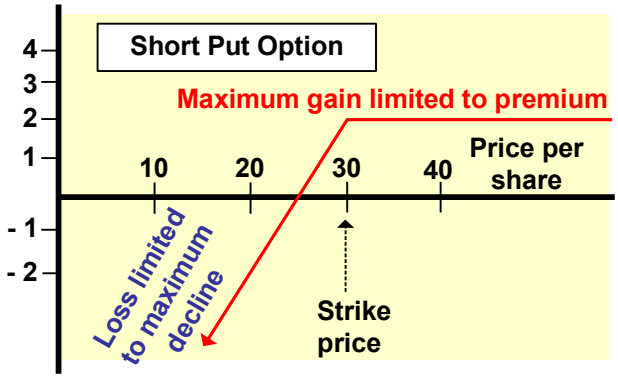
In reality, option trading is done through a futures exchange which acts as a guarantor ensuring that dealings are carried out. There is no direct communication between the two trading parties.

Every option contract has a lot size that is specified by the exchange. Sellers of call and put options pay the margin money to the exchange as a form of guarantee. Buyers pay no margin money, but have to pay the option premiums. The strike price is the biggest factor in fixing the price of an option.



Short Call Option

A shot call, also called writing an option, is the sale of a call option. The maximum reward is restricted to the premium received, while losses can be unlimited if the value of the underlying asset increases in the market. A short call can be either a covered call (where shares are owned), or a naked call (where shares are not yet owned).



Short Put Option

A shot put is the sale of a put option. The maximum reward is restricted to the premium and the loss to the maximum decline in underlying asset value. The seller of a short put option hopes the stock price will be above the strike price at the time of expiration, so the premium can be retained.

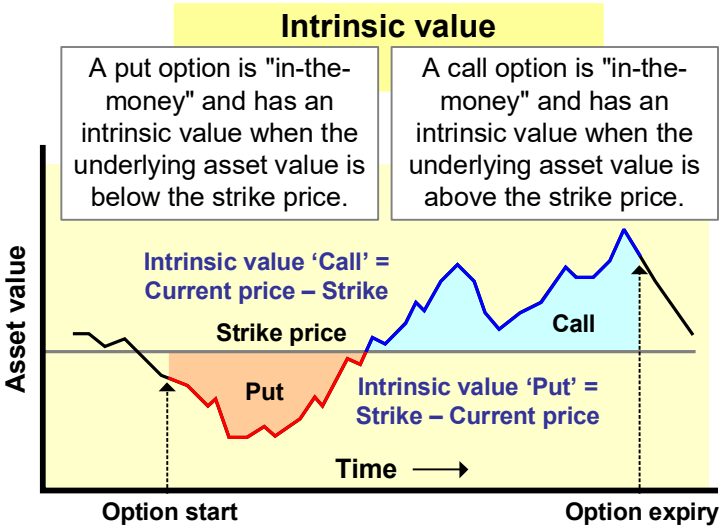
Pricing an option

The price of an option is also called the premium. An option premium has two main aspects to it; the intrinsic value and time value.

Option price (Premium) = Intrinsic value + Time value

Option time values are added values options have over their intrinsic value. Factors influencing the time value include; volatility of the underlying asset, the time remaining for an option to expire and the type of option.

Besides these factors, option premiums are also influenced by the risk-free interest rates applicable on premiums. They represent the 'cost of carrying' an option.



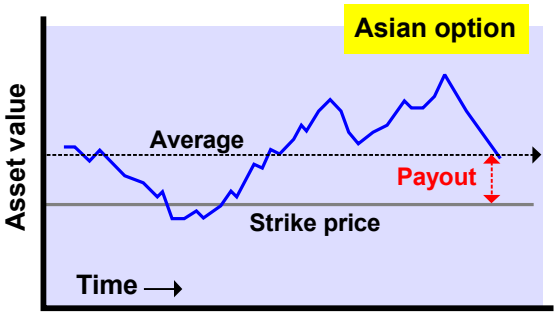
ΔΘΓνρ

The measure of risk taken by assuming a position in an option is represented by Greeks. The main Greeks are as under.

1. Delta: for price sensitivity
2. Theta: for time sensitivity
3. Gamma: for time and price
4. Vega: for sensitivity to volatility
5. Rho: for sensitivity to interest rates

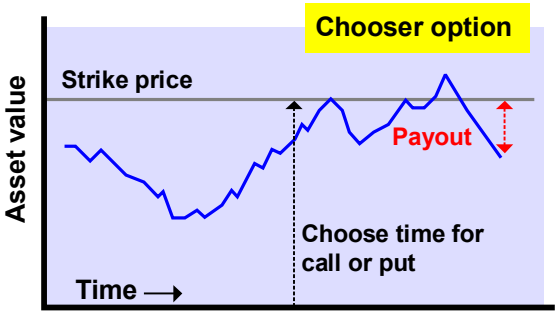
Exotic Options

Call and put options, also referred to as vanilla options, are usually traded at futures exchanges. The more complex exotic options are mostly traded at over-the-counter markets. Some exotic options are listed below.



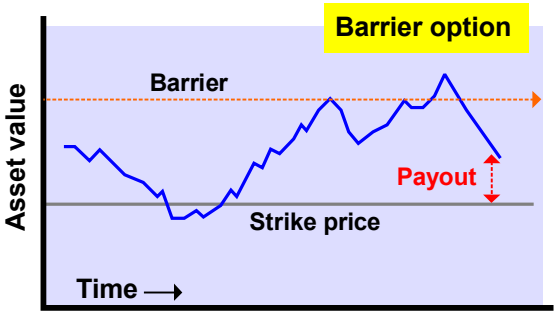
Asian option

In this type of option, payouts are determined by an average underlying asset price calculated over a time period. This averaging reduces against risk arising from variations in the underlying asset value.



Chooser option

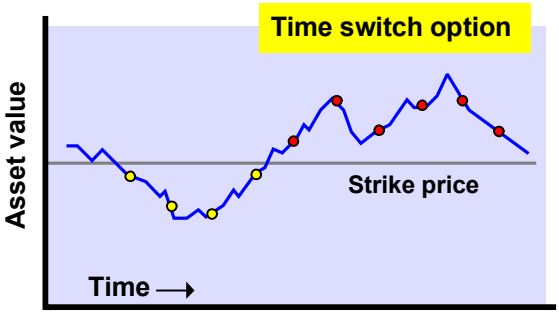
Buyers of the option, over fixed time periods, get to choose whether the derivative will be a call or put option. For a call option, the maximum payout is the stock price minus strike price at expiry. For a put option, the maximum payout is the strike price minus stock price.



Barrier option

In this type of option, the option to exercise depends on the underlying asset reaching a given barrier mark. These options are either activated or cancelled on hitting the barrier mark. The four main types of such options are;

1. Up-and-out
2. Down-and-out
3. Up-and-in
4. Down-and-in



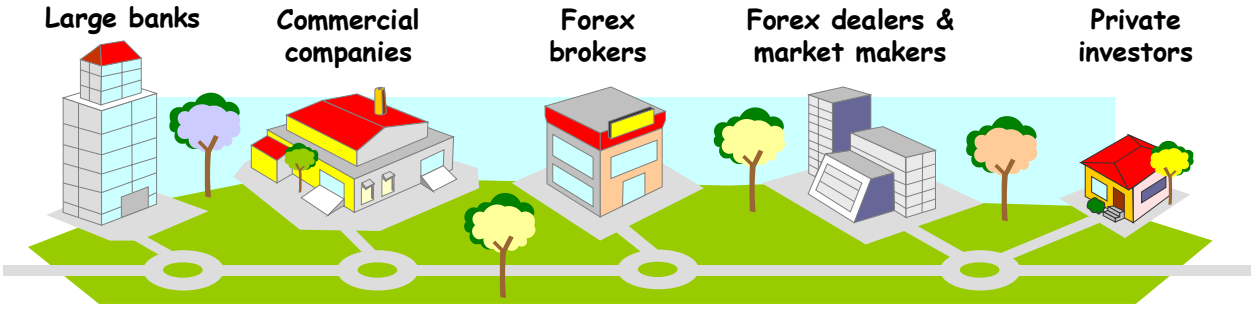
Time switch option

In this type of option, the time the underlying asset value stays above or below the strike price controls payouts. The asset price is monitored at intervals to check the number of times it has stayed above or below the strike price. In this example, the asset value has stayed above the strike price six times, which gives it a 60% payout.

158 - Forex Trading

Forex trading is an over-the-counter (OTC) global trading activity mainly conducted over the internet and other electronic communication networks. In this activity, currencies are bought and sold in standardized pairs. Leveraging allows brokers and investors to trade with amounts larger than those invested into the activity.

The players in the forex market



Inter bank trading forms the bulk of all forex trading.	Companies trade in forex to pay for goods and services.	Brokers represent customers and seek the best prices on their behalf.	Market makers act as principle agents who quote rates to customers.	Private investors trade through brokers and market makers.

The dynamics of forex trading

Currencies are always traded in standardized pairs. For example, USD/GBP, EUR/USD, USD/JPY.

Base currency: The currency that is bought or sold. ← **EUR / USD** → **Quote currency**: The currency that is used to buy or sell the base currency.

Assume, a broker quotes the following rate for Euros.

BID: The price (in $) at which the broker or trader is willing to buy.

ASK: The price (in $) at which the broker or trader is willing to sell.

EUR: 1.3200 / 1.3204

The smallest decimal point available for trading is called a pip.

The difference between the **ask** and the **bid** is referred to as the spread.

Calculating the pip value

For example, with the pair EUR/USD, an investor wants to invest EUR 1000 at a leverage of 1:100. The investor is therefore able to buy EUR 100,000 by investing EUR 1000. Assume two scenarios; in one, the investor makes a profit when there is an increase in the exchange rate. In the other, the investor incurs a loss when there is a decrease in the exchange rate.

The pip value calculated in each scenario determines the profit an investor earns or the loss incurred, as may be the case.

Scenario 1: When the Euro has risen 20 pips at exit

		Spread		Buy	Sell
Enter trading	EUR/USD	1.3200	1.3204	EUR 100,000	USD 132,040
				Sell	Buy
Exit trading	EUR/USD	1.3220	1.3224	EUR 100,000	USD 132,240
Profit / loss	Pips	0.0020	20	7.5643	EUR 151	USD 200

Pip value = (0.0001 / 1.3220) x 100,000 = 20 x 7.5643 Investor profit

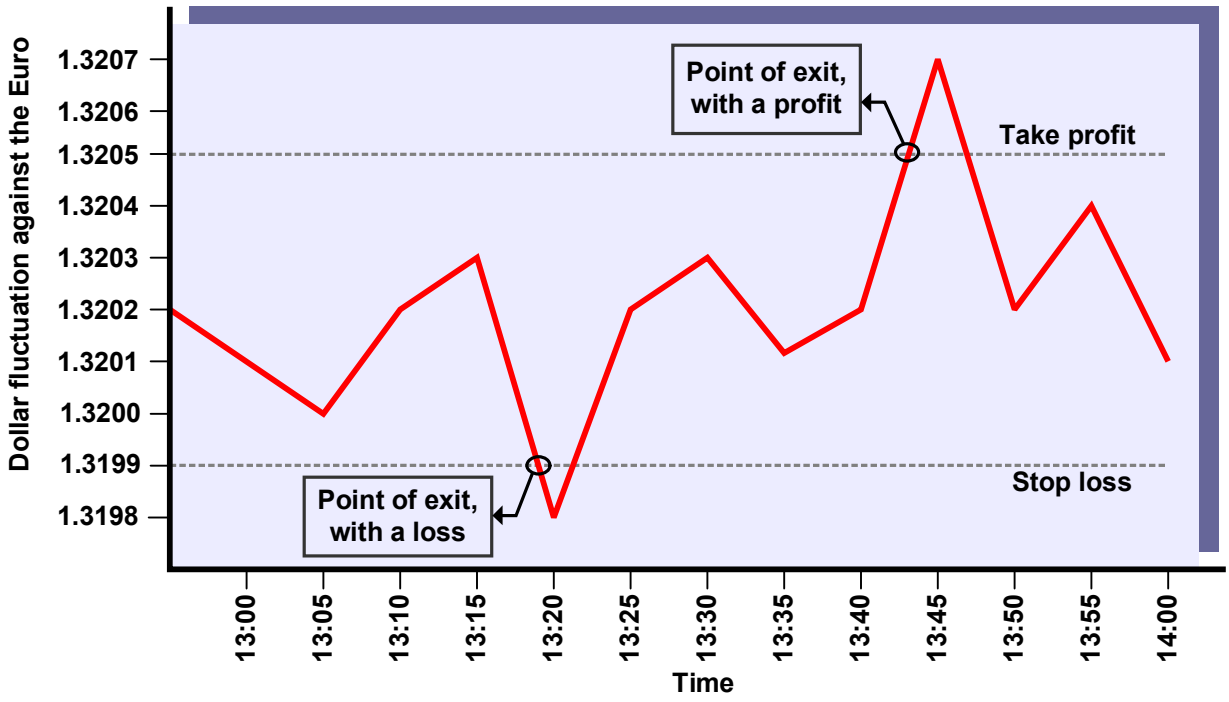
Where 0.0001 = 1 Pip

Scenario 2: When the Euro has decreased 10 pips at exit

		Spread		Buy	Sell
Enter trading	EUR/USD	1.3200	1.3204	EUR 100,000	USD 132,040
				Sell	Buy
Exit trading	EUR/USD	1.3190	1.3194	EUR 100,000	USD 131,940
Profit / loss	Pips	-0.0010	-10	7.5815	EUR -75.81	USD -100

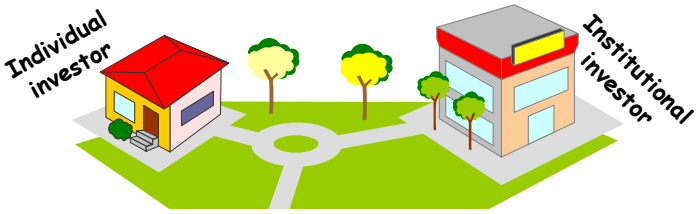
Pip value = (0.0001 / 1.3190) x 100,000 = -10 x 7.5185 Investor loss

Retail investors can trade on forex platforms hosted by traders. The stop loss limit is the loss an investor is willing to take and exit out of trading. A take profit limit is the limit when an investor would like to exit trading by taking a profit.



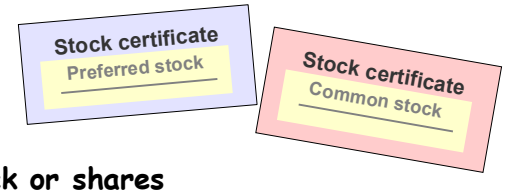
159 - Equity and Stock Markets

Equity refers to the portion of owners capital in a company. Unlike debt, which needs to be paid back, equity is the long-term owner finance available with an enterprise. Investors contribute to equity by buying stock. Stocks represent investor contributions in the ownership of a company. Bonds represent debt and need to be paid back.



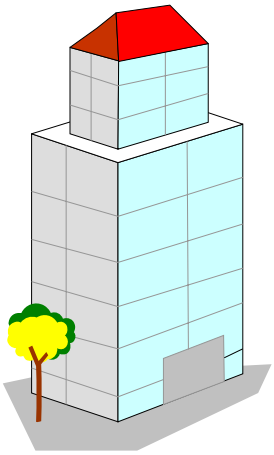
Investors
Individuals and large institutions investing in stock. Most investment into stock is by large institutions.

Stock exchange
An organization where stocks and securities are traded. Buyers and sellers bid prices through brokers to sell or buy stock. Most exchanges have a trading floor where transactions are carried out. Virtual exchanges trade stock over electronic networks. Stocks can be traded only on exchanges that list them. Stocks are increasingly being traded a lot more on electronic platforms.



Stock or shares
Represent equity, and the extent of ownership investors have in a company. The two main types of stocks are common stock and preferred stock. Companies issue stock when they need to raise money to finance operations.

Brokerage firms
They are registered members of a stock exchange who buy and sell stocks for investors. All floor trading on a stock exchange is done only through brokers.



Stock Traders
Professional equity traders who profit from stocks and its price volatility that lasts a few seconds or weeks. Modern traders rely heavily on automated software programs that assist them in charting the course of stock prices for the day, prompting them when to trade and when to exit.

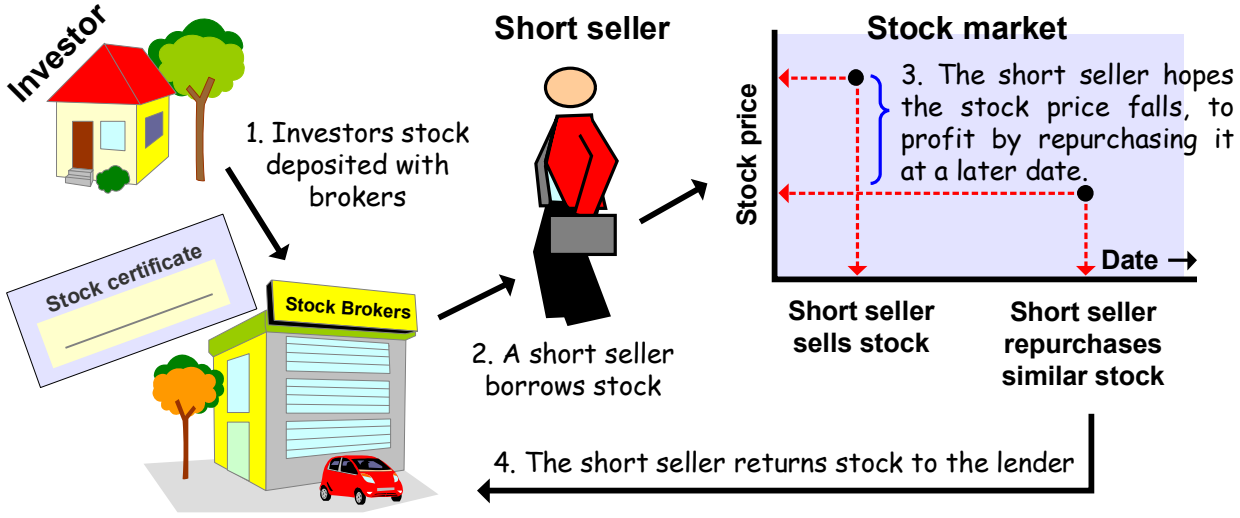
Primary and secondary markets

Primary markets are those where securities are traded for the first time. This is done by listing a company's stock on a stock exchange. Such stock is then offered to the public for the first time by an IPO (Initial Public Offering). This allows a company to attract investors. Investors buy stocks which gives them a right to any profits a company makes.

In secondary markets, previously issued securities are traded by investors without involving the companies that issue those stocks. Trading a company's stock does not put investors in direct communication with that company. Secondary markets are where majority of all stock trading takes place.

Short selling

Selling assets (stocks and securities) borrowed from a third-party (lender), to repurchase identical assets later, to return to the lender. Short sellers hope to make a profit from a decline in the price of assets, by selling and repurchasing them. This is done as a lesser amount is paid to repurchase identical assets, when compared to the sale of borrowed assets.



The stock market cycle

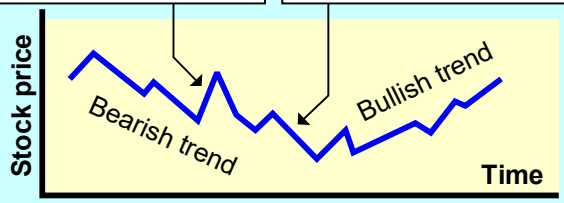
1. When a company decides to raise equity from the market, an underwriting company (investment house) advises them on ways to approach the stock market (common stock or preferred stock). After approval from regulatory authorities, the stock is listed on a stock exchange and an IPO (initial public offer) is issued to investors in the stock market. An underwriter's income is the price difference between what they pay the issuer (the company) and the amount received from investors.

Long selling: When profits are made from increases in stock prices.

Short selling: When profits are made from decreases in stock prices.

Stock certificate
Common stock

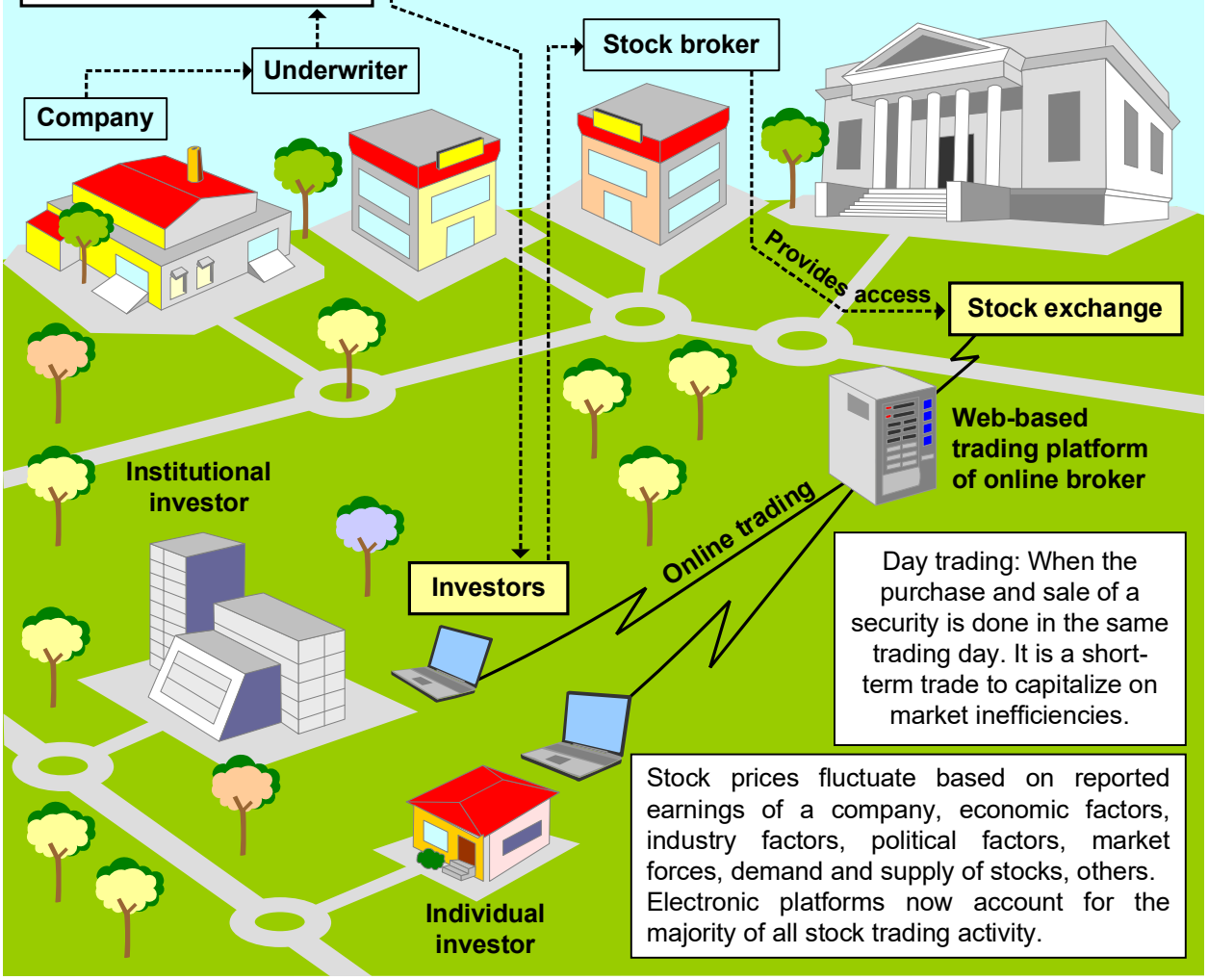
Stock certificate
Preferred stock



2. Investors register their stock with brokers (physical or online), who are members of the stock exchange where the stock is listed. Investors bid for prices to either sell or purchase stock through these brokers.

Floor trading

Floor trading: Floor brokers buy and sell stock for investors on the floor of the physical stock exchange.



Day trading: When the purchase and sale of a security is done in the same trading day. It is a short-term trade to capitalize on market inefficiencies.

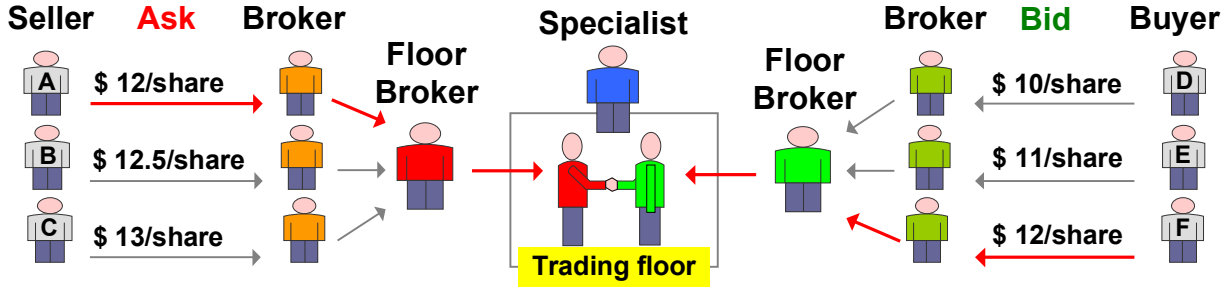
Stock prices fluctuate based on reported earnings of a company, economic factors, industry factors, political factors, market forces, demand and supply of stocks, others. Electronic platforms now account for the majority of all stock trading activity.

160 - Auction & Over-the-Counter Markets

Auction markets or auction exchanges

Stock exchange

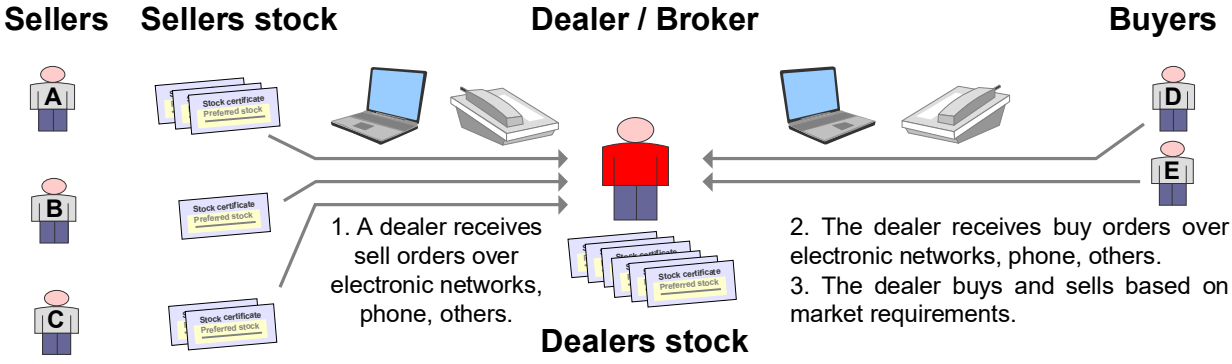
These are markets where buyers and sellers enter into competitive bids for securities. Trading takes place when there is a match between the highest price a buyer is willing to pay and the lowest price a seller is willing to sell. Most physical stock exchanges are auction markets. Only stocks listed at a stock exchange are traded there.



Brokers representing sellers and buyers approach floor brokers at the stock exchange with their bids. The orders are then forwarded to a specialist, who tries to match buy and sell orders using open outcry. If there exists a spread (difference between the ask and the bid), a sale does not take place. In the example shown above, a sale takes place between A and F as there is a match in the ask and bid for that particular stock. The buy and sell orders of A and F are executed and the transfer of shares takes place from A to F. When a sale takes place, details are reported to brokers who then report it to investors.

Over-the-counter (OTC) markets or dealer markets

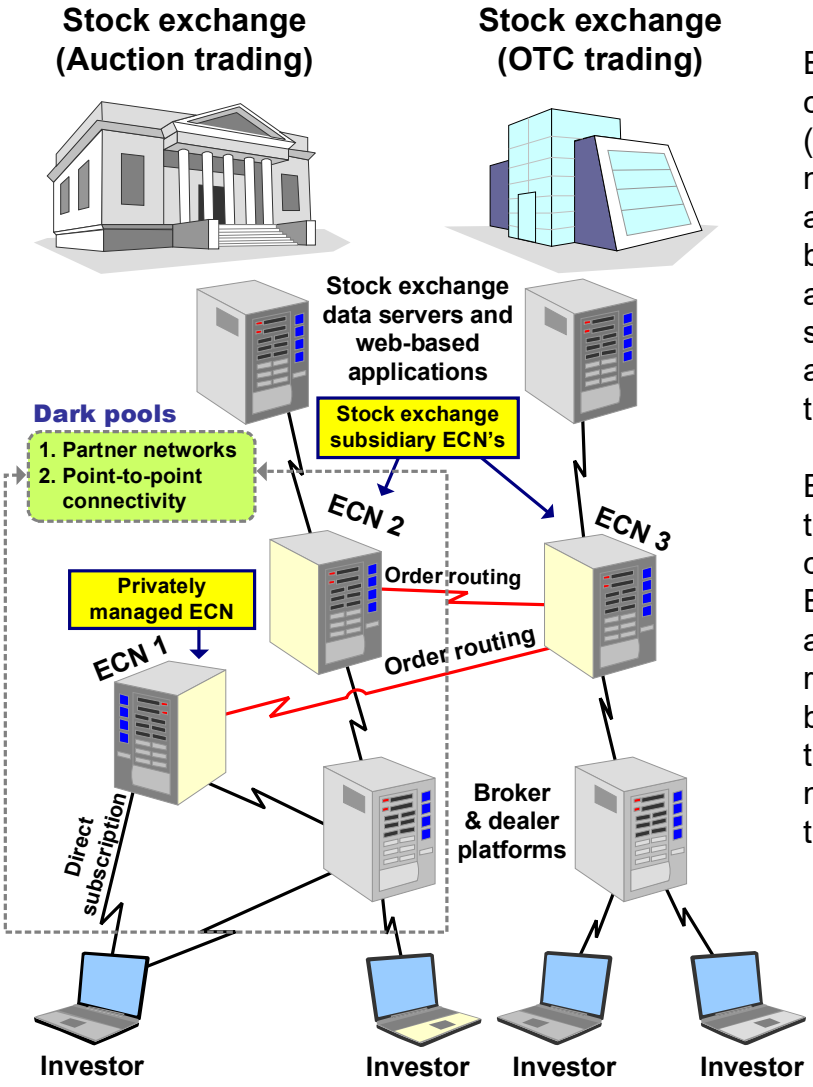
Securities that are not listed on any stock exchange are traded through intermediaries or brokers. For such securities, there exists no centralized meeting place to carry out trading. Trading is done over phone, the internet, fax and other electronic networks. OTC markets are therefore decentralized. In such markets, investors are not selling to one another directly. Instead, they sell to and buy from dealers who act as market makers for a given stock or security. OTC markets exist as a network of dealers linked over computers and telephones at financial institutions and investment firms.



161 - Electronic Stock Trading

Web-based trading platforms now account for a large portion of all electronic trading activity. Such online platforms enable investors sell or buy securities, mutual funds and forex. Electronic communication networks allow large investors trade bulk orders with others directly.

The electronic trading mechanism



Electronic stock trading is carried out over ECN's (Electronic communication networks). ECN's match buy and sell orders of subscribers by listing stocks, order sizes and prices. ECN's not only speed up transactions but also allow trading before and after trading hours.

ECN's are used for auction trading as well as over-the-counter trading. While some ECN's are regulated, others are not. ECN's may be registered as exchanges or as broker-dealers. The focus of their trading is on institutional markets that have large-size trades with very low spreads.

Firms try to tap into dark pools, which are closed networks that isolate orders from exposed trading and provide anonymity to participants on the network. Dark pools, which are accessed by point-to-point communication links and partner networks provide added liquidity to firms processing bulk orders.

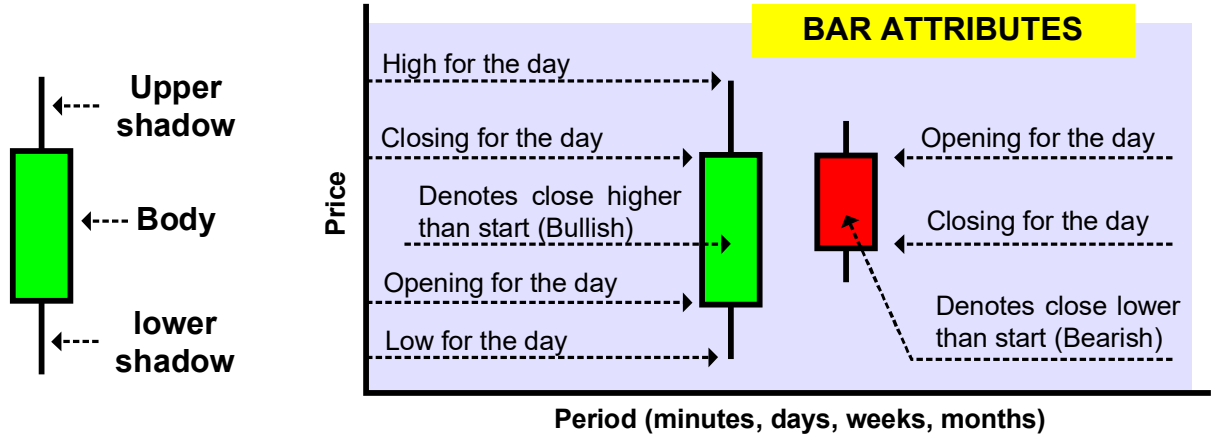
ECN's carry out orders entered by exchanges and over-the-counter market makers without involving intermediaries. Some of the ECN's are privately owned while others are subsidiaries of established stock exchanges. Algorithmic trading, with large size orders and low spreads, has largely cornered existing ECN space.

162 - Candlestick Charts

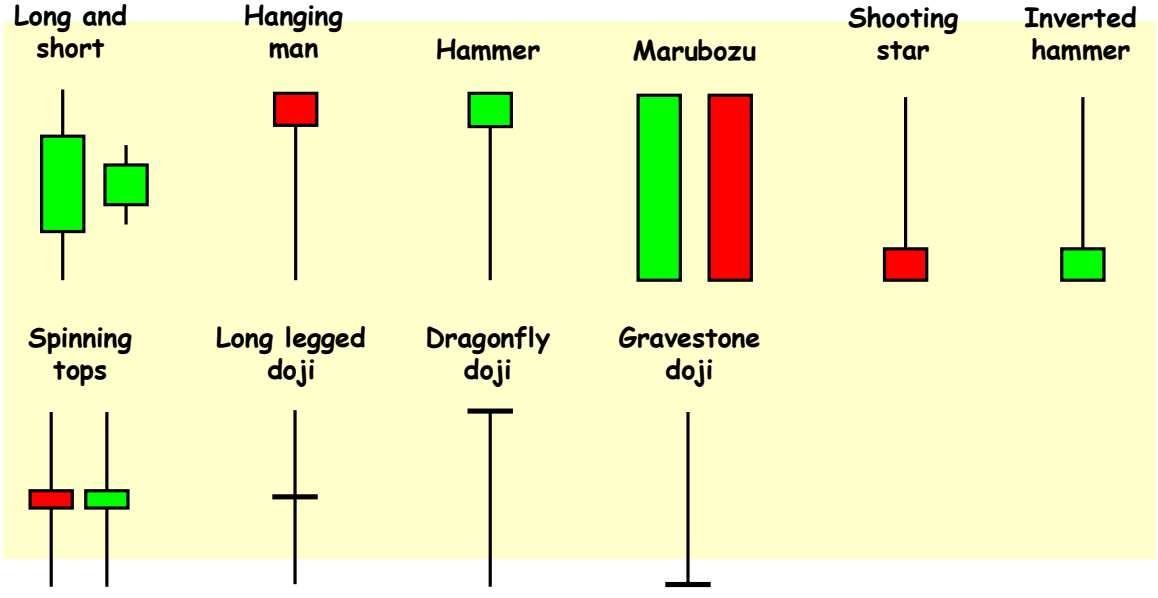
Candlestick charts represent a bar chart style mainly used to represent movements of financial securities (stocks, derivatives and currencies). This chart style is a combination of bar charts and line-charts. Each bar represents a movement over a given period. Candle charts are mainly represented by red and green bars.

Basic bar style

Candlesticks have a body with upper and lower shadows. The shadows represent the highs and lows for a given period. The bars are mainly red and green. Red bars show the security closed lower than it had opened with. For the red bars, opening prices are at the top and closing prices at the bottom. Green bars show the security closed higher than it had opened with. For the green bars, opening prices are at the bottom and closing prices at the top.

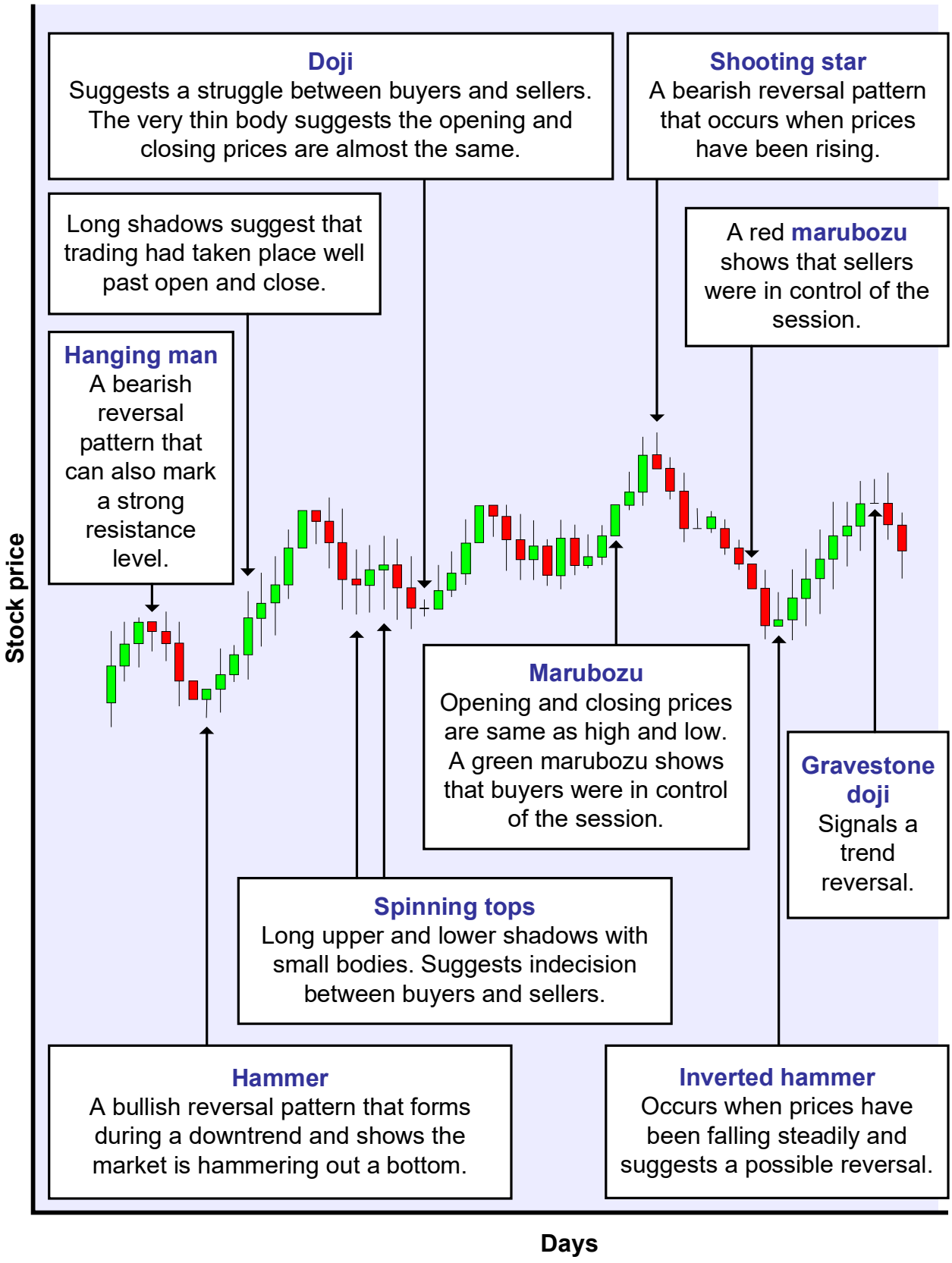


Candlestick bar patterns



A candlestick chart is an important tool in the technical analysis of equity, commodity, options and currency patterns.

Candlestick types

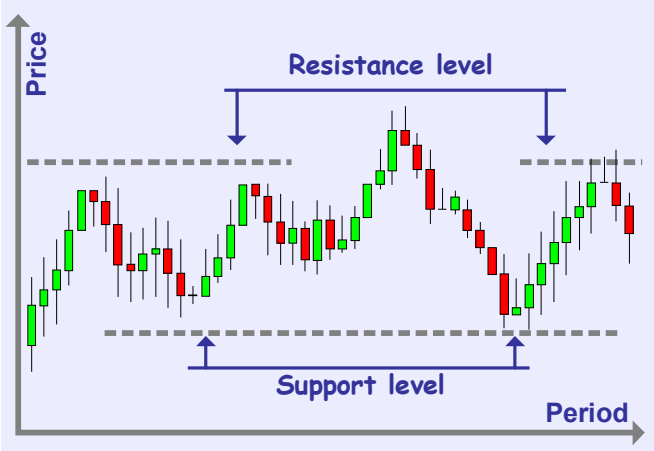


163 - Technical Analysis of Financial Markets

The technical analysis of financial markets seeks to find out patterns and trends in the way financial markets run, to exploit them for profitable returns. Such analysis is done by analyzing candlestick charts, line and PAC charts. It also involves plotting resistance and support levels, analyzing breakouts, trends, MACD and Bollinger bands. Some of the tools and charts used in technical analysis are mentioned below.

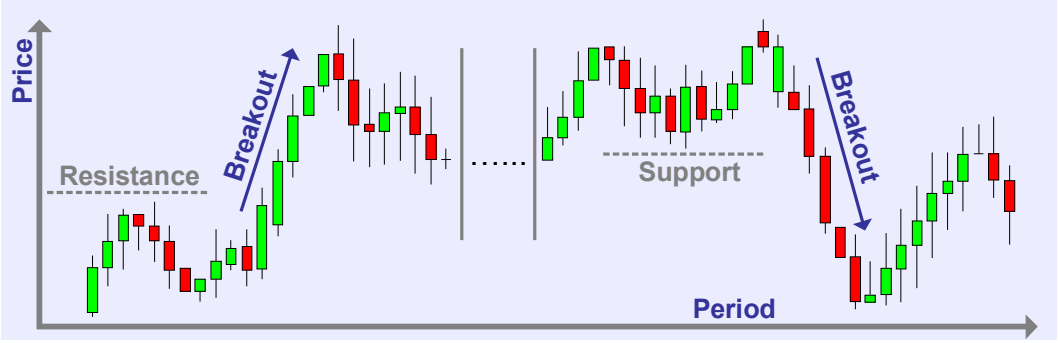
Resistance and support levels

The resistance level denotes price levels from where rising prices are likely to bounce downward. This is the barrier that resists prices from rising higher. The support level suggests a price level from where falling prices find a support to rise. Resistance and support levels are studied by stock traders on a minute by minute basis, hourly, weekly or monthly basis, depending on the nature of trading.

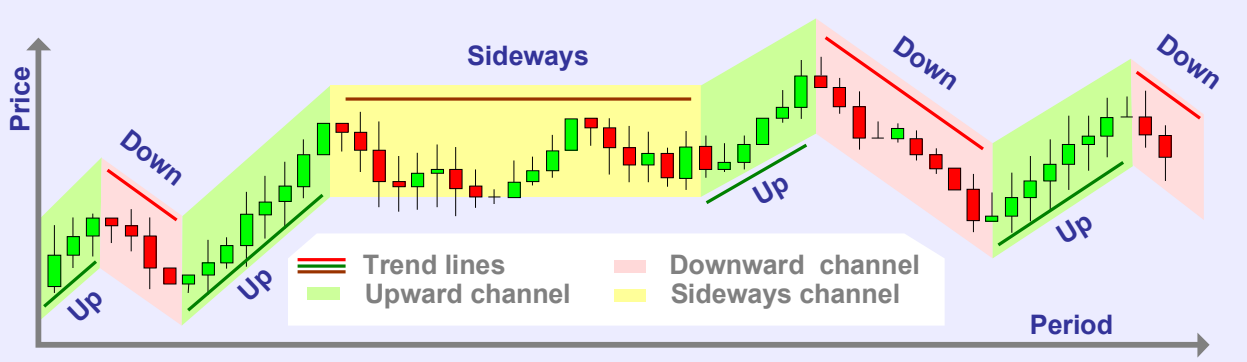


Price breakouts

Breakouts occur when prices go above or below resistance and support levels. Big swift movements are suggestions that price breakouts are likely to occur. Resistance and support levels are not likely to contain such swift strong movements. Traders look out for likely breakouts to time their entry into or exit from trading.



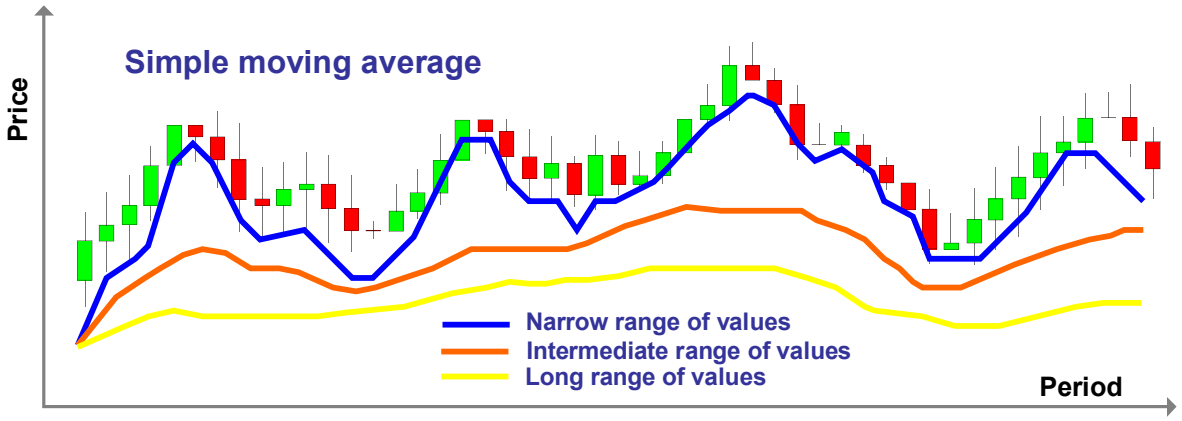
Trends and channels



Simple moving average

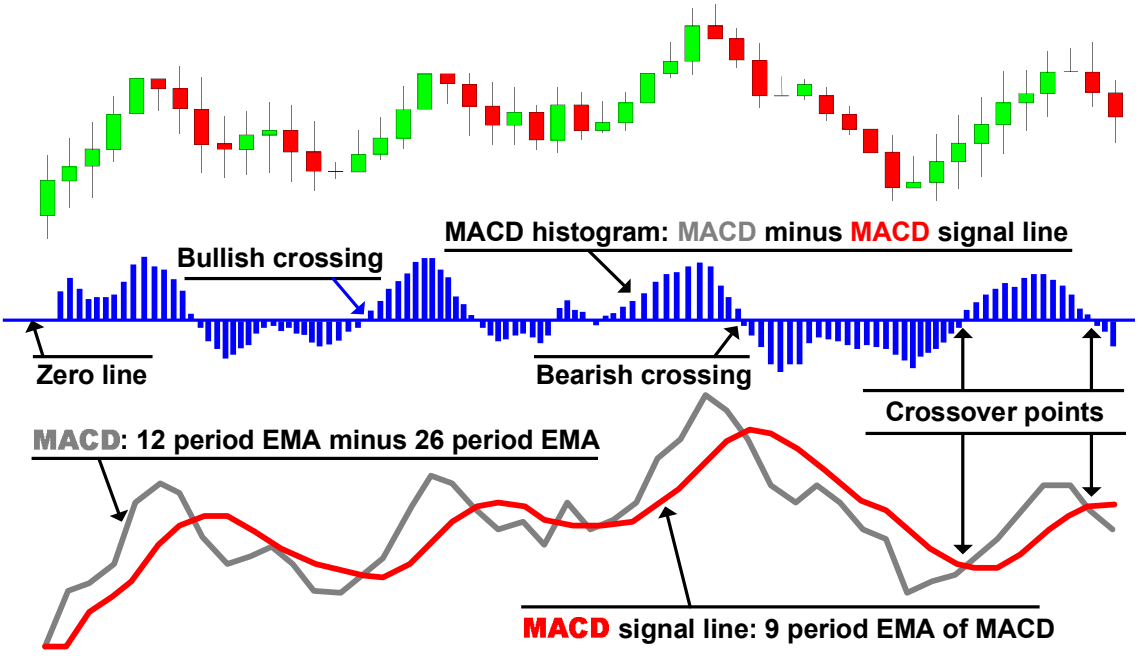
A simple moving average (SMA) is arrived at by calculating the mean of previous values. The range selected depends on the period under observation; the intermediate or long-term. A five day simple moving average of a closing price is the mean of the previous five days closing prices.

A moving average lags behind the latest value because of smoothing. The lag can be further away from actual values if the smoothing covers a greater range of values. It is also influenced by old values that are not near the average.



Moving Average Convergence Divergence (MACD)

It identifies a new trend in prices by showing the difference between a fast and slow exponential moving average (EMA). The MACD histogram (the MACD minus MACD signal line) shows when a bullish or bearish trend has formed. The crossover points represent points where the MACD and MACD signal lines cross over and show either a bullish or bearish trend. When an upward rising MACD crosses over the MACD signal line, it signals a bullish or upward trend. A downward MACD crossing over the MACD signal line signals a bearish or downward trend.



164 - Fundamental Analysis of Financial Markets

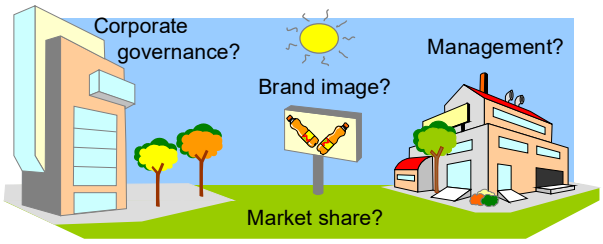
The fundamental analysis of financial markets focuses on evaluating and measuring the intrinsic value of a security. It does this by examining macroeconomic conditions (state of the economy and industry) and enterprise specific causes (financial health, brand image, management). Such an analysis enables investors evaluate and compare values of securities and assume suitable positions (long and short) while trading those securities.

Macroeconomic factors

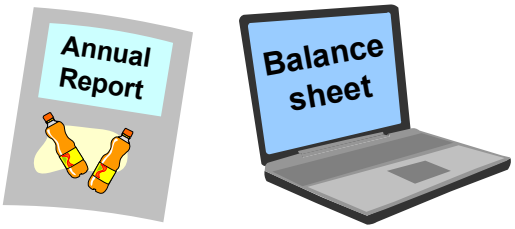
These are macroeconomic signals that reflect the economic situation of a country or region and include GDP, price indices (producer price index, consumer price index,), GNP, inflation rates, unemployment rates, investments, savings, consumption rates, interest rates, trade balances, retail sales, NNI, monetary policy, real estate indicators, durable goods, consumer spending and confidence, e-commerce retail sales, personal income, new home sales and construction spending, industrial production, employment cost index (ECI), automotive sales, current accounts and other indices.

Enterprise related factors

Qualitative factors



Quantitative factors



Enterprise specific

1. Brand image and competitiveness
   Brand equity, uniqueness, cost effectiveness.
2. Enterprise business model
   How viable is the enterprise strategy?
3. Managerial ability
   Ability to realize enterprise plans and goals.
4. Corporate discipline and governance
   Organizational attitude towards stakeholders.
5. Market share
   Industry leader or low market share.

Enterprise financial data

1. Balance sheet analysis
   Nature of assets, liabilities and equity.
2. Cash flows
   Operations, investments, financing.
3. Income statement
   Revenues, expenses, profits.
4. Auditors report
   Compliance to standards.
5. Management discussion
   Future plans stated quantitatively.