# ACCT7106 – Session #3: The Valuation Process

## PART 1 – Background



Our ***primary focus – corporate form*** of business:



**shareholders ↔ board of directors ↔ management**



***re: management*** → operate firm

***assumed objective*** of management = ***maximize shareholders' wealth***

⇒ ***maximize share price!***

- **Why maximize share price?**

  If management maximizes share price, investors can always sell their shares if they don't like the firm's policies and receive maximum price

  Further, given well-functioning markets and rational investors, share price will reflect the market's risk attitude, time preference, and opportunity cost



- **Why not the more typical economic objective of maximizing profit?**



  - profit should be viewed relative to investment ⇒ concept of opportunity cost

  - since multiperiod, the time value of money must be acknowledged

  - profit must be judged relative to risk

## ➢ Roles of Management

**1. Controller function** ⇒ asset efficiency

i.e., efficient use of working capital and liquidity management
running the internal accounting system



**2. Treasury function** ⇒ long-term funds acquisition



i.e., debt or equity? - will affect the risk and tax position of the firm



**3. Capital budgeting** ⇒ real (productive) asset acquisition

i.e., composition of the firm's fixed assets
mix of capital and labour

⇒ determines the firm's profitability and operating risk

## ➢ Market Efficiency

- **Operational efficiency –** low operating costs
- **Allocational efficiency –** funds to most promising real investment opportunities
- **Informational (pricing) efficiency –** market price reflects all relevant information and further, price adjusts rapidly to the release of any price relevant new information



⇒ **price = value**



informational (pricing) efficiency is critical for three key reasons:

- **encourages people to buy shares** (facilitates an active market)
- **facilitates financial management** (decisions evaluated through their impact on price)
- **helps to allocate resources** (to their most productive uses)

- *Academic research suggests:*
  - strong form efficiency generally does not hold – further, insider trading is illegal or restricted
  - stock market probably satisfies weak form efficiency
  - stock market is largely semi-strong form efficient, but it is unclear if it is completely semi-strong form efficient



- *Fundamental analysis might still be useful:*
  - the market might not be completely semi-strong form efficient => you might be able to value companies more accurately than the market
  - investors might be rewarded fairly for doing fundamental research. How do market prices reflect all public information, if no one is doing fundamental research?

# *Aside – **'fundamental analysis'***

fundamental analysis represents an exercise designed to determine the 'intrinsic value' of the company (to form your own view of the value of a company for trading purposes)

it involves analyzing both quantitative and qualitative data about the company and the environment within which it operates including –

- ❑ macroeconomic factors (the state and prospects of the overall economy; industry conditions and prospects)
- ❑ company-specific factors (financial conditions; effectiveness of management; strategic initiatives; consumer behaviour)



The end goal is to arrive at a number that an investor can compare with a security's current price in order to see whether the security is undervalued or overvalued

Fundamental analysis assumes that over the long term, a stock price will reflect the company's intrinsic value

# PART 2 – Implementing the Valuation Model

$$V_0 = \sum_{t=1}^{\infty} \frac{x_t}{(1+k_t)^t} = \sum_{t=1}^{n} \frac{E(x_t)}{(1+k)^t} + \frac{E(x_n)(1+g)}{k-g} \frac{1}{(1+k)^n}$$



***Issue #1*** **– discount rate (*k*):**



***Issue #2*** **– investment horizon (*n*):**



***Issue #3*** **– choice of flow measure (*x*):** (e.g., dividends, free cash flow, earnings)

***Issue #4*** **– estimating future values of '*x*'** (on a year-by-year basis for '*n*' years, and then the 'on average' growth rate, *g*, over the extended period)

***Issue #1*** **– discount rate:**

In general, the rate of return required by investors to induce them to commit capital, given the level of risk involved → $\boldsymbol{R = R_F + E(I) + RP}$

where $R_F$ = risk-free rate of return $E(I)$ = expected rate of inflation,

$RP$ = risk premium specific to investment





The CAPM, which is one relatively well accepted approach to developing a discount rate, predicts that the required rate of return on common equity as:



$$k_e = R_F + \beta\,[E(R_M) - R_F]$$

$[\boldsymbol{E(R_M) - R_F}] \equiv$ 'market price of risk' (historic range approximately 5% → 7%

$\beta \equiv$ measure of the firm's systematic risk (broadly available for most major companies

$R_F$ = risk-free rate of return

***Issue #2*** **– investment horizon:**

preferred approach to implementing the valuation model

predict future year-by-year flows for some finite number of years and then estimate the terminal value at the end of this forecast horizon.

→ question of what constitutes an appropriate forecast horizon?

→ involves trade-offs (between ability to forecast year-by-year accurately and the weight placed on the terminal value component)



*Analysts typically select a forecast horizon in the range of 3 to 5 year*

***Issue #3*** **– flow measure:**

two basic flow measures

- earnings
- cash flow
  - cash flows to the firm
  - cash flows to the investor (dividends)

**General form of the dividend valuation model:**

**+ ……**

**General form of the free cash flow model**:

**=**



**General form of the 'abnormal earnings' model:**

**+**

Conceptually, the choice of a 'flows measure' should not matter (i.e., the dividend, free cash flow, and abnormal earnings valuation models should lead to ***identical*** estimates of value!).

***Requires –***

**1. the terminal value perpetuity must be based on internally consistent amounts**

⇒ the clean surplus relation must hold at all times ($SE_t = SE_{t-1} + NI_t - D_t \pm NCC$), and simultaneously and consistently for both models



⇒ for the CF model, the terminal value estimate must be based on $D_{t+1}$ where $D_{t+1}$ follows from the clean surplus relation based, say, on estimates of $NI_{t+1}$ and $SE_{t+1}$, not simply on $D_t$ (1+g)





similarly, the terminal value estimate for the AE model must also follow from the clean surplus relation as opposed to simply using $AE_t$ (1+g) as the estimate of $AE_{t+1}$

**2. forecasted yearly data consistent with clean surplus and other accounting identities**

e.g., the forecasted dividend series must be consistent with the forecasted Shareholders' Equity and Net Income series, and with the forecasted price)

To illustrate, consider the following (an expanded version of the example used last week):

***Example #3-1***

*An all-equity financed firm has as its only asset, inventory which cost $240 million. The firm's tax rate is zero and its cost of equity capital is 12%*



*Analysts forecast that the firm will be able to sell one-sixth of its inventory in each of the next six years for cash*





*The projected revenues from the first year's sales are $50 million and the revenues are projected to grow at the expected rate of inflation (3%) each successive year. The firm is then expected to be dissolved at the end of year six*

*The firm will adopt a 40% payout ratio, with remaining cash reinvested at the cost of equity and paid out as a terminal dividend at the end of year 6*

*Balance Sheet* inventory 240,000,000 shareholders equity 240,000,000

*anticipated sales revenue (FCF)*

$FCF_1 = 50{,}000{,}000$

$FCF_2 = 50{,}000{,}000\ (1.03) = 51{,}500{,}000$

$FCF_3 = 50{,}000{,}000\ (1.03)^2 = 53{,}045{,}000$

$FCF_4 = 50{,}000{,}000\ (1.03)^3 = 54{,}636{,}350$

$FCF_5 = 50{,}000{,}000\ (1.03)^4 = 56{,}275{,}440$

$FCF_6 = 50{,}000{,}000\ (1.03)^5 = 57{,}963{,}700$

*profit & AE (assuming weighted average inventory method – cost = 40 / year)*

$\pi_1 = [50 - 40] = 10{,}000{,}000$

$AE_1 = (10 - 0.12*240) = -18{,}800{,}000$

$\pi_2 = [51.5 - 40] = 11{,}500{,}000$

$AE_2 = (11.5 - 0.12*200) = -12{,}500{,}000$

$\pi_3 = [53.045 - 40] = 13{,}045{,}000$

$AE_3 = (13.045 - 0.12*160) = -6{,}155{,}000$

$\pi_4 = [54.63635 - 40] = 14{,}636{,}350$

$AE_4 = (14.63635 - 0.12*120) = 236{,}350$

$\pi_5 = [56.27544 - 40] = 16{,}275{,}440$

$AE_5 = (16.27544 - 0.12*80) = 6{,}675{,}441$

$\pi_6 = [57.9637 - 40] = 17{,}963{,}700$

$AE_6 = (17.96374 - 0.12*40) = 13{,}163{,}700$



*proposed dividends (D) (= 40% of profit)*

$D_1 = 0.4(10) = 4{,}000{,}000$ (→ cash retained = 50 – 4 = 46,000,000)

$D_2 = 0.4(11.5) = 4{,}600{,}000$ (→ cash retained = 51.5 – 4.6 = 46,900,000)

$D_3 = 0.4(13.045) = 5{,}218{,}000$ → cash retained = 53.045 – 5.218 = 47,827,000)

$D_4 = 0.4(14.63635) = 5{,}854{,}540$ (→ cash retained = 54.63635 – 5.85454 = 48,781,810)

$D_5 = 0.4(16.27544) = 6{,}510{,}176$ (→ cash retained = 56.27544 – 6.510176 = 49,765,260)

$D_6 = 0.4(17.9637) = 7{,}185{,}481$ (→ cash retained = 57.9637 – 7.185481 = 50,778,220)

***Under the FCF valuation model***

= + + + + + = $219,475,525.7029

***Under the AE valuation model, assuming weighted average inventory method***

= 240 + + + + + + = $219,475,525.7029



***Under the dividend valuation model, assuming a 40% payout ratio, and remaining cash reinvested at the cost of equity and paid out as a terminal dividend at the end of year 6***

= + + + + + + = $219,475,525.7029

*HOWEVER*, what if we "naively" adopt a 5-year forecast horizon and then assume an 'on average' growth rate of 4% from year 6 into the foreseeable future (approximately the growth rate in the GDP)

= + + + + + ()= $605,227,861

$V^{AE}$ = 240 + + + + + + ()= $282,648,099



= + + + + + () = $66,389,939

*WHY* are the estimates no longer identical?

the assumption that each stream (earnings, dividends, and cash flows) can grow at the same rate indefinitely violates 'clean surplus' !!

*HOW?* sales, inventory, dividends, cash balance, etc. etc. etc.

# PART 3 – Implementing the Valuation Model (cont)

## *Issue #4* – estimating future values of '*x*'

⇨ on a year-by-year basis over the forecast horizon ('*n*' years)

the 'on average' growth rate, *g*, that applies over the foreseeable future post the forecast horizon



***fundamental analysis*** represents an exercise designed to determine *'intrinsic value'*

it involves analyzing both quantitative and qualitative data about the company and the environment within which it operates including –

- ❑ macroeconomic & industry factors (e.g., the state and prospects of the overall economy; industry conditions and prospects)
- ❑ company-specific factors (e.g., financial conditions; effectiveness of management; strategic initiatives; consumer behaviour)

undertaking ‘fundamental analysis’ is a relatively involved and complex process

i.e., FCF and earnings-based valuation models require analysts to project likely amounts of revenues, expenses, assets, liabilities, and shareholders' equity.

→ their use requires analysts to undertake the very complex and "labour intensive" task of developing an understanding of the firm's future operating, investing, and financing decisions



To illustrate, Palepu, Bernard, and Healy characterize the process followed by a thorough analyst as involving the following 7 steps:

**#1** Analyse strategy to understand factors driving the performance of an industry and a firm, and to assess whether those factors are likely to persist

**#2** Analyse accounting to assess whether management has made conservative or aggressive accounting decisions.



**#3** Forecast future earnings to the firm for a finite horizon (to the terminal year).



**#4** Forecast growth in book value for the firm for the same horizon.



**#5** Forecast earnings and book value growth beyond the terminal year.

**#6** Estimate the firm's cost of equity.

**#7** Use the cost of equity to estimate the abnormal earnings and discount these amounts.

## ➢ Financial Analyst

- A ‘securities analyst’ is an “individual, usually employed by a stock brokerage house, bank, or investment institution, who performs investment research and examines the financial condition of a company or group of companies in an industry” (Downes, J., & Goodman, J. (2014). *Dictionary of Finance and Investment Terms* (Barron's Business Dictionaries).



- There are sell-side and buy-side analysts
  - ***Buy-side:*** work for an investment fund (e.g. Blackrock, Vanguard, Franklin Templeton, superannuation funds) and provide advice internally on what the fund should invest in
  - ***Sell-side:*** provide advice to investors on the financial condition of companies. Most work for investment banks or brokers and write regular ‘research reports’ on the companies that they ‘cover’, giving their opinion about whether the company represents a good investment

- Typical contents of a sell-side analyst report include:
  - the analyst's share price valuation of the company, usually expressed as a 'price target', which is the price the analyst expects in 12 months
  - a buy/sell/hold recommendation based on comparing the price target to the current market price
  - detailed forecasts of the major financial statement items for the next 2 or 3 years, such as earnings per share (EPS), dividends per share (DPS), sales, capex, etc.
  - the analyst's commentary on recent company news
  - information about how the analyst valued the stock

*Aside* – once the various year-by-year estimates and the post-horizon terminal growth estimate have been developed, as implied by the preceding material, the valuation exercise is essentially 'mechanical' – to illustrate:

***re:* Coles (COL)** – from the CommSec website

**5-year beta** **0.73** ⇒ ***k* = 0.03 + 0.73 [0.06] = 0.0738** **7.4%**



| forecasts | current | 2021 E | 2022 E | 2023 E |
|---|---|---|---|---|
| EPS ($) | 0.715 | 0.785 | 0.785 | 0.889 |
| DPS ($) | 0.575 | 0.660 | 0.653 | 0.733 |





***re:* Woolworths (WOW)** – from the CommSec website

**5-year beta** **0.64** ⇒ ***k* = 0.03 + 0.64 [0.06] = 0.0684** **6.8%**

| forecasts | current | 2021 E | 2022 E | 2023 E |
|---|---|---|---|---|
| EPS ($) | 1.268 | 1.482 | 1.547 | 1.718 |
| DPS ($) | 0.940 | 1.103 | 1.158 | 1.274 |

*note* – the forecasts represent the 'consensus analyst forecast'

→ mean / median forecast across all sell-side analysts covering the company
(used as a proxy for the 'markets' forecast of earnings or dividends)

Based on these forecasts, we can then directly apply the 'dividend valuation model' to both COL and WOW

+ ()



The remaining issue is then that of what constitutes an appropriate '$g$' – the 'on average' post-horizon (terminal) growth rate (??)

- could assume that Coles / Woolies will stop paying dividends after 2023
- could assume that Coles / Woolies will pay dividends at the 2023 level into the foreseeable future (i.e., $g = 0$)
- could (should) independently develop a defensible value for $g$ that reflects the company's like future path

assuming that Coles & Woolies will stop paying dividends after 2023:



assuming that Coles & Woolies pay dividends at the 2023 level in perpetuity ($g = 0$):



As a frame of reference, the current share prices for COL and WOW at the close of trade on Friday 4 December are:

$P_{COL}$ = \$17.98

$P_{WOW}$ = \$37.72

⇨ both estimates significantly understate the current share price (since $g$ is likely inappropriate)

What is an appropriate post-horizon (terminal) growth rate, $g$?

- $g$ represents how fast the company will grow (on average) *forever*
- you should not use a $g$ that is greater than the nominal GDP growth of the country where the company operates (assuming it operates primarily in one country)
- it is unreasonable to assume that a company can grow faster than the economy as a whole forever, as eventually its size would exceed the size of the entire economy!



Australia's historical nominal GDP growth has been affected by fluctuations in real GDP growth and inflation (primarily inflation). The averages for the measure are:

over the last 10 years: about 4.2%

over the last 20 years: about 5.8%

over the last 50 years: about 8.4%

**$g$ likely should not therefore exceed 4 – 4.5% for an Australian company, and could be less (depending upon the company's circumstances and prospects)**

assuming $g$ = 3%:



assuming $g$ = 4%:

| | Actual Price | Estimated post-horizon dividend growth rate, $g$ | | | |
|---|---|---|---|---|---|
| | (4/12/20) | $D = 0$ | $g = 0\%$ | $g = 3\%$ | $g = 4\%$ |
| $P_{COL}$ | **≈ $18** | 1.772 | 9.923 | 15.220 | 19.175 |
| $P_{WOW}$ | **≈ $38** | 3.094 | 18.473 | 30.615 | 40.444 |



*Summary reflection* –

- for both companies, clearly the capital markets appear to factoring in growth estimates of between 3% and 4%, currently closer to 4%

***re: use of the 'discounted dividend' valuation model (DDM) –***

❑ **Advantages:**

- dividends are what shareholders actually receive and thereby not affected by 'earnings management' (strategic manipulation of accounting figures to portray a desired image or picture)
- can work reasonably well for mature companies with high dividend payout rates
- dividends can be more stable than FCF as companies tend to 'smooth' their dividends



❑ **Disadvantages:**

- dividends are the result of present/past profitability and a financing decision (to pay out shareholders equity – it is therefore better to focus on the *source* of dividends, which is earnings and cash flow
- the DDM is difficult to implement if the company is not paying any dividends (you have to forecast when the company will eventually begin paying dividends)

***re: use of the 'abnormal earnings (residual income)' valuation model (AE / RIM) –***

❑ **Advantages:**

- Focuses on earnings, which is a better measure of performance than dividends or FCF
  - advantages of accrual accounting
  - not the result of a financing decision unlike dividends
  - earnings does not punish investment in net operating assets (NOA) unlike FCF
- for some companies, the forecast horizon (years until RI reaches a steady state) will be shorter than for the DDM
- can use analyst forecasts of DPS and EPS as these are readily available



❑ **Disadvantages:**

- more complex than DDM
- earnings can be manipulated, in particular accruals are easier to manipulate than FCF
- still requires forecasting dividends as dividends are needed to calculate future 'shareholders' equity' (for clean surplus)

# PART 4 – Issue #4: Estimating future values of '*x*'

- ***Sell-side analysts*:** provide advice to investors on the financial condition of companies. Most work for investment banks or brokers and write regular 'research reports' on the companies that they 'cover', giving their opinion about whether the company represents a good investment



> *Investopedia* – the job of a sell-side research analyst is to follow a list of companies, all typically in the same industry, and provide regular research reports to the firm's clients. As part of that process, the analyst will typically build models to project the firms' financial results, as well as speak with customers, suppliers, competitors, and other sources with knowledge of the industry.





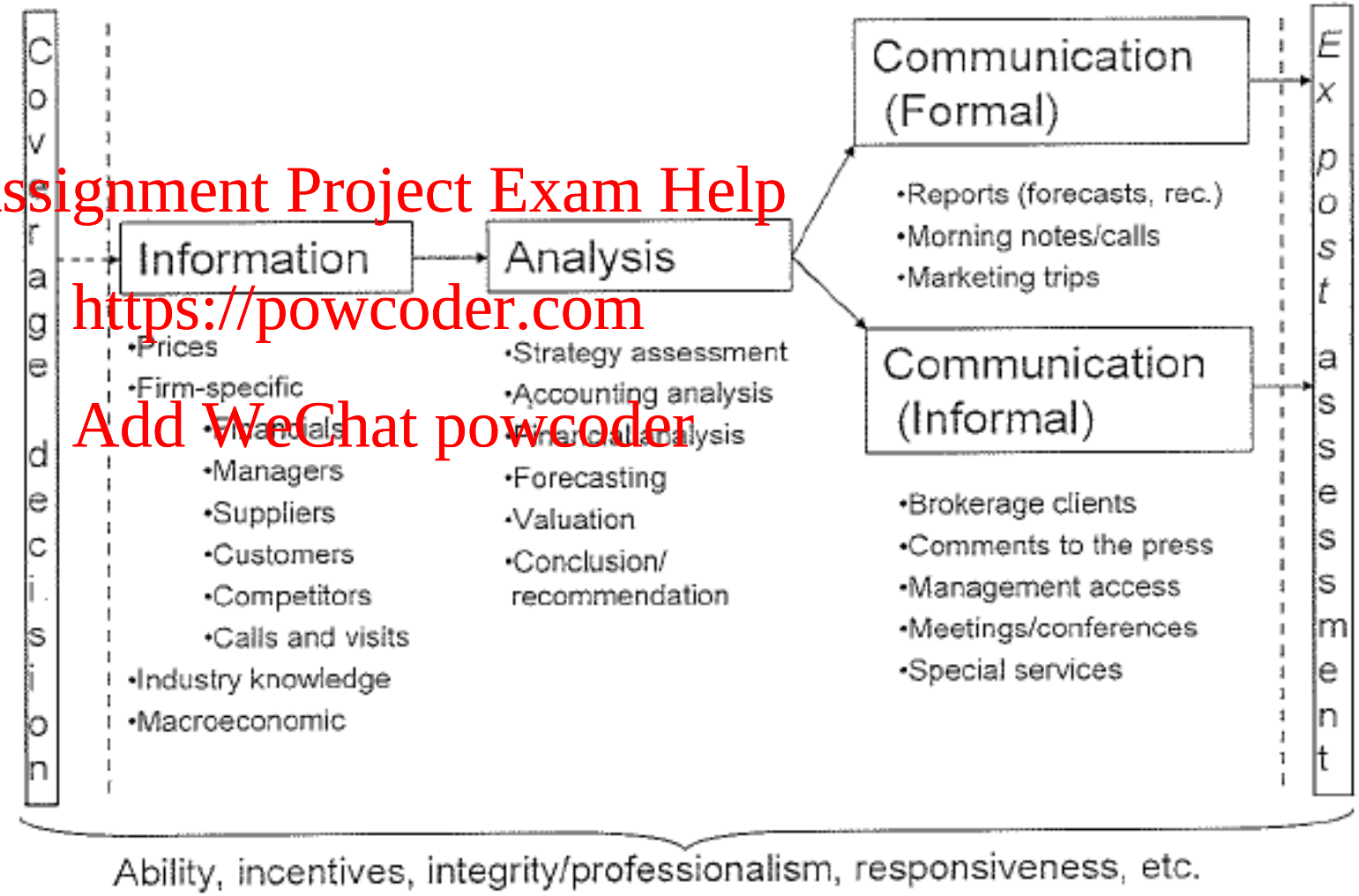
There are a number of templates that detail the type of inputs the analyst utilizes in developing their reports. On balance, however, these template incorporate the same material.

One such template is the so-called 'top down' approach detailed on the next slide

- *Typical analyst's report - Top down approach*
  - **Macroeconomic factors** e.g.,
    - GDP
    - Interest rates
    - Inflation
    - Foreign exchange (FOREX) rates
    - Oil and commodity prices
    - Hedging
    - Business cycle
  - **Industry factors** e.g.,
    - Sensitivity to macroeconomic factors
    - Industry operation, ratios and stats
    - Competition
  - **Firm level** e.g.,
    - Strategy
    - Synergy
    - Financial Performance

**Figure 1a – Analyst Decision Process Schematic**

Panel A: Decision process schematic






***Bradshaw***, 2011

"Analysts' forecasts: What do we know after decades of work?"

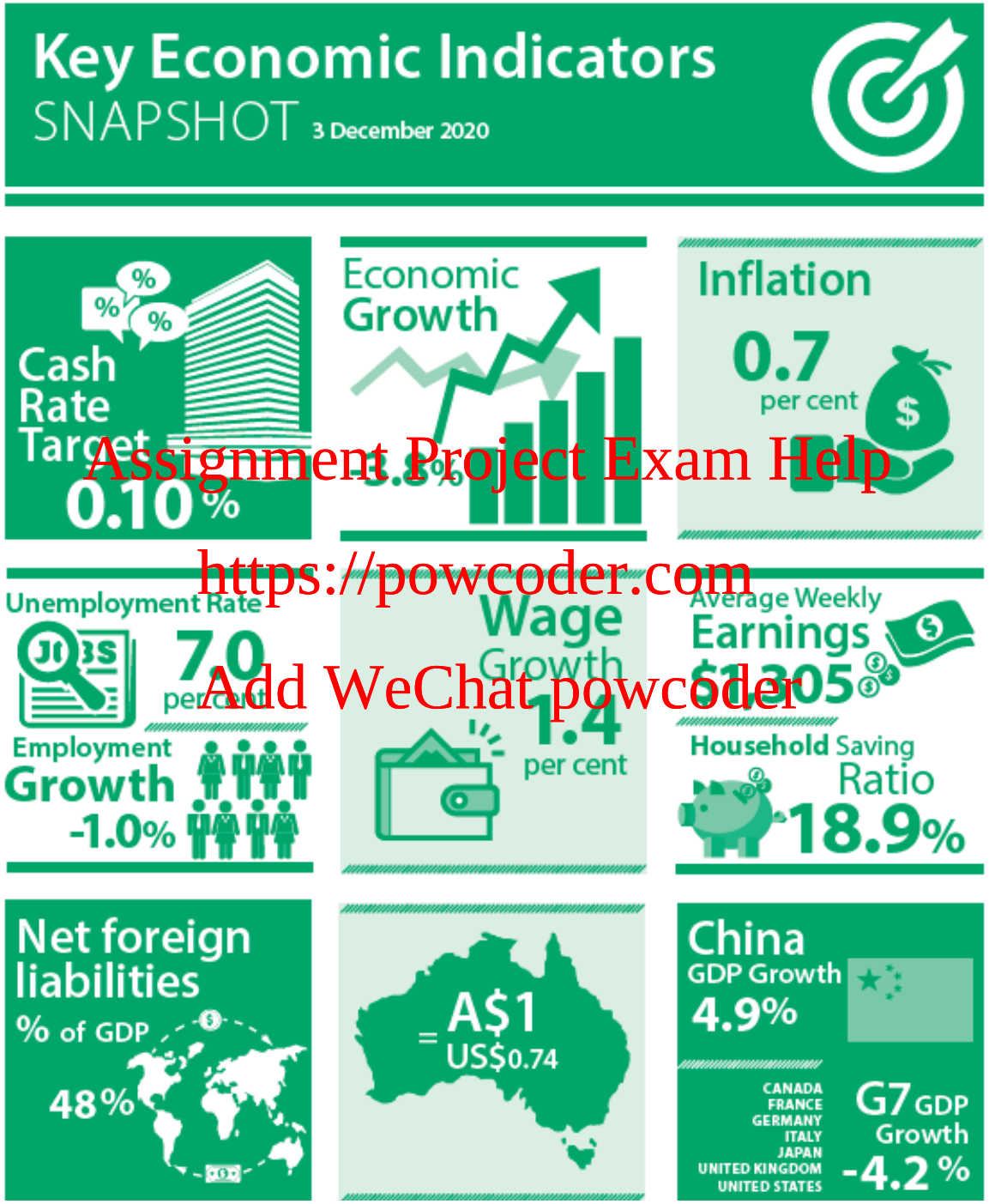
Starting with the ***'Macroeconomic Factors'*** e.g.,

- GDP; Business cycle; Inflation
- Interest rates; Foreign exchange (FOREX) rates; Commodity Prices

These factors are largely outside the control of the company but have the potential to significantly impact the company's performance.



The RBA provides data on both historical trends in the relevant dimensions and projections. Consider, for example, the summary 'snapshot' of key indicators provided by the RBA dated 3 December



While the ‘macroeconomic factors’ are largely (or wholly) outside the control of the company, the company can however undertake steps to mitigate its exposure to various risks that the factors pose to its profitability

⇒ **treasury risk management:**



⇒ managing the firm's exposure to unanticipated changes in interest rates, foreign exchange rates, and commodity prices.





**focus:** fluctuations in the firm's profit, ROE, and/or market value

***main sources of risk*** include**:**

*a) interest rate risk* ⇒ fluctuations that result from changes in interest rates

*b) exchange rate risk* ⇒ fluctuations that result from changes in exchange rates



*c) commodity price risk* ⇒ fluctuations that arise from changes in the prices of commodities that the firm either sells or purchases

*note:* even firms that do not directly use a commodity may face commodity price risk as price increases affect other factors of production (e.g., delivery costs)

***Managing risk:*** ⇒ hedging strategies

**hedge:** adopting an offsetting position to reduce (or eliminate) risk exposure

typically involves the creation of a position in the derivatives market to offset an existing risk in the cash market.



**hedger:** a person or firm who has a direct interest in the actual commodity or asset underlying the hedge instrument

*note:* by hedging, have reduced (eliminated) downside risk BUT have also reduced (eliminated) upside potential!

*note:* can have risk exposure either when hold the asset or when wish to acquire the asset (i.e., "long" position or "short" position).

*e.g., Coles 2020 Annual Report*

## 4.2 Financial risk management

The following note outlines the Group's exposure to and management of financial risks. These arise from the Group's requirement to access financing (bank loans and overdrafts), from the Group's operational activities (cash, trade receivables and payables) and from instruments held as part of the Group's risk management activities (derivative financial instruments).



The Group's financial risk management is carried out by the Group Treasury function and governed by the Board-approved Treasury Policy (the 'Policy'). The Policy strictly prohibits speculative positions to be taken.

Management of financial risks is undertaken by the Group in line with its risk management principles and includes the following key steps: risk identification, risk measurement, setting risk tolerances and hedging objectives, strategy design and strategy implementation.

The Policy requires periodic reporting of financial risks to the Board, and its application is subject to oversight from the Chief Financial Officer and the Chair of the Audit and Risk Committee.

The Policy allows the use of various derivatives to hedge financial risks and provides guidance in relation to volume and tenor of these instruments.

In the normal course of business, the Group is exposed to various risks as set out below:

| RISK | EXPOSURE | MANAGEMENT |
|---|---|---|
| **Market risks** | | |
| Interest rate risk | The Group's exposure to interest rate risk relates primarily to interest bearing liabilities where interest is charged at variable rates. | The Group manages interest rate risk by having access to both fixed and variable debt facilities. In line with the Group's policy, this risk is further managed by hedging a portion of the variable rate debt exposures with derivative financial instruments to convert floating rate debt obligations to fixed rate obligations. |
| Foreign exchange risk | The Group has exposure to foreign exchange risk principally arising from purchases of inventory and capital equipment denominated in foreign currencies. | To manage foreign currency transaction risk, the Group hedges material foreign currency denominated expenditure at the time of the commitment and hedges a proportion of foreign currency denominated forecast exposures (mainly relating to the purchase of inventory) through the use of forward foreign exchange contracts. |

**Foreign exchange risk**

The Group is primarily exposed to foreign exchange risk in relation to the United States dollar (USD), the Euro (EUR) and the British Pound (GBP). The Group considers its exposure to USD, EUR and GBP arising from purchases to be a long-term and ongoing exposure that is highly probable.

The table below sets out the total forward exchange contracts at the reporting date and the carrying value of the derivative asset / (liability) positions:

| | NOTIONAL VALUE | | CARRYING VALUE | | WEIGHTED AVERAGE HEDGE RATE | |
|---|---|---|---|---|---|---|
| BUY / SELL | 28 JUNE 2020 $M | 30 JUNE 2019 $M | 28 JUNE 2020 $M | 30 JUNE 2019 $M | 28 JUNE 2020 | 30 JUNE 2019 |
| USD / AUD | 72 | 63 | - | 1 | 0.69 | 0.71 |
| EUR / AUD | 411 | 420 | (20) | (13) | 0.58 | 0.58 |
| GBP / AUD | 46 | 1 | (1) | - | 0.54 | 0.55 |



At the reporting date, the Group has the following exposures to USD, EUR and GBP:



| | USD $M | | EUR €M | | GBP £M | |
|---|---|---|---|---|---|---|
| | 28 JUNE 2020 | 30 JUNE 2019 | 28 JUNE 2020 | 30 JUNE 2019 | 28 JUNE 2020 | 30 JUNE 2019 |
| **Financial assets** | | | | | | |
| Cash and cash equivalents | 4 | 2 | - | - | - | - |
| Forward exchange contracts | 49 | 45 | 237[1] | 242[1] | 25 | 6 |
| **Financial liabilities** | | | | | | |
| Trade and other payables | (63) | (39) | (21) | (16) | (5) | (2) |
| **Net exposure** | **(10)** | **8** | **216** | **226** | **20** | **4** |

1 EUR forward exchange contracts of $191 million (2019: $213 million) relate to capital commitments. The remaining contracts hedge current and future trade payables denominated in EUR.

## Foreign exchange rate sensitivity

At the reporting date, had the Australian dollar moved against the USD, EUR and GBP (with all other variables held constant), the Group's post-tax profit and OCI would have been affected by the change in value of its financial assets and financial liabilities.

The following sensitivities are based on the foreign exchange risk exposures in existence at the reporting date and the determination of reasonably possible movements based on management's assessment of reasonable fluctuations:



| | | POST-TAX PROFIT INCREASE (DECREASE): | | POST-TAX OCI INCREASE (DECREASE): | |
|---|---|---|---|---|---|
| RATE | CHANGE | 28 JUNE 2020 $M | 30 JUNE 2019 $M | 28 JUNE 2020 $M | 30 JUNE 2019 $M |
| AUD / USD | +10% | 2 | - | (1) | (1) |
| | -10% | (2) | - | 1 | 1 |
| AUD / EUR | +10% | - | (1) | (22) | (23) |
| | -10% | - | 1 | 27 | 28 |
| AUD / GBP | +10% | - | - | (2) | - |
| | -10% | - | - | 3 | - |

## Interest rate risk

At the reporting date, the Group has the following financial assets and liabilities exposed to variable interest rate risk that, with the exception of interest rate swaps, are not designated as cash flow hedges:

| | 28 JUNE 2020 | | 30 JUNE 2019 | |
|---|---|---|---|---|
| | EXPOSURE $M | WEIGHTED AVERAGE INTEREST RATE % | EXPOSURE $M | WEIGHTED AVERAGE INTEREST RATE % |
| **Financial assets** | | | | |
| Cash at bank and on deposit | 452 | 0.1 | 410 | 1.6 |
| **Financial liabilities** | | | | |
| Bank loans | (760) | (1.3) | (1,460) | (2.4) |
| *Less*: interest rate swaps (notional principal amount) | 250 | (1.6) | 400 | (0.4) |
| **Net exposure to cash flow interest rate risk** | **(58)** | | **(650)** | |



### Interest rate sensitivity

A 100 basis point increase represents management's assessment of the reasonably possible change in interest rates. Based on the variable interest rate exposures in existence at the reporting date, if interest rates increased by 100 basis points, with all other variables held constant, the impact would be:

| | POST-TAX PROFIT INCREASE (DECREASE): | | POST-TAX OCI INCREASE (DECREASE): | |
|---|---|---|---|---|
| | 28 JUNE 2020 $M | 30 JUNE 2019 $M | 28 JUNE 2020 $M | 30 JUNE 2019 $M |
| **Impacts of reasonably possible movements:** | | | | |
| +1.0% (100 basis points) | - | (5) | 6 | 8 |

*e.g., Qantas 2020 Annual Report*

## 27 FINANCIAL RISK MANAGEMENT

### (A) RISKS

The Qantas Group is subject to financial risks which are an inherent part of the operations of an airline. The Qantas Group manages these risk exposures using various financial instruments, governed by a set of policies approved by the Board. The Qantas Group's policy is not to enter into, issue or hold derivative financial instruments for speculative trading purposes.

The Qantas Group uses different methods to assess and manage different types of financial risk to which it is exposed. These methods include correlations between risk types, sensitivity analysis in the case of interest rate, foreign exchange and other price risks, and ageing analysis and sensitivity analysis for liquidity and credit risk. A summary of these risks has been presented below:



| | | |
|---|---|---|
| Interest Rate Risk | Fluctuations in the fair value or future cash flows of a financial instrument because of changes in market interest rates. | Floating versus fixed rate debt framework, interest rate swaps, forward rate agreements and options. |
| Foreign Exchange Risk | Fluctuations in the fair value of future cash flows or assets/liabilities denominated in a currency other than AUD because of changes in foreign exchange rates. | Forward foreign exchange contracts, currency options, cross-currency swaps and designation of non-derivative foreign currency liabilities in a cash flow hedge relationship. |
| Fuel Price Risk | Exposure of future AUD fuel to unfavourable USD-denominated price movements and foreign exchange movements. | **USD price** – options and swaps on jet kerosene, gasoil and crude oil.<br>**Foreign exchange risk** – foreign exchange contracts and currency options. |

### iii. Foreign Exchange Risk

*Nature of the risk:*

Foreign exchange risk arises from future commercial transactions and recognised assets and liabilities denominated in a currency that is not the functional currency of the Group. The Group operates internationally and is exposed to foreign exchange risk, primarily the US dollar. The source and nature of this risk arises from operations, capital expenditure and revaluation risk. The revaluation risk primarily exists in interest bearing liabilities, lease liabilities and other financial assets and liabilities. The Group hedges foreign exchange risk with the objective of minimising volatility of the Australian currency cost of highly probable forecast purchases and disposals of property, plant and equipment and other revenue and operating expenditures. Foreign exchange losses/(gains) for the year ended 30 June 2020 was ($46) million (2019: $130 million).

*Management of foreign exchange risk:*

Forward foreign exchange contracts and currency options are used to hedge a portion of net foreign currency exposures in accordance with Qantas Group policy. Net foreign currency exposures, including foreign currency purchases and disposals of property, plant and equipment, may be hedged out to two years within specific parameters. Any hedging outside these parameters requires approval by the Board. For the year ended 30 June 2020, other financial assets and liabilities included derivative financial instruments relating to the hedging of future capital expenditure payments totalling $15 million (net asset) (2019: $16 million (net asset)) and relating to the hedging of future operating expenditure payments totalling $15 million (net asset) (2019: nil). These are recognised at fair value.



Non-derivative financial liabilities including interest-bearing liabilities and lease liabilities are designated in a cash flow hedge relationship to hedge forecast foreign currency revenue. These interest-bearing liabilities and lease liabilities have a maturity between one and 7 years. To the extent a foreign exchange gain or loss is incurred, and the cash flow hedge is deemed effective, this is deferred until the revenue is realised. As at 30 June 2020, total unrealised foreign exchange losses on hedges of revenue designated to non-derivative financial liabilities was $3 million (2019: nil).

*Sensitivity to foreign exchange risk:*

| | Profit Before Tax | | Equity (Before Tax)[1] | |
|---|---|---|---|---|
| $M | 2020 | 2019 (restated) | 2020 | 2019 (restated) |
| **20% movement in Foreign Exchange Risk[2,3]** | | | | |
| 20% (2019: 20%) USD depreciation | (68) | (249) | (373) | (114) |
| 20% (2019: 20%) USD appreciation | 99 | 379 | 610 | 156 |

1. Equity (Before Tax) does not include sensitivity recognised in Profit/(Loss) Before Tax.
2. Sensitivity analysis assumes hedge designations as at 30 June 20 remain unchanged. Sensitivity analysis on foreign currency pairs of 20 per cent represent recent volatile market conditions.
3. Sensitivity analysis includes foreign currency interest-bearing liabilities, lease liabilities and derivatives.

### iv. Fuel Price Risk

*Nature of the risk:*
Exposure of future AUD fuel costs to unfavourable USD-denominated price and foreign exchange movements.

*Management of future AUD fuel costs risk:*
The Qantas Group uses options and swaps on jet kerosene, gasoil and crude oil to hedge exposure to movements in the USD price of aviation fuel. Qantas considers the crude component to be a separately identifiable and measurable component of aviation fuel. In identifying this component, the Group considers long-term correlation levels between crude hedging products and the underlying jet fuel exposure. The foreign exchange risk in the total fuel cost is separately hedged using foreign exchange contracts and currency options. Hedging is conducted in accordance with Qantas Group policy. Fuel consumption out to two years may be hedged within specific parameters, with any hedging outside these parameters requiring approval by the Board. For the year ended 30 June 2020, other financial assets and liabilities included fuel and foreign exchange derivatives totalling $57 million (net liability) (2019: $286 million (net asset)). These are recognised at fair value.



*Sensitivity to foreign exchange and fuel price risk:*

| | Profit Before Tax | | Equity (Before Tax)[1] | |
|---|---|---|---|---|
| $M | 2020 | 2019 | 2020 | 2019 |
| **20% movement in AUD fuel costs[2]** | | | | |
| 20% (2019: 20%) USD depreciation, 20% (2019: 20%) increase per barrel in fuel indices | 41 | - | 30 | 322 |
| 20% (2019: 20%) USD appreciation, 20% (2019: 20%) decrease per barrel in fuel indices | (29) | - | 42 | 93 |

1. Equity (Before Tax) does not include sensitivity recognised in Profit/(Loss) Before Tax.
2. Sensitivity analysis assumes hedge designations as at 30 June 2020 remain unchanged. Sensitivity analysis on foreign currency pairs and fuel indices of 20 per cent represent recent volatile market conditions. Sensitivity analysis assumes an offset between USD and fuel price indices based on observed market movements.

## PART 5 – ‘strategy analysis’ → ‘understanding the business’

Penman presents on possible structure (template) in Figure 3.1 (page 85) around ‘the process of fundamental analysis’

**Step #1 Knowing the business**

□

**Step #2 Analyzing information**

□

**Step #3 Forecasting payoffs**

□

**Step #4 Converting forecasts to valuation**

□

**Step #5 Trading on valuation**

The final three steps of the basic process are relatively "straightforward" or non-contentious

For example, Step #3 basically involves interpretation of the information developed in the first two steps and then its transformation/translation into the pro-forma financial statements.



The process can be considered 'relatively "straightforward" and non-contentious' because, while it involves considerable subjective judgment (***the 'art'***), the objective / purpose of the exercise (pro-forma statements) is well-defined and unambiguous





➡ development of the 'pro forma' financial statements through to the forecast horizon

- ✓ the heart of good valuation is good forecasting (***'Good Forecasts'***)
- ✓ forecasts are only as good as the information supporting them

**NOTE:** *the ultimate objective of the processes in Steps #1 and #2 is then to gain the knowledge and understanding necessary to develop the pro-forma financial statements (as inputs into the estimation of value using the fundamental valuation models)*

**Step #1 Knowing the business**

- ❑ the products
- ❑ the knowledge base
- ❑ the competition
- ❑ the regulatory constraints



**Step #2 Analyzing information**

- ❑ in financial statements
- ❑ outside financial statements

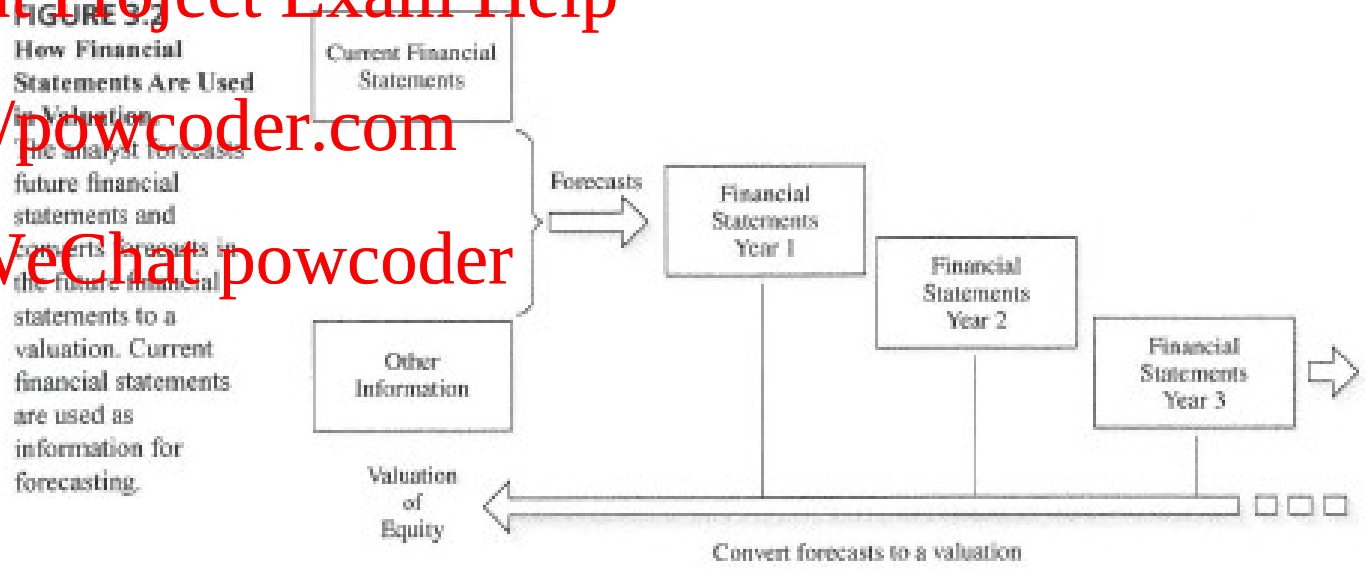



FIGURE 9.2 How Financial Statements Are Used in Valuation. The analyst forecasts future financial statements and converts forecasts of the future financial statements to a valuation. Current financial statements are used as information for forecasting.

there are a number of different strategies (structures or processes) to guide the acquisition of the information

for example, consider the following two presentations (generically labeled A and B) which are virtually identical in substance, if not in form



*note*, while each of these presentations is couched in terms of how a firm might evaluate its own current position and then shape an appropriate response strategy, they can alternatively be viewed as providing the external analyst with a "checklist" from which to develop an indepth understanding of the firm, its current circumstances, and its prospects

***Approach A –***

*Motivation* – to add value for stakeholders (EVA = difference between the value of a firm's outputs and the value of its inputs)

*External Analysis* – evaluation of the business environment

- business strategy consists of
  - corporate level strategy
  - competitive (business level) strategy
  - functional (operations level) strategy



➢ analysis of the business environment

⇒ analyze conditions outside the firm to assess opportunities and threats

- the general environment
- the industry

- general environment – PEST analysis

*political forces*
e.g., trade liberalization and emergence of trade blocs

*economic forces*
e.g., world and local economic changes; wage differentials; exchange rate movements



*social changes*
e.g., as caused by advances in transport & communications
→ global products

*technological change*
e.g., computers, satellites, ceramic superconductor

- analyzing the firm's industry environment

  ⇒ Porter's five forces model

  the bargaining power of suppliers

  the bargaining power of the buyers

  the threat of potential new entrants

  the threat of substitutes

  the extent of competitive rivalry

*Internal Analysis*

Value chain (Porter) – breaks activities of an organization into

- primary activities → creating products, marketing, sales & service
- support activities → inputs allowing primary activities to occur



- looks inside the firm to assess its internal strengths and weakness



- is performed to identify strengths to build on and weaknesses to overcome in building strategies for competitive advantage



- identifying / building
  - core competencies or distinctive capabilities
    e.g., innovation, reputation, and/or business relationships
  - strategic assets

- methods for assessing internal strengths and weakness
  - ✓ the balanced scorecard
    - ➔ examines all aspects of the organization's activities that impact on the 'bottom line'



Financial

Customer

Operations

Organizational

✓ SWOT analysis

- strengths, weaknesses, opportunities, and threats

- strengths and weaknesses based on the internal analysis

- opportunities and threats based on the external analysis



⇒ a potentially useful way of drawing together the analysis of the external environment and the analysis of (internal) resources

***Approach B –***

*I. Situational Analysis*

- **General external environment**
  - ✓ political / legal
  - ✓ sociolcultural
  - ✓ technological
  - ✓ demographic
  - ✓ global

- **Industry analysis (Porter's five forces)**
  - ✓ threat of new entrants and barriers to entry
  - ✓ intensity of rivalry among competitors
  - ✓ product substitutes
  - ✓ suppliers
  - ✓ buyers

- **Competitive environment analysis**
  - ✓ are other companies developing similar products?
  - ✓ what resources do potential competitors have?

- **Environmental trends**
  - ✓ attractiveness of external (market) environment

## ➢ Strategic analysis

*1. key success factors*

e.g., first mover advantage; marketing & distribution capabilities; production efficiencies

*2. strategies*

- business level — e.g., high price strategy; market penetration strategy
- competitive strategy — e.g., first mover into industry
- corporate level — e.g., diversification into new areas; core business



*3. core competencies*

- resources
  - ❖ tangible - financial; physical; human
  - ❖ intangible - resources for innovation; reputation
- capabilities
  - ❖ operations
  - ❖ marketing and sales
  - ❖ management
  - ❖ technology

## *II. SWOT*

- *Strengths e.g.,*
  - ✓ product development
  - ✓ professional network
  - ✓ management
- *Opportunities e.g.,*
  - ✓ develop additional products
  - ✓ expand into new markets
- *Weaknesses e.g.,*
  - ✓ marketing and/or distribution
  - ✓ production
  - ✓ experience with product
- *Threats e.g.,*
  - ✓ regulatory hurdles
  - ✓ rivals with similar products
  - ✓ competency of competition