Week 3 - Analyse Corporate Performance 1:

OBJECTIVES:

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- Introduce the tools for analysing corporate performance

DO LIST
- Identify users of financial statements
- Explain effects of different accounting policies
- Calculate profitability, efficiency, leverage and capital market ratios
- Analyse profitability using growth rates
- Analyse asset utilisation and capitalisation
- Understand differences between DuPont analysis and ROIC tree
- Analyse a company using market ratios
- Analyse return versus risk performance ratios
- Comparative and cross-border ratio analysis

Users of financial statements:

- Customers (want to buy from strong companies), suppliers (G&S capital), financiers (debt holders, equity holders), employees (supply labour)

Review of financial statements

- Statement of earnings
- Statement of financial position (balance sheet)
- Statement of cash flows
- Statement of changes in shareholders equity
- Footnotes

Facts to consider:

- All information is historical
- Subject to accounting principles
    - Inventory methods
    - Purchase accounting
    - Lease accounting
    - Revenue recognition
- Results may be affected by seasonality (e.g. Holidays)

Inventory methods (Different income and inventory value):

- LIFO vs FIFO effect:

	FIFO	LIFO	Average Cost
Buy 10@$10	100	100	100
Buy 10@$15	150	150	150
Inventory value	250	250	250
Use 10 and sell	-100	-150	-125
Inventory value	150	100	125
Revenue	250	250	250
COGS	100	150	125
INCOME	150	100	125

RATIOS:

Profitability ratios:

Return on sales (A.K.A net profit margin)	$\frac{Net\ income}{Net\ sales}$	- Amount left from each $ of sales for owners - Each industry has different avg - Can change over time, vary with business cycle - Financial analyst must know the nature of the business to interpret ratios - not just report them
Gross Margin	$\frac{Gross\ profit}{Net\ sales}$	- Shows amount used to cover costs of producing - For every $ of sales, ___ went towards paying for supply - Relates to cost of supply (COGS)
Operating profit margin	$\frac{Operating\ pr}{Net\ sales}$	- All expenses except tax - For every $ of sales ___ went towards COGS and exp.
EBIT ratio	$\frac{Earnings\ before\ interest\ \&\ taxes}{Net\ sales}$	- Profitability before financing and taxes
EBITDA ratio	EBITDA / Sales	- Proxy for cash earnings - Accounts for depreciation and amortisation - Eliminates outside influence on profitability

Profitability using growth rates:

- **Shows How rapidly is there growth in:**
  - Revenues (top line)
  - Expenses
  - Net income (bottom line)
- **Easy to see change in each item**
  - High credit exp not necessarily bad since credit sales can be responsible for growth
- **Changes in numbers may be misleading year to year if expansion or acquisition**
  - One way to fix → look at same store sales
- **Inflation can distort growth rates**
  - Nominal growth rates include inflation
  - Real growth rates subtract inflation
- **How do we remove inflation?** → subtract that % from growth
- **Is it important?**
  - Not important when low.
  - When high → affects specific categories such as wages, prices of supplies

Can examine profitability related to any variable:

- ROA, ROE, ROS, Return per employee, return per location
- Net income used as 'return'

Asset utilization ratios:

- How effectively or efficiently a firm uses its assets

Asset turnover	$\frac{Net\ sales}{Assets}$	Which asset number to use? - If stable then year end (y/e) - If changes in the year then avg number is better Interpretation depends on the industry: - Capital intensive industry vs. labour intensive
Inventory turnover	$\frac{Cost\ of\ sales}{Inventory}$	- How many times the inventory turnover - Discount retailer → usually fast - Luxury goods → usually slower - Depends on profit margin per item - Compare industry average to competitors - Inventory change during year → use average - Inventory valuation can affect ratio
Day's inventory	$\frac{Inventory}{Cost\ of\ sales} \times 365$	How many days it takes to turnover
Accounts receivable to net sales	$\frac{Accounts\ receivable}{Net\ sales}$	Percentage of AR that makes up NP
AR Days' sales outstanding	$\frac{Accounts\ receivable}{Net\ sales} \times 365$	How many days sales is left
Accounts payable to purchases	$\frac{Accounts\ payable}{Cost\ of\ sales}$	Ratio of total accounts left to pay out of all costs
Payables payment period	$\frac{Accounts\ payable}{Cost\ of\ sales} \times 365$	How many days it takes to pay back costs

Capitalization ratios:

Capitalisation or financial ratios:

- Sources of the financing
- Leverage is good when return on assets is higher than cost of debt
- but if return on assets is higher than cost of debt, leverage can magnify the losses
    - Variability in ROA is a key determinant of how much leverage a company uses

Financial leverage	$\frac{Assets}{Shareholders}$ - Aff assets to equity ratio is 100%, then all equity financed - Higher the ratio, the higher the leverage

Some direct rations	Calculate ratios directly: $\Rightarrow \frac{Long-term\ debt}{Equity}$ $\Rightarrow \frac{Long-term\ debt}{Assets}$ $\Rightarrow \frac{Long-term\ debt}{Long-term\ debt+Equity}$
Liquidity ratios	- If leverage is a concern, can they pay their most immediate obligations? **Current ratio:** $\frac{Current\ assets\ -inventories}{Current\ liabilities}$ **Acid-test ratio/quick ratio:** $\frac{Current\ assets\ -inventories}{Current\ liabilities}$ $\frac{Cash\ and\ marketable\ securities+Accounts\ receivables}{Current\ liabilities}$
Coverage ratios/debt service ratios	**EBIT coverage** $\frac{Earnings\ before\ interest\ and\ taxes}{Interest\ expense}$ **Cash flow coverage** $\frac{EBIT+Depreciation}{Interest\ expense}$ **Debt service coverage** $\frac{EBIT}{Interest+[Principal\ payments/(1-Tax\ rate)]}$

<u>Understanding profitability:</u>

<u>Need to understand:</u>
- Company strategy → what is its competitive advantage
- Industry it operates in → how does this compare to other companies in different industries

<u>Current financial statements:</u>
- Time-series trends-changes in businesses (geographical, products, customers)
- Cross-sectional-be careful with industry analysis since some variation is expected, but are the differences significant?

- Put everything together then add your insight:

<u>Dupont analysis:</u>
- Combines profitability, asset utilisation and leverage to have a comprehensive view of a firm's performance

Limitations:

- **Asset utilisation ratio** includes Total assets and not the amount actually invested in the company

$$ROE = \frac{\text{Net Income}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Equity}}$$

- **ROA** is a mixed measure of shareholder profit and total assets

$$ROA = \frac{\text{Net Income}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Total Assets}} = \frac{\text{Net Income}}{\text{Total Assets}}$$

DuPont Analysis: sustainable growth rate:

- An extension of the DuPont analysis could be used to measure the maximum rate a company can grow using internally generated funds

$$ROE = \frac{\text{Net Income}}{\text{Equity}} \quad \text{Dividends} + \text{Retained Earnings}$$

$$DPO = \text{Dividend Payout} = \frac{\text{Dividends}}{\text{Net Income}}$$

$$\text{Retention Rate} = \frac{\text{Retained Earnings}}{\text{Net Income}}$$

$$\text{Retention Rate} = 1 - DPO$$

- **Sustainable growth rate:** Increases when profitability, asset efficiency and retention rate increases

$$SGR = \frac{\text{Net Income}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Equity}} \times \frac{\text{Retained Earnings}}{\text{Net Income}}$$

Profitability × Asset efficiency × Leverage × Profit retention

ROIC Tree:

- Combines profitability and asset utilisation to have a comprehensive view of a firm's operating performance

INSERT DIAGRAM

$$ROIC = \frac{\text{EBITA}}{\text{Revenue}} \times (1 - Operating\ Tax\ Rate) \times \frac{\text{Revenue}}{\text{Invested Capital}}$$

- Analyses actual operating profitability
- Requires reordering items in the balance sheet to calculate Invested Capital
- Operating Taxes recognises actual tax rate paid by the firm (not the statutory tax rate)
- Additional analysis is required to account for solvency, leverage and liquidity

Factors that explain the differences in Operating Returns between industries:

- Factors: operating leverage, cyclicality of sales, product life cycle
- Industry operating Return
- Influences on Operating Return

Operating Leverage:

- Explained by fixed vs variable costs
    - A company with higher FC, will need to generate higher level of sales to cover the FC
    - Once costs are covered, then increase in profit margin, since FC spread over larger # units
    - More risk since shortfall means FC may not be covered
- Must understand the industry and the company to understand the Fixed/Variable cost structure
    - Study cost items in a firm and estimate the fixed/var%
    - Identify the items that are likely to be committed Fixed Costs

Cyclicality of sales:

- Certain G&S are more sensitive to the economy
- May be naturally high level of fixed costs
    - May be resolved by using VC (contract employees, ST leases)
    - May manage non-cyclical sales to ensure level of demand doesn't change (off-peak pricing)

Product life cycle:

- 4 stages: Introduction, Growth, Maturity, Decline
    - Recall R&D/investment spending, pricing, profitability and cash flow generation are different in each stage
- Operating return:
    - Negative in introduction
    - Increasing and positive in growth
    - Flat and positive in maturity
    - Decreasing and eventually negative in decline

Industry operating return:

High operating return/Low asset turnover:

- Hotels, utilities and gas exploration, communication, health services, amusements

Medium operating return/medium asset turnover:

- Printing, petroleum, airlines, personal services, manufacturing, restaurants

Low operating return/high asset turnover:

- retailer , wholesalers, grocery stores

Influences on Operating return:

Length of product life cycle can impact on risk

- Some products could become obsolete (fashion, pharmaceuticals, technology)

Heavy fixed capacity costs

- Usually entry barrier
- Operating return limitation

Heavy competition:

- Profit margin limitation

Trade off between profit margin and asset turnover:

- What strategy will the company choose: low cost leader? Or product differentiator

Market Ratios:

- On a per share basis (most)

Earnings per share (EPS)	$\frac{Net\ income}{Number\ of\ shares\ outstanding}$
Price/earnings ratio	How much are investors willing to pay for one dollar's worth of earnings? $\frac{Price\ per\ share}{Earnings\ per\ share}$
Market Price/EBIT	$\frac{Market\ price\ per\ share}{EBIT\ per\ share}$
Market Price to EBITDA	$\frac{Market\ price\ per\ share}{EBITDA\ per\ share}$

Market price/sales	$\frac{Market\ price\ per\ share}{Sales\ per\ share}$
Market price/cash flow	$\frac{Market\ price\ per\ share}{Earnings\ per\ share + Noncash\ charges\ per\ share}$
Market-to-book value	$\frac{Market\ value\ per\ share}{Book\ value\ per\ share}$
Dividend yield	$\frac{Dividends\ per\ share}{Market\ price\ per\ share}$

Other ratios:

Return versus risk performance ratios	Spread = Return on equity – Required return on equity - Return on equity often adjusted for non-cash accruals like depreciation - Compare with market-to-book ratio - Higher the spread, higher the market-to-book EVA® analysis EVA = Invested capital × (ROIC – WACC) Where EVA = Economic Value Added ROIC = Return On Invested Capital WACC = Weighted Average Cost of Capital *ROIC = NOPLAT / beginning of year invested capital* *NOPLAT = earnings before interest charges and before non cash charges*

Comparative ratio analysis	- Many ratios - critical item is the analyst's interpretation
	- Compare across:
	  - Time periods
	  - Companies in the same industry
	  - Average performance in the industry
	  - Companies in other industries
	- Be able to explain the differences

Cross-border ratio analysis	- Measurement differences between countries make ratio and performance comparisons difficult:
	  - Due to measurement options permitted by GAAP
	  - Due to differences in management discretion
	  - Due to differences in financial statement orientation, i.e creditor vs. shareholder
	  - Due to objectives of financial statements: i.e. oriented toward more macro decisions vs. micro decisions
	- Differences in corporate transparency make it difficult: to comprehend what measurement rules are being followed
	- Auditing differences affect the credibility of reported numbers