

ACC 1701XA

Accounting for Decision Makers

LECTURE 12

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Accounting

The language of the business world



All the good stuff we have learnt so far...

(Lecture 1-11 Quick Refresher)

- 1) $\text{Assets} = \text{Liabilities} + \text{Equity}$
- 2) Debit (left) /Credit (right) : T-accounts & journal entries
 - Asset increase on debit, Liabilities & Equity increase on credit
 - Revenue increase on credit, expenses increase on debit
- 3) Accrual accounting : adjusting journal entries (AJEs) to put revenues & expenses in the right period
- 4) Preparing FS using adjusted trial balance & Closing the books:
 - Income Statement → Statement of Changes in Equity → Statement of Financial Position
 - Close temporary accounts (revenues, expenses & dividends) to Retained Earnings
- 5) Financial Statements Integrity & Cash:
 - Fixing errors in financial statements
 - Internal Controls
 - Buying & Selling: Discounts & Returns



All the good stuff we have learnt so far...

(Lecture 1-11 Quick Refresher)

6) Receivables, ECL (expected credit loss) & Loss Allowance

- Target ending balance of allowance account (AR aging analysis)
 - Use movements in the allowance account (beg bal, write-offs) to figure out the period's ECL.
- Write-offs reduces allowance account – does not affect NI!

7) Inventory:

- Perpetual basis (directly record purchases/discounts/COGS etc... into Inventory) vs. Periodic basis (COGS is calculated at period end using COGS equation)
- Cost of inventory methods: FIFO, Units of production, Average weighted
- Take note of calculation for average weighted method for perpetual basis

8) Current Liabilities

- Known liabilities, estimated liabilities (warranty), contingent liabilities

All the good stuff we have learnt so far...

(Lecture 1-11 Quick Refresher)

9) PPE (Long Term Assets):

- Tangibles: Depreciate using straight line, units of production or declining balance
- Change in depreciation estimates – recalculate depreciation moving forward.
- Intangibles: Amortize using straight line for intangibles with definite life

10) Equity:

- Issuance of shares: Ordinary shares & Preferred shares
- Par value vs No Par value shares
- Repurchase shares → Treasury shares
- Dividends: Calculation of dividends to Preference (cumulative) & Ordinary shareholders.

11) Statement of Cash Flows

- Cash Flows from Operations (CFO) – Indirect Method
- CFI & CFF
- Patterns of SCF



Chapter 15

Bringing it all together!



**We are going to learn how to use all the good stuff
that we have learnt from the last 11 lectures to
analyze financial statements!**

Goals for Lecture 10

Financial Statement Analysis

- Why do we need FSA? (LO1)
 - Building blocks of analysis
- Types of Analysis:
 - Vertical Analysis (LO2)
 - Horizontal Analysis (LO2)
 - Financial Ratios Analysis (LO3)
 - DuPont Analysis (LO4)
- Limitation of FSA (LO5)

Financial Statement Analysis (FSA)

RECAP

- **Financial statements are not created from a void** - It is a reflection of a company's strategy and decisions and the results of implementing those decisions.
- Analyzing financial statement involves:
 - Examining relationship between the financial numbers and the trends of those numbers
 - Examining relationship between various financial statement amounts
- FSA is used for:
 - (1) Diagnostic purposes – helps users to evaluate and identify problems in a company
 - (2) Prognostic purposes – helps users to predict future performance of a company based on its past performance



Building Blocks of Financial Analysis

RECAP

- 4 main elements of a company's financial performance for analysis:



Standards for Comparison

RECAP

- **Financial statements cannot be evaluated in isolation.**

- It needs to be compared to appropriate benchmarks/standards:

(1) Intracompany - Time series analysis

- Examines a single company to identify trends **over time**. Comparing to its own prior performance.
- E.g. Looking at the trend of sales growth from year to year

(2) Comparison with similar companies (competitors)

- Comparing to a competitor in the same industry can provide insights concerning a company's relative performance, because companies in the same industry are exposed to the same industry factors.

(3) Industry benchmarks

- Industry statistics can provide standards of comparisons (e.g. Dun & Bradstreet, Standard & Poor's, and Moody's)

FSA Analysis Tools

3 common types of financial statement analysis:

- (1) **Vertical analysis** – compares company's performance to a base amount
- (2) **Horizontal analysis** – compares company's performance across time
- (3) **Ratio analysis** - measures the proportional relationship between two or more financial statement numbers.
 - DuPont Analysis – a framework used to decompose ROE ratio.



#1 Vertical Analysis

Common-size Statements

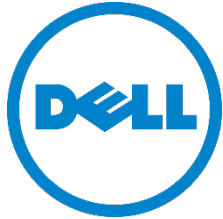
- Common-size Statements express each item on the financial statement as a percentage of a single base amount.
 - Also known as Component Percentages

$$\text{Common-size Percent} = \frac{\text{Analysis amount}}{\text{Base amount}} \times 100$$

- For the balance sheet, the base amount is **total assets** (i.e. each balance sheet item is thus divided by the total assets)
- For the income statement, the base amount is **net sales revenue**.

Real FS – Dell

Common Size Income Statement




Income Statement

Common-size Income Statement

	2-Feb-24	3-Feb-23	28-Jan-22	29-Jan-21	2-Feb-24	3-Feb-23	28-Jan-22	29-Jan-21
Revenue								
Products	64,353	79,250	79,830	67,744	72.8%	77.5%	78.9%	78.2%
Services	24,072	23,051	21,367	18,926	27.2%	22.5%	21.1%	21.8%
Total Revenue	88,425	102,301	101,197	86,670	100.0%	100.0%	100.0%	100.0%
Cost of Revenue								
Products	-53,316	-66,029	-67,224	-56,431	(60.3%)	(64.5%)	(66.4%)	(65.1%)
Services	-14,240	-13,586	-12,082	-10,099	(16.1%)	(13.3%)	(11.9%)	(11.7%)
Total Cost of Revenue	-67,556	-79,615	-79,306	-66,530	(76.4%)	(77.8%)	(78.3%)	(76.8%)
Gross profit	20,869	22,686	21,891	20,140	23.6%	22.2%	21.7%	23.2%
Selling, general & admin expenses	-12,857	-14,136	-14,655	-14,000	(14.5%)	(13.8%)	(14.5%)	(16.2%)
R&D	-2,801	-2,779	-2,577	-2,455	(3.2%)	(2.7%)	(2.5%)	(2.8%)
Operating Profit	5,211	5,771	4,659	3,685	5.9%	5.7%	4.7%	4.2%
Interest expense & other	-1,324	-2,546	1,264	-1,339	(1.5%)	(2.5%)	1.2%	(1.5%)
Income Tax Expense / benefit	-692	-803	-981	-101	(0.8%)	(0.8%)	(1.0%)	(0.1%)
Income from discontinued operations	0	0	765	1,260	0.0%	0.0%	0.8%	1.5%
Profit for the year	3,195	2,422	5,707	3,505	3.6%	2.4%	5.7%	4.1%

Real FS – Samsung

Common Size Income Statement

	In KRW	Income Statement				Common-size Income Statement			
		31-Dec-24	31-Dec-23	31-Dec-22	31-Dec-21	31-Dec-24	31-Dec-23	31-Dec-22	31-Dec-21
Total Revenue		300,870,903	258,935,494	302,231,360	279,604,799	100.0%	100.0%	100.0%	100.0%
Cost of Sales		-186,562,268	-180,388,580	-190,041,770	-166,411,342	(62.0%)	(69.7%)	(62.9%)	(59.5%)
Gross profit		114,308,635	78,546,914	112,189,590	113,193,457	38.0%	30.3%	37.1%	40.5%
Selling and admin expenses		-81,582,674	-71,979,938	-68,812,960	-61,559,601	(27.1%)	(27.8%)	(22.8%)	(22.0%)
Operating Profit		32,725,961	6,566,976	43,376,630	51,633,856	10.9%	2.5%	14.3%	18.5%
Other non-operating income		1,960,338	1,180,448	1,962,071	2,205,695	0.7%	0.5%	0.6%	0.8%
Other non-operating expense		-1,625,229	-1,083,327	-1,790,176	-2,055,971	(0.5%)	(0.4%)	(0.6%)	(0.7%)
Share of associates & jv net profit		751,044	887,550	1,090,643	729,614	0.2%	0.3%	0.4%	0.3%
Financial income		16,703,304	16,100,148	20,828,995	8,543,187	5.6%	6.2%	6.9%	3.1%
Financial expense		-12,985,684	-12,645,530	-19,027,689	-7,704,554	(4.3%)	(4.9%)	(6.3%)	(2.8%)
Income tax / benefit		-3,078,383	4,480,835	9,213,606	-13,444,377	(1.0%)	1.7%	3.0%	(4.8%)
Profit for the year		34,451,351	15,487,100	55,654,080	39,907,450	11.6%	5.9%	18.4%	14.3%

Real FS – Apple

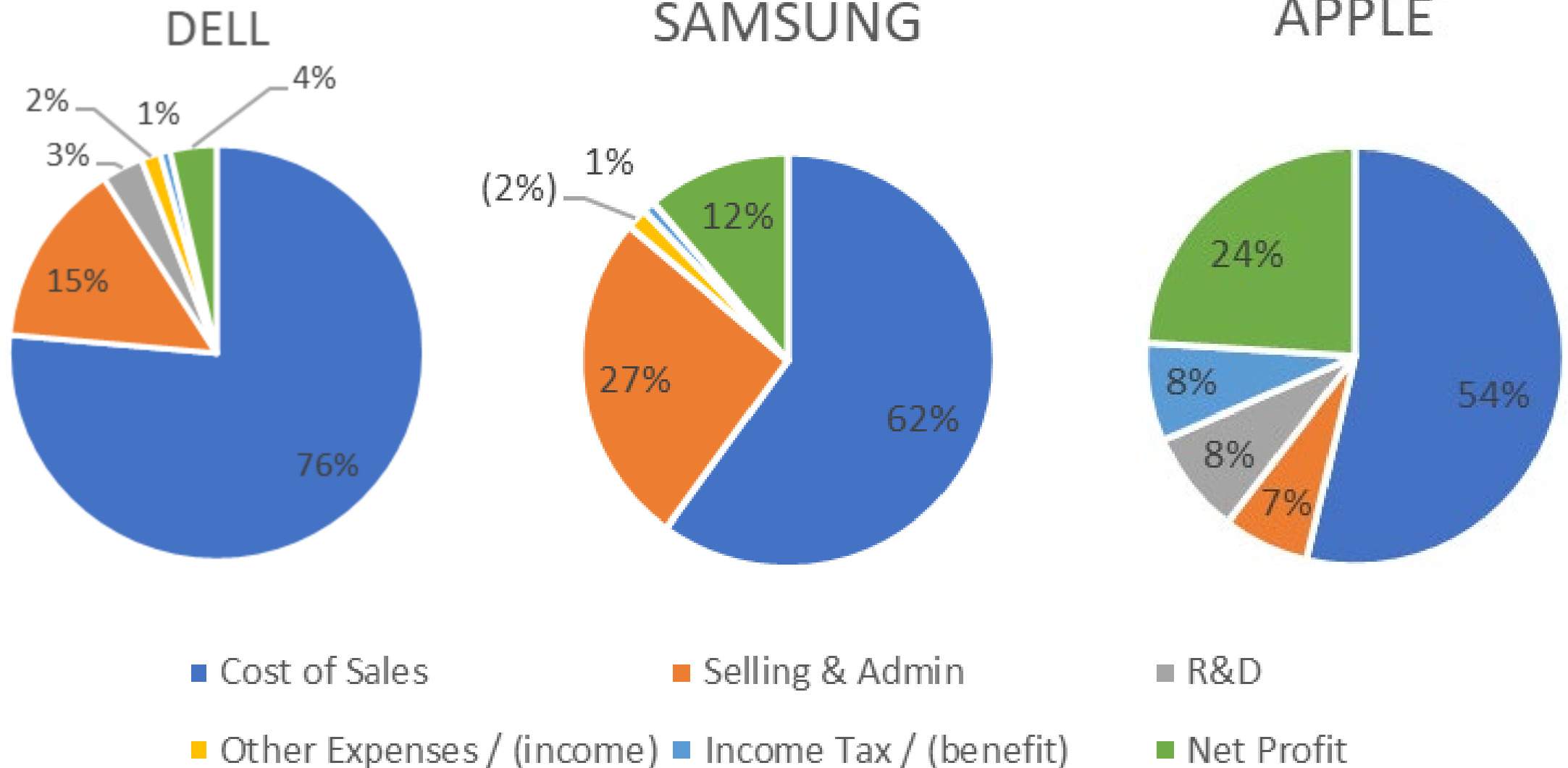
Common Size Income Statement



	Income Statement				Common-size Income Statement			
	28-Sept-24	30-Sept-23	24-Sept-22	25-Sept-21	28-Sept-24	30-Sept-23	24-Sept-22	25-Sept-21
Revenue								
Products	294,866	298,085	316,199	297,392	75.4%	77.8%	80.2%	81.3%
Services	96,169	85,200	78,129	68,425	24.6%	22.2%	19.8%	18.7%
Total Revenue	391,035	383,285	394,328	365,817	100.0%	100.0%	100.0%	100.0%
Cost of Revenue								
Products	-185,233	-189,282	-201,471	-192,266	(47.4%)	(49.4%)	(51.1%)	(52.6%)
Services	-25,119	-24,855	-22,075	-20,715	(6.4%)	(6.5%)	(5.6%)	(5.7%)
Total Cost of Revenue	-210,352	-214,137	-223,546	-212,981	(53.8%)	(55.9%)	(56.7%)	(58.3%)
Gross profit	180,683	169,148	170,782	152,836	46.2%	44.1%	43.3%	41.7%
Selling, general & admin expenses	-26,097	-24,932	-25,094	-21,914	(6.7%)	(6.5%)	(6.4%)	(6.0%)
R&D	-31,370	-29,915	-26,251	-21,973	(8.0%)	(7.8%)	(6.7%)	(6.0%)
Operating Profit	123,216	114,301	119,437	108,949	31.5%	29.8%	30.2%	29.7%
Other income / (expense)	269	-565	-334	258	0.1%	(0.1%)	(0.1%)	0.1%
Income Tax	-29,749	-16,741	-19,300	-14,527	(7.6%)	(4.4%)	(4.9%)	(4.0%)
Profit for the year	93,736	96,995	99,803	94,680	24.0%	25.3%	25.2%	25.8%

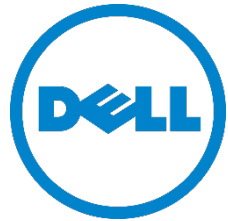
Common Size Graphic - IS

Dell vs. Samsung vs. Apple (FYE 2024)



Real FS – Dell

Common Size SFP



Statement of Financial Position

Common-size SFP

2-Feb-24

3-Feb-23

28-Jan-22

2-Feb-24

3-Feb-23

28-Jan-22

Assets

Cash and marketable securities

7,366

8,607

9,477

9.0%

9.6%

10.2%

AR

9,343

12,482

12,912

11.4%

13.9%

13.9%

Inventories

3,622

4,776

5,898

4.4%

5.3%

6.4%

Other Current Assets

15,616

16,486

16,746

19.0%

18.4%

18.1%

PPE

6,432

6,209

5,415

7.8%

6.9%

5.8%

Goodwill & Intangibles

25,401

26,144

27,231

30.9%

29.2%

29.4%

Other Non Current Assets

14,309

14,907

15,056

17.5%

16.7%

16.2%

Total Assets

82,089

89,611

92,735

100.0%

100.0%

100.0%

Current Liabilities

48,494

51,654

56,219

59.1%

57.6%

60.6%

Non Current Liabilities

35,904

40,982

38,096

43.8%

45.7%

41.1%

Total Liabilities

84,398

92,636

94,315

102.9%

103.3%

101.7%

Total Shareholders Equity

-2,309

-3,025

-1,580

-2.9%

-3.3%

-1.7%

Total Liabilities & Equity

82,089

89,611

92,735

100.0%

100.0%


100.0%

Food for thoughts:

- Is Dell a manufacturing company? Where are its PPE?
- Why is its intangibles so high?
- Look at Dell's capital structure, is it healthy?

Real FS – Apple

Common Size SFP

	Statement of Financial Position			Common-size SFP		
	28-Sept-24	30-Sept-23	24-Sept-22	28-Sept-24	30-Sept-23	24-Sept-22
Assets						
Cash and marketable securities*	156,650	162,099	169,109	42.9%	46.0%	47.9%
AR	33,410	29,508	28,184	9.2%	8.4%	8.0%
Inventories	7,286	6,331	4,946	2.0%	1.8%	1.4%
Other Current Assets	47,120	46,172	53,971	12.9%	13.1%	15.3%
PPE	45,680	43,715	42,117	12.5%	12.4%	11.9%
Goodwill & Intangibles	0	0	0	0.0%	0.0%	0.0%
Other Non Current Assets	74,834	64,758	54,428	20.4%	18.3%	15.5%
Total Assets	364,980	352,583	352,755	99.9%	100.0%	100.0%
Current Liabilities	176,392	145,308	153,982	48.3%	41.2%	43.7%
Non Current Liabilities	131,638	145,129	148,101	36.1%	41.2%	41.9%
Total Liabilities	308,030	290,437	302,083	84.4%	82.4%	85.6%
Total Shareholders Equity	56,950	62,146	50,672	15.6%	17.6%	14.4%
Total Liabilities & Equity	364,980	352,583	352,755	100.0%	100.0%	100.0%
* including non-current marketable securities						

Food for thoughts:

- About 40+% of assets is cash & marketable securities, is it a bank or a high-tech company?
- Why do you think there are no intangibles?
- With so much cash, why doesn't Apple pay down its long term liabilities?

Real FS – Samsung

Common Size SFP



In KRW

Statement of Financial Position

Common-size SFP

31-Dec-24 31-Dec-23 31-Dec-22 31-Dec-24 31-Dec-23 31-Dec-22

Assets

Cash and marketable securities	112,651,760	92,407,210	115,227,286	21.9%	20.3%	25.7%
AR	43,623,073	36,647,393	35,721,563	8.5%	8.0%	8.0%
Inventories	51,754,865	51,625,874	52,157,866	10.1%	11.3%	11.6%
Other Current Assets	19,032,568	15,256,080	15,363,866	3.7%	3.3%	3.4%
PPE	205,945,209	187,256,262	168,045,388	40.0%	41.1%	37.5%
Goodwill & Intangibles	23,738,566	22,741,862	20,217,754	4.6%	5.0%	4.5%
Other Non Current Assets	57,785,907	49,971,299	41,690,784	11.2%	11.0%	9.3%

Total Assets	514,531,948	455,905,980	448,424,507	100.0%	100.0%	100.0%
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Current Liabilities	93,326,299	75,719,452	78,344,852	18.1%	16.6%	17.5%
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Non Current Liabilities	19,013,579	16,508,663	15,330,051	3.7%	3.6%	3.4%
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Total Liabilities	112,339,878	92,228,115	93,674,903	21.8%	20.2%	20.9%
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Total Shareholders Equity	402,192,070	363,677,865	354,749,604	78.2%	79.8%	79.1%
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Total Liabilities & Equity	514,531,948	455,905,980	448,424,507	100.0%	100.0%	100.0%
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Food for thoughts:

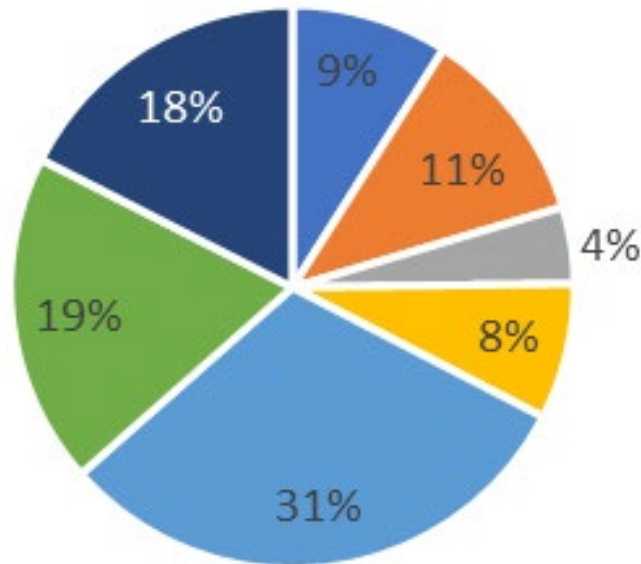
- Compare its cash & marketable securities with Dell & Apple.
- How would you interpret the difference in Dell's, Apple's and Samsung's PPE %?
- What can you infer from its capital structure?

Common Size Graphic – SFP: ASSETS

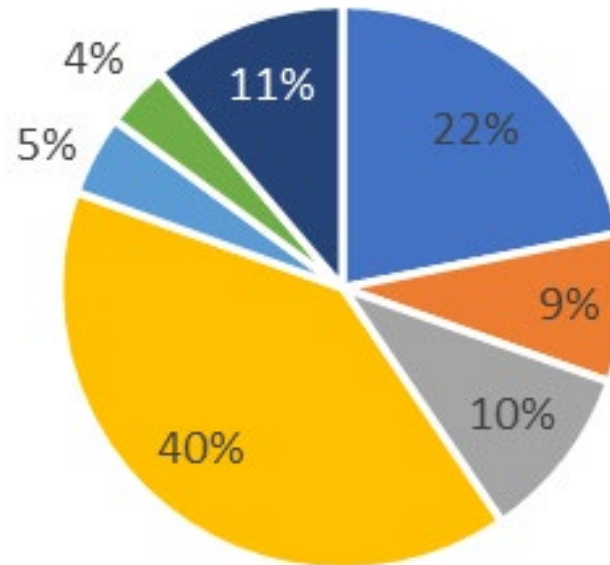
Dell vs. Samsung vs. Apple (FYE 2024)

- 3 companies in similar industry with very different asset composition!

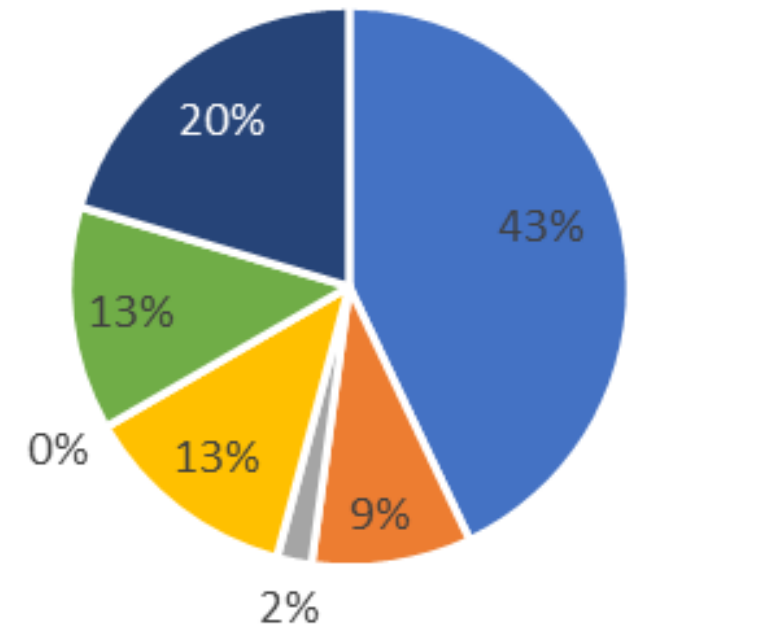
DELL



SAMSUNG



APPLE



■ Cash and Marketable Securities ■ AR

■ PPE

■ Goodwill & Intangibles

■ Inventory

■ Other Current Assets

■ Other Non Current Assets

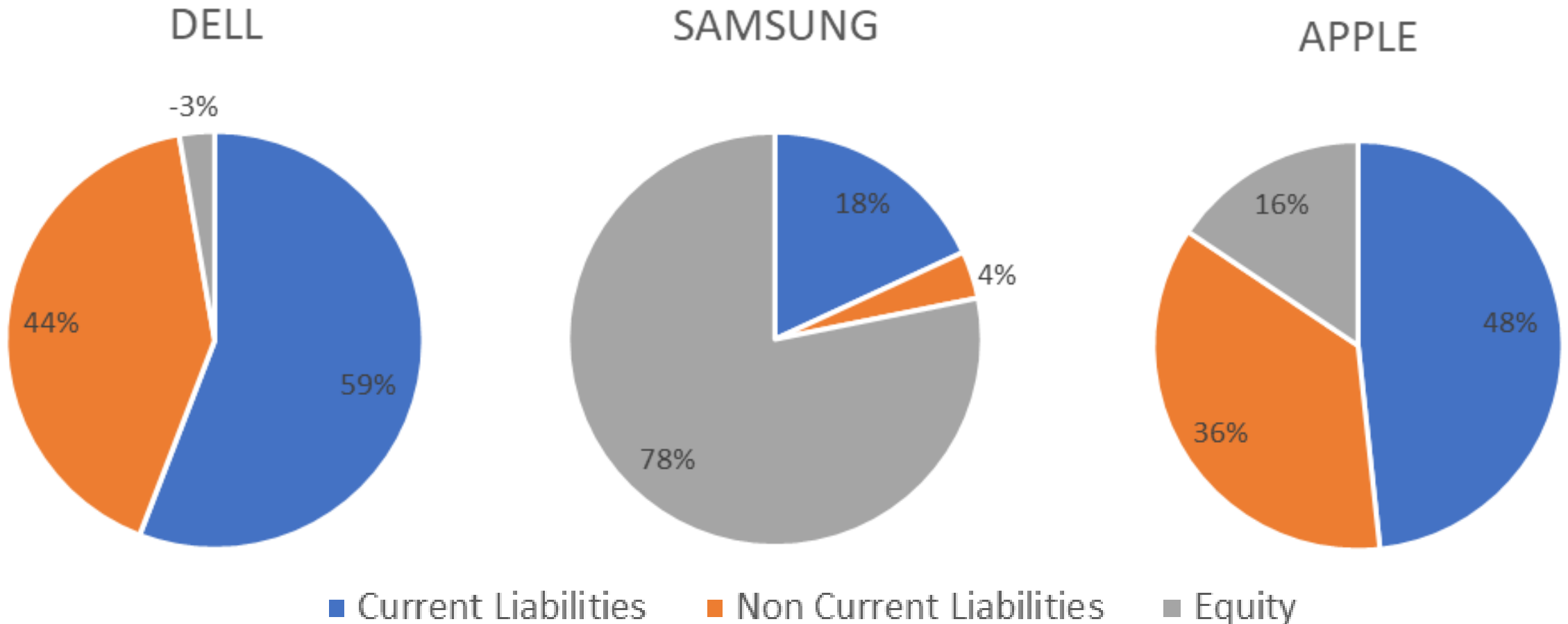
Common Size Graphic – Capital Structure

Dell vs. Samsung vs. Apple (FYE 2024)

- Which company relies more on debt? On equity?

Food for thoughts:

- If you were to run a company, which capital structure would you go for? Why?



#2 Horizontal Analysis

Comparative Statements

- Comparing two or more successive periods (e.g. compare 2025 & 2024) – helps to capture the trend of financial data in a company
- Analyzing changes in financial statements' line items:
 - (i) Dollar change : changes from year to year (typically prior year = base year)

$$\text{Dollar Change} = \text{Analysis period amount} - \text{Base period amount}$$

- (ii) Percent change : changes from year to year in percentages

$$\text{Percent Change} = \frac{\text{Analysis period amount} - \text{Base period amount}}{\text{Base period amount}} \times 100$$

- (iii) Trend Analysis : helps to reveal patterns over successive periods

$$\text{Trend Percent} = \frac{\text{Analysis period amount}}{\text{Base period amount}} \times 100$$

Horizontal Analysis (2023 to 2024)

Tencent's Income Statement

	2024	2023	Dollar Change	% Change
Revenue	660,257	609,015	51,242	8.4%
Cost of Revenues	-311,011	-315,906	4,895	(1.5%)
Gross profit	349,246	293,109	56,137	19.2%
Selling & marketing expenses	-36,388	-34,211	-2,177	6.4%
General and administrative expenses	-112,761	-103,525	-9,236	8.9%
Other gains/ (losses)	8,002	4,701	3,301	70.2%
Operating Profit	208,099	160,074	48,025	30.0%
Gain/ (losses) from investments	4,187	-6,090	10,277	(168.8%)
Interest Income	16,004	13,808	2,196	15.9%
Finance costs	-11,981	-12,268	287	(2.3%)
Share of loss/(gain) of associates & jv	25,176	5,800	19,376	334.1%
Profit before tax	241,485	161,324	80,161	49.7%
Tax expense	-45,018	-43,276	-1,742	4.0%
Profit for the year	196,467	118,048	78,419	66.4%



Horizontal Analysis (2023 to 2024)

Tencent's Statement of Financial Position

	2024	2023	<i>Dollar Change</i>	<i>% Change</i>
Current Assets	496,180	518,446	-22,266	(4.3%)
Non Current Assets	1,284,815	1,058,800	226,015	21.3%
Total Assets	1,780,995	1,577,246	203,749	12.9%
Current Liabilities	396,909	352,157	44,752	12.7%
Non Current Liabilities	330,190	351,408	-21,218	(6.0%)
Total Liabilities	727,099	703,565	23,534	3.3%
Equity:				
Share Capital & Premium	43,079	37,989	5,090	13.4%
Treasury shares	-3,597	-4,740	1,143	0.0%
Shares held of share award	-5,093	-5,350	257	(4.8%)
Other Reserves	47,129	-33,219	80,348	(241.9%)
Retained Earnings	892,030	813,911	78,119	9.6%
NCI (Non controlling interests)	80,348	65,090	15,258	23.4%
Total Equity	1,053,896	873,681	180,215	20.6%
Total Liabilities & Equity	1,780,995	1,577,246	203,749	12.9%



Trend Analysis Sample

(EUR millions)	2014	2015	2016	2017	2018
Net sales	14,534	16,915	18,483	21,218	21,915
Cost of sales	7,610	8,748	9,383	10,514	10,552

In percents	2014	2015	2016	2017	2018
Net sales	100.0%	116.4%	127.2%	146.0%	150.8%
Cost of sales	100.0%	115.0%	123.3%	138.2%	138.7%

Example of 2018 Calculations for Net Sales:

2014 is base year. Set to 100%

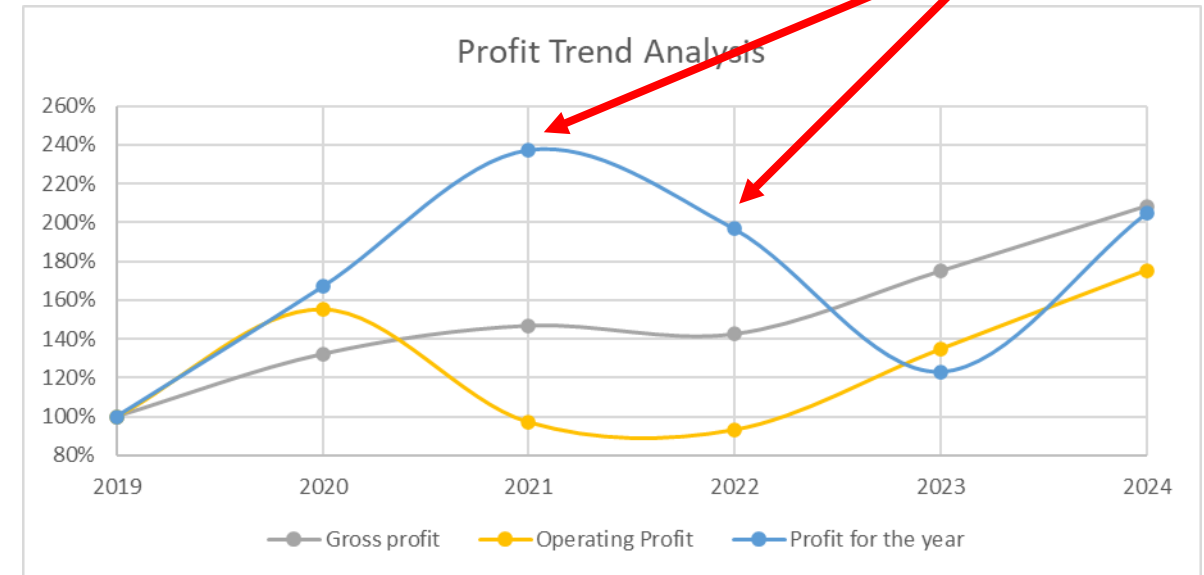
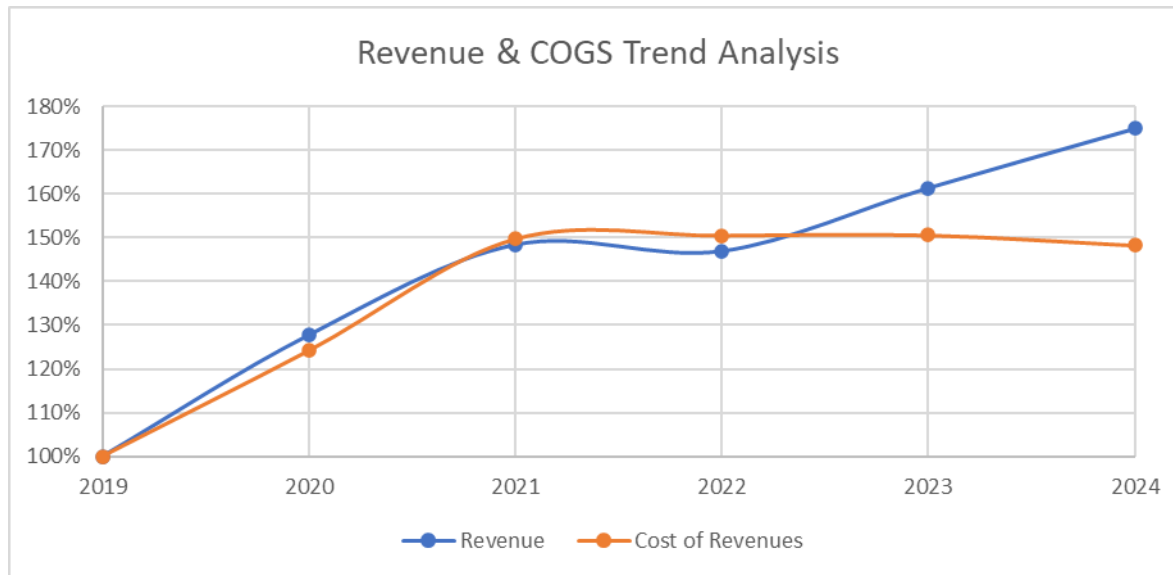
2018: $21,915 \div 14,534 \times 100 = 150.8\%$

Tencent 5 Years Trend Analysis

(using 2019 as the base period)

	2019	2020	2021	2022	2023	2024
Revenue	100%	128%	148%	147%	161%	175%
Cost of Revenues	100%	124%	150%	151%	151%	148%
Gross profit	100%	132%	147%	143%	175%	208%
Operating Profit	100%	155%	97%	93%	135%	175%
Profit for the year	100%	167%	238%	197%	123%	205%

In 2021 and 2022, Tencent reported HUGE gain from its investments, which boosted its net income.



#3. Ratio Analysis

- Most widely used tools for financial analysis
- Helps to identify trends and uncover conditions in a company
- Usefulness depends on user's interpretation
- Based on the four building blocks of financial analysis:

A. Profitability Ratios

B. Liquidity & Efficiency Ratios

C. Solvency Ratios

D. Market Prospects Ratio



#3 Ratio Analysis

A. Profitability Ratios

- Profitability is a primary measure of a company's ability to generate an adequate return on invested capital.
 - Profitability ratios compare income relative to other items on the FS
- i) Return on Equity (ROE)
- How much income is earned per dollar investment made by ordinary shareholders



$$\text{Return on Equity (ROE)} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Ordinary Shareholders' Equity}} \quad \text{OR} \quad \frac{\text{Net Income}}{\text{Average Equity}}$$

- For consolidated companies, we can also exclude the NCI (*refer to next slide*) & calculate the ROE attributable to owners only :

$$\text{ROE (attributable to owners)} = \frac{\text{Net Income (attributable to owners)}}{\text{Average Shareholders' Equity (attributable to owners)}}$$

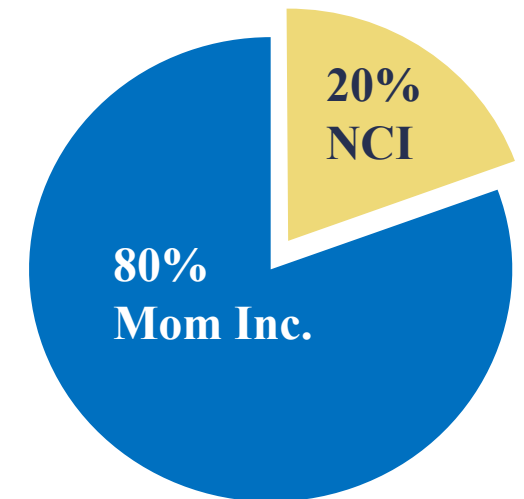
Quick Note About Consolidation & NCI

- Parent company refers to a company that has **control** over another entity. The controlled entity is called the subsidiary company.
- Parent company must consolidate its subsidiary → Consolidated Financial Statements
- E.g. Mom Inc. owns 80% (controlling interest) in Baby Corp. Mom Inc. must consolidate Baby Corp's (and all other subsidiaries, if any) FS into its own to reflect one set of FS that shows the results of Mom Inc. and all its subsidiaries.

Non-controlling Interest (NCI)

- Portion of equity ownership in a subsidiary that does not belong to the parent company
- Mom Inc. owns 80% (controlling interest) in Baby Corp, 20% is owned by others. The consolidated FS of Mom Inc. will incorporate 100% of Baby Corp, but since Mom Inc. only owns 80%, the remaining 20% is referred to as non-controlling interests (NCI) in Mom Inc.'s consolidated FS.

Baby Corp Equity Ownership



#3 Ratio Analysis

A. Profitability Ratios

ii) Return on Assets (ROA)

- How much income is earned per dollar of assets.
- Measures how effective management is in utilizing its assets to generate income.

$$\text{Return on Assets (ROA)} = \frac{\text{Net Income}}{\text{Average Total Assets}}$$

iii) Net Profit Margin

- How many percent of each dollar of sales is profit.
- A measure of overall efficiency of the company

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Net Sales}}$$

- Can also calculate different types of profit margins:
 - (a) Gross Profit Margin = Gross profit / Net Sales
 - (b) Operating Profit Margin = Operating Income / Net Sales



#3 Ratio Analysis

A. Profitability Ratios

iv) Earnings per Share

- Measures the profitability of a company: its ability to produce income for each ordinary share outstanding.

$$\text{Basic EPS} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted-average Ordinary Shares Outstanding}}$$

- Required disclosure on the Income Statement!
- Companies must also disclose **diluted EPS** which assumed all convertible securities are converted into ordinary shares.



Real FS: TENCENT

Profitability Ratios

	2024	2023	2022	2021	Trend
ROE (attributable to owners)	21.78%	15.06%	24.71%	29.85%	
ROE	20.38%	14.25%	22.74%	27.53%	
ROA	11.70%	7.48%	11.83%	15.47%	
Net Profit Margin	29.76%	19.38%	34.03%	40.67%	
Gross Profit Margin	52.90%	48.13%	43.05%	43.91%	
EPS	20.94	12.19	19.34	23.60	

Note: Beware of jumping into conclusions when analyzing ratios – always look deeper!



Tencent 腾讯

#3 Ratio Analysis

B. Liquidity & Efficiency Ratios

- Liquidity is a company's ability to meet its short-term (current) obligations - focuses on relationship between current assets and current liabilities.
- Efficiency measures how productive/efficient a company uses its assets.



i) Current Ratio

- Measures a firm's ability to pay its current obligations with current assets.

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

ii) Acid-Test Ratio

- A more stringent test of short-term liquidity than current assets, because we are only taking into consideration "quick assets" (cash + short term financial assets + current receivables).

$$\text{Acid-test Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

#3 Ratio Analysis

B. Liquidity & Efficiency Ratios

iii) Accounts Receivable Turnover Ratio

- How effective is the company at collecting cash from its customers

$$\text{Accounts Receivables Turnover} = \frac{\text{Net Sales}}{\text{Average Net Receivables}}$$

iv) Days' Sales Uncollected

- Measures the average days it takes a company to collect cash from its credit customers.

$$\text{Days' Sales Uncollected} = \frac{365}{\text{Accounts Receivable Turnover}}$$



#3 Ratio Analysis

B. Liquidity & Efficiency Ratios

v) Inventory Turnover Ratio

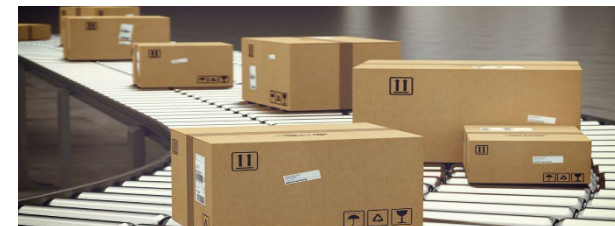
- Measures number of times merchandise is sold and replaced during the year
- Used to assess if company is controlling inventory well

$$\text{Inventory Turnover} = \frac{\text{COGS}}{\text{Average Inventory}}$$

vi) Days' Sales in Inventory

- Measures the average days it takes a company to sell its inventory.
- Useful to assess company's liquidity of inventory

$$\text{Days' Sales in Inventory} = \frac{365}{\text{Inventory Turnover}}$$



#3 Ratio Analysis

B. Liquidity & Efficiency Ratios

vii) Days' Purchases in Accounts Payable

- Measures the average days it takes a company to pay cash to its suppliers

$$\text{Days' Purchases in AP} = \frac{365}{\text{Purchases} / \text{Average AP}}$$



#3 Ratio Analysis

B. Liquidity & Efficiency Ratios

viii) Total Asset Turnover

- Measures a company's ability to use its assets to generate sales

$$\text{Total Asset Turnover} = \frac{\text{Net Sales}}{\text{Average Total Assets}}$$

ix) Fixed Asset (PPE) Turnover

- Measures a company's ability to use its fixed assets to generate sales

$$\text{Fixed Asset Turnover} = \frac{\text{Net Sales}}{\text{Average Fixed Assets (PPE)}}$$



Working Capital

Working capital represents current assets that do not require near-term repayment.

$$\begin{array}{r} \text{Current assets} \\ - \text{Current liabilities} \\ \hline = \text{Working capital} \end{array}$$

More working capital suggests a strong liquidity position and an ability to meet current obligations.



Real FS: TENCENT

Liquidity & Efficiency Ratios

	2024	2023	2022	2021	Trend
Current Ratio	1.25	1.47	1.30	1.20	↑ ↓
Acid Test Ratio	0.94	1.15	0.71	0.75	↑ ↓
AR Turnover Ratio	13.93	13.23	11.70	11.88	↑
Days' Sales Uncollected	26.21	27.59	31.20	30.73	↓
Inventory Turnover Ratio	694.22	226.54	185.99	335.34	↓ ↑
Days' Sales in Inventory	0.53	1.61	1.96	1.09	
Days' Purchases in AP	128.90	111.69	116.65	118.01	↑
Total Asset Turnover	0.39	0.39	0.35	0.38	↔
Fixed Asset Turnover	9.90	11.36	9.57	9.20	↓ ↑
Working Capital (in RMB 'Million)	99,271	166,289	131,785	81,714	↓ ↑

What can you learn about its cash management from the AR and AP ratios?

Is inventory relevant for Tencent?



Tencent 腾讯

Note: Beware of jumping into conclusions when analyzing ratios – always look deeper!

#3 Ratio Analysis

C. Solvency Ratios

- Solvency is a company's ability to meet its long-term obligations.
- A company needs solvency to stay in business.
- Analysis of a company's capital structure is an important component of solvency analysis



i) Times Interest Earned Ratio

- Can a company meet its interest obligations from its operations?
- Indicates how many times a company is able to pay its interest with its income before interest and tax.

$$\text{Times Interest Earned} = \frac{\text{Earnings before Interest and Tax (EBIT)}}{\text{Interest Expense}}$$

#3 Ratio Analysis

C. Solvency Ratios

ii) Debt Ratio

- Measures how much liabilities a company has relative to its asset.
- Useful to assess the financial leverage of a company - how reliant a company is on debt. Remember that debt is risky, so heavy reliance on debt increases a company's risk.

$$\text{Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

iii) Debt-to-Equity Ratio

- Measures how much liabilities a company has relative to its equity
- Value of 1.0 indicates that the amount of borrowing is equal to the amount of stockholder investment

$$\text{Debt-to-Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

Real FS: TENCENT

Solvency Ratios

	2024	2023	2022	2021	Trend
Times Interest Earned Ratio	21.16	14.15	23.48	32.33	↘ ↗
Debt Ratio	0.41	0.45	0.50	0.46	↗ ↘
Debt-to-Equity Ratio	0.75	0.87	1.10	0.92	↗ ↘

Note: Beware of jumping into conclusions when analyzing ratios – always look deeper!



#3 Ratio Analysis

D. Market Prospects Ratios

- Ratios that tend to measure the market worth of a share of stock
 - useful for analyzing public companies
- These ratios are sometimes preferred because they are based on current value of owner's investment in the company, which includes market expectation's of the company's return and risk.



i) Price-to-Earnings Ratio (P/E Ratio)

- Measures a company's current share price relative to its per-share earnings.

$$\text{P/E Ratio} = \frac{\text{Market Price per Ordinary Share}}{\text{Earnings per Share (EPS)}}$$

- Also known as the “price multiple”. It shows how much the market value the company relative to the company's current earning power.
- A company with a high P/E ratio means that the market expects high growth from the company. It could also be an indication of overvaluation.

#3 Ratio Analysis

D. Market Prospects Ratios

ii) Dividend Yield Ratio

- Measures the amount of cash dividends distributed to ordinary shares relative to market value
- Useful to assess an investor's return on investment on the company based on dividends - often used to compare the dividend-paying performance of different investment alternatives

$$\text{Dividend Yield} = \frac{\text{Dividends per Share}}{\text{Market Price per Share}}$$

Apr 29, 2019, 04:08pm EDT | 2,781 views

Warren Buffett Should Pay Berkshire Investors Dividends Now

Source: Forbes



**Alamak, stop asking me
for dividends!
What part of "NO
DIVIDENDS EVER" do you
not understand?!?!**

Real FS: TENCENT

Market Prospects Ratios

	2024	2023	2022	2021	Trend
PE Ratio	20.01	24.09	16.40	19.36	
Dividend Yield	1.07%	1.16%	0.76%	0.35%	

Note: Beware of jumping into conclusions when analyzing ratios – always look deeper!



#3 Ratio Analysis

Cash Flow Ratios

- Companies need cash to operate so it is important to analyze the cash flow of companies.
- Usefulness of Cash Flow Ratios:
 - Large Non-cash Expenses – e.g. large write-offs or depreciation will cause NI to be lower, thus reflecting a less positive picture of performance.
 - Rapid Growth – e.g. burning cash operationally to grow require sufficient cash flow
 - Window Dressing – companies may manipulate net income through accrual assumptions, cash flow is less susceptible to manipulation



#3 Ratio Analysis

Cash Flow Ratios

i) Cash Flow to Net Income

- Reflects the extent to which accrual accounting assumptions and adjustments have been included in computing net income.

$$\text{Cash Flow to Net Income} = \frac{\text{Cash Flow from Operations}}{\text{Net Income}}$$

ii) Cash Flow Adequacy

- Used to assess if a company is generating enough cash flow from its operations to pay for its capital expenditures (CAPEX) in PPE and still have cash left over to either be used for paying liabilities or for its stockholders.
- A business that generates excess cash from its operations is referred to as a “cash cow”.


$$\text{Cash Flow Adequacy} = \frac{\text{Cash Flow from Operations}}{\text{Cash paid for CAPEX}}$$

Note: Your textbook includes acquisitions for new businesses as part of CAPEX. However, for simplicity sake, we shall only consider PPE acquisitions for CAPEX for this module.



Real FS: TENCENT

Cash Flow Ratios

	2024	2023	2022	2021	Trend
Cash Flow to Net Income	1.32	1.88	0.77	0.77	 
Cash Flow Adequacy	4.11	10.57	6.44	5.98	 

Note: Beware of jumping into conclusions when analyzing ratios – always look deeper!



DuPont Framework

Breaking down ROE

$$\text{Return on Equity (ROE)} = \frac{\text{Net Income}}{\text{Average Total Equity}}$$

- DuPont Analysis – a systematic approach to break down (ROE) to **three** components:

$$\begin{aligned}\text{Return on equity} &= \text{Profitability} \times \text{Efficiency} \times \text{Leverage} \\ &= \text{Return on sales} \times \text{Asset turnover} \times \text{Assets-to-equity ratio} \\ &= \frac{\text{Net income}}{\text{Net sales}} \times \frac{\text{Net sales}}{\text{Average total assets}} \times \frac{\text{Average total assets}}{\text{Average total equity}}\end{aligned}$$

Profitability = The company's ability to generate net income per dollar of sales

Efficiency = The ability of the company to generate sales through the use of assets

Leverage = The degree to which a company uses borrowed funds instead of invested funds

DuPont Framework

ROE (Attributable to Owners)

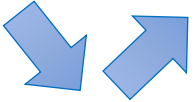
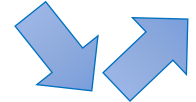
- For Consolidated FS, ROE can also be calculated based on amounts that are attributable to owners only (i.e. exclude the NCI (non-controlling interests))
- Thus, the Dupont analysis can also be calculated as:

$$\begin{array}{c} \text{ROE} \\ \text{(attributable to} \\ \text{owners)} \end{array} = \frac{\begin{array}{c} \text{Net Income} \\ \text{(attributable to} \\ \text{owners)} \end{array}}{\text{Net Sales}} \times \frac{\text{Net Sales}}{\text{Average Total Assets}} \times \frac{\begin{array}{c} \text{Average Total Assets} \\ \text{Average Equity} \\ \text{(attributable to owners)} \end{array}}{\text{Average Equity (attributable to owners)}}$$

- *Note: For most published consolidated FS, the amounts attributable to NCI are usually only given for certain items such as net income and equity, but not other items such as net sales and total assets.*

ROE (attributable to owners)

Tencent vs Facebook (2021 – 2024)

	2024	2023	2022	2021	Trend
<div> <div>Tencent</div> <div>  </div> </div>	0.218	0.151	0.247	0.299	
<div> <div>Facebook (Meta)</div> <div>  </div> </div>	0.371	0.280	0.185	0.311	

DuPont Analysis

Tencent vs Facebook (2021)

FY 2021

**Profitability
(Profit Margin)**

**Efficiency
(TA Turnover)**

**Leverage
(Assets to Equity Ratio)**

Return on Equity (Attributable to Owners)	=	$\frac{\text{Net Income (attributable to owners)}}{\text{Net Sales}}$	x	$\frac{\text{Net Sales}}{\text{Average Total Assets}}$	x	$\frac{\text{Average Total Assets}}{\text{Average Total Equity (attributable to owners)}}$
Tencent 腾讯	=	$\frac{\$224,822}{\$560,118}$	x	$\frac{\$560,118}{\$1,472,895}$	x	$\frac{\$1,472,895}{\$753,142}$
	=	0.401	x	0.380	x	1.956
	=	0.299				

Return on Equity	=	$\frac{\text{Net Income}}{\text{Net Sales}}$	x	$\frac{\text{Net Sales}}{\text{Average Total Assets}}$	x	$\frac{\text{Average Total Assets}}{\text{Average Total Equity}}$
Meta f	=	$\frac{\$39,370}{\$117,929}$		$\frac{\$117,929}{\$162,652}$		$\frac{\$162,652}{\$126,585}$
	=	0.334	x	0.725	x	1.285
	=	0.311				

DuPont Analysis

Tencent vs Facebook (2022)

FY 2022

**Profitability
(Profit Margin)**

**Efficiency
(TA Turnover)**

**Leverage
(Assets to Equity Ratio)**

Return on Equity (Attributable to Owners)	=	$\frac{\text{Net Income (attributable to owners)}}{\text{Net Sales}}$	x	$\frac{\text{Net Sales}}{\text{Average Total Assets}}$	x	$\frac{\text{Average Total Assets}}{\text{Average Total Equity (attributable to owners)}}$
Tencent 腾讯	=	$\frac{\$188,243}{\$554,552}$	x	$\frac{\$554,552}{\$1,595,248}$	x	$\frac{\$1,595,248}{\$761,845}$
	=	0.339	x	0.348	x	2.094
	=	0.247				

Return on Equity	=	$\frac{\text{Net Income}}{\text{Net Sales}}$	x	$\frac{\text{Net Sales}}{\text{Average Total Assets}}$	x	$\frac{\text{Average Total Assets}}{\text{Average Total Equity}}$
Meta f	=	$\frac{\$23,200}{\$116,609}$		$\frac{\$116,609}{\$175,857}$		$\frac{\$175,857}{\$125,296}$
	=	0.199	x	0.663	x	1.404
	=	0.185				

DuPont Analysis


Tencent vs Facebook (2023)


FY 2023

**Profitability
(Profit Margin)**

**Efficiency
(TA Turnover)**

**Leverage
(Assets to Equity Ratio)**

Return on Equity (Attributable to Owners)	=	Net Income (attributable to owners) Net Sales	x	Net Sales Average Total Assets	x	Average Total Assets Average Total Equity (attributable to owners)
	=	\$115,216 \$609,015	x	\$609,015 \$1,577,689	x	\$1,577,689 \$764,991
	=	0.189	x	0.386	x	2.062
	=	0.151				

Return on Equity	=	Net Income Net Sales	x	Net Sales Average Total Assets	x	Average Total Assets Average Total Equity
	=	\$39,098 \$134,902		\$134,902 \$207,675		\$207,675 \$139,441
	=	0.290	x	0.650	x	1.489
	=	0.280				

DuPont Analysis


Tencent vs Facebook (2024)


FY 2024

Profitability
(Profit Margin)

Efficiency
(TA Turnover)

Leverage
(Assets to Equity Ratio)

Return on Equity (Attributable to Owners)	=	Net Income (attributable to owners) Net Sales	x	Net Sales Average Total Assets	x	Average Total Assets Average Total Equity (attributable to owners)
	=	\$194,073 \$660,257	x	\$660,257 \$1,679,121	x	\$1,679,121 \$891,070
	=	0.294	x	0.393	x	1.884
	=	0.218				

Return on Equity	=	Net Income Net Sales	x	Net Sales Average Total Assets	x	Average Total Assets Average Total Equity
	=	\$62,360 \$164,501		\$164,501 \$252,839		\$252,839 \$167,903
	=	0.379	x	0.651	x	1.506
	=	0.371				

Limitations of FS and Ratio Analysis

Some Cautionary Notes:

- Metrics & ratios are generally **NOT** governed by financial reporting standards, with the exception of EPS and diluted EPS and their mandatory disclosures.
- In practice, there are **many** variations of the metrics and ratios which we have learnt in this module: there is no single standard that all analysts follow.
- Analysts often also develop their own metrics to assess companies.
- Ratios can also be susceptible to “manipulation” – Companies can manipulate their financial statements in ways that generate “good” or acceptable ratios, or highlight unusual metrics in their FS in order to “fool” investors.
- In general, watch out for unexplained large changes in financial statement items that are clouded in general terms such as “other operating expenses” or “other payables”.
- Be skeptical when you are analyzing FS!

Your Voice Matters!

Do take a couple of minutes to complete the student feedback

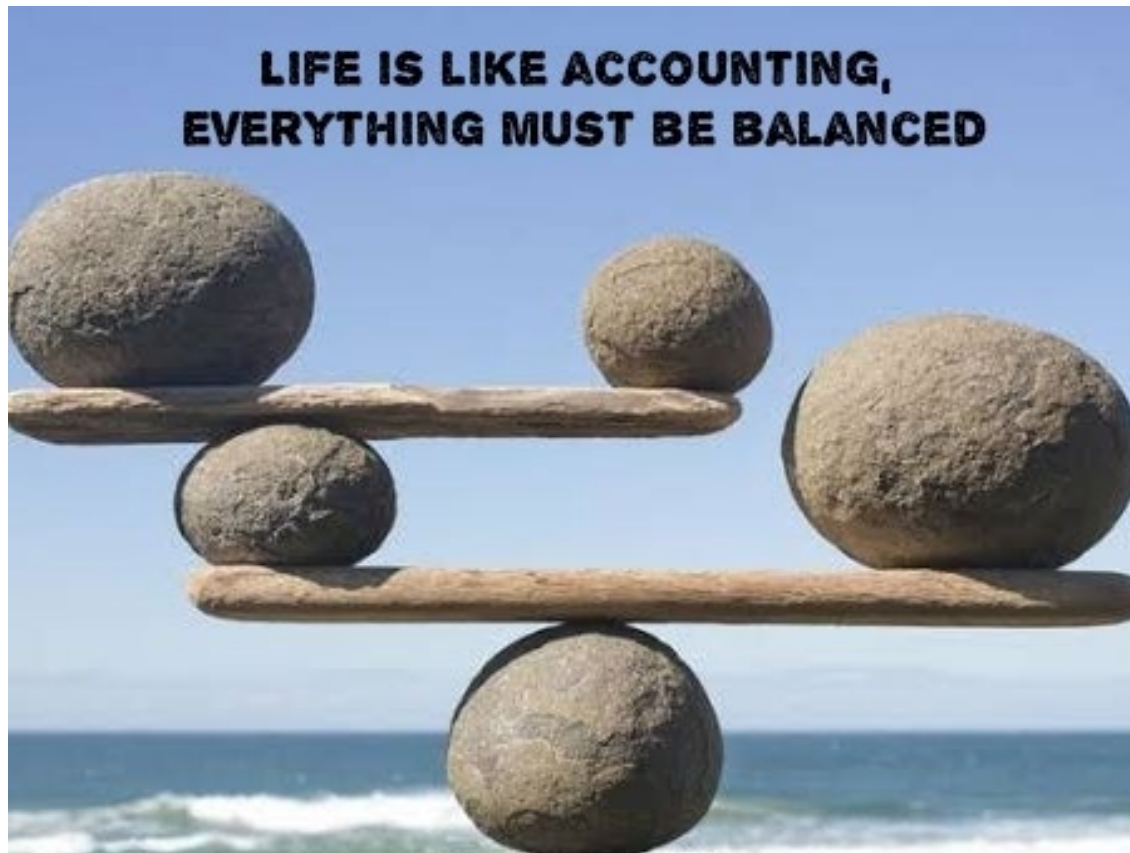


<https://blue.nus.edu.sg/blue/>

And We Are DONE!!!!!!!!!!

It was a really enjoyable semester with you all!

Thank you for taking this accounting journey with me ☺



Post your questions on Canvas discussion forum.

All the best and stay in touch!

My email:
hanny.kusnadi@nus.edu.sg



See you around!