Financial Ratios

ROA/ROI = $\frac{Income}{Average\ Total\ Assets}$

- Measures how much return a company earns from its asset

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

- Evaluate level of debt risk

AR Turnover = $\frac{Net\ Sales}{Avg\ AR}$

- Measures how many times a year it converts AR into cash

* **Avg Collection Period** = $\frac{365}{AR\ Turnover}$

- Measures how many days to collect AR and convert to cash

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

- Ability to pay short-term obligations with short-term assets

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

- Quick Assets = Cash + ST investments + Current AR
- Ability to pay short term obligations using liquid assets

* **Inventory Turnover** = $\frac{COGS}{Avg\ Inventory}$

- Measures how many times a company sells its inventory

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

- Estimate days on avg to convert inventory to cash/AR

* **Number of Days Purchases in AP** = $\frac{365}{\frac{Purchases}{Avg\ AP}}$

- Measures how many days' worth of inventory in AP
- Avg length of time between purchase of inventory on credit and cash payment for that inventory

Fixed Assets Turnover = $\frac{Net\ Sales}{Avg\ Fixed\ Assets\ (PPE)}$

- Measures efficiency of a company in using fixed assets to generate sales

TA Turnover = $\frac{Net\ Sales}{Avg\ Total\ Assets}$

- Measures ability in using total assets to generate sales

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

- Measures ability to produce income for each ordinary share outstanding

PE Ratio = $\frac{Market\ value\ per\ share}{EPS}$

- Measures the price market pays for current earnings stream

Dividend Payout Ratio = $\frac{Cash\ Dividends}{Net\ Income}$

* Length of operating cycle = Days' Sales in Inventory + Avg Collection Period

If operating cycle < Number of days purchases in AP, company will have excess temporary capital. Else, company might need internal/external financing.

Chapter 5: FS Integrity

5 Basic Categories of Internal Control Structure

1. The control env – corporate culture and top management's attitude towards internal control
2. Monitoring
3. Risk Assessment
4. Information and communication
5. Control activities – policies and procedures used by management to meet objective

Preventive Controls

1. Establish responsibilities and segregate duties
2. Proper procedures for authorization
3. Control assets and records: separate recordkeeping from custody of assets

Detective Controls

1. Maintain adequate records
2. Perform regular and independent reviews

Limitations

Internal controls can never completely prevent and detect errors and fraud. Human error & Costs must not exceed benefits.

Chapter 3: Adjustments

		Unearned Revenues	Accrued Revenues
During the period	Cash received before revenue earned	Cash (A) Dr Unearned Rev (L) Cr	None *
End-of-period Adjustments	**Company has earned revenue in the period**	**Unearned Rev (L) Dr Sales Rev (Rev) Cr**	**Receivables (A) Dr Sales Rev (SE) Cr** *
Next Period	Cash received after revenue earned	None	Cash (A) Dr Receivables (A) Cr
Effect on Financial Statements **Prior** to Adjustments *(i.e. if without adjustments, the FS of the company would be under/over stated)*		Balance Sheet: • Liability overstated • Equity understated Income Statement • Revenue understated	Balance Sheet: • Asset understated • Equity understated Income Statement • Revenue understated

		Prepaid Expenses	Accrued Expenses
During the period	Cash paid before expense incurred	Prepaids (A) Dr Cash (A) Cr	None *
End-of-period Adjustments	**Company must recognize expense**	**Expense (Exp) Dr Prepaids (A) Cr**	**Expense (Exp) Dr Payables (L) Cr** *
Next Period	Cash paid after expense incurred	None	Payables (L) Dr Cash (A) Cr
Effect on Financial Statements **Prior** to Adjustments *(i.e. if without adjustments, the FS of the company would be under/over stated)*		Balance Sheet: • Asset overstated • Equity overstated Income Statement • Expense understated	Balance Sheet: • Liability understated • Equity overstated Income Statement • Expense understated

Chapter 4: Completing Accounting Cycle

Format of an Income Statement (Over a period of time)

Sales Revenue
- COGS

Gross Profit (Gross Margin)
- Operating Expenses (Include Salaries, General Admin, Rent, Depreciation, Bad Debt, etc.)

Operating Income
+/- Non-operating Income/Expense
+/- Interest Income/Expense
+/- Other Gain/Loss
- Income tax Expense
+/- Non-recurring events

Net Income

Format of a Statement of Financial Position (Snapshot)

Assets
- Current Assets
- Noncurrent Assets
Liabilities
- Current Liabilities
- Noncurrent Liabilities
Equity
- Share Capital
- Retained Earnings

Real accounts → Balance Sheet accounts
- Not closed at EOP, carried over

Nominal accounts → Income statement accounts
- Closed at EOP to Retained Earnings, ending balance reset to zero

Closing accounts
- Close revenue & expenses to RE
  - Debit revenues
  - Credit expenses
  - Credit net income if profit
- Close dividends to RE
  - Credit dividends to RE

Chapter 6: Receivables

1. Estimate and record ECL (expense) at EOP
   a. Loss Allowance (contra-asset) ^
2. Write-off specific AR once uncollectible
   a. Loss Allowance (contra-asset) v

To estimate allowance

1. Identify specific accounts → Individual
2. All other accounts → Group assessment with aging analysis
3. Estimates from individual and group → total allowance required at reporting date

At Dec 31, 2022, an adjusting entry is needed to accrue interest income from note (payment not received) → adjustment required

Companies can sell receivables (usually at a discount) for cash or use it as a security for loan

Chapter 7: Cash & Current Liabilities

Cash is the most susceptible to theft and fraud.

Companies need to plan cash receipts to meet cash payments when due and keep a minimum level of cash necessary to operate.

Credit Terms: 2/10, n/30

⇨ 2% discount if paid in 10 days from date of sale, otherwise full price is due in 30 days from date of sale

Sales Discounts & Returns are contra-revenue accts (debit bal.)

→ Sales discount is debited when customer pays full amount within discounted period based on credit terms (reduce inventory costs)

→ Sales returns is debited when customers return merchandise. Remember to credit Acc Receivable (if bought on credit) and another journal entry to Dr Inventory and Cr COGS.

Bank Reconciliation

Bank side	**Book side**
Bank Statement bal.	*Book bal.*
+ Deposits in transit	+ Interest paid by bank
- Outstanding Checks	+ Direct deposits
+/- Bank errors	+ Service charges
	- NSF checks
	- Bank transfer
	+/- Accounting errors
Adjusted Bank Balance	Adjusted Book balance

3 Types of Liabilities:

1. Known Liabilities → GST, Acc Payable, CPF, UE Rev, ST Notes Payable (360 days to calculate daily interest)

Start count the day after the note is issued. Eg. Issue 26, count from 27.

2. Estimated Liabilities → Warranty liabilities
3. Contingent (Potential) Liabilities → Lawsuits

When to record a contingent liability?

	Probable IFRS: >50% GAAP: >70%	Reasonably Probable	Remote
Estimable	Record as Liability	Disclose in Notes	No disclosure needed
Non-estimable	Disclose in Notes	Disclose in Notes	No disclosure needed

Chapter 8: Inventory

FOB Destination: Goods in Transit: From seller to public carrier → Seller inventory. From public carrier to buyer → Buyer inventory.

FOB Shipping Point: Goods on Consignment: Goods we own but are on display for sale at another place → Ownership is with consignor

Perpetual system	**Periodic system**
Up-to-date record	COGS is calculated indirectly
Purchases are directly added	Purchases are recorded in "Purchases" acc
Information on COGS and inventory bal. Is available	Actual physical count of inventory is done at EOP

COGS = Beg. Inventory + Net Purchases – End. Inv.

Inventory	
Beginning Inventory Purchases	COGS
Ending Inventory	

Periodic system → To find Net purchases

Dr Inv, Purchase Returns, Purchase Discounts
Cr Freight-in, Purchases

Perpetual system → Adjust for inventory shrinkage (For example, inventory is lost/stolen)

Dr COGS, Cr Inventory

Inventory Costing Methods

FIFO provides the same amounts for ending inventory and COGS under both periodic and perpetual inventory systems

1. Specific Identification Method (Impractical)
→ Specific cost of that unit is recorded as COGS
2. FIFO
→ First goods purchased, considered first goods sold
3. LIFO (Unaccepted by IFRS)
→ Last goods purchased, considered first goods sold
4. Weighted Average Cost
→ Average cost per unit is assigned to COGS

Rising Costs	FIFO gives lowest COGS → higher NI
	LIFO gives highest COGS → lower NI
	Weighted Avg is in between
Declining Costs	FIFO gives higher COGS → lower NI
	LIFO gives lowest COGS → higher NI
	Weight Avg is in between

Ending inventory must be at lower of cost or market value. If market value < cost, write-down is needed. Net inv = Inv – Allowance for write-down

Dr COGS, Cr Allowance for Inventory Write-down (Contra asset acc to Inventory)

NOTE: If ending inventory is US/OS in one period, in the next period, RE will be normalized

Effect of Inventory errors on FS

Income Statement Effects

Inventory Error	Cost of Goods Sold	Net Profit
Understate ending inventory	Overstated	Understated
Understate beginning inventory	Understated	Overstated
Overstate ending inventory	Understated	Overstated
Overstate beginning inventory	Overstated	Understated

If beginning inventory has no change, it is likely not to change SFP.

Retained Earnings is an accumulation of net income. Since last year's NI is overstated and next year's is understated, the effect is cancelled out.

Statement of Financial Position Effects

Inventory Error	Assets	Equity
Understate ending inventory	Understated	Understated
Overstate ending inventory	Overstated	Overstated

Chapter 9: PPE

If acquiring lump sum PPE, cost will be as a % of appraised value.

Record depreciation → Dr. Depr. Expense, Cr. Acc. Depr. (Contra-asset)

Net book value (NBV/carrying amt) = Acquisition cost – Acc. Depr.

3 types of depreciation methods:

1. Straight-line method
→ Equal portion recognized over asset's useful life
→ $Depr. Expense = \frac{Cost - Residual\ Value}{Useful\ Life\ in\ Years}$
2. Units-of-production method
→ $Depr. Expense = \frac{Cost - Residual\ Value}{Life\ in\ Units\ of\ Production} * Actual\ Units$
3. Declining-balance method (DON'T SUBTRACT RESIDUAL VAL)
→ $Depr. Expense = NBV * \frac{x}{Useful\ Life\ in\ Years}$, x = 2 for double-declining-balance rate

Residual value is ignored in declining balance method

Changes in Depreciation estimates

Does not affect depr. expense already taken, only affect future years. Add back the value of the change to the carrying amt.

Capitalize or Expense?

1. R&D

→ IFRS: Research cost are expense. Development cost after technological feasibility is established can be capitalized.
→ GAAP: Research & development costs are all expensed in period incurred.
2. Repairs
→ Ordinary repairs & maintenance → Expense
→ Additions & improvements → Capitalize
→ Expense affects income statement → Lower NI
→ Capitalize affects balance sheet (asset) → Higher NI
Impairment of PPE (NOT Depreciation)
Impairment is the loss of a portion of value of asset
An equipment bought before has a carrying amt of 8,000 (9,000 cost less 1,000 acc. depr) and a recoverable amt of 7,500.
Impairment = recoverable amt – carrying amt
= 7,500 – 8,000 = 500
Dr Impairment loss on equipment (expense), Cr Acc. Impairment loss (contra-asset acc)
Disposal of PPE (Voluntary/Involuntary)
Requires 2 journal entries
1. AJE to debit depr. expense and credit acc. depr. accounts for that particular year
2. Entry to record disposal
Dr Cash & ALL Acc Depr. up till that point (not just that year)
Cr Equipment
Dr Loss, Cr Gain on sale
→ Cost of asset and acc. depr. is removed
→ Difference between cash received and book value is recorded as gain/loss
If PPE is fully depreciated, the disposal will just be Dr Acc. Depr. full amount and Cr. PPE full amount.
Intangible Assets
Definite life (patents, copyrights, franchises): amortized over estimated **useful** life using straight-line method
Indefinite life (trademarks, goodwill): not amortized, but tested annually for possible impairment
Dr Amortization expense, Cr Accumulated Amortization

Chapter 10: Equity

BE CAREFUL NOT TO INCLUDE SHARES THAT HAVE BEEN AUTHORIZED BUT NOT YET ISSUED
Authorized shares are the maximum number of shares of capital stock that can be sold to the public.
Unissued shares are authorized shares of stock that never have been sold.
Issued shares are authorized shares of stock that have been sold.
Outstanding shares are issued shares that are owned by stockholders while treasury shares are issued shares that have been reacquired by the corporation.

Par Value	No Par Value
Arbitrary amount assigned to each share of stock when it is authorized	No arbitrary amount is assigned to each share of stock
When sold above par, it is said to sell at a premium	Used in SG, no authorized share capital in SG

1. Ordinary Shares
Basic voting stock → One share one vote
Entitled to receive dividends declared
Rank behind Preference Shares in dividends and liquidation
Can have different voting rights
Can have preemptive rights: permits existing stockholders to purchase additional shares to maintain the same percentage of ownership
2. Preferred Shares
Often no voting rights
Often has specific payment terms that takes priority over ordinary shares
Convertible/non-convertible → convertible to ordinary shares
Redeemable/non-redeemable → option for company to buyback shares
Cumulative/non-cumulative → cumulative shares require all dividends in arrears to be fully paid before ordinary dividends can be paid out
Participating/non-participating → participating shares may receive additional dividend based on predetermined condition
If share has par value, and issued at premium, Cr Common Stock (at par value) and Cr Paid-in Capital in Excess of Par.
If share has no par value, but has a stated value and is issued at a higher value that stated value, Cr Common Stock (at stated value) and Cr Common Stock Premium
Common Stock == Share Capital, Common Share
Common Stock Premium == Paid-in Capital in excess of par, Share Premium
Reasons for issuing preference shares
- To raise capital without sacrificing control
- To boost the return earned by ordinary shareholders through financial leverage
- To appeal to investors who may believe the ordinary shares are too risky

Treasury Shares (contra-equity acc → reduces equity)
Transactions relating to Treasury shares only affect equity
Buying treasury shares will not affect common stock, since treasury shares is a contra-equity, it will be minus from there.
# of Common Stock = # Common Stock - # Treasury Shares
Companies repurchase at cost, but they can be sold back at cost, higher than cost, lower than cost
Higher than cost → Cr Premium on Treasury shares
Lower than cost → Check if treasury share premium acc has sufficient balance.
If there is sufficient balance, Dr Premium on Treasury Shares. If not, Dr Retained Earnings.
Using shares to purchase
Shares will be calculated at par value, but need to remember to subtract paid-in capital in excess if number of shares is not enough to match with the amount
Distribution of cash dividends (Rmb to close account to RE)
1. Declaration date → Dr Dividends, Cr Dividends Payable
2. Date of record → No accounting entry
3. Date of payment → Dr Dividends Payables, Cr Cash
Stock Dividends
Small stock dividends (20-25% of shares): fair value
@Declaration date: Dr Stock Dividends, Cr Stock Dividends Distributable, Cr Paid-in Capital in Excess of Par
@Distribution date: Dr Stock Dividends Distributable, Cr Common Stock
@Closing: Dr Retained Earnings, Cr Stock Dividends
Large stock dividends: assign par value
@Declaration date: Dr Stock Dividends, Cr Stock Dividends Distributable
@Distribution date: Dr Stock Dividends Distributable, Cr Common Stock
@Closing: Dr Retained Earnings, Cr Stock Dividends

Items to be Affected	**Stock Split**	**Stock Dividends**
Number of shares outstanding	Increase	Increase
Total equity	No change	No change
Retained earnings	No change	Decrease
Common stock	No change	Increase
Paid-in capital in excess of par, common stock	No change	Increase (if any)
Par value per share	Decrease	No change

Chapter 11: Statement of Cash Flows

1. Operating Activities → Inflows from customers, royalties, fees, commissions, and other revenue. Outflows for purchase of goods and services from suppliers, salaries, income taxes, other operating expenses. Subtract Gain on disposal of PPE, Add Loss on disposal of PPE
2. Investing Activities → Inflows from sale/disposal of PPE & LT assets, sale/maturity of investments in securities, repayments of loans made to other parties. Outflows for purchase of PPE, purchase of investments in securities, loans made to other parties.
3. Financing Activities → Inflows from borrowings on loans, notes, bonds, issuing shares to owners. Outflows for repaying principal to creditors, repurchasing shares from shareholders, dividends to owners.

	Operating	Investing	Financing
Interest received	Yes	Yes	
Dividends received	Yes	Yes	
Interest paid	Yes		Yes
Dividends paid	Yes		Yes

Format of SCF (Over a period of time)
Cash flows from operating activities
Net cash provided by operating activities
Cash flows from investing activities
Net cash provided by investing activities
Cash flows from financing activities
Net cash provided by financing activities
Net increase in cash
Cash balance at prior period-end
Cash balance at current period-end
Calculate SCF using Indirect method (Operating)
Watch out for Income Taxes Payable.
1. Start with Profit before tax
2. Operating items not generating or using cash (Add depreciation & amortization, no cash involved)
3. Changes in noncash current assets and current liabilities (Subtract increase/Add decrease in noncash current assets) (Add increase/Subtract decrease in current liabilities)
4. Nonoperating items (Subtract gain/Add loss on disposal of long-term assets)
5. Separate reporting of dividend received, interest received/paid & income taxes → Cash from operating activities (Subtract income taxes paid, add interest expense, subtract interest income, subtract dividend income)

	Change in Account Balance During Year	
	Increase	**Decrease**
Noncash Current Assets	Subtract from profit	Add to profit
Current Liabilities	Add to profit	Subtract from profit

Calculate SCF (Investing & Financing)
1. Identify changes in investing/financing-related accounts
2. Explain these changes using reconstruction analysis
3. Report their cash flow effects

Chapter 12: Analyzing Financial Statements

FSA Analysis Tools
1. Vertical analysis → compared to base amount
Common-size Percent = $\frac{Analysis\ amount}{Base\ amount} * 100$
Base amount → Total assets (SFP) / Net sales revenue (IS)
2. Horizontal analysis → compared to performance across time
Dollar change = Analysis period amount – Base period amount
Percent change = $\frac{Analysis\ period\ amount - Base\ period\ amount}{Base\ period\ amount} * 100$
Trend Percent = $\frac{Analysis\ period\ amount}{Base\ period\ amount} * 100$
3. Ratio analysis → measures proportional relationship between 2 or more financial statement numbers
1. Profitability
ROA, EPS
Return on Equity = $\frac{Net\ Income - Preferred\ Dividends}{Avg\ Ordinary\ Shareholders'Equity}$ or $\frac{Net\ Income}{Avg\ Equity}$
Profit Margin = $\frac{Net\ Income}{Net\ Sales}$
- Assess operating efficiency in generating profit
- Can replace net income with gross profit or operating income to get gross profit margin or operating profit margin respectively
2. Liquidity/Efficiency
Current Ratio, Acid-test Ratio, AR Turnover, Avg Collection Period/Days' Sales Uncollected, Inventory Turnover, Days' Sales in Inventory, Days' Purchases in AP, Total Asset Turnover, Fixed Asset Turnover

Working Capital = $Current\ Assets - Current\ Liabilities$
- More working capital suggests a stronger liquidity position and an ability to meet current obligations
3. Solvency
Debt Ratio
Time Interest Earned Ratio = $\frac{Earnings\ before\ Interest\ and\ Tax\ (EBIT)}{Interest\ Expense}$
- Indicates how many times a company can pay its interest with its income before interest and tax
Debt-to-Equity Ratio = $\frac{Total\ Liabilities}{Total\ Equity}$
- Measures how much liabilities a company has relative to its equity
4. Market Prospects
PE ratio, Dividend Payout Ratio
Cash Flow to Net Income = $\frac{Cash\ Flow\ from\ Operations}{Net\ Income}$
- Reflects the extent to which accrual accounting assumptions and adjustments have been included in computing net income
Cash Flow Adequacy = $\frac{Cash\ Flow\ from\ Operations}{Cash\ paid\ for\ CAPEX}$
- Used to access if a company is generating enough cash flow from its operations to pay for its capital expenditures in PPE and still have cash left over
DuPont Framework
Return on Equity = Profitability x Efficiency x Leverage
= Return on Sales x Asset turnover x Assets-to-equity ratio
$= \frac{Net\ income}{Net\ sales} * \frac{Net\ sales}{Avg\ total\ assets} * \frac{Avg\ total\ assets}{Avg\ total\ equity}$
Profitability = Ability to generate net income per dollar of sales
Efficiency = Ability to generate sales through use of assets
Leverage = Degree to which company uses borrowed funds instead of invested funds
Limitations of FS and Ratio Analysis
- Not governed by financial reporting standards, except EPS
- Many variations → susceptible to manipulation
- Watch out for unexplained large changes in financial statement items that are clouded in general terms such as "other operating expenses" or "other payables"

	CF from Operating	CF from Investing	CF from Financing	General Explanation
#1	+	+	+	Company is using cash generated from operations, from sale of assets, and from financing to build up a pile of cash—very liquid company—possibly looking for acquisition.
#2	+	–	–	Company is using cash flows generated from operations to buy fixed assets and to pay down debt or pay owners.
#3	+	+	–	Company is using cash from operations and from sale of fixed assets to pay down debt or pay owners.
#4	+	–	+	Company is using cash from operations and from borrowing (or from owner investment) to expand.
#5	–	+	+	Company's operating cash flow problems are covered by sale of fixed assets, by borrowing, or by stockholder contributions. The negative cash flow from operations could cause long-term problems if it persists.
#6	–	–	+	Company is growing rapidly, but has shortfalls in cash flows from operations and from purchase of fixed assets financed by long-term debt or new investment.
#7	–	+	–	Company is financing operating cash flow shortages and payments to creditors and/or stockholders via sale of fixed assets.
#8	–	–	–	Company is using cash reserves to finance operation shortfall and pay long-term creditors and/or investors.