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Financial Reporting and Analysis

CFA一级知识框架图

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Summary of Readings and Framework

Section

M1 Introduction to Financial Statement Analysis

Section

M2 Analyzing Income Statements

M3 Analyzing Balance Sheets

M4 Analyzing Statements of Cash Flows I

M5 Analyzing Statements of Cash Flows II

Section

M6 Analysis of Inventories

M7 Analysis of Long-Term Assets

M8 Topics in Long-Term Liabilities and Equity

M9 Analysis of Income Taxes

Section

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M11 Financial Analysis Techniques

M12 Introduction to Financial Statement Modeling

Module 1

Introduction to Financial Statement Analysis

两套会计体系 ➡ FASB→US.GAAP / IASB→IFRS

⬇ 作用

make economic decisions

最常见报表　了解概念，后面章节详细展开

Financial position	Financial performance	Change in financial position
The balance sheet	The income statement	The cash flow statement
Assets = liabilities + owner's equity	•Revenue •Expenses •Net income	•Operating cash flows •Investing cash flows •Financing cash flows

Financial Statement Analysis Framework

Phase	Sources of info	Output
1. Articulate the purpose and context of the analysis	• Nature • Needs & concern • Guidelines	• Statement of purposes and objectives • A list of specific questions • Timetable & budgeted resources
2. Collect data	• Financial data • Discussion • Visits	• Financial statements and other quantitative data in a usable form • Complete questionnaires
3. Process data	• Data from previous phase	• Adjusted F/S • Common – size statements • Ratios & Forecasts
4. Analyze/interpret the processed data	• Input data • Processed data	• Analytical results, forecasts, valuations
5. Conclusions & recommendations	• Analytical results	• Analytical reports • Recommendation
6. Follow up	• Periodically Repeating	• Comparison, revised, Updated reports & Recommendations

Regulated sources of information

Regulatory Authorities	• US: Securities and Exchange Commission ***(SEC)*** • UK : The Financial Service Authority ***(FSA)*** • ***IOSCO: not a regulatory authority but its members regulate*** financial capital markets

Securities and Exchange Commission (SEC) filings ★	• ***Form 10-K:*** Annual financial statements
	• ***Form 10-Q:*** Quarterly financial statements
	• ***Form 8-K***
	    • Major events as acquisitions or disposals of corporate assets,
	    • Changes in securities and trading markets, matters related to accountants and financial statements, corporate governance and management changes, and Regulation FD disclosures.
	• ***Form DEF-14A:*** proxy statement before a shareholder meeting
	• ***Forms 3, 4, 5, and 144:***
	    • ***Forms 3, 4, and 5*** are required for ***any director or officer*** as well as ***beneficial owners of greater than 10 percent*** of equity securities. Form 3 is the initial statement, Form 4 reports changes, and Form 5 is the annual report.
	    • ***Form 144*** is notice of the ***proposed sale of restricted securities*** or securities held by an ***affiliate of the issuer***.
	• ***Form 11-K***: the annual report of ***employee stock*** purchase, savings, and similar plans

Financial Statement notes (Footnotes) &Supplementary schedules ★	• Provide explanatory information about every (almost) line item • Disclose information about the ***accounting policies, methods, and estimates*** • ***segment reporting***, business acquisitions and disposals, contractual obligations, financial instruments and risks arising from financial instruments, legal proceedings, related-party transactions and subsequent events • Are ***audited***

Segment Reporting ★	Disclose separate information about any operating segment:
	• the segment constitutes ***≥10%*** of the combined operating segments' ***revenue***, ***assets***, or ***profit***.
	• Criteria: the absolute value of the segment's profit or loss as a percentage of the greater of
	  • (i) the combined profits of all profitable segments
	  • (ii)the absolute amount of the combined losses of all loss-making segments.
	• If, after applying these quantitative criteria, the ***combined*** revenue from external customers for all reportable segments combined is ***less than 75 percent of the total company revenue***, the company must ***identify additional reportable segments until the 75 percent level*** is reached.

Management's Discussion and Analysis (MD&A)★	• The ***nature of the business***, management's ***objectives*** and ***strategies***, the company's ***significant resources***, ***risks***, and ***relationships***, ***results of operations*** and ***critical performance*** measures.

如何保证报表真实

外部因素→Audit　　知道审计结果含义

审计结果★	内容
Unqualified (clean) opinion	free from material errors, fraud, or illegal acts
Qualified opinion	if statements ***make any exceptions to the accounting principles***, can issue qualified opinion and explain the exceptions
Adverse opinion	if not presented fairly or ***not materially conforming with accounting standards.***
Disclaimer of opinion	If the auditor is unable to express an opinion (e.g., in the case of a scope limitation), a *disclaimer of opinion* is issued.

内部因素→Internal control system

Other sources of information

Issuers	• Earning calls, presentations and events, press releases • speaking with management, investor relations, or other company personnel • Company website or properties
Public third-party	• Free industry whitepapers or analyst reports from a consultancy • Economic or industry indicators from governments and other organizations • General news outlets, Industry-specific news outlets, social media
Proprietary third-party	• Reports and data from sell side or analysts and credit rating agencies, platforms or consultancies
Proprietary primary research	• Surveys, conversations, product comparisons, and other studies commissioned by the analyst or conducted directly.

Module 2

Understanding The I/S

几项特殊科目★★	
Unusual or Infrequent Items	• Under US GAAP, unusual or infrequent items are shown ***as part of a company's continuing operations but are presented separately*** (e.g., "Special Items"). • ***restructuring charges & Gains and losses arising when a company sells an asset*** or part of a business • IFRS: ***disclosed separately***. (("other operating income (expense)") • presented on a ***pretax basis***
Discontinued Operations	• be reported separately from continuing operations • 资产决定处置到实际处置期间产生的income/loss, presented on ***net of tax*** • Assets and liabilities are aggregated and recognized on the balance sheet as ***held for sale***
Accounting changes	Change in ***accounting principle*** • Retrospective application-***Full retrospective method (notes)*** • ***Prior periods shown in a report*** as if the newly adopted accounting principle had been used throughout the entire period • ***Modified retrospective method***: adjusted opening balances of retained earnings Change in accounting ***estimate*** (***prospective***) • Significant changes should be disclosed in the notes Correction of an error for a prior period • ***Restate*** the financial statements • ***Note*** disclosures are required regarding the error.

几项特殊科目（续）★★

Changes in Scope and Exchange Rates	• Changes in Scope: an acquisition can materially affect the comparability of the acquirer's financial results and position from prior periods. • Changes in exchange rates often affect multinational companies' income statements. • Unfortunately, accounting standards ***do not require issuers to disclose the effects*** of either scope or exchange rate changes on the financial statements or in individual items, although most issuers disclose useful summary information in management reporting or elsewhere.

Common – size I/S ★ → item in the I/S/revenue

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Revenue}}$$

$$\text{Net profit margin} = \frac{\text{Net income}}{\text{Revenue}}$$

1. Revenue ★

Revenue确认★

General principles
Accrual accounting

- Recognized when it is earned (the risk and reward of ownership is transferred)
- Sales on credit→***contract asset***
  - contract asset → ***accounts receivable***: ***when all performance obligations have been met except for payment***
- Receives cash in advance→***contract liability***

Five steps ★★
1. Identify the contract(s) with a customer • A contract exists only if ***collectability is probable***.
2. Identify the *separate or distinct performance obligations* in the contract • **两个条件:** if the customer can ***benefit from it on its own or in combination with readily available resources;*** (2) if the promise to transfer it can be ***separated from other promises in the contract***. • Each identified performance obligation is ***accounted for separately***
3. Determine *the transaction price* • Revenue should only be recognized when it is ***highly probable*** that it will ***not be subsequently reversed***.
4. *Allocate* the *transaction price* to the performance obligations in the contract
5. *Recognize revenue when (or as) the entity satisfies a performance obligation*

Revenue确认→ Complex contracts★★★

Condition	Methods
Principal & Agent	• *the principal:* revenue is recorded as the total amount of considerations received. • *the agent:* it records revenue only for its ***fee or commission.***
Franchising /Licensing	• ***Company-owned stores revenues*** • ***Franchise royalties and fees.*** Each franchisee is generally required to pay fees equal to 5.5 percent of restaurant sales. • ***Supply chain revenues***

Software as a Service or license	• Software revenues include ***revenues associated with term*** and ***perpetual software licenses***
	  • The ***software is sold*** "as is" and revenue is ***recognized at the time of the license transfer***.
	  • Company also provides a ***support contract for updates*** for which revenue is ***recognized over the contract term***.

Long-Term Contracts	• ***output methods*** (e.g., appraisals or units completed) or • ***input methods*** (e.g., costs incurred relative to estimated total costs).

Bill and Hold Arrangements	• "bill and hold" arrangement: when it has satisfied its performance obligation based on ***when a customer obtains control of the product.***
	  • The reason for the bill and hold arrangement must be ***substantive*** (e.g., the customer has requested the arrangement)
	  • The product must be ***identified separately*** as belonging to the customer
	  • The product currently must be ready for ***physical transfer*** to the customer
	  • The entity cannot have the ability to use the product or to direct it to another customer

2. Expenses

具体存货处理、折旧等后续章节展开

Accrual Accounting (Matching Principle)

Revenue is recognized when earned ⟷ ***Expenses*** are recognized when incurred

Expenses the directly related to revenue generation are recognized in the same period as the revenue

Firms can manipulate Net income by ***recognizing revenue earlier or delaying the expenses recognition***

3. EPS ★★★

计算

Basic EPS ➡ $$\text{basic EPS} = \frac{NI - div_{preferred\ stock}}{\text{weighted average number of common shares outstanding}}$$

- **New issue, repurchase** →weighted by time (days or months)
- **stock dividend/split** → not weighted by time, adjust the number of common share before the stock dividend or split

Diluted EPS ➡

$$\text{diluted EPS}=\frac{\text{adjusted income available for common shares}}{\text{weighted avg. common \& potential common shares out}}$$

$$=\frac{\begin{bmatrix}\text{NI}\\ -\text{div}_{\text{preferred}}\end{bmatrix}+\left[\text{div}_{\substack{\text{convertible}\\ \text{preferred}}}\right]+\left[\text{interest}_{\substack{\text{convertible}\\ \text{debt}}}\right](1-t)}{WACSO+\left[\text{shares}_{\substack{\text{conversion of}\\ \text{conv. pfd. shares}}}\right]+\left[\text{shares}_{\substack{\text{conversion of}\\ \text{conv. debt}}}\right]+\left[\text{shares}_{\substack{\text{issuable from}\\ \text{stock opt.}}}\right]}$$

- **Treasury stock method** → assumes that ***the funds received by the company from the exercise of the options*** would be used to hypothetically purchase shares of the company's common stock in the market ***at the average market price.***
- **Dilutive Securities & Antidilutive Securities** → stock options, convertible debt, or convertible preferred stock
  - Dilutive Securities: ***decrease EPS*** if exercised or converted to common stock.
  - Antidilutive Securities: ***increase EPS*** if exercised or converted to common stock.

Module 3

Understanding The B/S

Common – size B/S ★ → Item in the balance sheet account / ***total assets***

Non-current liabilities

Non-current liabilities	
Long-term financial liabilities	• Liabilities such as ***loans payable and bonds payable*** are usually reported at ***amortized cost*** on the balance sheet. At maturity, the amortized cost of the bond (carrying amount) will be equal to ***the face value of the bond***. • financial liabilities held for trading, derivatives that are a liability to the company, and some non-derivative instruments, such as those which are hedged by derivatives: reported at ***fair value***
Deferred tax liabilities	• Income tax

Financial asset ★

US GAAP/IFRS	HTM/Amortized Cost	AFS/FVOCI	TS/FVPL
B/S初始计量	Amortized cost (only debt)	Fair value ***(US GAAP only debt)***	Fair value (equity &debt)
期间收益→interest/dividend	I/S	I/S	I/S
期间收益→Realized G/L	I/S	I/S	I/S
期间收益→***Unrealized G/L***	无，不按Fair value调整	***B/S→OCI***	***I/S***

Module 4、5

Understanding The CF/S

Types of Cash Flows

U.S. GAAP

CF	Inflows	Outflows
CFO	• Cash collected from customers • Sale proceeds from trading securities • Interest received • Dividend received	• Cash paid to employees and suppliers • Acquisition of trading securities • Interest paid • Taxes paid • Cash paid for other expenses • Purchase trading
CFI	• Sale proceeds from fixed assets • Sale proceeds from debt & equity investments • Principal received from loans made to others	• Acquisition of fixed assets • Acquisition of debt & equity investments • Loans made to others
CFF	• Principal amounts of debt issued • Proceeds from issuing stocks	• Principal paid on debt • Payments to reacquire stock • Dividends paid to shareholders

IFRS vs US.GAAP ★★★

Items	U.S. GAAP	IFRS
Interest received	CFO	CFO or CFI
Interest paid	CFO	CFO or CFF
Dividends received	CFO	CFO or CFI
Dividends paid	CFF	CFO or CFF
Taxes paid	CFO	CFO, CFI or CFF
Disclosure	• Encourage direct method, but allows indirect method • If direct method presented, footnotes must provide indirect method.	• Encourage direct method, • but permits either method • IFRS permits more flexibility in reporting

Cash Flow Calculation ★★★

CFO计算 ★★★

Indirect Method

Net income	
+ Non-cash expenses or losses - Non-cash revenues or gains	Income Statement Items
+/- Non-operating items	
-Increase in non-cash operating asset accounts (Inventory, A/R) +Increase in operating liability accounts (A/P)	Balance Sheet Items (Working capital)
=CFO	

Direct Method

Cash received from customers	Opening A/R + net sales – Closing A/R+ Δ unearned revenue =Net sales-ΔA/R + Δ unearned revenue
- Cash paid to suppliers	Opening A/P + Purchase – Closing A/P= - COGS - ΔInv+ΔA/P + Depreciation included in COGS (COGS = Opening Inventory + purchase – Closing Inventory)
- Cash paid to employees	Opening wage payables + wage expense – Closing wage payables =-wage expense + Δwage payables
- Interests paid	Opening interest payables + interest expense – Closing interest payables=- interest expense + ΔInterest payables
- Tax paid	Opening tax payables + income tax expense – Closing tax payables = - income tax expense + Δtax payables
= CFO	

CFI计算 ★★

Cash used in purchase of fixed assets	• Pay attention to the movement of fixed assets. • Book Value = Carrying value = Purchase cost – AD – Impairment • $BV_{end} = BV_{Begin}$ + Purchase – Disposal NBV – Depreciation
Proceeds received from sale of fixed assets	• Gain or loss = ***proceeds received*** – disposal NBV • ***Gain or loss*** resulting from disposal of PP&E or other long term assets are NOT presented in the CFI, but in gain or loss.

CFF计算 ★★

Review long-term debt and stock	• Increases supply cash and decreases use cash.
Dividend paid	• -Dividend paid = - Dividend declared + Δ dividend payables • Opening R/E + Net Income – Dividend declared = Ending R/E

Analysis of Cash Flow Statement ★

Common – Size Analysis ➡

$$\frac{\text{cash flow statement account}}{\text{revenues}}$$

$$\frac{\text{cash outflow}}{\textit{total}\ \text{cash outflows}} \qquad \frac{\text{cash inflow}}{\textit{total}\ \text{cash inflows}}$$

计算ratio ➡

Performance ratios	Coverage ratio
CFO/ Revenue	CFO / Total debt
CFO/ Average total assets	CFO / Cash paid for long - term assets
CFO / Average total equity	CFO / Cash long – term debt repayment
CFO/ Operating income	CFO/ dividend paid
(CFO – Preferred dividends) / Weighted average number of common shares	CFO / Cash outflows from investing and financing activities
	(CFO + interest paid + taxes paid)/ Interest paid

Free Cash Flow ★

分类 ➡

- Free cash flow to firm (FCFF) →
  - FCFF = NI + NCC + [Int * (1 - tax rate)] – FCInv – WCInv
  - = EBIT*(1-tax rate) + NCC – FCInv - WCInv
  - FCFF = CFO + [Int * (1 - tax rate)] – FCInv
- Free cash flow to equity (FCFE) →
  - FCFE = CFO – FCInv + Net borrowing

Module 11

Financial Analysis Techniques

财务分析工具

- Common – size analysis
- Ratio analysis
- DuPont system of analysis

Common – size Analysis

Common – size I/S	Common – size B/S	Common – size CF/S
$\frac{\text{Income Statement Account}}{\text{Revenues}}$	$\frac{\text{Balance Sheet Account}}{\text{Total Assets}}$	$\frac{\text{Cash Flow Statement Account}}{\text{Revenues}}$ $\left\{ \begin{array}{l} \frac{\text{Cash Outflow}}{\text{Total Cash Outflows}} \\ \frac{\text{Cash Inflow}}{\text{Total Cash Inflows}} \end{array} \right.$

Ratios and Ratio analysis ★★

1. Activity ratio: A firm's efficiency in using assets to generate revenue

Inventory	A/R	A/P
Inventory turnover = COGS / average inventory	**Receivables turnover** = Net revenue / average A/R	**Payables turnover** = Purchase / average A/P
Days of inventory on hand (DOH) = 365 / inventory turnover	**Days of sales outstanding (DSO)** = 365 / receivables turnover	**Number of days of payables** = 365 / payables turnover
Operating cycle = DOH + DSO		
Cash conversion cycle = DOH + DSO – Number of days of payables → 也属于liquidity ratio		

Total asset turnover	net revenue/ average total assets
Fixed asset turnover	net revenue / average net fixed assets
Working capital turnover	net revenue / average WC

2. Liquidity Ratios: A firm's ability to pay short–term debt

Current ratio	Current assets / Current liabilities
Quick ratio	[cash + marketable securities + receivable] / Current liabilities = [current asset - inventories] / Current liabilities
Cash ratio	[cash + marketable securities] / Current liabilities
Defensive interval	(cash + marketable securities + receivables) / average daily expenditures
Cash conversion cycle	Days of sales outstanding + days of inventory on hand – number of days of payable

3. Solvency Ratios: A firm's ability to pay long–term debt

Leverage	**Debt-to-equity ratio**	D / E
	Debt-to-capital	D/(D+ E)
	Debt-to-assets	D / A
	Financial leverage	A / E
Coverage	**Interest coverage**	EBIT / Interest
	Fixed charge coverage	(EBIT + lease payments) / (Interest + lease payments)

4. Profitability Ratios: A firm's ability to generate profits

Profit / Net revenue	**Gross profit margin**	Gross profits / net revenue
	Operating profit margin	EBIT / net revenue
	Pretax margin	EBT / net revenue
	Net profit margin	NI / net revenue
Profit / Capital	**ROA**	[NI + interest (1-t)] / average total assets
	Operating return on assets	EBIT / average total assets
	Return on total capital (ROTC)	EBIT / average total capital
	ROE	NI / average total equity
	Return on common equity	(NI- Preferred Dividend) / average common equity

ROE来源分析→DuPont analysis

三分解

$$ROE = \left(\frac{\text{net income}}{\text{sales}}\right)\left(\frac{\text{sales}}{\text{assets}}\right)\left(\frac{\text{assets}}{\text{equity}}\right)$$

五分解

$$ROE = \left(\frac{\text{net income}}{\text{EBT}}\right)\left(\frac{\text{EBT}}{\text{EBIT}}\right)\left(\frac{\text{EBIT}}{\text{revenue}}\right)\left(\frac{\text{revenue}}{\text{assets}}\right)\left(\frac{\text{assets}}{\text{equity}}\right)$$

Module 6

Inventories

Inventory Valuation Methods ★★ 存货的期间计量

存货初始计量 →(计量关键) GOGS→I/S Inventory→B/S →

Inventory cost flow method

- Specific identification
- FIFO ★
- LIFO ★ →IFRS不允许
- Weighted average cost

Method	Assumption	Cost of goods sold consist of...	Ending inventory consists of...
FIFO (U.S. and IFRS)	The items first purchased are the first to be sold.	first purchased	*More recent purchases*
LIFO (U.S. only)	The items last purchased are the first to be sold.	*last purchased*	Earliest purchases
Weighted average cost (U.S. and IFRS)	Items sold are a mix of purchases.	Average cost of all items	Average cost of all items

Economic Environment	Account	FIFO	LIFO
Inflation	Ending Inventory	Higher	Lower
	COGS	Lower	Higher
Deflation	Ending Inventory	Lower	Higher
	COGS	Higher	Lower

Financial Impacts ★★

掌握影响→前提★：物价上涨&存货上升

		LIFO	FIFO→与LIFO反过来
I/S		Higher COGS Lower EBIT ***Lower taxes*** Lower net income(EAT)	Lower COGS Higher EBIT ***Higher taxes*** Higher net income (EAT)
B/S		Lower inventory balances Lower working capital	Higher inventory balances Higher working capital
CFS		***Higher CFO(↓ taxes paid)***	***Lower CFO(↑ taxes paid)***
Financial Ratio	Profitability	Lower net and gross margins	Higher net and gross margins
	Liquidity	Lower current ratio	Higher current ratio
	Activity	Higher inventory turnover	Lower inventory turnover
	Solvency	D/A and D/E higher	D/A and D/E lower

Inventory Adjustments ★

区别 ★★

IFRS

Cost vs NRV → NRV = selling price – estimated cost of completion – selling costs

$\underbrace{\text{Cost vs NRV}}_{\text{Lower}}$

减值可转回，最高到减值前

US GAAP

Other than LIFO or the retail inventory methods：与IFRS相同

LIFO and retail inventory methods：

都不可减值转回

$\underbrace{\text{Cost vs Market}}_{\text{Lower}}$ → Market

判断

1. If replacement cost (RC) > NRV → Market = NRV
2. If replacement cost (RC) < NRV – normal profit margin
   → Market = NRV – normal profit margin
3. NRV – normal profit margin < RC < NRV → Market = replacement cost

例外→Commodity(agricultural & forest& mineral products)用NRV计量→有活跃可靠报价

减值影响★

方向	影响	原因
negative effect	profitability, liquidity, and solvency ratios	inv↓; NI↓
positive effect	inventory turnover and total asset turnover	denominator↓

Module 7

Long-Lived Assets

Capitalize or Expense

框架

花掉一笔钱 ➡
- Expense→一次在I/S中处理掉，属CFO
- Capitalize→计入B/S资产，属CFI。之后逐年在I/S中处理

区别

Spending Expenditure ➡ 未来有潜在收益？
- Yes →B/S ➡
  - current assets → Inventory →COGS
  - Non current assets
    - Tangible assets →depreciation
    - Intangible assets →Amortization
- NO→I/S → I/S项目

对财务指标影响★★

F/S	Items	Capitalizing	Expensing
B/S & ratios	Total assets	Higher	Reverse
	Shareholders' equity	Higher→NI高&A高	
	Leverage ratios (debt/equity & debt/assets)	Lower→E高	
I/S & ratios	Income volatility	Lower→平摊到之后每年	
	Net income – first year (ROA & ROE)	Higher→一次费用少	
	Net income – later years (ROA & ROE)	Lower→逐年折旧费用高	
	Interest coverage (subsequent years)	Lower→EBIT小	
CFS	***Total cash flow***	***Same***	***Same***
	Cash flow from operating	Higher→支出计入CFI	Reverse
	Cash flow from investing	Lower	

Capitalizing Interest ★★ 专指在建工程的贷款利息资本化

Items	First Year	Later Year
Interest expense	No interest	No interest
Net Income	↑	↓
CFO	Overstate	
CFI	Understate	
Income statement impact	No impact	建好后持有→Depreciation↑ 建好后出售→COGS↑
Interest coverage★	计算角度：↑ 概念角度：No impact→分析师认为利息支出应是CFO，undo分类后与费用化相同	↓

Note: 这里大小是与费用化利息比较

Implications for analysis

- Treat as *normal interest*
- I.e. *interest expense charged to I/S directly, and classified as part of CFO*

Note: *Under IFRS,* but not under US GAAP, *income earned on temporarily investing the borrowed monies decreases the amount of borrowing costs* eligible for capitalization

Tangible assets

1. Depreciation Analysis: Average Age

资产已用年份 ➡ $$\text{Average age} = \frac{\text{accumulated depreciation}}{\text{annual depreciation expense}}$$

资产剩余年份 ➡ $$\text{Remaining useful life} = \frac{\text{ending net investment}}{\text{annual depreciation expense}}$$

资产总年份 ➡ $$\text{Average depreciable life} = \frac{\text{ending gross investment}}{\text{annual depreciation expense}}$$

2. Impairment ★★

准则	区别
IFRS	减值判断→一步法 •carrying (book) value > recoverable amount →永续经营vs 清算假设 　•*carrying (book) value = original cost - accumulated depreciation* 　•***recoverable amount*** *= max (fair value less any selling costs, value in use), Value in use = DCF value* 减值处理：Asset(BV) is written-down recoverable amount 减值reverse：loss can be reversed (最多回到减值前BV)
US.GAAP	减值判断→二步法 •***Recoverability:*** *carrying (book) value > the asset's future* ***undiscounted*** *cash flow stream* •***Loss measurement:*** *loss = carrying value - fair value of the asset (or* ***DCF Value****)* 减值reverse：loss recoveries are prohibited →例外：long-lived assets held for sale

减值对财务指标影响★

Impairment Effects	
Cash Flow	No effect
DTL	Decrease
DTA	Increase
Current Net Income, ROA,ROE	Decrease
Future Net Income, ROA,ROE	Increase

Impairment Effects	
Assets	Decrease
Stockholder's Equity	Decrease
Depreciation Expense	Decrease
Future Asset Turnover Ratios	Increase
Debt/Equity ratio	Increase

Intangible assets

Identifiable IA	Unidentifiable IA	Internally generated
• *Can be purchased separately* • E.g. Patents, Trademarks, Copyright purchased externally • Some have a finite useful life and others have an indefinite useful life	• *Cannot be purchased separately and may have an indefinite life* • E.g. Goodwill	• Cannot be capitalized on B/S • E.g. ***Research and Development cost*** • Under U.S. GAAP
• *Capitalized on the B/S*		• *Expensed as incurred*

IA with a finite Useful life – Amortization over UL (SL, Zero salvage value)
IA with an indefinite Useful life - Annual impairment test

Research and Development Costs ★

- 区别★
  - IFRS →
    - research costs →Expensed
    - Development cost → Capitalized
  - U.S.GAAP →
    - 正常：R&D全部expensed
    - 例外：→ Software development costs →
      - for sales → economic feasibility is established
        - expensed ↓ Capitalized
      - internal use → the project will be completed and that the software will be used as intended
        - expensed ↓ Capitalized

↓

对财务指标影响★ →与资本化&费用化对财务指标影响综述相同

Module 8

Topics in Long-Term Liabilities and Equity

Lease

1) Lease identification

- specific underlying asset
- the right to obtain ***largely all of the economic benefits***
- the ***ability to direct how and for what objective*** the underlying asset is used

2) Motivations for leasing asset (compared to purchasing it)

- For lessee: ①less cash is needed up front. ②Cost effectiveness. ③Convenience and lower risks (obsolescence).
- For Lessor : a form of investment and an effective selling strategy

3) A lessee classifies a lease as a finance lease if any of the following criteria are met★ ★ ★

①Transfers ownership

②The lessee has an option to ***purchase the underlying asset*** and is ***reasonably certain*** it will do so.

③The lease ***term*** is for a ***major part*** of the asset's useful life

④PV of Lease payments ≥ ***substantially all of*** the ***fair value*** of the asset

⑤The underlying asset has ***no alternative use*** to the lessor.

准则	Lessee	lessor
IFRS	只有一种会计处理 (本质是Finance lease)	Operating/Finance lease (substantially ***identical*** under IFRS and US GAAP)
US.GAAP	• If any of the criteria are met→***finance lease*** • Otherwise→***operating lease***	

Lessee:会计计量★★★

<table>
<tr><th>Lessee</th><th>Balance Sheet (at inception)</th><th>Balance Sheet (after inception)</th><th>Income Statement</th><th>Statement of Cash Flows</th></tr>
<tr><td>IFRS leases & US GAAP finance leases</td><td rowspan="2">'ROU' asset & lease liability (=PV(future lease payment))</td><td>• lease liability net of principal repayments
• ROU asset net of accumulated amortization</td><td>• Amortization expense on ROU asset at straight-line basis
• Interest expense on lease liability (interest portion of payment)</td><td>Principal portion:
• CFF流出
Interest portion:
• IFRS: CFO/CFF流出
• US GAAP: CFO流出</td></tr>
<tr><td>US GAAP operating leases</td><td>• lease liability net of principal repayments
• ROU asset net of accumulated amortization</td><td>• Single lease expense (payment=interest + amortization)
• ROU asset amortization expense = the principal repayment = lease payment - interest expense</td><td>CFO 流出</td></tr>
</table>

Lease accounting exemptions: ***Short-term leases*** and leases where leased asset is ***low value***, under IFRS

Lessor:会计计量★ ★

Lessor	Balance Sheet (at inception)	Balance Sheet (after inception)	Income Statement	Statement of Cash Flows
IFRS & US GAAP operating leases	• ***Not affected***	• Leased ***asset*** at cost net of ***accumulated depreciation***.	• Lease revenue ***(straight-line basis)*** • Depreciation expense	• The entire cash receipt: ***CFO***流入
IFRS & US GAAP financing leases	• Lease receivable net of principal proceeds (=PV of future lease payments) • De-recognizes the leased asset	• The lease receivable is subsequently reduced by each lease payment using the ***effective interest method***.	• recognizing any difference as a ***gain or loss*** (at inception). • Interest income (revenue, if leasing is a primary business activity for the entity)	

Pension

	DC	DB
Amount of benefit	Not determined; Depends on future value of plan assets	Pre-determined
Investment risk	Born by employee	Born by employer
Employer's obligation	make periodic contributions	Make pre-determined payment to retiree

IFRS & U.S.GAAP			
B/S	$	I/S	$
PV of obligation	(X)	Interest cost	(X)
FV of plan asset	X	Current service cost	(X)
Overfunding/(Underfunding)	X/(X)	Expected return	X
		Actuarial gain / (Loss)	X/(X)
		Total	X/(X)

Funded status= Fair value of the plan assets - PV of the Defined benefit obligation, 计入公司B/S

Share-based Compensation ★★★

形式
- **Equity settled**
  - Stock options
  - Stock grants
- **Cash settled**
  - Stock appreciation rights
  - Phantom shares

优点	• aligning the interests of employees with shareholders • require no cash outlay
缺点	• dilutes existing shareholders • does not necessarily provide the desired incentives • may lead managers to excessive risk taking.

Call option

Grant date — ***Vesting date***

Recognize the compensation expense over the ***service period*** based on: Fair value of the stock option ***at the grant date***

The first date the employee can actually exercise the option

The impact of financial reporting:
- reduce retained earnings, but the offsetting entry is an increase in paid-in capital.
- the recognition of option expense has ***no net impact*** on total equity.

Increase of Input	Estimated fair value of option grants
Volatility	Increase
Estimated life	Increase
Risk-free interest rate	Increase
Assumed dividend yield	Decrease

- Outright stock grant
- Restricted stock grant
- Performance shares： The amount of the grant is usually determined by performance measures other than the stock price

Stock Grants

Grant date → ***Vesting date***

Recognize the compensation expense over the ***service period*** based on: ***Fair value of the stock at the grant date***

Cash-settled

Stock Appreciation Rights (SARs)	• employee's compensation is based on increases in a company's ***share price***
	• Advantages of SARs:
	  • motivate employees and align their interests with shareholders.
	  • the potential for risk aversion of employees is limited: limited downside risk and unlimited upside potential similar to stock options.
	  • shareholder ownership is not diluted.

Phantom Shares	• compensation is based on the performance of ***hypothetical stock*** • phantom shares can be used by ***private companies*** or non-public traded business units of a company or by ***highly illiquid companies***

Module 9

Income Taxes

Terminology for taxation

Tax reporting	Financial reporting	
Taxable income =Taxable revenues - Tax deductible expenses	Pretax income (Accounting profit) = Earning before tax (EBT)	
Taxes payable =Taxable income * tax rate =Current tax expense	Income tax expense =Current tax expense +/ - Deferred tax expense or income	
Income tax paid =Actual cash flow paid for income tax =Cash outflow for tax in CFS		
	Deferred tax Expense /(income)	Relating to two B/S items Deferred tax liability (DTL) Or Deferred tax asset (DTA)
Tax base: Net amount of an asset or liability used for tax reporting purposes.	Carrying value: Net balance sheet value of an asset or liability.	
Tax loss carry forward: A current or past loss that can be used to reduce taxable income in the future. → Can result in a ***deferred tax asset.***		
	Valuation allowance: Reduction of ***deferred tax assets*** based on the likelihood the assets will not be realized	

DTA & DTL产生原因

税务局报表与企业报表不同

Temporary difference→将来回转，只有这种才有递延所得税

Deferred tax assets	Deferred tax liabilities
B/S amounts that result from an excess of tax payable over income tax expense that are expected to be recovered from future operations.	**B/S amounts** that result from an excess of income tax expense over taxes payable that are expected to result in future cash outflows.
Taxes payable > income tax expense	Taxes payable < income tax expense

Reversal of temporary difference

DTL	Unlikely to be reversed	Equity
	To be reversed	true liability
	Non-reversal/ reversal is uncertain	Ignored
DTA	If <50% probability to be reversed → Valuation allowance is created	DTA= DTA – valuation allowance

Valuation allowance:
If the company continues to ***generate profits in the future***→ ***The allowance***↓

B/S Approach to Deferred Tax Issue ★★★ 计算DTA & DTA

For *assets* = accounting base – tax base
For *liabilities* = (- accounting base) – (-tax base)

Positive figure (***taxable*** temporary differences) × tax rate = ***DTL***
Negative figure (***deductible*** temporary differences) × tax rate = ***DTA***

Tax rate applicable to the periods in which the DTA and DTL will be ***reversed (forecast)***. If statutory tax rates change, the recorded value of a deferred tax asset or deferred tax liability would also change.

Income tax expense = ***Current tax expense(income tax payable)*** +/ - ***Deferred tax expense / income***

Current tax expense(income tax payable) = Taxable income × Current tax rate

Deferred tax expense / income = △DTL or △DTA

Realizability of DTA and DTL	

DTA	• be created only if the company expects to be able to ***realize the economic benefit*** of DTA in the future
	• If DTA was recognized previously, but there was sufficient ***doubt about the economic benefits being realized***, then,
	  • under ***IFRS***, an existing deferred tax asset would be ***reversed***.
	  • Under ***US GAAP***, a ***valuation allowance*** would be established

DTL	• ***If unlikely to be reversed → Treated as equity*** • If to be reversed → Treated as true liability • If the timing and amount of tax payments are uncertain →neither liability nor equity

Corporate Income Tax Rates

Three types of tax rate

- The statutory tax rate: the corporate income tax rate in the country in which the company is domiciled.

- $$\text{Effective tax rate} = \frac{\text{Income tax expense}}{\text{Pre-tax income (EBT)}}$$

- $$\text{Cash tax rate} = \frac{\text{tax paid in cash}}{\text{Pre-tax income (EBT)}}$$

The ***cash tax rate*** is used for ***forecasting cash flows***, and ***the effective tax rate*** is relevant for ***projecting earnings on the income statement.***

形成差异原因

- Differences between ***the statutory tax rate*** and ***the effective tax rate*** results from：
  - Tax credits, withholding tax on dividends, adjustments to previous years, and expenses not deductible for tax purposes.
  - If a company reports a high profit in a country with a high tax rate and a low profit in a country with a low tax rate, the effective tax rate will be the ***weighted average of the rates***, and ***higher than*** the simple average tax rate
- Differences between ***cash taxes*** and ***reported taxes*** result from:
  - differences between financial accounting standards and tax laws and result from changes in deferred tax assets or deferred tax liabilities.

Module 10

Financial Reporting Quality

结论

Conceptual Overview

两个评估维度

	Financial Reporting Quality Low	Financial Reporting Quality High
Earnings Quality High (Results)	LOW financial reporting quality impedes assessment of earnings quality and impedes valuation.	HIGH financial reporting quality enables assessment. HIGH earnings quality increases company value.
Earnings Quality Low (Results)		HIGH financial reporting quality enables assessment. LOW earnings quality decreases company value.

Quality Spectrum of Financial Reports

Quality Spectrum Of Financial Reports	Quality
GAAP, decision-useful, sustainable, and adequate returns	HIGH
GAAP, decision-useful, not sustainable, Low "earnings quality"	
Within GAAP, but biased choices ***(Aggressive, conservative and earning smoothing)***	
Within GAAP, but "earnings management" (Real EM, Accounting EM)	
Non-compliant Accounting	
Fictitious transactions	LOW

Aggressive and Conservative Accounting

Conservative Accounting	Aggressive accounting
decrease the performance and financial position in the ***current*** period and may ***increase*** its reported performance and financial position in ***later*** periods	• ***increase*** the company's reported performance and financial position in the ***current period***, but ***decrease*** the performance and position in ***later*** years. • Creates a ***sustainability issue***
Potential benefits: • ***protect the contracting parties*** with less information and greater risk • ***reduces the possibility of litigation*** • protect the interests of regulators and politicians by ***reducing the possibility that fault*** • ***reduce the present value of their tax payments***	

Context for Assessing Financial Reporting Quality

Motivation for manipulation

- Managers frequently have incentives to meet or beat market expectations.
- Career concerns and incentive compensation may motivate accounting choices
- Avoiding debt covenant violations can motivate managers to inflate earnings

Fraud Triangle

- ***Opportunity*** can be the result of internal conditions
- ***Motivation*** can result from pressure to meet some criteria for personal reasons
- ***Rationalization***

Detection of Financial Reporting Quality Issues

Presentation Choices

The *technology boom* and the internet bubble shared the same characteristic

- Can not use the traditional price-to-earnings ratio (P/E) approaches to valuation.
- Various versions of "*pro forma earnings*"—that is, "*non-GAAP earnings measures*
    - If a company uses a ***non-GAAP financial measure in an SEC filing***, it must display the most directly ***comparable GAAP measure with equal prominence*** and ***provide a reconciliation*** of the non-GAAP measure and the equivalent GAAP measure
    - The SEC ***prohibits the exclusion of charges or liabilities requiring cash settlement from any non-GAAP liquidity measures***, other than EBIT and EBITDA
    - excluding restructuring charges in pro forma measures of financial performance
- ***Adjusted EBITDA***

Accounting Choices and Estimates

Affect earnings and balance sheet	Affect the cash flow statement
• The change in shipping terms for goods • The choice of inventory assumptions • Estimate of uncollectible account • DTA and estimate of valuation allowance • Selecting a depreciation method • Expense or capitalization • Estimate of fair value for assets acquired	• ***Stretching the accounts payable credit period: Delay*** payments • ***Misclassify*** operating uses of cash into either the investing or financing section • ***Interest capitalization:*** offset the entire non-cash discount amortization as expense→lower CFO • Securitizing Accounts receivable: Sale A/R → CFO↑

Accounting warning signs

Pay attention to revenue

- Examine policies. easier to prematurely recognize revenue, barter transactions, estimates about rebate
- Examine Revenue relationship. ***Increase in DSO or decrease in receivables turnover could suggest that some revenues are recorded prematurely or are even fictitious***
- Examine asset turnover.

Pay attention to signals from inventories

- ***Declining inventory turnover could suggest obsolescence should be recognized***.

Pay attention to capitalization policies and deferred costs

- Examine the company's accounting policy note for its ***capitalization*** policy.

Pay attention to the relationship of cash flow and net income

- ***If the ratio is consistently below 1.0 or has declined repeatedly, there may be problems in the company's accrual accounts***.

Module 12

Introduction to Financial Statement Modeling

结论

Income Statement Modeling

Item		考试中常见预测方法
Revenue		• Change in revenue is driven by volume, price, and foreign currency estimates • Changes in revenue attributable to volume or price/mix are ***organic growth*** and are shown ***separately from*** the impact of ***acquisitions and divestitures*** and foreign exchange.
Operating expense	**COGS**	***1. Direct link*** with sales: as a percentage of sales (based on ***gross margin***) • Forecast COGS=(1-Gross Margin) × Estimate future revenue 2. A breakdown of both costs and sales into ***volume and price*** components • %ΔCOGS=(1+%Δcost)(1+%Δvolume)-1
	SG&A and Other operating expenses	• Distribution costs & Administrative costs: ***Estimate modest increases*** as a percentage of revenue. • Other operating expenses: ***Forecast zero*** for this line in the model.

Using Segment Approach

- A segment approach like can be used instead of a consolidated approach to forecasting revenue and operating profit, it is also commonly used as a "check" on the consolidated forecasts.

Income Statement Modeling

Item		考试中常见预测方法

Non-Operating Items	finance expenses	• 基本考试会直接给出利率，需要会算债务规模
		• Net finance cost= interest expense on debt - interest income earned on cash and investments.
		    • interest expense on debt = debt*interest rate
		    • interest income = forecasted cash and investments * forecasted interest rate

	income taxes	• 基本考试会直接给出税率：statutory rate & effective tax rate
	shares outstanding	• Major Factors Affecting Shares Outstanding: ***Share issuance, Share repurchases, Other Significant Transactions*** • Shares outstanding to compute earnings per share (EPS) on the income statement

Cash Flow Statement Modeling

Item	考试中常见预测方法
Capital Investments & Depreciation Forecasts	• 假设capex/revenue的比例 • 假设dep/PPE、amortization/intangible asset的比例
Working Capital Forecasts	forecasting based on ***efficiency ratios*** • Projected AR=(days sales outstanding)×(forecasted revenues/365) • Projected Inventory= (days inventory on hand)×(forecasted COGS/365) • Projected AP=(number of days of payables)×(forecasted COGS/365)
share-based compensation, dividends, and share repurchases.	• 一般assume flat share-based compensation, no share repurchases or issuance, and dividend paid equal to the prior year

Balance Sheet Modeling

- The forecasted balance sheet is based on the combination of the projected income statement , the projected statement of cash flows, and the historical starting balance sheet.

Ratio Analysis ★★

Ratio	Formula	Advantages
ROE (return on Equity)	• $\frac{NI}{Shareholder's\ equity}$	• the ***most common*** measure of ***shareholder***'s return
ROIC (return on invested capital)	• $\frac{EBIT(1-T)}{Total\ invested\ capital}$ • EBIT(1-T)=NOPLAT=net operating profit less adjusted taxes • TIC=operating assets-operating liabilities	• ROIC measures the profitability of the capital invested by the ***company's shareholders and debt holders*** • Better measure of profitability than ROE because it is ***not affected by financial leverage***
ROCE (Return on capital employed)	• $\frac{EBIT}{Total\ capital\ employed}$ • ROCE is ***essentially ROIC before tax*** • TCE= debt and equity capital	• As a pretax measure, ROCE can be useful in comparisons of companies in ***countries with different tax structures***

Other Considerations

Behavioral Finance ★

Item	Definition/Common forms	Mitigating Actions
Overconfidence bias	• Definition: ***unwarranted faith*** in their own abilities • Common forms: narrow confidence interval	• ***widen*** the ***confidence interval*** of forecasts (scenario analysis)
Illusion of control	• Definition: ***overestimate*** the ***ability*** to ***control*** what cannot be controlled. • Common forms: ***acquire more opinions*** from experts and ***create more complex models***.	• ***focus on*** the ***most important variables*** • speak only with those who have significant perspectives.
Conservatism bias	• Definition: ***maintain*** their ***prior views*** by ***inadequately incorporating new information*** • Common forms: ***anchoring*** and ***adjustment***	• review regularly • ***creating flexible models*** with fewer variables
Representativeness bias	• Definition: ***classify information*** based on ***past*** experiences and ***known*** classifications. • Common forms: ***Base-rate Neglect***	• Consider both ***outside view*** and ***inside view*** • ***starting with*** the ***base rate***
Confirmation bias	• Definition: ***look for*** what ***confirms*** prior beliefs and ***undervalue*** whatever ***contradicts*** them. • Common forms: conduct only ***cursory research*** on its ***competitors***, or ***speak only*** to company's ***management***	• ***speak*** to ***analysts*** with a ***negative opinion*** • ***seek perspectives*** from ***colleagues*** who are not invested in the subject security.

Impact of Competitive Factors ★★

Force	High Degree(Limited Pricing power/Downward pressure on profitability)	Low Degree(Greater pricing power/a favorable profitability profile)
Threat of substitutes products	***Numerous substitutes*** exist and ***Switching costs*** are ***low***	***Few substitutes*** exist and/or ***switching costs*** are ***high***.
Intensity of rivalry among incumbent companies	***Industries*** are ***fragmented*** and have ***limited growth***, ***high*** exit ***barriers***, ***high fixed costs***, and basically ***identical product*** offerings	The market is ***consolidated***, the company ***dominates*** the ***market***.
Bargaining power of suppliers	***Suppliers*** have ***greater ability*** to ***increase prices*** and/or ***limit*** the ***quality*** and ***quantity*** of ***inputs***.	The primary inputs are ***basically commodities***. There are ***large number*** of ***independent suppliers*** .
	Note: Suppliers' bargaining power is generally a function of relative size, the relative importance the supplier places on a particular product, and the availability of alternatives.	
Bargaining power of buyers	***Customers*** have ***greater ability*** to ***demand lower prices*** and/or ***control*** the ***quality*** and ***quantity*** of end ***products***	Markets with a ***fragmented customer base***, a ***non-standardized product***, and ***high switching costs*** for the customer.
	Note: Buyer power is the reverse of supplier power	
Threat of new entrants	***Barriers*** to ***entry*** are ***low***.	***Barriers*** to ***entry*** are ***high***. It could be ***costly*** for ***new competitors*** to ***enter*** a market.

Inflation and deflation

预测项目		具体方法
Sales Projections	Industry Sales	Higher ability to pass on higher input costs: • The market is ***consolidated***, the company ***dominates*** the ***market*** • ***demand is relatively price inelastic,*** a ***fragmented customer base*** • ***Low availability of substitutes***
	Company Sales	• understanding of the ***price elasticity of the product →inelastic: benefit*** from ***inflation***. • Identifying a company's ***major input costs***→预测公司会不会提价 • considering ***company strategy***
Cost Projections	Industry Costs	• ***Long-term price-fixed forward contracts*** and ***hedges*** →降低价格上升的影响 • If competition makes it difficult to increase prices, the company will look for alternatives to keep margin stable, such as reducing A&P spending
	Company Costs	Segmenting the ***cost structure by category and geography***

The Forecast Horizon and Long-term Forecasting

Choice of the forecast time horizon (为了得到*normalized earning*)

- Investment strategy→ ***average holding period = 1/average annual turnover***
- Cyclicality of the industry → reach an expected ***mid-cycle level or "normalized"***
- Various ***company specific factors*** → 例如近期并购或重组活动
- Employer's preferences

Long-term Projections

- Provide a better representation of the normalized earnings potential of a company than a short-term forecast.
  - Normalized Earnings and Cash Flow(expected ***mid-cycle level)*** →by extending the forecast period
- Estimating Normalized Revenue
  - Calculating Trend Line
  - "growth relative to GDP growth" and "market growth and market share" methods

Challenges: Anticipating inflection points

- using a boom year as the starting point for the perpetuity could result in a grossly overstated valuation.
  - ***Economic disruption***: such as the 2008 global financial crisis or COVID-19 pandemic.
  - Regulation and technology

Long-term growth is a key input in the perpetuity calculation.


Thank You!