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Equity Investments

CFA一级知识框架图

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Equity

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Summary and Framework

Section

Module 1 Market Organization And Structure

Module 2 Security Market Indices

Module 3 Market Efficiency

Section

Module 4 Overview Of Equity Securities

Module 5 Company Analysis: Past and Present

Module 6 Industry And Competitive Analysis

Module 7 Company Analysis: Forecasting

Module 8 Equity Valuation: Concept And Basic Tool

Module 1

Market Organization And Structure

Introduction of Financial Market

3 Main Functions of Financial Market

- ***Fulfill different entities' requirements:***
  - Saving, borrowing, raising equity capital, managing risk, exchanging assets
- ***Determine rates of return***
  - Equilibrium interest rate
- ***Allocate capital to the best uses***
  - ***scarce capital funds*** are available only to the best projects.

- ***Investing***
  - move money from the present to future
  - earn a ***fair*** rate of return
- ***Information-motivated trading***
  - analyze information & predict future prices better than others
  - earn ***more than*** a ***fair*** rate of return

区别

Intermediaries Of Financial Market

学会识别参与者、理解各自职责

Brokers, Exchanges and Alternative Trading Systems	**Brokers**	• ***help*** clients trade by ***reducing the costs*** of finding counterparties. • They ***do not trade with their clients*** • ***Block brokers***: provide brokerage service to ***large traders***.
	Investment banks	• Help companies ***raise money*** by issuing securities. • Help companies ***identify and acquire other companies***
	Exchanges	• Provide a place for traders ***to meet*** and ***trade with each other***. • Most exchanges regulate members' trading on the exchange
	ATS	• trading venues operate like exchanges with no ***regulatory powers***. • Many ATSs are called ***dark pools: do not display orders*** sent to them. • ***Large investment managers*** like these systems: market prices move to their disadvantage when other traders know about their large orders.
Dealers and Arbitrageurs	**Dealers**	• trade with their clients and ***provide*** them with ***liquidity*** • connect buyers and sellers who arrive ***at the same market at different times***
	Arbitrageurs	• buy and sell ***identical instruments at different prices in different markets***. • ***provide liquidity*** • connect buyers and sellers who arrive ***at the same time at different markets***

Others	**Securitizers**	• ***Securitization***: the process of buying assets, placing them in a ***pool of assets***, and then selling securities that ***represent ownership of the pool.*** • Using ***special purpose vehicle (SPV)*** or a ***special purpose entity (SPE)***.
	Depository Institutions	• Absorb ***deposits*** by paying customers ***interest*** on their deposits
	Insurance Companies	• Insurance firms needs to manage risks: • ***Moral hazard, Adverse selection, Fraud***
	Clearinghouse	• act as ***counterparty to***, and thus ***limiting counterparty risk***.
	Custodians	• ***Hold securities*** on behalf of their clients • ***Help prevent the loss of securities*** through fraud, oversight, or natural disaster

Introduction of Financial Market

Well functioned financial market

- Characteristics of a well functioned financial Market:
  - ***Complete markets:*** all instruments are available.
  - ***Operationally efficient:***
    - Low cost to arrange trades
  - ***Informationally efficient***
    - timely financial disclosures
    - The prices reflect all available information
  - ***Allocationally efficient***
    - Resources are allocated most efficiently

Market Regulation

Problems of no regulations	Objectives of market regulations
Fraud and theft	Protect unsophisticated investors.
Insider trading	Prevent insiders from exploiting other investors.
Without common standards	Common financial reporting requirements.
Defaults	honor long-term commitments.

Classification Of Assets

Financial Assets

Fixed-income instruments	**Bonds**	• Generally ***long-term***
	Notes	• ***Intermediate*** term
	Bills	• ***Short term***
	Commercial paper	• ***Short term*** issued by firms
	Repurchase agreements (repos)	• term can be as short as ***overnight***
	Convertible debt	• can ***exchange*** for a specified number of equity shares
Equity securities	**Common stock**	• ***Residual claim*** on firm's assets
	Preferred stock	• have ***higher claims*** to assets in liquidation • receive a specific dividend on a ***regular*** basis
	Warrants	• Are similar to options

Pooled investment vehicles	**Mutual funds**	• ***open-end funds***
		  • Buy and sell the shares by ***trading with the fund***
		  • The price that fund redeems and sells is ***based on the NAV***
		• ***closed-end funds***
		  • issue shares in ***primary*** market. Once issued, cannot sell back to fund but sell to ***secondary*** market
		  • The shares trade at a ***premium or discount to NAV***

	ETF/ETN	• are open-ended funds that investors trade among themselves in secondary markets • The prices trade ***rarely differ much from NAV*** • Many ETFs allow only ***in-kind deposits and redemptions***
	ABS	• a claim to a portion of a pool of financial assets
	Hedge funds	• organized as limited partnerships with ***leverage***. • compensated based on AUM and performance
Currency	• Are monies issued by ***national monetary authorities.*** • Some of these currencies are regarded as ***reserve currencies***.	

Contracts	**Forward contract**	• an agreement to trade in the future at the price agreed today
		• Two issues limit it's usefulness:
		  • ***counterparty risk***
		  • ***Liquidity***

	Futures contract	• ***standardized*** forward contract
		• clearing house ***guarantees*** performance by all traders
		  • Margin requirement
		  • Daily Settlement

	Swap	• an agreement to ***exchange payments of periodic cash flows*** that depend on future asset prices or interest rates.
	Option	• An option to buy: call option; an option to sell: put option • ***holder of option*** has right, but not the obligation, to buy or sell • ***writer of option*** must trade if the holder exercises the option

Physical assets

- ***Commodities***
  - Spot commodity markets
  - Forward and futures markets

- ***Real Assets***
  - Generate income, tax and diversification benefits
  - High managing and searching costs

Classification Of Markets

Primary vs. Secondary

- ***Primary markets***: where ***newly issued*** securities are sold. (IPO & Seasoned offerings)
- ***Secondary markets***: where securities are ***traded after issuing***

Traditional vs. Alternative

- ***Traditional markets***: include all publicly traded debts and equities, etc.
- ***Alternative markets***: include hedge funds, PE, real estate securities, etc.

Money vs. Capital

- ***Money markets:*** maturing in ***one year or less***.
- ***Capital markets:*** trade instruments of ***longer duration***

Organization Of The Securities Market

Primary Security markets

- ***Sold Publicly***: Book Building ★概念,投行如何发行证券

Underwritten offering	Best Efforts
IB bears risk and guarantees the sale	Company bears risk, IB acts only as a broker
Obligated to buy the unsold portion	Not obligated to buy the unsold portion
incentives to set a low offering price	sets the issue price that will raise the most money

- ***Sold Privately***
  - Private placement→ ***to qualified investors***(financially sophisticated and well informed about risk)
  - ***far less disclosure requirements, require higher returns***
- ***Other transaction methods***
  - Shelf registration: sells shares to market ***over time*** when needed
  - Dividend Reinvestment Plan → ***existing shareholders***
  - Rights Offering → ***existing shareholders***

Secondary Security Markets

Secondary market supports primary market by providing

- ***Liquidity***
- ***Price discovery***

When securities are traded: Trading Sessions

- ***Call Markets***
  - Trade ***only*** when the market is called
- ***Continuous Markets***
  - Trade at ***anytime*** the market is open

How securities are traded

Quote-Driven Market

- customers trade with dealers
- Dealers provide liquidity

Order-Driven Market **(*Almost all exchanges*** and ***every automated trading system is an order-driven system)***

- ***Order matching rules*** ★
  - order precedence hierarchy: Price →Display →Time
- Trade pricing rules
  - Uniform pricing rule(Call markets): all trades execute at the same price
  - Discriminatory pricing rule(Continuous order-driven): limit orders determine trade prices.

Brokered Markets

- instruments are generally unique, infrequently traded and expensive to carry

Positions Of Assets

Long Position

- ***Long Position***=own assets or contracts
  - Benefit from an ***increase*** in the price
  - potential gains are unbounded.

Short Position

- ***Short Position***=sold assets do not own, or when sell contracts
  - Benefit from a ***decrease*** in the price
  - potential gains are limited to 100%, potential losses are unbounded
- ***Short sale procedure:*** ★ ★
  - Short sellers borrow securities → then sell in the market →lender keeps proceeds as collateral →Short sellers repurchase the securities →return them to lenders.
  - ***Payments-in-lieu***: all dividends or interest paid during the loan belong to lender
  - ***Short Rebate Rate:*** lender returns collateral interest to short seller

Leveraged Position

- ***Leveraged Position***= borrow to buy more securities
  - ***Terminology***
    - The borrowed money is called the ***margin loan***
    - and they are said to ***buy on margin***.
    - The interest rate that the buyers pay for their margin loan is called the ***call money rate***.
  - earns greater profits when prices rise and suffers greater losses when prices fall
  - ***Leverage ratio***的计算: ***A/E***
  - ***Margin Requirement***
    - Initial Margin Requirement(IM)
    - Maintenance Margin(MM)
    - Margin Call: require either liquidate the position or bring the account back to its MM

Margin Call Price

$$P_L^{'} = P_0\left(\frac{1-IM}{1-MM}\right)$$

★★计算

Instructions Of Transaction Processes

Execution Instructions

Market orders	• an order to buy or sell securities ***immediately at the best price obtainable*** in the market. • The ***main drawback***: can be ***expensive*** to execute and ***often uncertain***	
Limit orders	• an order placed to buy or sell a number of shares at a ***specified price or better***. • generally fill at better prices if they fill, but ***they may not fill (standing limit orders)***	
Bid–Ask spread	• ***Bid–ask spreads: implicit cost of trading.*** • ***narrow*** bid-ask spread: ***trading cost are low, at least for the sizes quoted.***	
	• ***Make the market:*** a buy order ***placed at*** the best bid or a sell order ***placed at*** the best ask. • ***Take the market:*** trader accepts an offer to trade. • ***Makes a new market:*** If a new limit order placed between the current best bid and ask. • ***Behind the market:*** buy order placed below the best bid or sell order placed above best ask. • ***Far from the market:*** buy order far below the best bid or sell order far above the best ask.	
Others	**All-or-nothing orders**	• can only trade if their ***entire sizes*** can be traded.
	Hidden orders	• are exposed only to the brokers or exchanges that receive them.
	Iceberg orders	• are orders that traders can indicate a ***specific display size*** for their orders. ***Most of the order is hidden***

Validity Instructions

Day orders	• If they have not been filled by the close of business, orders ***expire unfilled***.
Good-till-cancelled orders(GTC)	• In practice, most brokers ***limit how long they will manage*** an order to ensure that they do not fill orders that their clients have ***forgotten***.
Immediate or cancel orders	• If they cannot be filled in part or in whole, they ***cancel immediately***. These orders are also known as ***fill or kill orders***
Good-on-close orders	• can only be filled at the ***close of trading day***. • These orders often are market orders, so traders call them ***market-on-close orders.***
Good-on-open orders	• are only filled at the ***open of the trading day***

Stop order	• may not be filled ***until*** the ***stop price condition*** has been satisfied.

	• ***stop-loss orders:*** use them with to of stopping losses on positions.
	  • ***Stop-sell order: limiting losses on a long position***.
	  • ***Stop-buy order***: ***limiting losses on short positions***
	  • also appropriate for the situation that manager believes that a security is ***undervalued*** but is ***unwilling to trade without market confirmation***.

	• The stop-loss order ***does not guarantee*** a stop to losses at the stop price
	  • If potential sellers are worried about trading at too low of a price, they can ***attach stop instructions to limit orders***
	  • If a trader wants to ***guarantee*** that he can ***sell at a specified price***, the trader would buy a ***put option*** contract instead.

	• Stop orders ***contribute to market momentum*** as their sell orders push prices down further and their buy orders push prices up.

Clearing Instructions

how to arrange the final settlement of the trade

•standing instructions and not attached to an order

Module 2

Security Market Indexes

Introduction of Security Market Index

Definitions

- represents a given security market, market segment, or asset class
- value index on a ***regular basis*** using either the ***actual or estimated*** market prices
  - ***Price index***
  - ***Return index***

  values are equal at inception

Index return calculations

- ***Price return***
  - measures only price appreciation
- ***Total return***
  - measures price appreciation + income distributions

Constructing and Managing a index

选标的		• *Target Market:* determines the *universe of investment* • *Security Selection*: Stocks *must meet certain criteria* to be included in certain index.
定权重 ★ ★ 计算，优缺点	Price-Weighted Index	• Assume that you buy *equal number of shares* • *Advantage*: simple • *Drawback*: Bias toward *high price stock;* Adjust of *dividers* when stock splits
	Equal-Weighted Index	• Buy *equal amount of money* (assigns an equal weight at inception) • *Advantage*: simple • *Drawback*: Bias toward *small cap stock;* Requires *frequently rebalancing*

	Market-cap weighting	• *Advantage*: held in proportion to their value in the target market.
		• *Drawback*:
		  • *Overweight overvalued stocks and underweight undervalued stocks*
		  • similar to a *momentum investment strategy*
		• *Float-Adjusted Market Capitalization-Weighted Index*
		  • weights by *number of shares available for public investment*

	Fundamental weighting	• uses *Fundamental measures* to weight each constituent securities, eg.book value, CFs, revenues, earnings etc. • *Advantage*: To address the disadvantages of market-capitalization • *Drawback*: *value-tilted; contrarian "effect"*

后续管理	Rebalancing	• *adjusting the weights* of the constituent securities in the index.
		  • *Price-weighted* indexes are *not rebalanced*
		  • *Market-capitalization-weighted* indexes are *largely self-balancing*
		  • *Equal-Weighted Index* requires *frequently rebalancing*

	Reconstitution	• *changing the constituent securities* in an index. • Reconstitution is *part of the rebalancing cycle*.

Uses of Security-Market Indexes

Uses of Security-Market Indexes

- ***Gauges of market sentiment.***
  - ***collective opinion*** of market participants
- ***Proxies for measuring and modeling returns, systematic risk, risk-adjusted return.***
  - can be used to calculate ***Alpha***
- ***Proxies for asset classes in asset allocation models***
- ***Benchmarks for actively managed portfolios***
  - index selected should reflect the investment strategy
  - inappropriate index could lead to incorrect conclusions
- ***Model portfolio for index funds***
  - serve as ***new investment products***

Characteristics Of Common index

Equity Indexes	**Broad market index**	• Represent an entire equity market
	Multi-market index	• represent multiple national markets, geographic regions. • **Multi-market index with fundamental weighting** • weight each country in proportion to its ***relative GDP***.
	Sector Index	• track different economic sectors
	Style index	• Classified based on market capitalization, value, growth

Fixed-Income Indexes	• ***Challenges*** of constructing fixed income indexes
	  • ***Large fixed-income universe***
	  • ***turnover is high*** (securities ***mature***)
	  • ***Dealer*** markets and ***illiquidity***	

Alternative Indexes	**Commodity indexes**	• Different weighting methods • Based on futures contract prices • Compositions are changed over time
	Real estate indexes	• categorized as appraisal indexes, repeat sales indexes, and REIT indexes.
	Hedge Fund Indexes	• the constituents determine the index. • survivorship bias

Module 3

Market Efficiency

The Concept Of Market Efficiency

New information → 影响 → 股价 → Price → 回归 → Value

"*unexpected*" or "*surprise*" of such releases

回归速度决定

Market Efficiency

3种EMH ★★

Weak-form | Semi Strong-form | Strong-form

An efficient market:

- which asset prices reflect new information *quickly* and *rationally*
- asset prices reflect *all past and present* information
- Superior, risk-adjusted returns are *not achievable*

Market value vs Intrinsic value

- *Market value*: the price at which an asset can be bought or sold
- *Intrinsic value*: *true value* of an asset
- The two should be the same or very close when markets are efficient

Factors affect market efficiency

- *Number of market participants* are positively related to market efficiency
- *Availability of information and Financial Disclosure* promote market efficiency
- *Impediments to trading*(Short-selling restrictions) impedes market efficiency
- *Transaction and information costs* affect the interpretation of market efficiency.

Weak-form	Semi Strong-form	Strong-form
Past market information Including: •Price •Trading volume	***Public information*** Including: •Market information •Non-market information	***All information available*** Including: •Public information •Private information
•Technical Analysis invalid	•Technical Analysis + Fundamental Analysis invalid •also be weak-form efficient	•Technical Analysis + Fundamental Analysis invalid •also semi-strong and weak-form efficient **Nobody can win the market**

- a ***passive investment is preferred*** to an active investment
- Fundamental analysis can be profitable if analysts use it to ***create comparative advantages***
- The ***role*** of portfolio manager: aligned with the portfolio's objectives, with ***appropriate diversification*** and asset allocation

- ***Securities laws*** are designed to prevent the use of private information

Market Anomalies and Its Implications

Market Anomalies

→试图推翻EMH ★ →not violations but the result of statistical methodologies used to detect the anomalies

Time-series Anomalies	The January effect	• Stock market returns were ***significantly higher in January***. • ***Explanations*** for January effect are: • ***tax-loss selling & window dressing***
	The overreaction effect contradict to weak-form	• Stock prices will be ***inflated*** (***depressed***) for those companies releasing ***good*** (***bad***) ***information.*** In a ***subsequent*** period, the ***loser outperformed*** the market, while the ***winner***'s ***underperformed***.
	Momentum anomalies contradict to weak-form	• associated with ***short-term share price patterns***.
Cross-sectional Anomalies	Size effect	• small-cap tends to outperform large-cap
	Value effect	• Value stocks (低PE, M/B, 高股息率) outperformed growth stocks (高PE, M/B, 低股息率)→ contradict to semi-strong form
Other Anomalies	Closed-End Fund	• trade at a discount from NAV
	Earnings Surprise	• an ***unexpected portion of earnings*** that, according to the efficient markets hypothesis, is worth a price adjustment.
	Initial Public Offerings	• subsequent long-term performance of IPOs is typically ***below average***.

Behavioral Finance

- ***BF*** uses ***human psychology***, such as behavioral biases, to explain ***investment decisions***
- ***Rational vs. Irrational:*** EMH does not ***require*** each individual to be rational but the ***market is rational***

Behavioral Biases

Loss aversion	• dislike losses more than the comparable gains
Disposition effect	• sell stock winners too soon and hold losers too long.
Herding behavior	• ***clustered trading*** may result in under- or over-reaction to the direction of the herd
Information Cascades	• The ***transmitter of information***, the first mover, whose decisions affect the decisions of others
Overconfidence	• Overconfidence in earnings forecasts leads to overestimation of growth
Representativeness	• evaluate new information or outcome based on current or familiar conditions
Mental accounting	• record different investments in different mental accounts and treat them differently
Conservatism	• ***slow to react*** to new information
Narrow framing	• focus on issues in ***isolation***

Module 4

Overview of Equity Securities

Characteristics & Classification Of Equity Securities

Common Shares

Common Shares	• represent an ownership interest of company

	• It gives investors the ***rights***:
	  • to claim on a company's business performance
	  • to participate in company's decision-making process
	  • to claim on a company's net assets in liquidation

	• ***Voting rights***: Statutory voting vs Cumulative voting (Good for minority shareholder)

	• ***Callable common shares***
	  • give issuer the option to repurchase shares from investors at predetermined price
	  • The company benefits
	• ***Putable common shares***
	  • give investors the option to sell shares back to the issuer at predetermined price
	  • beneficial to both the issuer and the investors

Preference shares

Preference shares	• ***less risky*** than common shares • Perpetual, pay a fixed dividend, no voting right

	• ***Cumulative preference shares***
	  • accumulates dividends
	  • any dividend missed must be paid before dividend can be paid to common shareholders

	• ***Participating preference shares***
	  • receive ***additional dividend*** if the company's profits exceed pre-determined levels.
	  • entitle ***additional distribution*** of the assets above face value in liquidation.

	• ***Convertible preference shares***
	  • give shareholders right to convert into a specified number of common shares
	  • ***Advantages***:
	  • earn a higher dividend
	  • a chance to share in the profits
	  • benefit from rising common stock prices
	  • less volatile

Three Main Types Of Private Equity

Private Equity

The characteristics of private equity

- Highly ***illiquid***
- No "market determined" prices
- Financial statements may be difficult to obtain
- Certain cost can be eliminate by mgt.
- ***Less corporate governance***
- Management can adopt a more ***long-term focus***
- greater total return potential

Three Main Types Of Private Equity

- ***Venture Capital***
  - finance the company's product development and growth
  - "***seed***" capital, early-stage financing, ***mezzanine financing***
- ***Leverage Buyout/MBO***
  - use debt to purchase all of the outstanding shares
  - Candidates for MBO: ***lot of undervalued assets***
  - Ultimate goal: restructure the acquired company and later take it "public"
- ***PIPE***
  - Often occurs when public company is willing to sell a sizeable ownership to a private investor when it needs to obtain additional capital quickly.

Non-domestic Equity

Three trends emerged

- More companies ***issue*** shares ***outside*** their home countries
- More shares are ***traded*** in markets ***outside*** of their home
- an increasing number of companies are ***dual listed***

Emerging-market companies benefit from these trends for two reasons

- ***no need to worry*** about capital constraints or illiquidity domestically.
- find it ***easier to raise money*** in the markets of developed countries

Non-domestic Equity

- ***Direct investing***
  - less transparency, more volatility
- ***Depository receipts*** ★ ★
- ***Global registered shares***
  - identical share of the same issuer that trade on multiple global exchanges in the local currencies
- ***BLDR***
  - represents a portfolio of depository receipts.

不同类型投资风险区别

Depository receipts ★ ★	• trades like common share on and represents an economic interest of foreign company • DR's price can be influenced by: company fundamentals, market conditions, analysts' recommendations, and exchange rate movements

	• ***Sponsored/Unsponsored DR***: whether the foreign company is involved in the issuance
	  • ***Sponsored DR***: Investors have the same rights as the direct shareholders but subject to more stringent reporting
	  • ***Unsponsored DR***: the ***depository bank***, not investors, that ***retains voting rights***

	• ***ADRs***: US dollar-denominated, trade like common shares on US exchanges.
	• ***GDRs***
	  • issued outside of the company's home country and outside of the US.
	  • can be issued privately to US institutional investors
	  • majority of GDRs are denominated in US dollars, GDRS in sterling and euros↑
	  • ***key advantage***: not subject to foreign ownership and capital flow restrictions

	• Four types of ADRs with different levels of corporate governance and filing requirements.
	  • ***Level I Sponsored ADRs***: trade in the ***over-the-counter*** (OTC) market and ***do not require full registration*** with the Securities and Exchange Commission (SEC).
	  • ***Level II and Level III Sponsored ADRs***:
	  • can trade on the NYSE, NASDAQ, and AMEX
	  • However, the issuing companies ***must fulfill all SEC requirements***.
	  • ***The fourth type of ADR***: ***does not require SEC registration***.
	  • foreign companies are able to ***raise capital*** by ***privately placing***

Risk And Return Characteristics Of Equity Securities

Equity returns

- Dividends
- Reinvestment of dividends
- Price change (or capital gain)
- Foreign exchange g&l

$$Total\ return = \frac{(P_t - P_{t-1} + D_t)}{P_{t-1}}$$

Equity Risk

风险如何衡量

- measured by：
  - ***standard deviation*** of the ***expected total return*** of equity
  - ***uncertainty*** of its **future cash flows**

The type + characteristics of equity security, affects its risk

- Preferred stock is ***less risky*** than common stock
  - Dividends + payment in liquidation, on preference shares are known and fixed
  - receive dividends and other distributions before common shareholders.
- Cumulative preferred shares ***less risk*** than non-cumulative preferred shares
- Putable shares are ***less risky*** for investor
- Callable shares are ***more risky*** for investor

Less uncertainty about future CFs.

Equity And Company Value

Purpose Of Issuing Equity

- ***The primary objective of raising capital***
  - Fund the company's ***revenue-generating activities***
  - ***Maximize*** the wealth of its shareholders
- ***Or, a company may be forced to raise capital***
  - To ensure that it continues to operate as a ***going concern:***
    - To fulfill regulatory requirements
    - improve capital adequacy ratios
    - or to ensure that debt covenants are met

Market Value and Book Value

- ***The book value of equity(BV):***
  - BV = total assets - total liabilities
- ***The market value of equity(MV):***
  - reflects the collective and differing expectations of investors concerning the amount, timing, and uncertainty of the company's future cash flows.

Rarely equal

ROE、Required Return and The Cost of Equity

ROE

key measure to evaluate the effectiveness of Mgt.

•**计算公式：** $ROE_t = \frac{NI_t}{average\ BV} = \frac{NI_t}{(BV_t + BV_{t-1})/2}$

or $ROE_t = \frac{NI_t}{BVE_{t-1}}$

- Both formulas are appropriate to use as long as they are ***applied consistently***
  - If the company's year-end book value ***fluctuates widely***, ***average book value*** is more appropriate.
  - ***Using beginning of the year book value*** is appropriate when book values are ***relatively stable*** over time.
- An increasing ROE is ***NOT*** always good
  - → ***good: NI grows faster than shareholders' equity***
  - → not good:
    - NI decreases slower than shareholders' equity
    - company issues debt to repurchase shares

Required Return & Cost of Equity

- Cost of Equity is the ***minimum*** Required Return to pay stockholders for their investing
- the cost of equity is ***more difficult*** to estimate than cost of debt

Module 5

Company Analysis: Past And Present

Company Analysis: Past and Present

Three-Step Analysis Process

1) Company Analysis: Past and Present
- Determine business model (*by answering key questions*)
  - Information sources(Issuer, third-party, Proprietary)
- Analyze revenue & drivers
- Analyze operating profitability & WC
- Analyze CAPEX & capital structure

2) Industry and Competitive Analysis
- Define Industry
- Analyze size, growth and character, profitability, market share trends
- Analyze industry &external influences
- Evaluate competitive strategy

3) Company Analysis: Forecasting
- Determine forecast objects and approaches
- Forecast: revenue, operating profitability & WC, CAPEX & capital structure
- Evaluate key risks and uncertainties

Company research report

- ***Reports assess financials, industry, competitors, and project future data.***
  - They end with valuation, recommendation, and risks
- ***The structure, content, and tone of the report depend on the analyst's setting:***
  - Extensive initial report
    - The primary audience : ***unfamiliar*** with the issuer or security
  - Subsequent company research reports (***shorter***)
    - The primary audience: ***familiar*** with issuer/security, needs ***new*** info. or recommendation ***changes***
    - ***5 elements for the subsequent report:*** 1.Front Matter, 2.Recommendation, 3. Analysis of New Information, 4.Valuation and 5.Risks.

区别

Revenue Analysis

Two Approaches	Drivers
Bottom-up approach	• sales volumes and prices, by product line or segment.
Top-down approach	• market share, market size, and GDP growth

The two approaches are often used together

Pricing is limited by a company's → pricing power

- Pricing power is a company's ability to set prices ***without impacting*** sales volumes.
  - It depends on ***market structure*** and ***company's position***.
  - Less competitive markets often grant more power
- Analysts assess pricing power by reviewing a firm's pricing history, competitor pricing, and profit margins

Indicators of Weak Pricing Power	Signs of Strong Pricing Power
• Costs rise faster than prices. • Inability to pass on cost increases to customers. • Declining profitability.	• Rising profitability over time. • Ability to retain economics for investors. • Resistance to price pressures from competitors, new entrants, or substitutes.

Operating Profitability Analysis

Operating Costs and Their Classification

- Operating Costs
  - ***major driver*** of operating costs is ***revenue***, analysts typically express these costs as a % of revenue
  - can be categorized in ***three*** ways:
    - Behavior with Output: Fixed & Variable
    - Nature
    - Function: Measures of Operating Profitability(Gross profit, EBITDA, and EBIT)

Operating Profit	• OP=[Q×(P-VC)]-FC
	• Contribution margin= (P - VC)
	  • must be >0 & Q high enough to exceed FC
	  • If costs are mainly fixed and CM is positive, OP rises with Q increase. But if Q drops, OP falls due to constant FC.

DOL	• $DOL=\frac{\%D\text{Operating Profit}}{\%D\text{Sales}}$ • Firm can boost DOL by increasing FC & decreasing VC in its cost base.

Working Capital Management

- Net working capital
  - It sets a ***minimum*** investment level, beyond capital investments, ***not distributable*** to investors.
  - Negative net working capital
    - a ***source*** rather than a use of financing
- Cash conversion cycle(CCC)
  - CCC = DOH + DSO - DPO
  - ***Short CCC***: ***less external financing*** to fund operations

Evaluating Capital Investments and Capital Structure

AIM: to assess whether required rates of return have been met or exceeded

First step: determine a company's sources and uses of capital

Evaluating Capital Structure	• Capital structure risks are gauged by leverage & coverage ratios, credit ratings, and DFL.
	  • DFL measures the sensitivity of net income to changes in operating income
	  $$\text{DFL} = \frac{\%\Delta \text{Net income}}{\%\Delta \text{Operating income}}$$
	  • Financial leverage is primarily driven by the issuer's capital structure.

Evaluating Capital Investments	• Long-term ROIC vs. investors' required returns assesses if management has used investor capital wisely. • Using ROIC or ROA, financial leverage boosts unlevered returns to produce ROE. • ***ROE and its decomposition serve as a full profitability measure***.

Module 6

Industry and Competitive Analysis

Five-Step Industry and Competitive Analysis

Industry Analysis

Uses Of Industry Analysis

- ***Understanding*** industry structures, competitive strengths/weaknesses, and their impact on a company's economic profits
- ***Improve*** Forecasts
- ***Identify*** Investment Opportunities

Step 1: Define Industry → *use third-party classification systems*

Limitations of the Classification Schemes:

- Grouping firms with ***different models or selling substitutes***
- The classification of ***multi-product*** companies
- ***Geographical*** considerations
- ***Grouping changes over time*** affect statistic consistency

Early systems	• SIC, NACE, & ISIC became outdated due to rare updates, new technologies & evolving models	
Modern classifications	• GICS ,ICB, and TRBC are ***globally oriented, updated annually, add new firms frequently*** and classify firms by their products/services. • They are ***strictly hierarchical taxonomies***, multi-product firms are assigned to a ***single*** grouping.	

Alternative Methods	• Geography***(not revenue geography)***
	  • incorporation country
	  • primary listing location
	  • headquarters
	  • market perception
	• Statistical similarities
		• Sensitivity to the business cycle: ***Defensive or Cyclical***
		  • Defensive companies are less impacted by macroeconomic shifts while cyclicals are more affected.
		• ESG characteristics
		  • Carbon emissions/revenues, board & executive diversity, and ties to industries like tobacco & gambling.

Step 2: Industry Survey

Industry Size	• It is by ***total annual sales*** from product/customer view, ***not all sales of each industry constituent***	

Historical Growth Rate (CAGR)	• ***Characterizing*** Industry Growth
	  • Growth ind., driven by emerging tech, not fully penetrated, challenging peak growth prediction.
	  • Mature ind.' growth mirrors the economy or declines from demand shifts. Investors monitor disruptions threats, competitive shifts, and decline rates.
	  • ***Sensitivity to the business cycle***
	  • It is determined by product nature, pricing, interest rate exposure, and purchase frequency
	  • ***Limitation*** on usefulness: ★
	  • Severe downturns likely affect all firms
	  • Within the same industry, firms at different life stages show varied growth and cyclicality	

Industry Profitability Measures	***Time series*** of the distribution of ROIC (***optimal*** measure)	• It is captures after-tax profits per invested dollar, neutral to capital structure, data is limited for less-public industries • The trend (time series) in industry profitability is crucial
Market Share Trends and Major Players	Major Players (Industry concentration)	• ***Lower*** concentration—many small competitors—often associated ***high*** competitive intensity unless the industry is ***service-oriented***, ***local***, or ***high product differentiation***
		• Common measure of industry concentration: ***Herfindahl-Hirschman Index*** $\mathrm{HHI} = \sum_{i=1}^{\infty} s_i^2$

Step 3: Industry Structure

Porter's Five Forces assess industry structure and long-run profitability based on competitive rivalry level.

Threat of New Entrants

Depends on the existence and extent of barriers to enter the industry.

Bargaining Power of Suppliers

Affected by:

- concentration of industry is,
- switching costs of suppliers' customers,
- supply substitutes.

Rivalry (intra-industry)

Rivalry among existing competitors; price discipline. Depends on:

- Industry structure and concentration/fragmentation
- Product or service differentiation
- Industry exit barriers

Bargaining Power of Customers

Affected by:

- size and concentration of customers,
- costs of switching to other suppliers,
- customers' ability to produce the product or service themselves.

Threat of Substitutes

Affected by the availability of (alternative) product categories that can satisfy customer needs

Step 4: External Influences

PESTLE analysis	• A framework for identifying "***themes***" or "***narratives***" investors might want exposure to	
	Political Influences	• It includes policy changes, government trade, regulatory& geopolitical events
	Economic Influences	• It includes changes in GDP or income, inflation, interest rates & exchange rates
	Social Influences	• It includes cultural and consumer trends, demographic shifts& lifestyle change

	Technological Influences	• Two kinds of technological changes:
		  • ***Sustaining innovations*** improve existing products without changing core functionality
		  • ***Disruptive innovation*** creates a new market or alters an existing one with unique value
		  • ***innovator's dilemma***

	Legal Influences	• It involves law &regulation changes affecting industry practices or economic results
	Environmental Influences	• It involves risks and opportunities from ***transitioning to a lower-carbon economy***, waste and land use laws, and environmental protections.

Step 5: Competitive Analysis

Three well-known competitive strategies

	Cost Leadership	Differentiation	Focus
Means of executing strategy	• Economies of scale • Favorable access to raw materials • Culture of strict cost control • Aggressive pricing • Low-cost distribution • Economies of scope	• Investments in advertising, brand, customer service, proprietary distribution channels • Protection using trademarks, copyright • Superior quality, unique features • Culture of strong customer experience • Premium pricing	• Proximity to customers • May incorporate elements of strategy from both cost leadership an differentiation, but focused on particular group
Which of the Five Forces it defends against	• Threat of new entrants • Bargaining power of customers • Industry rivalry	• Threat of new entrants and of substitutions • Bargaining power of customers • Bargaining power of suppliers	• Threat of new entrants and of substitutes • Bargaining power of customers
Industry appropriateness	• Capital intensive • Price-conscious customers • Customers do not notice product differences • Minimal innovation in industry	• Price is not foremost concern for customers • Customers value distinctiveness • Innovation in industry, with products varying in features and forms	• Difficult (or uneconomical) to serve customer group, product, or geography for other players
Risks to the strategy	• Cost inflation, loss of discipline • Technological change that results in loss market share • Desire for premiumization among customers	• Imitation by competitors • Buyers become sophisticated, no longer demand level of service • Pricing premium becomes too high • limited market share due to exclusivity	• Larger competitors outcompete on price • Demand differences between narrow group and entire industry diminish • Buyers become sophisticated

Module 7

Company Analysis: Forecasting

Forecast Objects, Principles, and Approaches

Forecast Objects

Four common types

- Drivers of financial statement lines
- Individual financial statement lines
- Summary measures
  - Benefit is ***efficiency***
  - most suitable for the measure is stable or issuer disclosures are limited
- Ad hoc objects (***may not yet be reported***)
  - Eg.legal proceedings & tax disputes etc.

Choice of forecast object

- It depends on available information, efficiency, accuracy, explanatory value, and verifiability
  - Forecast objects should be ***disclosed regularly*** or calculated using regular disclosures
  - ***Avoid overly complex models***
  - Analysts should focus on key drivers and ***use aggregations***

Forecast Approaches

Four common types

Historical results	• ***Assume Past is Precedent***. • often used for ***non-material forecasts*** or where the ***analyst has no opinion*** • ***Less suitable*** for: cyclical industries(high sensitivity to the business cycle) or companies undergoing strategic changes

Historical base rates &convergence	• Uses industry average or GDP growth as a "base rate" for forecast convergence
	• ***Suitable for*** companies:
	  • In established industries without major change
	  • Smaller firms “maturing into” to larger peers' financial profiles

Management guidance	• Management is precise in ***firm-level predictions***, like operating expenses and CAPEX

Analyst discretion	• ***Suitable for*** companies:
	  • in cyclical industries,
	  • with few comparables,
	  • without management guidance, or
	  • undergoing significant shifts

Company Analysis: Forecasting

Forecasting Revenues	• Top-down revenue drivers	• Growth relative to GDP growth • market growth and market share
	• Bottom-up revenue drivers	• volumes and average selling prices; revenue by product line etc.
	• ***Separating*** Recurring and Non-Recurring Revenue or Revenue Growth (***Exclude non-recurring items from forecasts and assess separately***)	
Forecasting operating expenses	• Cost of Sales (***direct*** link with sales)	• often forecasted as ***% of sales or gross margin*** • company can mitigate profitability impact through ***hedging strategy***
	• SG&A Expenses(***less direct tie*** to sales)	• Selling expenses are ***largely variable*** and can be modeled as % of sales • General corporate costs are ***fixed*** and can be modeled with a rate linked to wage inflation
Forecasting working capital	• Typically use ***efficiency ratios*** combined with revenue and operating expense forecasts to project • DSO = AR/(revenues/365) → AR= DSO × (revenues/365) • DOH=inventories/(COGS/365) →inventories = DOH × (COGS/365) • DPO=AP/(COGS/365) →AP= DPO × (COGS/365)	

Forecasting Capital Investments	• Long-term asset projections are based on cash flow & income statements
	  • PP&E, net$_T$= PP&E, net$_{T-1}$ + CAPEX(PP&E)$_T$- Depreciation expense
	  • Intangible assets, netT= Intangible assets, net$_{T-1}$ + CAPEX(Intangible)$_T$- Amortization expense
	• CapEx forecasts can ***differentiate*** between ***maintenance*** and ***growth expenditures***
	  • Maintenance CapEx is based on D&A, while growth CapEx relates to company strategy and revenue growth

Forecasting Capital Structure	• Forecasts should consider historical leverage, financial strategy, and CAPEX predictions.

Scenario Analysis

• Generic risks that ***affect all companies (but to varying degrees***): include business cycle shifts, competition, inflation/deflation, and technological changes

  • ***Multiple scenarios*** may developed instead of one forecast

  • Likelihood of each scenario occurring will be judged

Selecting a Forecast Horizon

• The forecast time horizon is influenced by:

  • Investment strategy,

  • Industry cyclicality,

  • Company factors, and analyst's employer preferences.

• Long-term managers aim for 3-5 years; short-term ones, next 1-2 quarters.

Module 8

Equity Valuation: Concept and Basic Tool

Evaluate A Security

Valuation Model

Using valuation models, analysts can draw one of three conclusions:

- The security is **undervalued, overvalued, or fairly valued**

Things to consider:

- estimated value vs the market price.
- Uncertainties about model appropriateness.
- Uncertainties about correct value of inputs.
- Confidence in the convergence of the market price to the intrinsic value over the investment time horizon

三大模型

Present value models

- Dividend discount models
- Free cash flow to equity models

Multiplier models

- Share price multiples
- Enterprise value multiples

Asset-based valuation models

模型选择取决于

- ***availability of input*** information
- analyst's confidence in both the information and the model appropriateness

Different Types Of Dividends

Cash dividends

- ↓ assets and equity.
- no effect on shareholder wealth

⬇ 分类

Regular dividends
Special dividends

Stock dividends

- Create more shares
- A proportionate drop in the price per share
- No effect on shareholder wealth

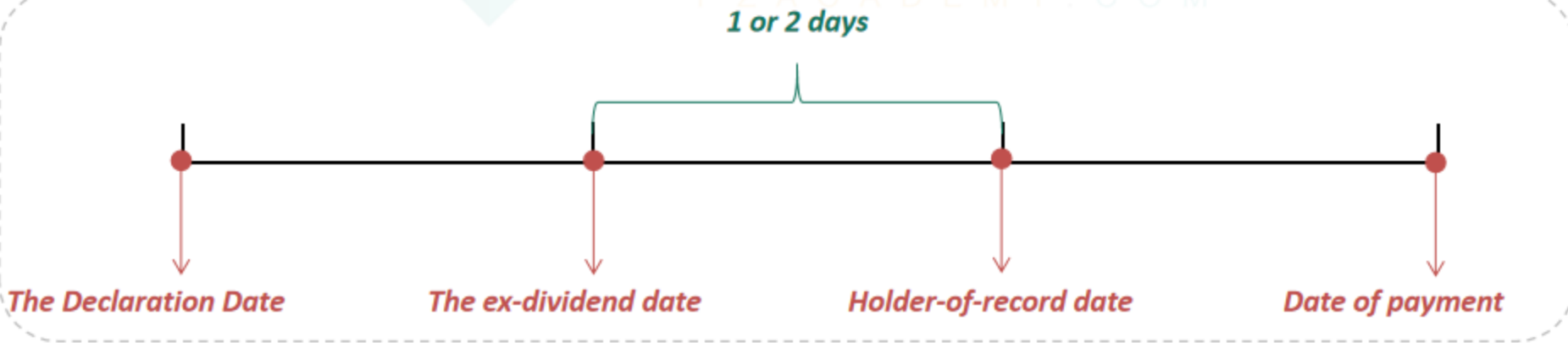
→Reverse stock splits反过来

Share Repurchase

- Signaling of undervalued shares
- Flexibility
- Tax efficiency ($T_d > T_{cg}$)
- Absorb increased shares

⬇

Dividend Payment Chronology



Model 1: DCF

DDM

- 优先股 → $V_p = \frac{D_p}{k_p}$
- 普通股

GGM ★★★→ $p_0 = \frac{D_0(1+g_c)}{r_e - g_c} = \frac{D_1}{r_e - g_c}$

计算

- $D_0 = (1 - RR) \times EPS$
- $p_0 = \frac{D_0(1+g_c)}{r_e - g_c}$
- $g_c = ROE \times RR$
- $r_e = RFR + \beta(R_{mkt} - RFR)$

Multi-Stage Model ★ 计算

FCF Model 计算,适用性

FCFE Model is often used:

- ***dividend-paying capacity*** should be reflected in the cash flow estimates rather than expected dividends
- For a ***non-dividend-paying*** stock.

假设，优缺点，适用性

Assumption

- The constant dividends growth rate will continue for an infinite period.
- The required rate of return is also constant over time
- The required rate of return r is greater than growth rate g

Limitations

- Very sensitive to r and g
- Difficult with non-dividend stocks
- Difficult with unpredictable growth patterns

Appropriateness

- valuing the dividend-paying companies that are insensitive to the business cycle and in a mature growth phase

Model 2: Multiplier models

1.Price multiples

Advantages

- Easily calculated
- Allow both time series & Cross-sectional comparisons

Disadvantages

- not consider the future

Caution is necessary

- Different valuation models will lead to different valuation results
- Differences in reporting result in multiples that are not easily comparable.
- The multiples for cyclical companies may highly influenced by current economic conditions

- **Price multiples based on fundamentals★计算**

Leading P/E

$$\frac{P_0}{E_1}=\frac{D_1/E_1}{k\text{-}g}=\frac{1-b}{k-g}$$

Trailing P/E

$$\frac{P_0}{E_0}=\frac{(1-b)(1+g)}{k-g}$$

Calculation

- **Price multiples based on comparables**
  - Rationale: Law of one price
  - Choices for the benchmark multiple

2.Enterprise value multiples(EV/EBITDA)

Enterprise value ★计算

EV = market value of common stock + market value of preferred equity + market value of debt– cash and short-term investments

Advantages

- useful for valuing ***capital-intensive*** business
- useful for comparing companies with ***differences in capital structure***
- usually positive even when ***earnings are negative***

Model 3: Asset-based valuation

计算，有市场价格用市场价格，无则账面价值

- primarily tangible short-term assets
- high proportion of current assets and current liabilities
- assets with ready market values
- financial companies, natural resource companies, and formerly going-concerns that are being liquidated.
- Not in a hyper-inflationary environment


Thank
You!