

Chapter 1:

Financial Economics

Objective

To Define Finance
The Value of Finance
Introduction to
the Players

Chapter 1 Contents

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1.1 Defining Finance

- Finance is the study of how people allocate scarce resources *over time*
 - costs and benefits are distributed over time
 - but the actual timing and size of future cash flows are often known only probabilistically
- Understanding finance helps you evaluate these uncertain cash flows (risk)

Defining Finance

- When implementing decisions, people make use of the *Financial System* defined as *the set of **markets** and other **institutions** used for financial contracting and exchange of **assets** and **risks***

Defining Finance

- Financial theory consists of:
 - the set of concepts that help to organize one's thinking about how to allocate resources over time
 - the set of quantitative models used to help evaluate alternatives, make decisions, and implement them
 - These concepts and models apply at all levels and scales of decision making

Defining Finance

- Economic organizations (e.g. firms and governments) exist to facilitate the satisfaction of people's *consumption preferences*
- *The ultimate function of financial system is to serve and satisfy the needs of real economy*

1.2 Why Study Finance?

- To manage your personal resources
- To deal with the world of business
- To pursue interesting and rewarding career opportunities
- To make informed public choices as a citizen
- To expand intellectual knowledge

1.3 Financial Decisions of Households-Personal Finance

- Consumption and saving decisions
- Investment Decisions
- Financing Decisions
- Risk-management decisions

Consumption and saving decisions

- How much of current wealth should be spent on consumption?
- How much should be saved for the future?

Investment Decisions

- How to invest the savings?
 - Real estate, stocks, bonds, etc
 - All of these are (financial) assets
- When people choose how to hold their pool of accumulated savings, it is called personal investing or asset allocation

Financing Decisions

- When and how to borrow other people's money to implement their consumption and investment plans?
- When people borrow, they incur a liability or debt
- $\text{Net Worth} = \text{Assets} - \text{Liabilities}$

Risk-management decisions

- How to reduce the financial uncertainty (risk) people face?
- What risks?
- How to manage risks?

1.4 Financial Decisions of Firms—corporate finance

- Business Firms
 - entities whose primary function is to produce goods and services
 - they vary widely in size from part-time businesses run from a spare room, to giant corporations (e.g. Mitsubishi or General Motors) with hundreds of thousands of employees, and an even larger ownership

Financial Decisions of Firms

- Strategic planning
- Capital budgeting
- Financing decision
- Working capital management

Financial Decisions of Firms

- The first decision is strategic planning, which specifies the business the firm is in
 - strategic plans may change radically over time , such as creative destruction
 - the firm's (core) business may be defined in terms of a group of products, technologies or customers

Financial Decisions of Firms

- The Capital Budgeting Process
 - The preparation of a plan for acquiring factories, machinery, research laboratories, show rooms, warehouses, and human assets to implement the strategic plan
 - The basic unit of analysis in capital budgeting is an *investment project*. Investment projects are identified, evaluated, and implemented

Financial Decisions of Firms

- The Financing Process
 - Once a new set of approved projects has been identified, it must be financed with retained earnings, stock, bonds, etc
 - *Capital structure* is the amount of the firm's market value allocated to each category of financial capital.
 - Capital structure determines ownership and risk level of the firms future cash flows

Financial Decisions of Firms

- The capital structure also determines who controls the firm under different contingencies
 - Common stock holders usually determine the membership of the board of directors
 - Preferred stock holders usually gain some control if preferred dividends are not paid
 - Bondholder covenants (contractual provisions) restrict decisions that could adversely affect bond values

Financial Decisions of Firms

- Working Capital Management
 - The difference between current assets and current liabilities
 - Current assets are cash and other items that will be converted into cash with one year
 - Current liabilities are those which must be paid off with a year
 - all firms (including highly profitable ones) may be seriously damaged by the lack of working capital (liquidity)

1.5 Forms of Business Operation

- Sole Proprietorship (ownership)
 - a firm owned by an individual or family
 - the assets and liabilities are the personal assets and liabilities of the proprietor (owner)
 - *unlimited liability*
 - low administrative costs
 - Taxed as individual-no double taxation

Example

- A small restaurant produces \$100,000 taxable income annually. It is owned by an individual whose tax rate is 28%. Cash flow after tax is \$72,000
- If the restaurant cannot pay its debts of \$1 million, the owner's other personal asset can be used to satisfy the payment

Forms of Business Operation

- Partnership: A firm with ≥ 2 owners sharing the equity. A partnership agreement (rather than portion of ownership) determines how decisions and profits (losses) are shared
 - General partners ≥ 1 (unlimited liability)
 - Limited partners ≥ 0 (don't manage business)
- No double taxation
- Publicly traded partnership (PTPs), E.g. Blackstone (listed in NYSE with ticker BX)

Forms of Business Operation

- Corporation (typically C Corp.)
 - a legal entity, distinct from its ownership
 - may own property, borrow, sue, be sued, and enter into legal contracts
 - Business is not disrupted when shares are transferred
 - shareholders elect a board of directors, who appoint management
 - pays corporate taxes, resulting in double taxation of owner (not sub-chapter S Corp.)
 - limited liability

Example of double taxation

- In the previous example, if the restaurant is owned by a C corporation, the sole shareholder of which is the same hypothetical investor
- Suppose corporate tax rate is 35%, then the corporation will have a \$65,000 after-tax cash flow to distribute to the stockholder in the form of dividend
- Then, the stockholder must pay personal taxes, \$18,200 ($\$65,000 \times 28\%$)
- The after-tax cash flow to the stockholder is only \$46,800, much less than \$72,000

REITs (optional)

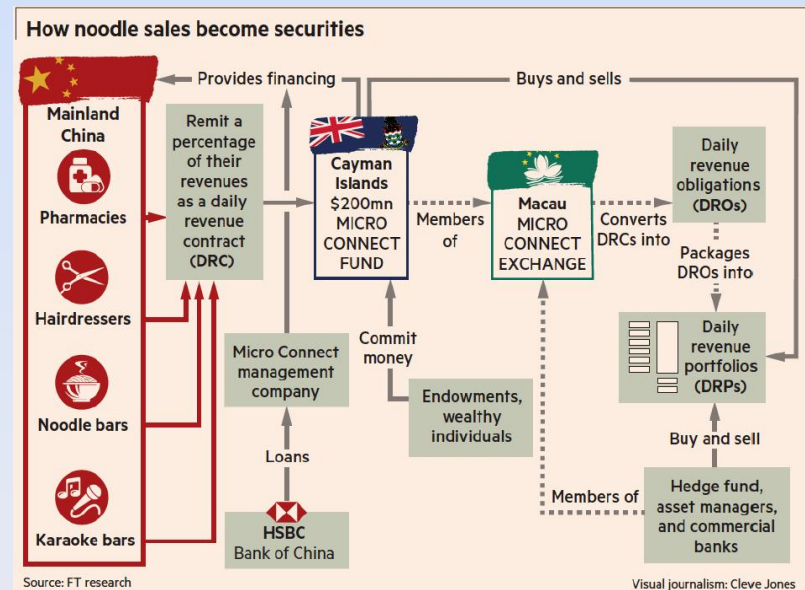
- Before 1960, some real estate was held in trust form to avoid the double taxation
- Real Estate Investment Trust Act of 1960 authorizes corporation form of real estate ownership without double taxation as long as certain restrictive conditions are met
- Advantages include limited liability, favorable tax treatment, and access to the capital markets

REIT REQUIREMENTS

- At least 100 shareholders; no five investors can own more than 50% of the REIT shares
- Distribute 90% of its taxable income in the form of dividends
- 75% of assets in real estate, cash, or government securities
- 75% of gross income from real estate

Micro Connect (滴灌通)

- an exchange group that leverages financial technology to connect global capital with micro and small businesses.
- Through its innovative revenue sharing investment and financing model, stores in the Food & Beverage, Retail, Services, and Culture & Sports sectors can access affordable long-term capital on Micro Connect (Macao) Financial Assets Exchange



Daily Revenue Contract (DRC)

- A Daily Revenue Contract (DRC) is a financing arrangement based on daily revenue sharing. "A DRC is neither equity nor debt."
- An intuitive analogy is that of three brothers opening a store together:
 - The first brother owns a piece of property;
 - The second brother provides the capital;
 - The third brother contributes his labor and manages the business.
- Similarly, under this model, three parties jointly participate in operating a business:
 - The property owner provides the premises;
 - The investor provides the capital;
 - The store operator manages the day-to-day business.
- This is essentially a joint-operation or revenue-sharing model. Instead of receiving fixed interest or conventional equity returns, the parties share the income generated by the business based on its actual daily revenue.
- This is the core model adopted by Micro Connect (滴灌通).
- https://www.thepaper.cn/newsDetail_forward_26394557
- Islamic Finance?

1.6 Separation of Ownership and Management

- Owners delegate management if agency conflicts have a cost-effective resolution
 - professional managers have specialized skills
 - efficiencies of scale
 - diversification of owner's portfolio
 - savings in the cost of information gathering
 - learning curve/going concern issues
- Potential conflict of interest

1.7 Goal of Management

- Management rule: Maximize the wealth of current shareholders
 - When managers choose between a very risky project and a very safe one, how can they decide in the best interests of **all shareholders**?
 - In well functioning capital markets, shareholders can adjust the riskiness of their personal portfolios
 - Rule depends only upon production technology, market interest rates, market risk premiums, and security prices

Alternative rules

- Profit maximization has two issues
 - If the production process requires many periods, which period 's profit is to be maximized?
 - If either future revenues or expenses are uncertain, then what is the meaning of profit maximization?
- The future cash flow (profit) is uncertain while current stock price (shareholders' wealth, discounted future cash flow) is certain

Shareholders v.s. Stakeholders



Stakeholders are those that hold a stake in a given company (and are affected by its activities)

Shareholders hold units of shares in a company

All shareholders are stakeholders,
but not all stakeholders are shareholders

Shareholders v.s. Stakeholders

- Stakeholders cannot easily decide to remove their stake in the company. Stakeholders focus on longevity and better quality of service.
- The company's employees may be interested in better salaries and wages, rather than on higher profitability.
- The suppliers may be interested in timely payments for goods delivered to the company, as well as better rates for their products and services.
- The customers will be interested in receiving better customer service, as well as buying high-quality products.

The role of stock market

- It makes easy to implement shareholder-wealth-maximization rule
- Facilitate the separation between ownership and management
- It depends on how well the market is functioning , i.e., market efficiency

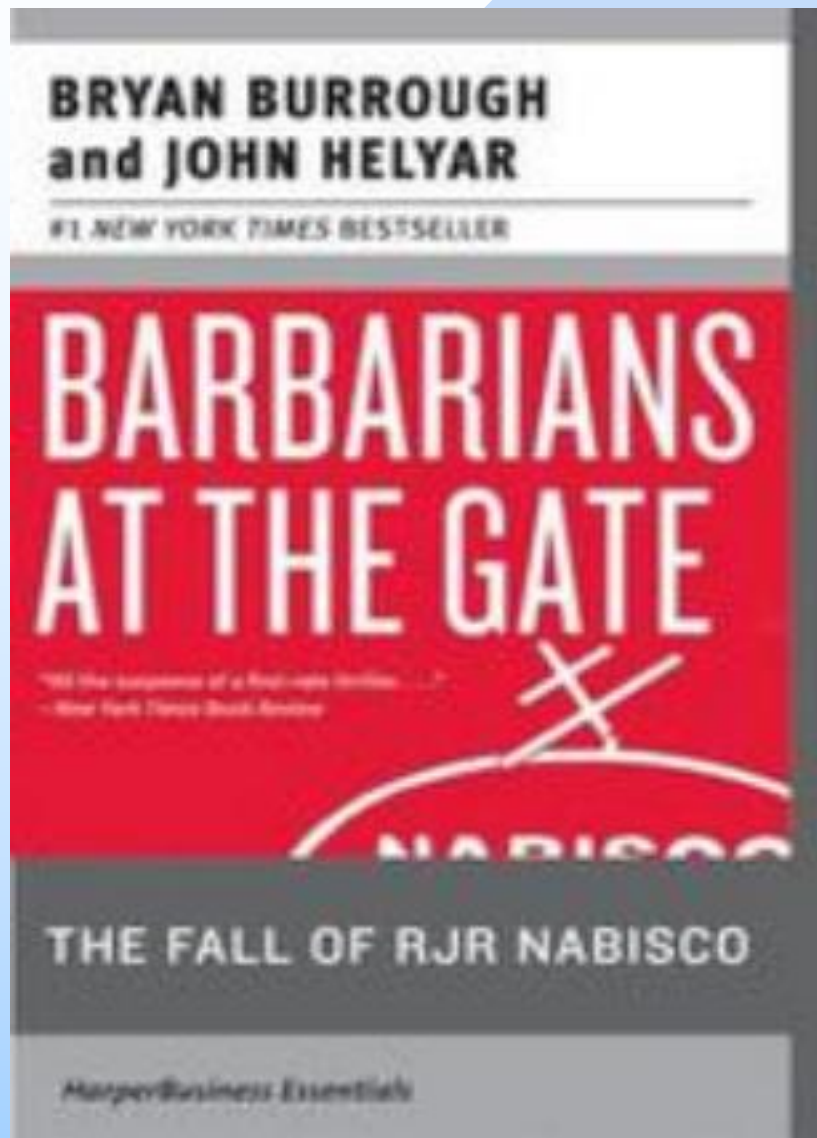
1.8 Market Discipline: Takeovers

- The ownership of a corporation generally
 - is widely dispersed & indirect (mutual funds)
 - lacks internal communication channels
 - is often ill-informed about mismanagement
 - isn't willing to pay for & organize change
 - can't resist private control from a united self-perpetuating board of directors
 - just sell stock when dissatisfied, contributing to downward share price pressures

Market Discipline: Takeovers

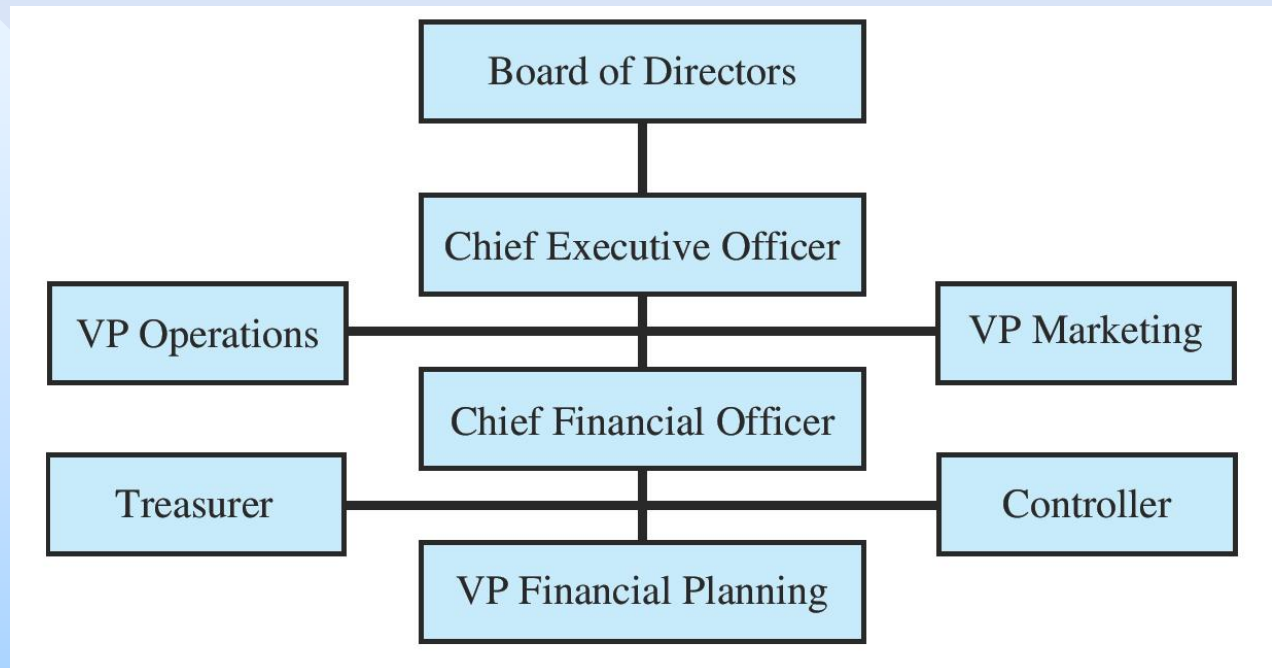
- In a competitive market, a mechanism that reduces mismanagement is the corporate takeover. Example:
 - a customer, supplier, competitor, or professional raider (such as Carl Icahn, <https://www.investopedia.com/articles/managing-wealth/080516/how-did-carl-icahn-get-rich.asp>) gains specialized knowledge of the mismanagement
 - the raider purchases a controlling interest in the stock, and installs new management
 - The value of the stock rises, and the raider liquidates ownership at a profit

Barbarians at the Gate



1.9 The Roles of Financial Specialist in a Corporation

- Financial executive--a person with authority in the following functions:



Chief Executive Officer

- The CEO is typically the president
 - reports to the board of directors

Chief Financial Officer

- The CFO has responsibility for all financial functions in the company

Treasurer

- The treasurer is responsible for managing the financial activities of the firm and for working capital
 - relationships with investing community
 - managing currency and interest rate risks
 - managing the tax department

VP Financial Planning

- The VP Financial Planning
 - analyzes major capital expenditures
 - new business ventures
 - exiting businesses
 - mergers, acquisitions, and spin-offs

Comptroller/Controller

- The Comptroller oversees:
 - financial, managerial & cost accounting
 - auditing
 - prepares internal reports comparing planned with actual costs
 - prepares financial statements used by shareholders, creditors, and regulators

Financial Functions in a Corporation:

- Planning
- Provision of Capital
- Administration of Funds
- Accounting and Control
- Protection of Assets
- Tax Administration
- Investor Relations
- Evaluation and Consulting
- Management Information Systems

Planning

- long and short-term financial planning
- budgeting for capital expenditures
- budgeting for operations
- sales forecasting
- performance evaluation
- pricing policies
- economic appraisals
- analysis of acquisitions and divestments

Provision of Capital

- establishment and execution of programs for the provision of capital required by the business

Administration of Funds

- management of cash
- maintenance of banking arrangements
- receipt, custody, and disbursement of the company's monies and securities
- credit and collection management
- management of pension funds
- management of investments
- custodial responsibilities

Accounting and Control

- establishment of accounting policies
- development & reporting of accounting data
- cost standards
- internal auditing
- systems and procedures (accounting)
- government reporting
- reporting & interpreting operations results
- comparing performance with operating plans and standards

Protection of Assets

- provision of necessary insurance coverage
- assure protection of business assets, and loss prevention, through internal controls and internal audits
- real estate management

Tax Administration

- establishment and administration of tax policies and procedures
- regulation with taxing agencies
- preparation of tax reports
- tax planning

Investor Relations

- establishment and maintenance of liaison with the investment community
- establishment and maintenance of communications with company stockholders
- counseling with analysts--public financial information

Evaluation and Consulting

- consultation with, and advise to, other corporate executives on company policy, operations, objectives, and effectiveness thereof

Management Information Systems

- development and use of electronic data processing facilities
- development and use of management information systems
- development and use of systems and procedures

金融业已成AI替代重灾区

- 马斯克在访谈中直言：“所有敲键盘、看屏幕的数字工作，**AI**都能胜任”。而金融业恰恰是“键盘工作者”的密集区：
 - 前台岗：理财规划、客户沟通、报告撰写
 - 中台风控：合同审核、合规检查、风险评估
 - 后台运营：数据录入、报表生成、交易清算
- 案例实证：
 - 招商银行**2025**年上线“**AI**客户经理”，单日处理客户需求**1.2**万次，替代率超**70%**
 - 平安保险引入**AI**核保系统，保单审核时效从**3**天缩短至**15**分钟，裁员率达**40%**
- 马斯克预测的“**3-7**年震荡期”在金融业正加速兑现：

时间节点	金融业变革里程碑
2026年	AGI元年：AI投顾覆盖50%标准化理财需求
2028年	智能风控系统接管90%信贷审批
2030年	AI基金经理管理规模突破万亿

The Financial Industry Has Become a Major Target of AI-Driven Job Displacement

- In an interview, Elon Musk stated bluntly: “Any digital job that involves typing on a keyboard and looking at a screen can be done by AI.” The financial industry is particularly exposed because it employs a large concentration of such “keyboard-based” workers:•
 - Front-office roles: Financial planning, client communication, and report writing
 - Middle-office risk management: Contract review, compliance checks, and risk assessment
 - Back-office operations: Data entry, report generation, and trade settlement
- Real-World Examples:
 - In 2025, China Merchants Bank launched an “AI Relationship Manager,” which handled 12,000 customer requests per day, with an automation/replacement rate of more than 70%.
 - Ping An Insurance introduced an AI-powered underwriting system, reducing policy review time from three days to just 15 minutes, while the workforce reduction rate reached 40%.

The Financial Industry Has Become a Major Target of AI-Driven Job Displacement

- Musk's predicted "3–7-year period of disruption" is already accelerating in the financial sector.

Time Node	Financial Industry Transformation Milestone
2026	Year One of AGI: AI investment advisors cover 50% of standardized wealth management needs
2028	Intelligent risk control systems take over 90% of credit approvals
2030	AI fund managers' assets under management surpass one trillion

金融人的诺亚方舟：3大突围路径

- 路径1：成为“**AI**指挥官”，而非“数据搬运工”
 - 掌握**Prompt**工程：用精准指令驱动**AI**生成投资策略（如“生成新能源板块波动期的对冲方案”）；
 - 学习**AI**伦理：识别算法偏见（如信贷模型对小微企业的歧视）
- 路径2：深耕“**AI**无法复制”的领域

能力	应用场景
复杂谈判能力	并购重组、家族信托架构设计
跨市场风险嗅觉	地缘政治突发下的资产配置调整
人性化服务	高净值客户家族办公室情感维系

- 路径3：抢占“**AI**生态位”
 - **AI**合规师：监控算法是否符合金融监管（年薪中位数80万）；
 - 数字资产架构师：设计**Token**化金融产品（如房地产**REITs**通证）；
 - 人机协作培训师：辅导传统金融从业者使用**AI**工具。

The Financial Professional's Noah's Ark: Three Paths to Break Through

- Path 1: Become an "AI Commander," Not a "Data Operator"
 - Prompt Engineering: Use precise instructions to guide AI in generating investment strategies.
 - Example: "Develop a hedging strategy for periods of high volatility in the renewable energy sector."
 - AI Ethics: Learn to identify algorithmic bias.
 - Example: Detecting discrimination against small and micro-sized enterprises in credit-scoring models.
- Path 2: Develop Capabilities That AI Cannot Replicate

Capability	Application Scenarios
Complex Negotiation Skills	Mergers and acquisitions, corporate restructuring, and family trust structuring
Cross-Market Risk Awareness	Adjusting asset allocation in response to unexpected geopolitical events
Human-Centered Services	Maintaining emotional relationships with high-net-worth clients in family office services

The Financial Professional's Noah's Ark: Three Paths to Break Through

•Path 3: Secure a Position in the “AI Niche”

- AI Compliance Specialist: Monitor whether algorithms comply with financial regulations. (Median annual salary: RMB 800,000.)
- Digital Asset Architect: Design tokenized financial products. Example: tokenized real estate REITs;
- Human–AI Collaboration Trainer: Train traditional financial professionals to use AI tools effectively.

人工智能体的作用

- 工具还是主体？
- AI vs BI？自主性情感及由此积累的社会资本，是人类区别于 AI 的本质特征
- 人类从个人情感到共情，进而到“反思性情感”的惊险一跃，最终获得了道德的自我意识。而这一过程，也是包括生成式人工智能在内的各种新兴技术目前难以企及的。
- 人工智能确实带来生产力的提升，这也会促进生产关系的改变，但机器很难像人那样去拓展人脉和基于情感、信任而持续积累社会资本。
- 还是人机协同？
- “人工智能将成为思考的主力军，人类智能将成为情感的主力军”
- 一位资深金融分析师，他现在已经把技术性的工作任务交给了人工智能，自己则更关注于客户关系、客户渠道的维护以及服务后的担保
- 具有“共情能力强、情商高”等特质的人，也更容易在这个时代拿到高薪、高职位，社会分工和教育体系也有可能因此被颠覆。

The Role of AI Agents

- Tool or Independent Actor?
- AI vs. BI (Biological Intelligence)? Autonomous emotions, together with the social capital accumulated through them, are among the fundamental characteristics that distinguish human beings from AI.
- Humans progress from personal emotions to empathy, and then make a critical leap toward “reflective emotions,” ultimately developing a sense of moral self-awareness. This process remains difficult for emerging technologies, including generative AI, to replicate.
- AI undoubtedly enhances productivity and may consequently reshape the relations of production. However, machines still find it difficult to build interpersonal networks in the way humans do or to continuously accumulate social capital based on emotion, trust, and long-term relationships.
- Or Human–AI Collaboration?
- “AI will become the primary force for thinking, while human intelligence will become the primary force for emotion.”
- A senior financial analyst has already delegated most of his technical tasks to AI. He now focuses more on client relationship management, maintaining client acquisition channels, and providing post-service assurance and support.
- In the AI era, individuals with strong empathy and emotional intelligence (EQ) may also be more likely to secure higher salaries and more senior positions. As a result, both the division of labor and the education system could undergo fundamental transformation.