International Management Studies

Lecture 4

March 26, 2025

Contents: March 26 (Lecture 4)

I. What is investment process?
II. What is the most promising industry over the next five year span ? (team presentation)
III. What is the most promising company (firm or stock) over the next five years ? (team presentation)
IV. Time value of money (basic principle of finance)

1.1 The Investment process by CFA

1. Establishing Investment Policy & Objectives

This is the foundation of the investment process, where investors define their **goals, risk tolerance, and constraints**.

- **Investment Objectives**: Define expected return and risk tolerance.
- **Constraints**:
  - Liquidity needs
  - Time horizon
  - Tax considerations
  - Legal & regulatory constraints
  - Unique preferences (ethical, ESG investing, etc.)

2. Performing Security Analysis

After setting objectives, investors research potential investments through **qualitative and quantitative analysis**:

- **Fundamental Analysis**: Evaluating financial statements, earnings reports, and industry conditions.
- **Technical Analysis**: Analyzing price trends and market behavior.
- **Macroeconomic Analysis**: Studying interest rates, inflation, GDP, and monetary policy.

4. Portfolio Execution (Trade Execution)

Investors or fund managers implement their investment strategy by **executing trades**:

- Choosing between **active vs. passive** investing.
- Selecting appropriate **investment vehicles** (mutual funds, ETFs, direct stock purchases).
- Managing transaction costs and ensuring efficient trade execution.

3. Portfolio Construction & Asset Allocation

Based on security analysis, investors allocate capital across **different asset classes** to balance **risk and return**:

- **Strategic Asset Allocation (SAA)**: Long-term allocation based on risk-return objectives.
- **Tactical Asset Allocation (TAA)**: Short-term adjustments based on market conditions.
- **Diversification**: Spreading investments to reduce risk (stocks, bonds, real estate, alternatives, etc.).

5. Performance Evaluation & Monitoring

The portfolio must be **continuously monitored and rebalanced** to align with investment goals:

- **Performance Measurement**: Comparing actual returns vs. benchmarks (e.g., S&P 500).
- **Risk Assessment**: Checking for deviations from expected risk exposure.
- **Rebalancing**: Adjusting portfolio allocations based on market movements and strategy changes.

1.2 What is stock investment ?

In investment, a **stock** (also called **equity**) represents **ownership in a company**.
When an investor buys a stock, *they purchase a small **fraction of ownership** in that company*, known as a **share**.

Key Features of Stocks in Investment:

1. **Ownership Rights** – Stockholders are partial owners of the company and may have voting rights in corporate decisions.
2. **Capital Appreciation** – If the company grows and performs well, the stock's price may increase, allowing investors to sell at a profit.
3. **Dividends** – Some companies distribute part of their profits to shareholders in the form of dividends.
4. **Market Volatility** – Stock prices fluctuate based on company performance, economic conditions, and investor sentiment.
5. **Types of Stocks**:
    1. **Common Stock** – Usually grants voting rights and potential dividends.
    2. **Preferred Stock** – Prioritized dividend payments but limited or no voting rights.

Investing in stocks can be a way to build wealth over time but comes with risks, including price volatility and market downturns.

What is a Stock?

- A stock represents ownership in a company.
- Buying a stock means owning a small part of the company (share).
- Stocks are traded on stock exchanges like NYSE NASDAQ, KSE and KOSDAQ.

Why Invest in Stocks?

- Potential for capital appreciation (stock price increases over time).

- Some companies pay dividends (profit sharing with investors)

.

- Ownership and voting rights in some cases.

- Helps build long-term wealth.

Example of capital appreciation

Example of Capital Appreciation in Stock Investment

Capital appreciation occurs when the value of a stock increases over time, allowing an investor to sell it at a higher price than they originally paid.

Example: Apple Inc. (AAPL)

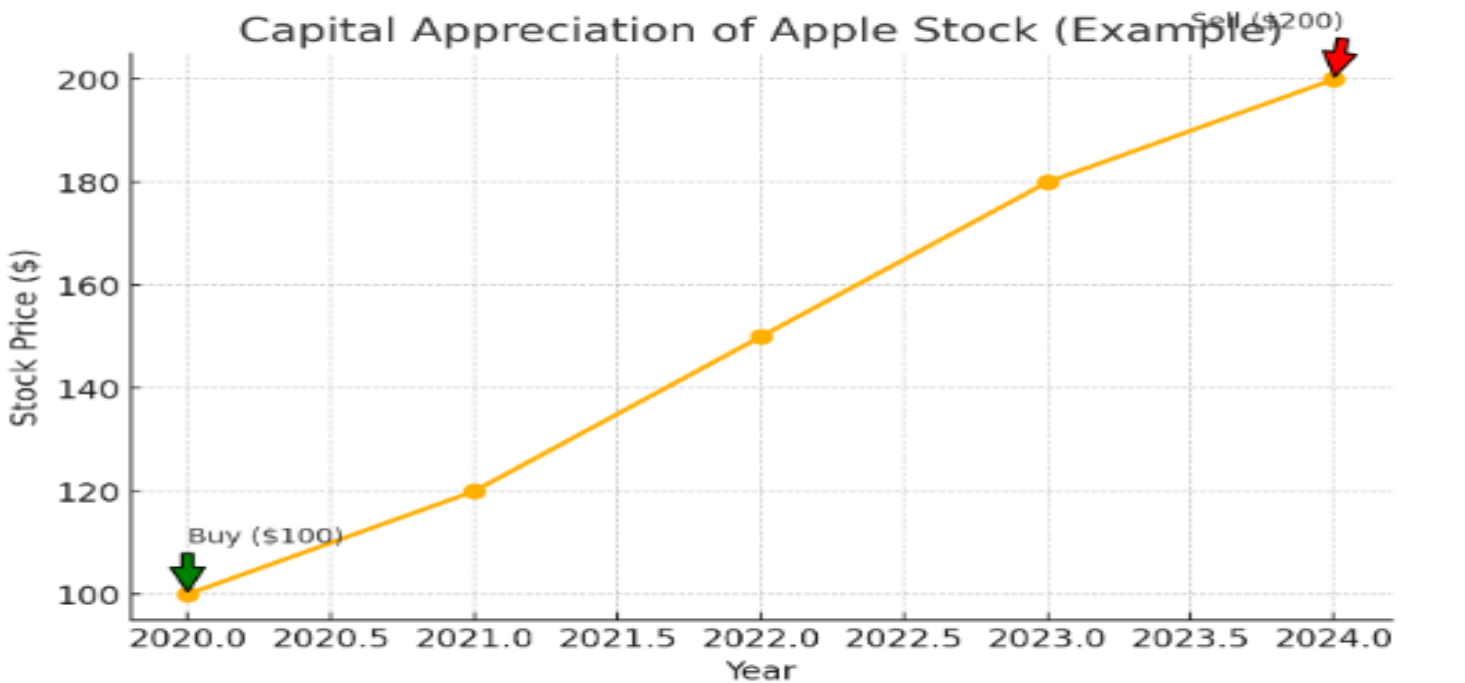
- Suppose you bought **10 shares of Apple Inc. (AAPL)** at **$100 per share** in **2020**.
- The total investment would be **$1,000 (10 × $100)**.
- By **2024**, Apple's stock price increased to **$200 per share**.
- Now, your investment is worth **$2,000 (10 × $200)**.
- **Capital Appreciation = New Value – Initial Investment = $2,000 - $1,000 = $1,000 Profit.**

Illustration

Illustration

I will now generate a visual illustration showing capital appreciation using a stock price graph.

Capital Appreciation Of Apple Stock (Example)



Here is a visual illustration of **capital appreciation** using an example of Apple Inc.'s stock price increasing from **$100 in 2020 to $200 in 2024**. The graph shows how the stock price gradually rises over the years, leading to potential profit for investors.

<Risks of Investing in Stocks>

- Stock prices fluctuate (VIX) due to market conditions.
- There is a risk of losing money if the stock value declines.
- Companies may not always pay dividends.
- Requires research and market understanding.

Understanding VIX (Volatility Index) in the Stock Market

The **VIX (Volatility Index)** is often referred to as the **"Fear Index"** because it measures market volatility expectations. It is a key indicator that reflects investor sentiment and market risk.

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1. What is VIX?

- The **VIX** is an index that represents the **expected volatility** of the stock market over the next 30 days.
- It is calculated based on the **implied volatility of S&P 500 options**.
- A **higher VIX** means more expected volatility (uncertainty/fear).
- A **lower VIX** means less expected volatility (stability/confidence).

2. How to Interpret the VIX?

VIX Value	Market Sentiment
Below 15	Low volatility → Market stability & confidence
15 - 25	Moderate volatility → Normal market fluctuations
Above 25	High volatility → Increased market fear & uncertainty
Above 40	Extreme volatility → Financial crisis or panic

- **Example**: During the 2008 financial crisis and the 2020 COVID-19 crash, the VIX spiked above **80**.

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3. Relationship Between VIX & Stock Market

- **Inverse Relationship**: When VIX **rises**, stock markets **fall** due to fear.
- When VIX **falls**, stock markets **rise**, indicating investor confidence.
- Traders use the **VIX to hedge risk** and **predict market movements**.

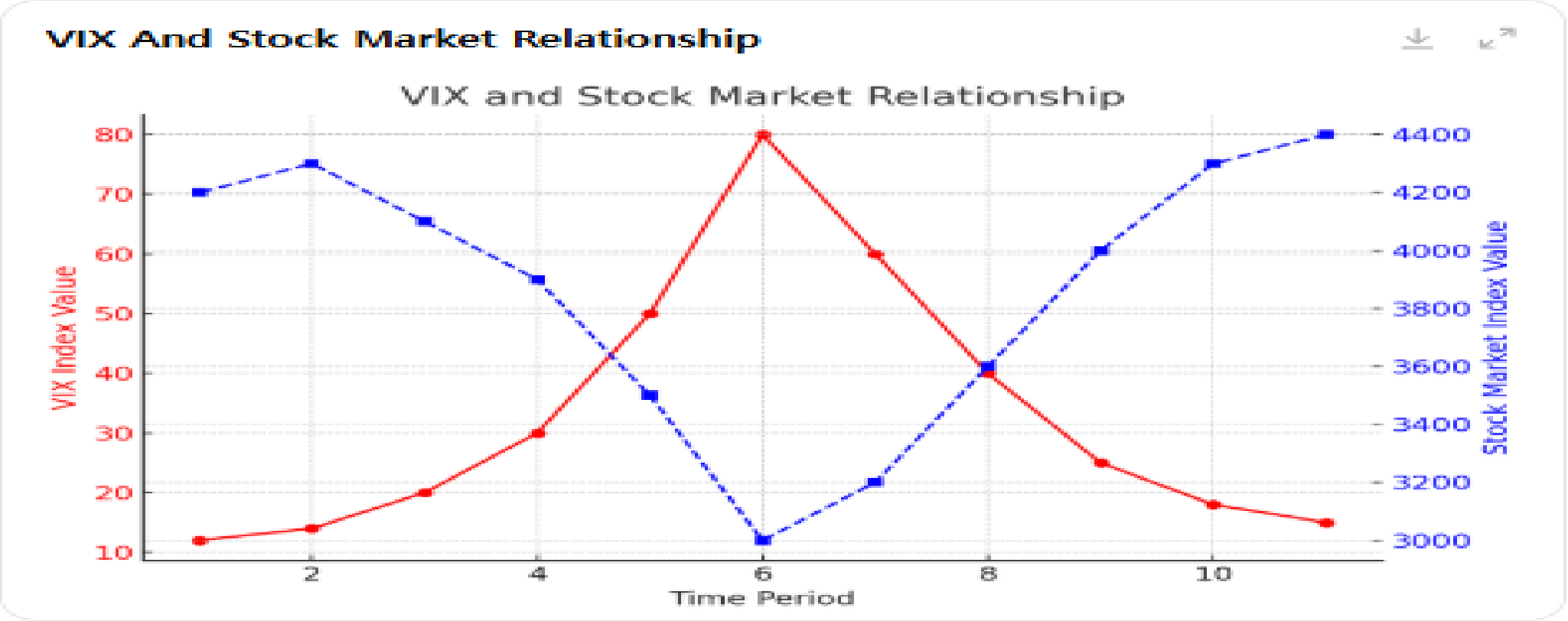

Illustration: Relationship Between VIX and Stock Market

The graph above shows how **VIX (red line) and the stock market index (blue line) move inversely**:

- When **VIX rises**, stock prices **fall** (increased market fear).
- When **VIX drops**, stock prices **recover** (increased market confidence).
- **During crisis events (high VIX)**, stock markets experience major downturns.

Types of Stocks

- Common Stock: Voting rights, potential dividends, higher risk

.

- Preferred Stock: Fixed dividends, less risk, no voting rights.

- Growth Stocks: High potential but volatile.

- Dividend Stocks: Regular income through dividends.

How to Start Investing in Stocks?

1. Open a brokerage account. (see the next page)
2. Research and choose stocks based on company performance
3. Diversify your portfolio to manage risk.
4. Monitor and adjust investments regularly.

Foreign students residing in Korea can open brokerage accounts to invest in the Korean stock market. Here's a guide to the process:

1. Eligibility and Documentation

- **Alien Registration Card (ARC)**: If you've been in Korea for **over 6 months**, possessing an ARC allows you to open a brokerage account without additional registration. hankuklife.com
- **Passport**: A valid passport is required for identification.
- **Bank Account**: A Korean bank account is necessary for fund transfers related to your investments.

2. Choosing a Brokerage Firm

Several Korean brokerage firms facilitate account openings for foreigners:

- **Samsung Securities**: Offers account opening services for foreigners with necessary documentation.
- **BNK Securities**: Provides account opening services for foreign investors, requiring documents such as a passport and Alien Registration Card. hankuklife.com +2

3. Account Opening Procedure

- **In-Person Visit**: Visit a local branch of your chosen brokerage firm. brokerchooser.com
- **Required Documents**: Bring your ARC, passport, and bank account details. hankuklife.com
- **Application**: Complete the account opening forms provided by the brokerage.
- **Verification**: The brokerage will verify your documents and process your application.

2. What are the histories of stock investment ?

1) The Birth of Stock Trading (1602)

- The Dutch East India Company (VOC) issued the first publicly traded shares.

- Investors could buy and sell shares, creating the first stock market.

- The **Amsterdam Stock Exchange** became the first official sto ck market.

2) Expansion of Stock Markets (1700s-1800s)

- 1773: The London Stock Exchange (LSE) was established.
- 1792: The New York Stock Exchange (NYSE) was formed under the Buttonwood Agreement.
- Stock markets became global, allowing companies to raise capital.

3) The First Stock Market Crashes (1929)

- 1920s: Speculation in stocks led to a financial bubble.
- 1929: The Wall Street Crash wiped out 90% of stock values. T he **SEC** was created in 1934 to regulate stock trading.

4) The Rise of Modern Investing (1950s-1980s)

- 1950s: Mutual funds became popular for investors.
- 1971: **NASDAQ** launched as the first electronic stock exchange.
- 1980s: Digital trading replaced paper transactions.

5) The Internet Revolution (1990s-2000s)

- 1990s: Online trading platforms enabled direct stock trading.
- 2000: The dot-com bubble burst, causing huge losses.
- 2008: The Global Financial Crisis triggered another crash.

6) The Era of Tech Stocks & ETFs (2010s-Present)

- FAANG stocks (Facebook, Apple, Amazon, Netflix, Google) do minated markets.

- **ETFs** became popular for diversified investing.

- 2020: The COVID-19 pandemic caused a crash followed by a rapid recovery.

7. The Future of Stock Investment (2020s and Beyond)

- **AI** and algorithmic trading are reshaping stock markets.
- **Cryptocurrencies** and blockchain are influencing strategies.
- Commission-free trading apps like **Robinhood** and **eToro** make investing accessible.

Conclusion

- Stock markets evolved from physical trading to digital platfor ms.
- Understanding past trends helps investors prepare for future changes.
- Investing knowledge is crucial for informed decisions.

<sites to see the stock prices>

1. **Yahoo Finance** (finance.yahoo.com)
   - Offers **interactive stock charts** with historical data.
   - Provides **technical indicators** like Moving Averages, RSI, MACD, etc.
   - Covers **news, earnings reports, and financials** of companies.
2. **TradingView** (tradingview.com)
   - Advanced **technical analysis tools** with customizable charts.
   - Allows users to apply **indicators, trend lines, and Fibonacci retracements**.
   - Provides **real-time market updates and trading ideas**.
3. **Google Finance** (google.com/finance)
   - Simple and easy-to-read **stock price graphs**.
   - Provides **news, earnings reports, and market trends**.
   - Good for **quick stock price lookups**.
4. **Investing.com** (investing.com)
   - Detailed **candlestick and line charts** for U.S. stocks.
   - Allows **comparison of multiple stocks** on the same graph.
   - Offers **pre-market and after-hours trading data**.

5. MarketWatch (marketwatch.com)

- Provides **live and historical stock charts**.
- Includes **market insights, earnings reports, and investment analysis**.
- Suitable for **long-term investment research**.

6. Nasdaq (nasdaq.com)

- Displays stock charts for companies listed on **Nasdaq**.
- Provides **real-time quotes and performance metrics**.
- Useful for tracking **tech-heavy stocks**.

7. The Wall Street Journal (WSJ) (wsj.com)

- Provides **stock charts and financial news**.
- Ideal for **in-depth analysis of market trends**.
- Requires **subscription** for some features.

8. StockCharts.com (stockcharts.com)

- Offers **customizable technical analysis charts**.
- Includes **pattern recognition tools** for traders.
- Suitable for **chart-based trading strategies**.

<sites to see the stock prices>

9. CNN Business (cnn.com/business)

- Provides **stock price charts with market summaries.**
- Includes **news and analysis on major market movements.**

10. Bloomberg (bloomberg.com)

- Displays **real-time stock data and news.**
- Offers **interactive market charts** for professional traders.

3. Graphs of major US firm’s stock

NVIDIA Corporation (NVDA)

NASDAQ · Currency in USD · NVDA Pro Research

119.53 -2.14 (-1.76%)

Closed · 17/03

Pre Market 119.48 -0.05 (-0.04%) 06:10:43

General | Chart | News & Analysis | Financials | Technical | Forum

Overview | Profile | Ownership | Historical Data | Historical Splits | Options | Index Component

1 5 15 30 1H 5H 1D 1W 1M Technical Chart »

NVIDIA Corporation 119.53 -2.14 (-1.76%)

1 Day	1 Week	1 Month	3 Months	6 Months	1 Year	5 years	Max

Key Statistics | Edit

More metrics for NVDA

Prev. Close	119.53	Market Cap	2.92T	P/E Ratio	40.58
Open	122.74	Shares Outstanding	24.4B	Return on Assets	82.2%
Day's Range	118.03 - 122.89	Revenue	130.5B	Return on Equity	119.2%
52 wk Range	75.61 - 153.13	Net Income	72.88K	Gross Profit Margin	75%
Volume	255.5M	EPS	2.97	Price/Book	36.77
Average Vol. (3m)	271.51M	EPS Growth Forecast	Unlock	EBITDA	83.32B
1-Year Change	36.08%	Next Earnings Date	May 28, 2025	EV/EBITDA	34.61
Book Value / Share	3.24	Dividend (Yield)	0.04 (0.03%)	Beta	1.76
Fair Value	Unlock	Dividends Payment Streak	Unlock		
Fair Value Upside	Unlock	RSI(14)	49.53		

Apple Inc (AAPL)

NASDAQ · Currency in USD · AAPL Pro Research

214.00 +0.51 (+0.24%)

Closed · 17/03

Pre Market 213.48 -0.52 (-0.24%) 06:12:45

General | Chart | News & Analysis | Financials | Technical | Forum

Overview | Profile | Ownership | Historical Data | Historical Splits | Options | Index Component

1 5 15 30 1H 5H 1D 1W 1M Technical Chart »

Apple Inc 214.00 +0.51 (+0.24%)

1 Day	1 Week	1 Month	3 Months	6 Months	1 Year	5 years	Max

Key Statistics | Edit

More metrics for AAPL

Prev. Close	214	Market Cap	3.21T	P/E Ratio	33.96
Open	213.31	Shares Outstanding	15.02B	Return on Assets	27.6%
Day's Range	209.97 - 215.22	Revenue	395.76B	Return on Equity	136.5%
52 wk Range	164.07 - 260.1	Net Income	96.15K	Gross Profit Margin	46.5%
Volume	48.07M	EPS	6.31	Price/Book	48.15
Average Vol. (3m)	53.46M	EPS Growth Forecast	Unlock	EBITDA	137.35B
1-Year Change	23.97%	Next Earnings Date	Apr 24, 2025	EV/EBITDA	23.08
Book Value / Share	4.42	Dividend (Yield)	1.00 (0.47%)	Beta	1.2
Fair Value	Unlock	Dividends Payment Streak	Unlock		
Fair Value Upside	Unlock	RSI(14)	30.96		

Tesla Inc (TSLA)

NASDAQ · Currency in USD · TSLA Pro Research

238.01 -11.97 (-4.79%)

Closed · 17/03

Pre Market 234.69 -3.32 (-1.39%) 06:14:24

General | Chart | News & Analysis | Financials | Technical | Forum

Overview | Profile | Ownership | Historical Data | Historical Splits | Options | Index Component

1 5 15 30 1H 5H 1D 1W 1M Technical Chart »

1 Day	1 Week	1 Month	3 Months	6 Months	1 Year	5 years	Max

Key Statistics | Edit

More metrics for TSLA

Prev. Close	238.01	Market Cap	765.56B	P/E Ratio	107.04
Open	245.06	Shares Outstanding	3.22B	Return on Assets	6.3%
Day's Range	232.8 - 245.4	Revenue	97.69B	Return on Equity	10.5%
52 wk Range	138.8 - 488.54	Net Income	7.09K	Gross Profit Margin	17.9%
Volume	111.9M	EPS	2.23	Price/Book	10.5
Average Vol. (3m)	89.73M	EPS Growth Forecast	Unlock	EBITDA	13.03B
1-Year Change	45.51%	Next Earnings Date	Apr 29, 2025	EV/EBITDA	57.07
Book Value / Share	22.71	Dividend (Yield)	N/A (N/A)	Beta	2.34
Fair Value	Unlock	Dividends Payment Streak	Unlock		
Fair Value Upside	Unlock	RSI(14)	31.23		

164.73 -4.27 (-2.53%)

Closed · 13/03

Pre Market 166.95 +2.22 (+1.35%) 08:34:44

General | Chart | News & Analysis | Financials | Technical | Forum

Overview | Profile | Ownership | Historical Data | Historical Splits | Options | Index Component

Microsoft Corporation (MSFT)

NASDAQ · Currency in USD · MSFT Pro Research

378.77 -4.50 (-1.17%)

Closed · 13/03

Pre Market 382.96 +4.19 (+1.11%) 08:37:22

Fai

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37

52
37

General | Chart | News & Analysis | Financials | Technical | Forum

Overview | Profile | Ownership | Historical Data | Historical Splits | Options | Index Component

590.64 -28.92 (-4.67%)

Closed · 13/03

Pre Market 603.74 +13.63 (+2.31%) 08:38:02

General | Chart | News & Analysis | Financials | Technical | Forum

Overview | Profile | Ownership | Historical Data | Options | Index Component

Amazon.com Inc (AMZN)

NASDAQ · Currency in USD · AMZN Pro Research

193.89 -5.00 (-2.51%)

Closed · 13/03

Pre Market 197.28 +3.39 (+1.75%) 08:38:53

General | Chart | News & Analysis | Financials | Technical | Forum

Overview | Profile | Ownership | Historical Data | Historical Splits | Options | Index Component

II. What is the most promising industry over the next five year span ? (team presentation)

Methods to evaluate the competitiveness of an industry

1. SWOT Analysis (Strength, Weakness, Opportunity, Threat)
2. M. Porter's 5 Competitive Forces
3. Risk Analysis
4. Industry Cycle Analysis

Evaluating Industry Competitiveness Using the SWOT Approach

The **SWOT (Strengths, Weaknesses, Opportunities, and Threats) framework** is a strategic tool used to evaluate the competitiveness of an industry by assessing internal factors (strengths and weaknesses) and external factors (opportunities and threats). This approach helps firms and policymakers understand industry dynamics and make informed strategic decisions.

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1. Components of SWOT Analysis for Industry Competitiveness

Factor	Definition
Strengths (S)	Internal factors that give the industry a competitive edge, such as technology, skilled workforce, or cost advantages.
Weaknesses (W)	Internal challenges or limitations, such as high production costs, outdated technology, or lack of skilled labor.
Opportunities (O)	External factors that can benefit the industry, such as emerging markets, favorable policies, or technological advancements.
Threats (T)	External risks that can harm the industry, such as regulatory changes, increased competition, or economic downturns.

2. Example: SWOT Analysis of the Electric Vehicle (EV) Industry

Industry Overview:

The global **Electric Vehicle (EV) industry** is experiencing rapid growth, driven by technological advancements, environmental concerns, and government incentives. However, it also faces challenges such as supply chain constraints and competition from traditional automotive manufacturers.

SWOT Analysis of the EV Industry

Factor	Key Points
Strengths	- **Technological innovation**: Advancements in battery technology and autonomous driving.
	- **Government support**: Subsidies, tax incentives, and stricter emission regulations.
	- **Brand loyalty**: Companies like Tesla have strong brand recognition.
	- **Growing market demand**: Increasing consumer preference for clean energy vehicles.
Weaknesses	- **High production costs**: Expensive battery manufacturing and R&D costs.
	- **Charging infrastructure**: Insufficient charging stations in many regions.
	- **Supply chain issues**: Dependence on critical minerals (e.g., lithium, cobalt).
	- **Limited profitability**: High upfront costs and long breakeven periods.
Opportunities	- **Market expansion**: Increasing demand in emerging economies (e.g., China, India).
	- **Technological advancements**: Potential breakthroughs in battery efficiency and charging speed.
	- **Corporate investment**: Major automakers shifting to EV production.
	- **Environmental policies**: Stricter emission targets promoting EV adoption.
Threats	- **Competition from traditional automakers**: Companies like Toyota and Ford expanding EV production.
	- **Economic downturns**: Recession or financial crises affecting consumer demand.
	- **Raw material shortages**: Limited supply of lithium and rare earth metals.
	- **Changing regulations**: Potential policy shifts affecting subsidies or production norms.

3. How to Use SWOT for Strategic Decision-Making

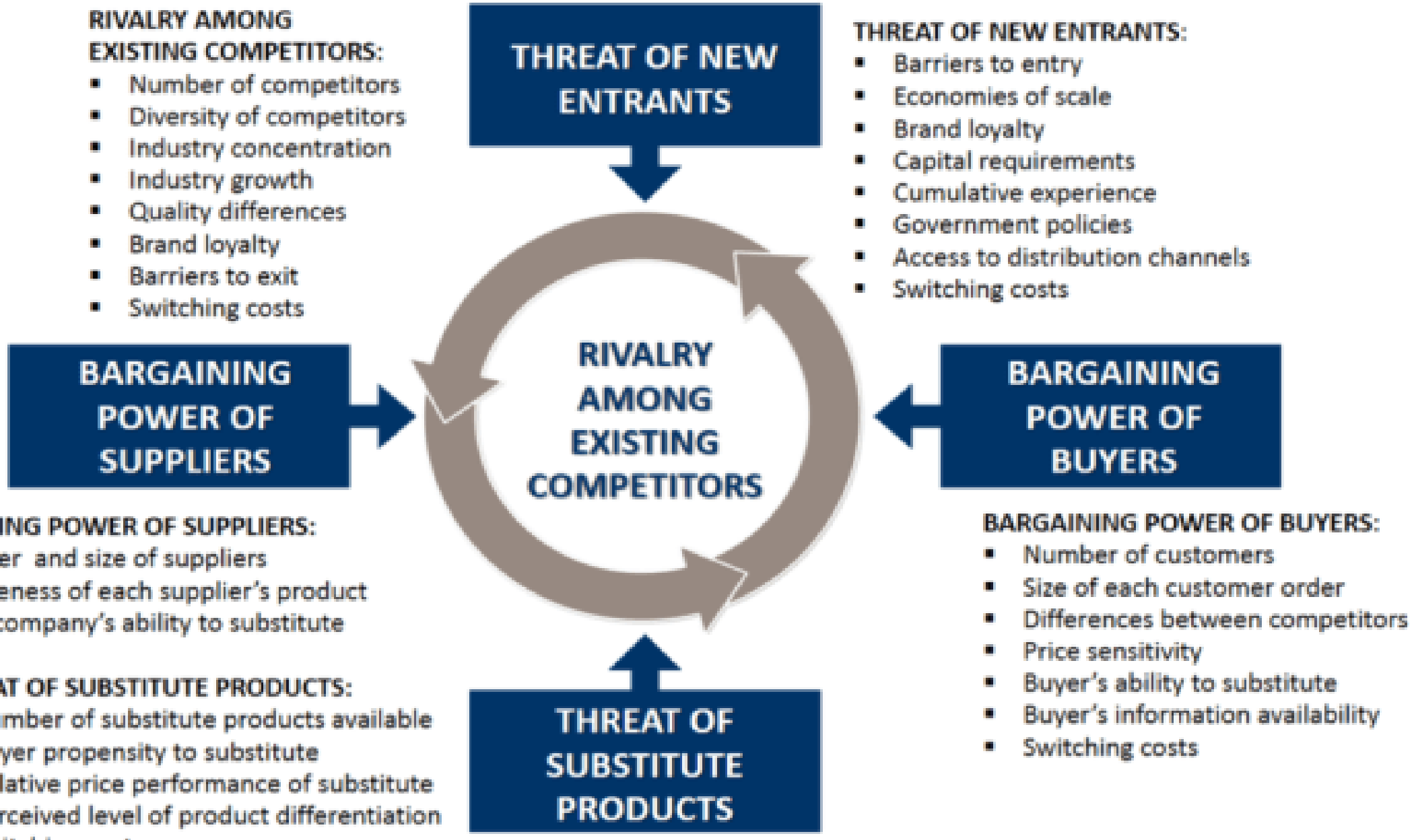
1. **Capitalize on Strengths**
   - Strengthen R&D for battery technology.
   - Expand production capacity in key markets.
2. **Improve Weaknesses**
   - Invest in local supply chains to reduce dependency on rare minerals.
   - Develop fast-charging infrastructure to improve accessibility.
3. **Seize Opportunities**
   - Expand partnerships with governments to receive tax incentives.
   - Enter new markets where EV penetration is low.
4. **Mitigate Threats**
   - Diversify supply chains to reduce reliance on specific materials.
   - Adopt flexible pricing strategies to remain competitive.

Evaluating Industry Competitiveness Using Michael Porter's Five Forces Model

Michael Porter's **Five Forces Model** is a strategic framework for assessing the competitiveness of an industry by analyzing the key forces that shape its structure and profitability. This model helps businesses and policymakers understand industry dynamics and develop strategies to gain a competitive advantage.

1. Porter's Five Competitive Forces Explained

Force	Definition	Key Questions
1. Threat of New Entrants	How easy or difficult it is for new competitors to enter the industry.	- Are there high barriers to entry (e.g., capital investment, regulation)? - Can new firms enter easily and disrupt the market?
2. Bargaining Power of Suppliers	The power suppliers have to influence prices and terms.	- Are there a few dominant suppliers controlling raw materials? - Can suppliers dictate terms and raise costs?
3. Bargaining Power of Buyers (Customers)	The ability of buyers to influence prices and demand better service.	- Do customers have many alternatives? - Can buyers demand lower prices or better quality?
4. Threat of Substitutes	The risk of customers switching to alternative products.	- Are there alternative products or services that meet the same need? - How easy is it for consumers to switch?
5. Industry Rivalry (Competitive Intensity)	The level of competition among existing firms.	- Are there many competitors of similar size and capability? - Is there price competition leading to lower profitability?


RIVALRY AMONG EXISTING COMPETITORS:
Number of competitors
Diversity of competitors
Industry concentration
Industry growth
Quality differences
Brand loyalty
Barriers to exit
Switching costs
THREAT OF NEW ENTRANTS
THREAT OF NEW ENTRANTS:
Barriers to entry
Economies of scale
Brand loyalty
Capital requirements
Cumulative experience
Government policies
Access to distribution channels
Switching costs
BARGAINING POWER OF SUPPLIERS
RIVALRY AMONG EXISTING COMPETITORS
BARGAINING POWER OF BUYERS
BARGAINING POWER OF SUPPLIERS:
Number and size of suppliers
Uniqueness of each supplier's product
Focal company's ability to substitute
BARGAINING POWER OF BUYERS:
Number of customers
Size of each customer order
Differences between competitors
Price sensitivity
Buyer's ability to substitute
Buyer's information availability
Switching costs
THREAT OF SUBSTITUTE PRODUCTS:
Number of substitute products available
Buyer propensity to substitute
Relative price performance of substitute
Perceived level of product differentiation
Switching costs
THREAT OF SUBSTITUTE PRODUCTS

III. What is the most promising company (firm or stock) over the next five years ? (team presentation)

Evaluation Methods for the Value of a Stock

When evaluating the **value of a stock**, investors and analysts use several methods, broadly categorized into **fundamental analysis, technical analysis, and market-based approaches**. Below are the key **stock valuation methods**:

1. Fundamental Valuation Methods

Fundamental valuation methods focus on analyzing a company's financial health, earnings potential, and intrinsic value.

(1) Discounted Cash Flow (DCF) Analysis

- **Concept**: Determines the present value of a stock based on expected future cash flows.
- **Formula**:

$$PV = \sum \frac{CF_t}{(1+r)^t}$$

  where:

  - PV = Present Value
  - CF_t = Cash flow in year t
  - r = Discount rate (cost of equity or WACC)
  - t = Time period

- **Pros**: Comprehensive, accounts for future growth
- **Cons**: Requires accurate cash flow estimates, sensitive to discount rate assumptions

(2) Dividend Discount Model (DDM)

- **Concept**: Values a stock based on the present value of expected future dividends.
- **Formula (Constant Growth Model - Gordon Growth Model)**:

$$P_0 = \frac{D_1}{r - g}$$

where:

- P_0 = Stock price today
- D_1 = Expected dividend next year
- r = Required rate of return
- g = Dividend growth rate

- **Pros**: Simple and useful for dividend-paying stocks
- **Cons**: Not useful for companies that do not pay dividends or have unpredictable dividend growth

(3) Price-to-Earnings (P/E) Ratio Approach

- **Concept**: Compares a stock's price to its earnings per share (EPS) to determine valuation.
- **Formula**:

$$P/E = \frac{\text{Stock Price}}{\text{Earnings Per Share (EPS)}}$$

- **Pros**: Easy to use, widely accepted
- **Cons**: Earnings can be manipulated, does not account for future growth

(4) Price-to-Book (P/B) Ratio

- **Concept**: Compares a stock's price to its book value per share.
- **Formula**:

$$P/B = \frac{\text{Stock Price}}{\text{Book Value per Share}}$$

- **Pros**: Useful for valuing asset-heavy companies like banks
- **Cons**: Not ideal for companies with high intangible assets (e.g., tech firms)

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2. Relative Valuation Methods

Relative valuation methods compare a stock's value to industry peers.

(1) Price-to-Sales (P/S) Ratio

- **Formula**:

$$P/S = \frac{\text{Market Capitalization}}{\text{Total Revenue}}$$

- **Use Case**: Good for early-stage or loss-making companies where earnings are not stable.

(2) Enterprise Value-to-EBITDA (EV/EBITDA)

- **Formula**:

$$EV/EBITDA = \frac{\text{Enterprise Value}}{\text{Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA)}}$$

- **Use Case**: Common in mergers & acquisitions, suitable for capital-intensive industries.

IV. Time Value of Money (Next Class)

Time Value of Money (TVM) – Lecture Explanation for University Students

Introduction

The concept of the **Time Value of Money (TVM)** is one of the fundamental principles in finance. It states that **a dollar today is worth more than a dollar in the future** due to its earning potential. This concept is crucial in financial decision-making, including investment analysis, capital budgeting, and retirement planning.

1. Why Does Money Have Time Value?

There are three main reasons why money today is worth more than the same amount in the future:

1. **Inflation** – Over time, the purchasing power of money decreases due to rising prices.
2. **Opportunity Cost** – Money can be invested to earn interest or returns.
3. **Risk and Uncertainty** – Future cash flows are uncertain, so money today is more valuable.

Example 1: Simple Interest vs. Compound Interest

Let's assume you invest **$1,000** in a savings account with a **5% annual interest rate** for **three years**.

(1) Simple Interest Calculation

With simple interest, the formula is:

$$FV = PV(1 + r \cdot t)$$

Where:

- FV = Future Value
- PV = Present Value ($1,000)
- r = Interest Rate (5% or 0.05)
- t = Time in years (3)

$$FV = 1,000(1 + 0.05 \times 3) = 1,000(1.15) = 1,150$$

So, after 3 years, you will have **$1,150** with simple interest.

(2) Compound Interest Calculation

With compound interest, the formula is:

$$FV = PV(1+r)^t$$

$$FV = 1,000(1.05)^3 = 1,000 \times 1.1576 = 1,157.63$$

So, with compound interest, you will have **$1,157.63**, which is **more than the simple interest case** because interest is earned on both the principal and previously earned interest.

2. Present Value and Discounting

Present Value (PV) helps determine how much future money is worth today. It is calculated using the formula:

$$PV = \frac{FV}{(1+r)^t}$$

Example 2: Discounting a Future Payment

Suppose you will receive **$1,500** in **4 years**, and the discount rate is **6% per year**. The present value is:

$$PV = \frac{1,500}{(1.06)^4} = \frac{1,500}{1.2625} = 1,188.07$$

This means **$1,500 in 4 years is worth only $1,188.07 today** at a 6% discount rate.