# International Management Studies

Lecture 5

April 2, 2025

# Contents: April 2 (Lecture 5)

I. What is the most promising industry over the next five year span ? (team presentation)
II. What is the most promising company (firm or stock) over the next five years ? (team presentation)
III. Time value of money (basic principle of finance)
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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| **Weaknesses (W)** | Internal challenges or limitations, such as high production costs, outdated technology, or lack of skilled labor.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

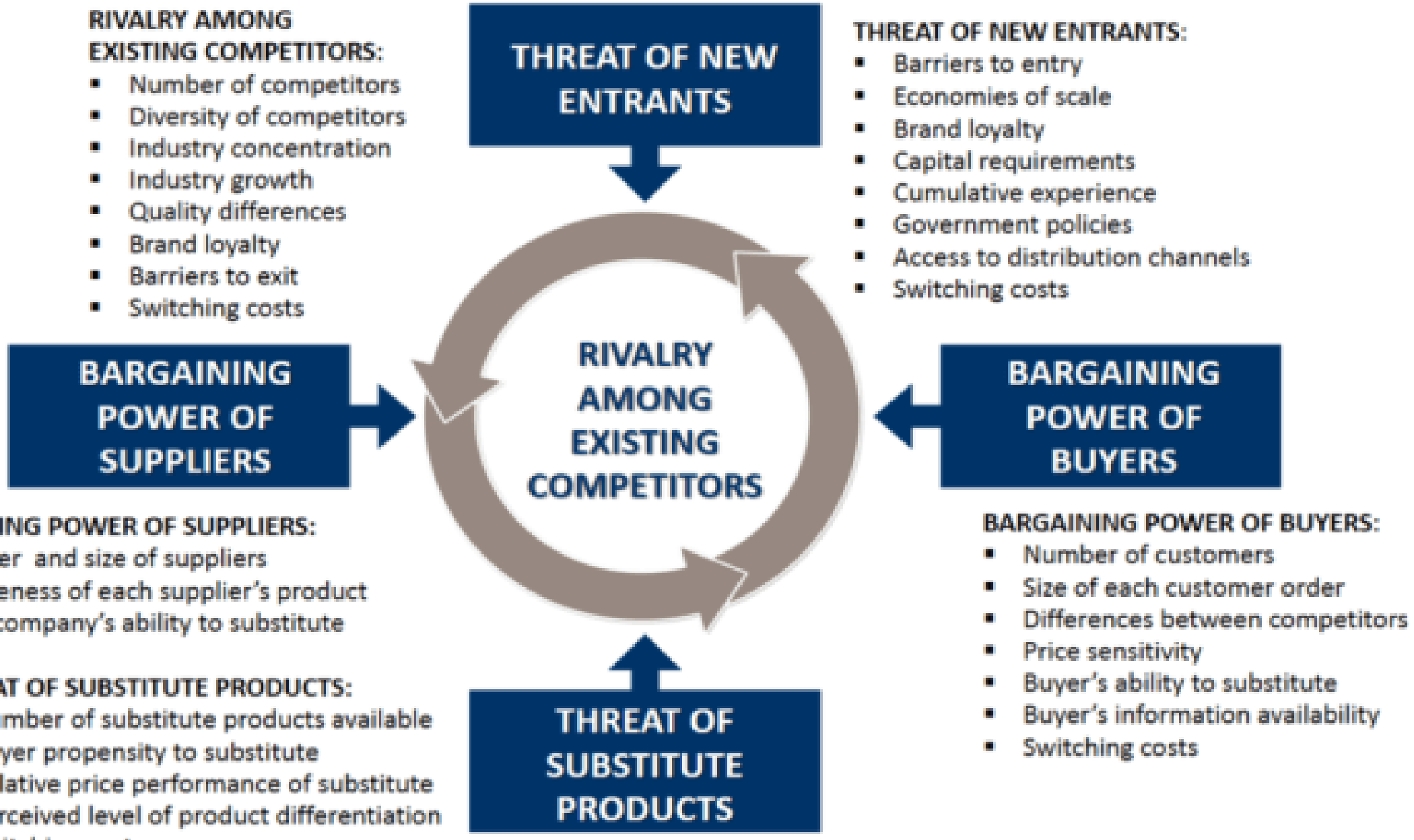
1. **Capitalize on Strengths**
   - Strengthen R&D for battery technology.
   - Expand production capacity in key markets.
2. **Improve Weaknesses**
   - Invest in local supply chains to reduce dependency on rare minerals.
   - Develop fast-charging infrastructure to improve accessibility.
3. **Seize 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)?<br>- 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?<br>- 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?<br>- 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?<br>- 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?<br>- 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

II. 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.

# III. Time Value of Money

## 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.

$$FV = PV\,(1+r)^n$$

Rearranging the variables, we can develop equations to calculate the Present Value , Interest Rate, and Time.

$$PV = \frac{FV}{(1+r)^n} \qquad r = \left(\frac{FV}{PV}\right)^{\frac{1}{n}} - 1 \qquad n = \frac{\ln(\frac{FV}{PV})}{\ln(1+r)}$$

# 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:

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

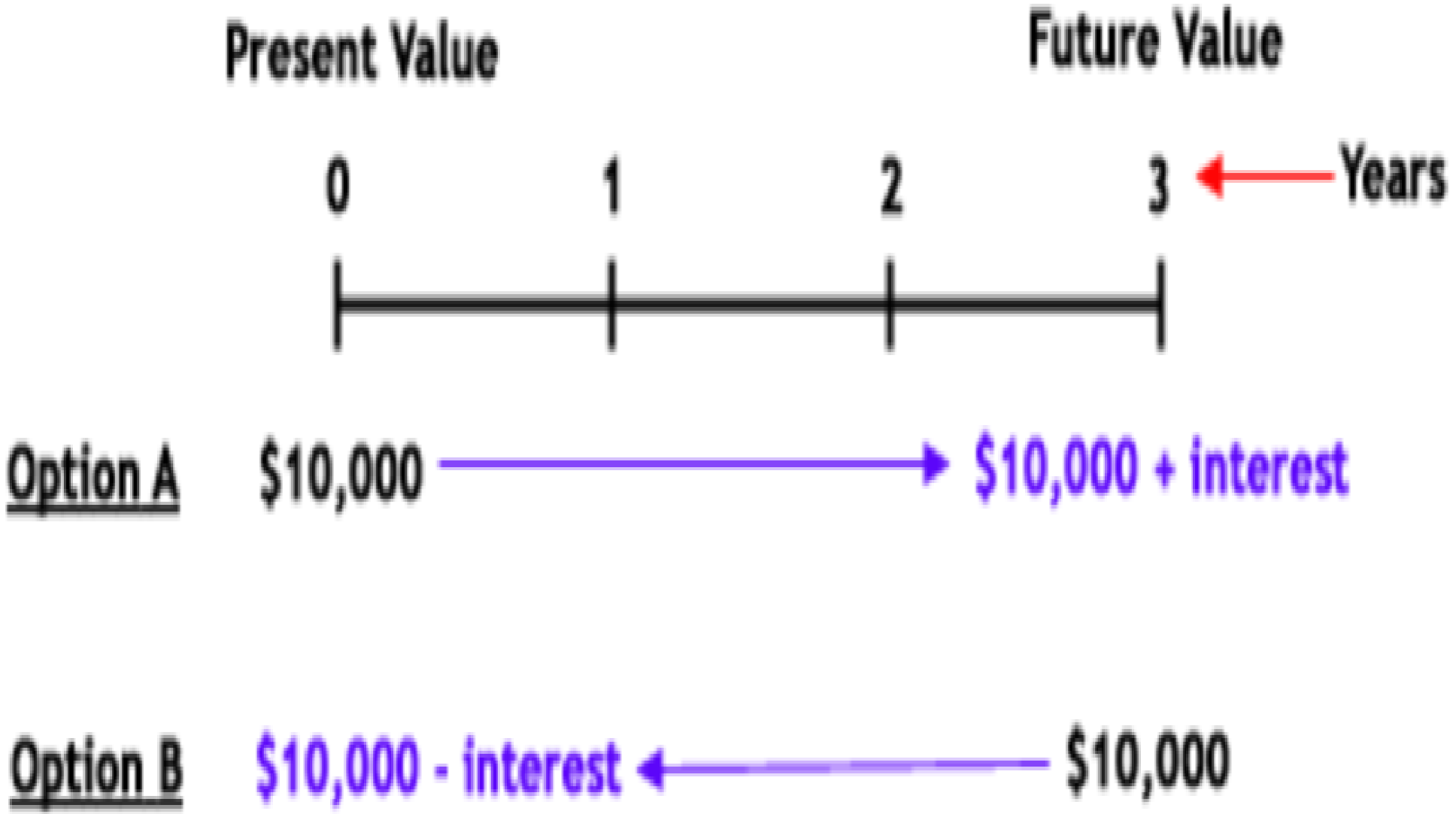
$$FV = 1,000(1.05)^3 = 1,000 \times 1.1576 = 1,157.63$$

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.

Wall Street Prep

$$\text{Present Value (PV)} = \frac{\text{Future Value (FV)}}{(1 + \text{Discount Rate})^{\text{Number of Periods}}}$$

$$\text{Future Value (FV)} = \text{PV} \times (1 + \text{Discount Rate})^{\text{Number of Periods}}$$


Present Value
Future Value
0
1
2
3
Years
Option A
$10,000
$10,000 + interest
Option B
$10,000 - interest
$10,000

# 2. Present Value and Discounting

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

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

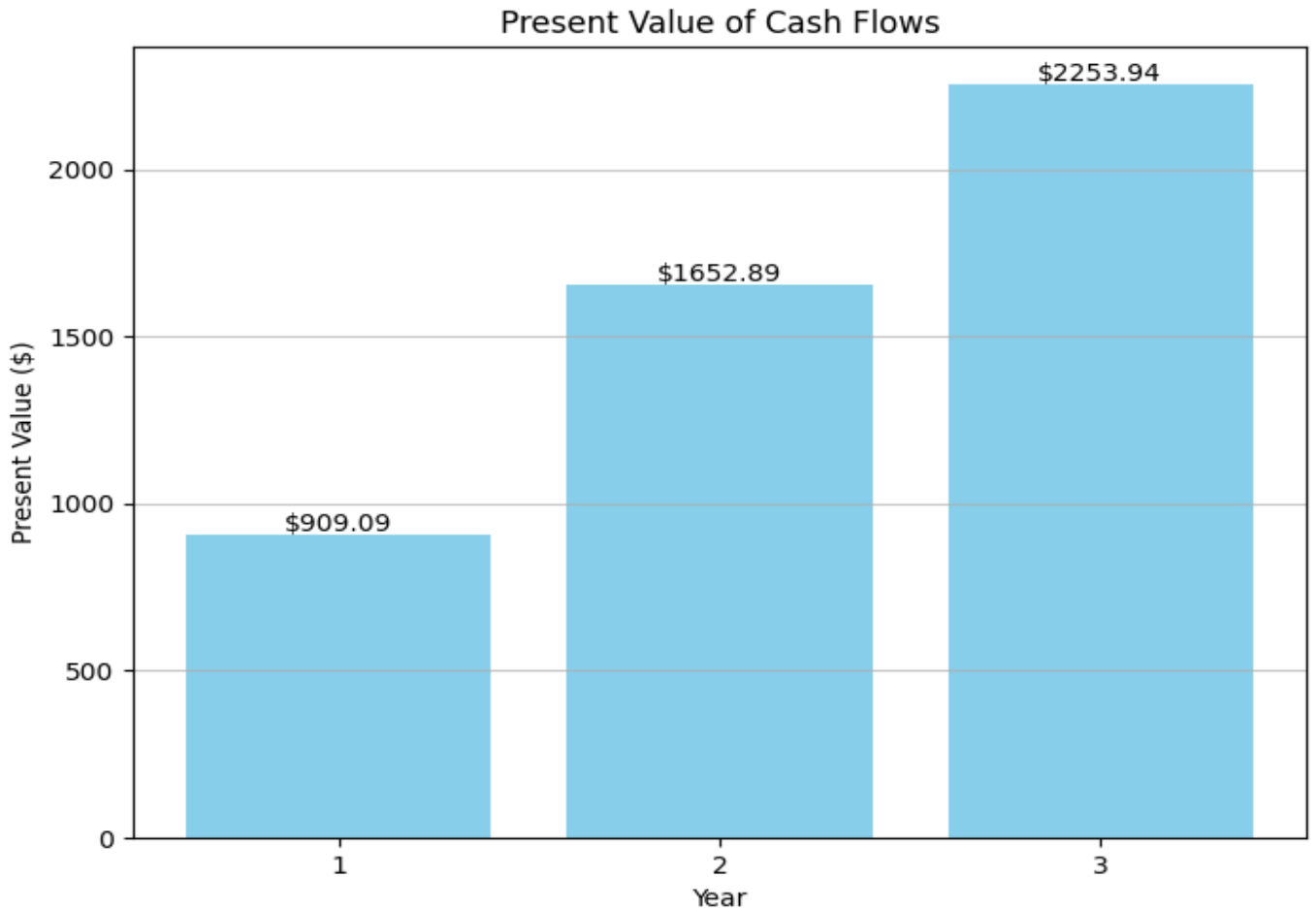
## Example 2: Discounting a Future Payment

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.

What is the present value of the cash flows (at the end of year one=$1000, at the end of year two = $2000, at the end of year three = $3000, discount rate is 10% ?



Detailed Present Value Calculation:

Cash flow in year 1: $1000
Discount factor for year 1: (1 + 0.1)^{1} = 1.1000
Present value of $1000 received in year 1: $1000 / 1.1000 = $909.09

Cash flow in year 2: $2000
Discount factor for year 2: (1 + 0.1)^{2} = 1.2100
Present value of $2000 received in year 2: $2000 / 1.2100 = $1652.89

Cash flow in year 3: $3000
Discount factor for year 3: (1 + 0.1)^{3} = 1.3310
Present value of $3000 received in year 3: $3000 / 1.3310 = $2253.94

Total present value of all cash flows: $4815.93

# Calculate the present value for the cash flows ($1000 each year for the next 30 years

$$PV = PMT * [ (1 - (1 + r)^-n) / r ]$$

Calculating Present Value of Annuity:
Payment Amount (PMT): $1000
Discount Rate (r): 0.1000
Number of Years (n): 30

Step 1: (1 + r) = 1 + 0.1000 = 1.1000
Step 2: -n = -30 = -30
Step 3: (1 + r)^-n = 1.1000^-30 = 0.0573

Step 4: 1 - (1 + r)^-n = 1 - 0.0573 = 0.9427

Step 5: [1 - (1 + r)^-n] / r = 0.9427 / 0.1000 = 9.4269

Step 6: PMT * Present Value Factor = $1000 * 9.4269 = $9426.91

The present value of receiving $1000 per year for 30 years at a discount rate of 10.0% is: $9426.91

## TVM Calculation Example

Suppose you're offered the following two options to pick from:

- Option 1 → Receive $225,000 in Year 4
- Option 2 → Receive $50,000 from Year 1 to Year 4

The determinant of which option is more profitable is the time value of money (TVM).

If we assume a 10% discount rate, which option should you proceed with?

For both option 1 and option 2, we'll list out the cash inflow for each year.

While option 1 consists of a one-time payment of $225,000, option 2 consists of four payments of $50,000.

The formula for discounting each cash flow is the future value (FV) divided by (1 + discount rate), which is then raised to the power of the period number.

Once completed for each year, the sum of the discounted cash flows equals the present value of the option, i.e. how much the future cash flows are worth on the present date.

- Option 1 = $154,000
- Option 2 = $158,000

$$PV_{Annuity} = \left(\frac{Annuity}{r}\right)\left(1 - \frac{1}{(1+r)^{t}}\right)$$

- PV = Present Value
- Annuity = Annuity Payment Per Period ($)
- t = Number of Periods
- r = Yield to Maturity (YTM)

# Annuity Formula

cuemath
THE MATH EXPERT

The future value of an annuity

$$FV = P \times \left( \frac{(1+r)^{n} - 1}{r} \right)$$

The present value of an annuity

$$PV = P \times \left( \frac{1 - (1+r)^{-n}}{r} \right)$$