International Management Studies

2025.5.28

Contents

I.   Current Global Macro Events

II.   Efficient Market Hypothesis

III.   Portfolio Theory and its Application

IV.   Presentation by Team
        (The most promising stock to invest)

V.   Remaining Class Schedule

I. Current Global Macro Events

1.   Trump's Reaction to Putin's Recent Military Assault to Ukraine
(which industry will be affected the most by his reaction ?)

2. Trump suspends planned 50% tariffs on EU

(which market, which industry and which stock will be affected by his decision ?)

3. Trump's decision to revive the nuclear energy.

(which industry and which stock will be affected by his decision ?
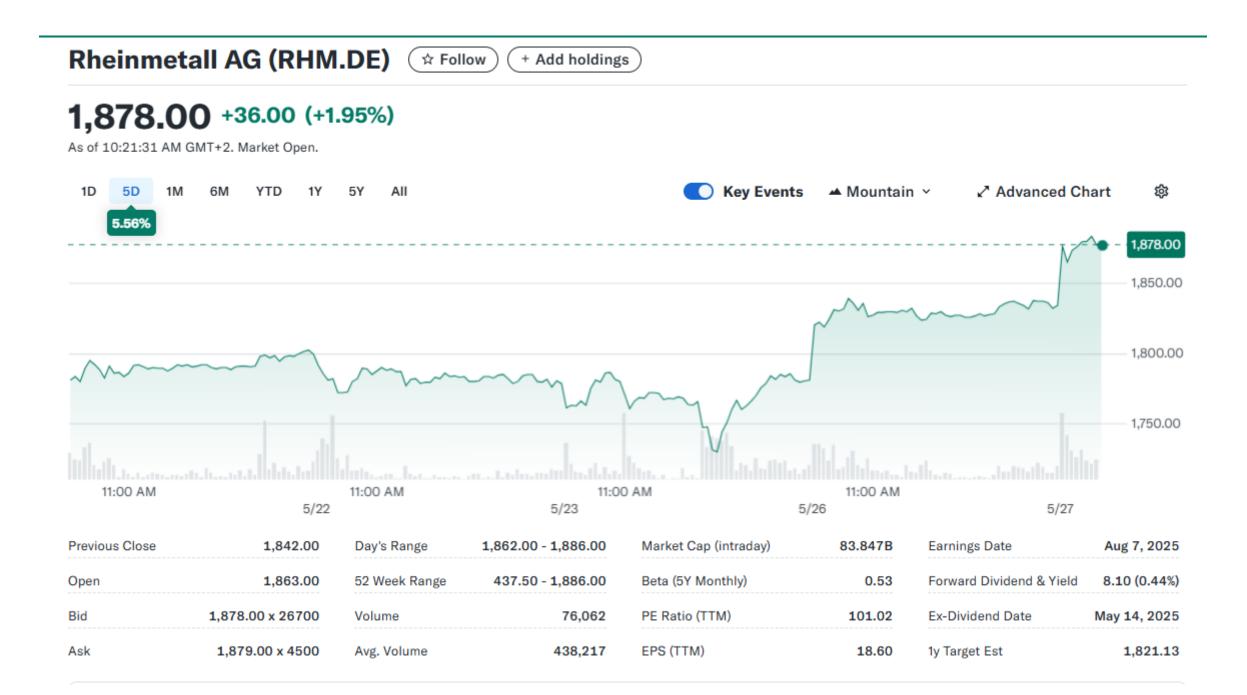
1. Defense Stocks

Increased geopolitical tension often boosts military spending.

- Lockheed Martin (LMT)

- Northrop Grumman (NOC)

- Raytheon Technologies (RTX)

- General Dynamics (GD)

  These firms are key defense contractors supplying weapons and systems used in NATO-aligned military support.

▲ Positively Affected Stocks

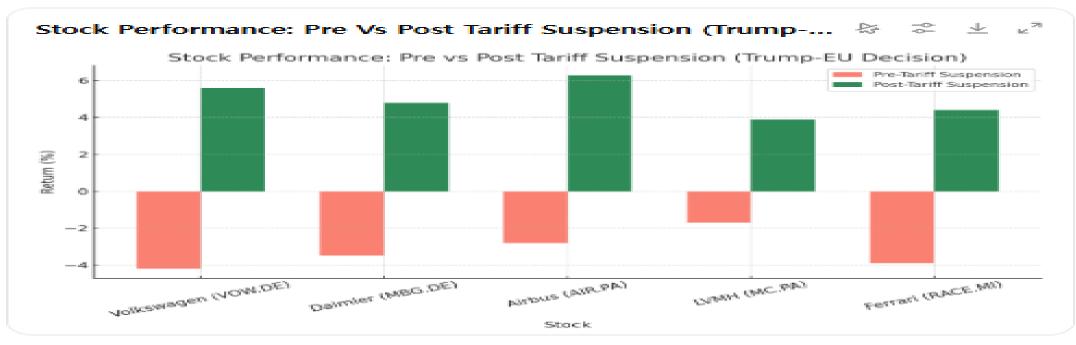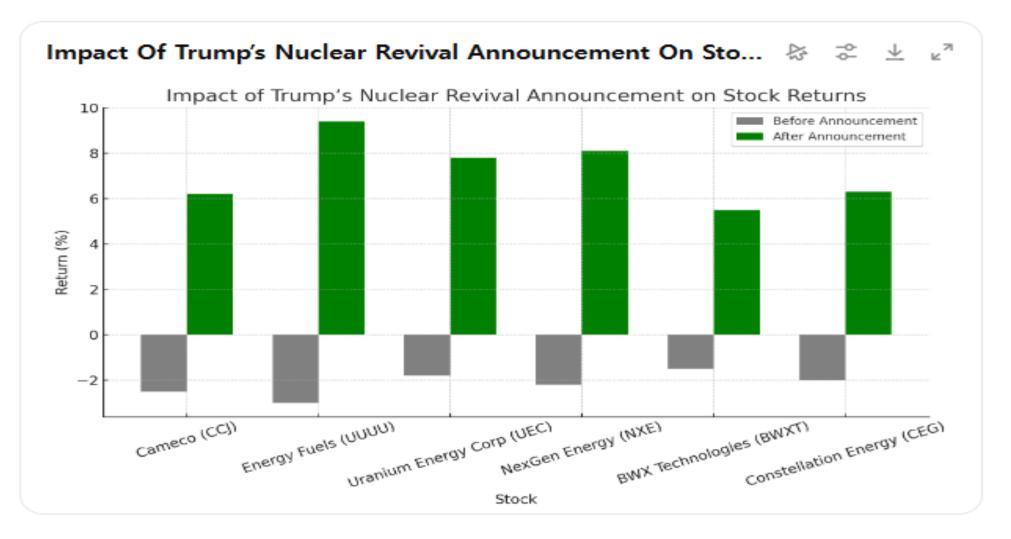| Stock	Sector	Reason
Thales (France)	Defense	Demand for military and surveillance systems rises in conflict scenarios.
Rheinmetall (Germany)	Defense	Supplier of armored vehicles and munitions; benefits from increased EU defense budgets.

Rheinmetall AG (RHM.DE)

☆ Follow　　+ Add holdings

1,878.00　+36.00 (+1.95%)

As of 10:21:31 AM GMT+2. Market Open.

| 1D | **5D** | 1M | 6M | YTD | 1Y | 5Y | All |

5.56%

○ Key Events　　▲ Mountain ⌄　　↗ Advanced Chart　　⚙

Previous Close	1,842.00	Day's Range	1,862.00 - 1,886.00	Market Cap (intraday)	83.847B	Earnings Date	Aug 7, 2025
Open	1,863.00	52 Week Range	437.50 - 1,886.00	Beta (5Y Monthly)	0.53	Forward Dividend & Yield	8.10 (0.44%)
Bid	1,878.00 x 26700	Volume	76,062	PE Ratio (TTM)	101.02	Ex-Dividend Date	May 14, 2025
Ask	1,879.00 x 4500	Avg. Volume	438,217	EPS (TTM)	18.60	1y Target Est	1,821.13

🧾 Summary Table:

Category	Winners	Why
Market Index	DAX, CAC 40, STOXX 50	Export-heavy EU indices rebound on tariff relief
Industry	Auto, Luxury, Aerospace, Wine	Core EU exports to U.S. shielded from price shocks
Stocks	VW, Daimler, Airbus, LVMH, Ferrari	High U.S. exposure, cost structure protection

EU Stocks Tariff Impact

	Stock	Pre-Tariff Return (%)	Post-Tariff Return (%)	
1	Volkswagen (VOW.DE)	-4.2	5.6	
2	Daimler (MBG.DE)	-3.5	4.8	
3	Airbus (AIR.PA)	-2.8	6.3	
4	LVMH (MC.PA)	-1.7	3.9	
5	Ferrari (RACE.MI)	-3.9	4.4	

Stock Performance: Pre Vs Post Tariff Suspension (Trump-...

Stock Performance: Pre vs Post Tariff Suspension (Trump-EU Decision)

Impact Of Trump's Nuclear Revival Announcement On Sto...

Impact of Trump's Nuclear Revival Announcement on Stock Returns

Here is the chart comparing **stock returns before and after Trump's nuclear energy revival announcement**. As shown, most nuclear-related stocks experienced notable gains following the announcement, especially **Energy Fuels (UUUU)** and **NexGen Energy (NXE)**.

📅 Historical Timeline: Major Global Events and Market Impacts (2000–2025)

Year	Event	Market Impact
2000	Dot-com Bubble Burst	NASDAQ crashed ~78%, global tech stocks collapsed, risk appetite evaporated.
2001	9/11 Terror Attacks	U.S. markets closed for days, S&P 500 fell ~12%, surge in defense & gold.
2003	SARS Outbreak (Asia)	Asian tourism, airlines, and retail sectors hit; recovery followed quickly.
2007–2008	Global Financial Crisis (Lehman Brothers collapse)	S&P 500 lost ~57%; systemic banking crisis triggered global recession.
2010	European Sovereign Debt Crisis (Greece, PIIGS)	Euro weakened, flight to U.S. Treasuries, market volatility rose.
2011	U.S. Debt Ceiling Crisis & S&P Downgrade	S&P 500 dropped ~17% in weeks, VIX spiked, gold hit record high.

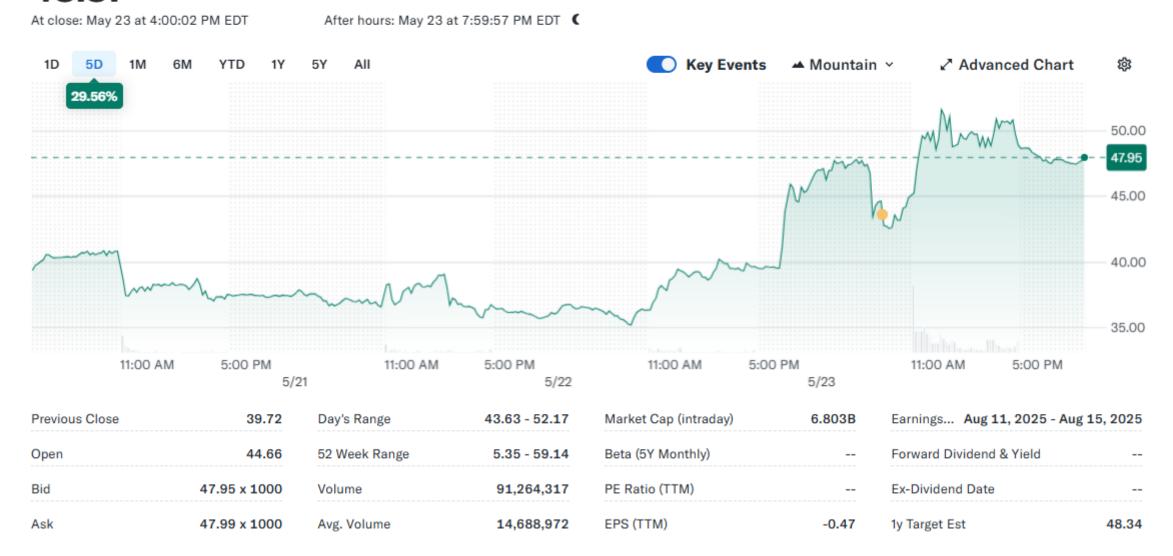| Year	Event	Impact
2014	Oil Price Crash (OPEC glut, U.S. shale)	Brent crude fell from $100 to <$40; energy stocks collapsed; consumers gained.
2015	China's Yuan Devaluation & Stock Market Crash	CSI 300 fell ~40%; global market tremors, commodities sold off.
2016	Brexit Referendum	GBP fell 10% overnight, FTSE 100 recovered but EU stocks struggled.
2018	U.S.–China Trade War Begins	Tariff announcements led to tech & industrial stock volatility globally.
2020	COVID-19 Pandemic	Global markets plunged ~30% in a month, followed by historic central bank stimulus → record recovery in tech.
2021	Inflation Surge & Supply Chain Disruptions	Bond yields rose, tech corrected; energy and commodities rallied.

→ **2022**	Russia–Ukraine War	Brent oil >$120, gas prices soared, Eurozone stocks fell, defense and agriculture surged.
2023	U.S. Regional Banking Crisis (SVB, Credit Suisse issues)	Short-term panic in financials; Fed backstops liquidity → quick rebound.
2024	AI Stock Bubble Builds	NVIDIA, AMD, and big tech surge; market concentration increases; valuations stretched.
→ **2025**	**U.S.–China Trade War Escalation 2.0**	Tariffs, blacklists, export controls reignited deglobalization fears → tech correction, VIX rise, capital flows to defense/commodities.

Comparisons   Indicators   Corporate Events   Mountain ⌄   ✎

O:331.89 H:344.49 L:331.08 C:339.94 V:3.28b

vol undr 3,283,280,000.00

yahoo!finance

6,000.00

5,802.82

5,000.00

4,000.00

3,000.00

2,000.00

1,000.00

84.37B

1995   2000   2005   2010   2015   2020   2025

Oklo Inc. (OKLO)

☆ Follow   + Add holdings

48.87   +9.15 +(23.04%)   47.95   -0.92 (-1.88%)

At close: May 23 at 4:00:02 PM EDT   After hours: May 23 at 7:59:57 PM EDT ☾

| 1D | 5D | 1M | 6M | YTD | 1Y | 5Y | All | | Key Events | ⛰ Mountain ⌄ | ↗ Advanced Chart | ⚙ |

29.56%

Previous Close	39.72	Day's Range	43.63 - 52.17	Market Cap (intraday)	6.803B	Earnings... **Aug 11, 2025 - Aug 15, 2025**
Open	44.66	52 Week Range	5.35 - 59.14	Beta (5Y Monthly)	--	Forward Dividend & Yield	--
Bid	47.95 x 1000	Volume	91,264,317	PE Ratio (TTM)	--	Ex-Dividend Date	--
Ask	47.99 x 1000	Avg. Volume	14,688,972	EPS (TTM)	-0.47	1y Target Est	48.34

Oklo Inc. (OKLO)

☆ Follow *+ Add holdings*

48.87 +9.15 +(23.04%)   50.94 +2.07 (+4.24%)

At close: May 23 at 4:00:02 PM EDT   Pre-Market: 4:36:31 AM EDT ☾

| 1D | **5D** | 1M | 6M | YTD | 1Y | 5Y | All | | | Key Events | ▲ Mountain ⌄ | ⤢ Advanced Chart | ⚙ |

29.56%

50.70

11:00 AM   5:00 PM   11:00 AM   5:00 PM   11:00 AM   5:00 PM   11:00 AM   5:00 PM
             5/21   5/22   5/23   5/27

Previous Close	39.72	Day's Range	43.63 - 52.17	Market Cap (intraday)	6.803B	Earnings... **Aug 11, 2025 - Aug 15, 2025**
Open	44.66	52 Week Range	5.35 - 59.14	Beta (5Y Monthly)	--	Forward Dividend & Yield --
Bid	--	Volume	91,264,317	PE Ratio (TTM)	--	Ex-Dividend Date --
Ask	--	Avg. Volume	14,574,406	EPS (TTM)	-0.47	1y Target Est 48.34

⌄ **Oklo Inc. Overview** - Utilities - Regulated Electric / Utilities

The **Efficient Market Hypothesis (EMH)** is a foundational theory in finance that suggests:

> Financial markets are "informationally efficient," meaning that asset prices fully and immediately reflect all available information.

🔍 Key Points of EMH

1. No Free Lunch

- Since prices already incorporate all known information, it's **impossible to consistently outperform the market** through stock picking or market timing.

- Any new information is instantly reflected in prices, so opportunities for "bargains" disappear quickly.

2. Random Walk Theory

- Price movements are **random and unpredictable**.

- Historical data or patterns (like technical charts) **cannot predict future prices** in an efficient market.

📚 Forms of Market Efficiency

Form	What Information Is Reflected in Prices?	Implication
Weak-form	All past price and volume data	Technical analysis is ineffective
Semi-strong	All publicly available information (financials, news, etc.)	Fundamental analysis is ineffective
Strong-form	All information, including insider or private data	No one can consistently beat the market, even insiders

🔬 Evidence For and Against EMH

✅ Support for EMH
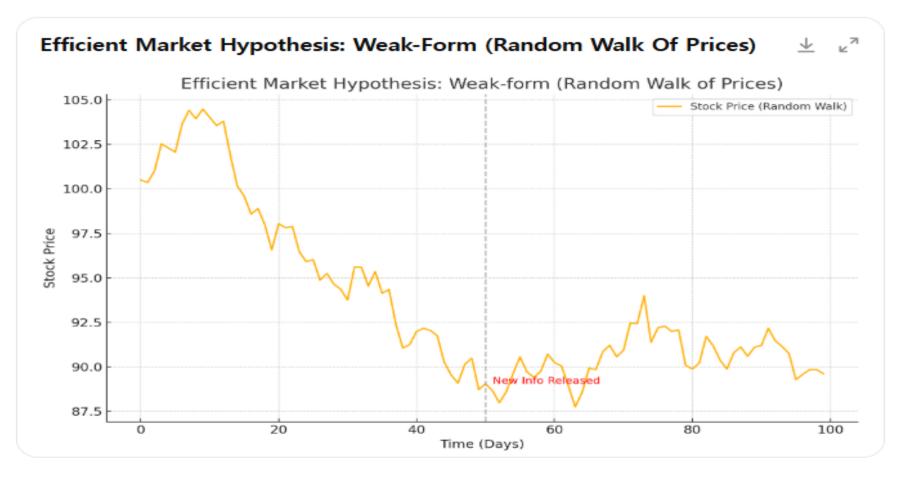
- Index funds often outperform actively managed funds over time.

- Prices react quickly to public news (e.g., earnings announcements).

- Arbitrage reduces mispricing rapidly.

❌ Challenges to EMH

- **Market anomalies** like the January effect or momentum trends.

- **Behavioral biases** (overconfidence, herd behavior) create irrational market moves.

- **Bubbles and crashes** suggest prices don't always reflect true value (e.g., dot-com bubble, housing crisis).

💡 Real-World Implications
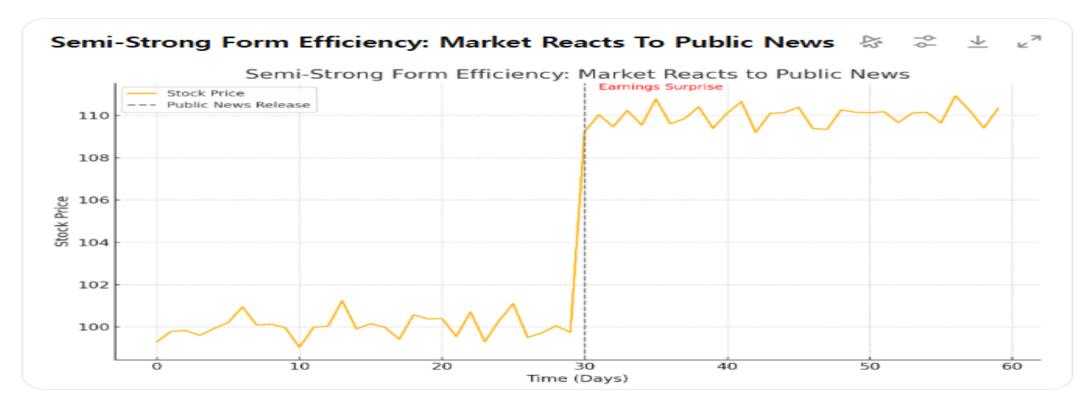
- **Passive investing** (e.g., index funds, ETFs) is favored over active management.

- Focus shifts to **risk control**, **diversification**, and **cost minimization**.

- EMH doesn't say markets are *always right*, but that they are *unbeatable in a systematic way*.

Efficient Market Hypothesis: Weak-Form (Random Walk Of Prices)

Efficient Market Hypothesis: Weak-form (Random Walk of Prices)

This chart demonstrates the **Weak-form Efficient Market Hypothesis** using a **random walk model**:

- The stock price fluctuates in an unpredictable way because **all past price information is already reflected** in the current price.

- The vertical line marks a point where **new information** is released. The market adjusts quickly, but the price continues to move randomly afterward.

Semi-Strong Form Efficiency: Market Reacts To Public News

This chart illustrates the **Semi-Strong Form of Market Efficiency**:

- On **Day 30**, public news (e.g., an earnings surprise) is released.

- The stock price reacts **immediately and sharply**, jumping by a fixed amount.

- After the announcement, the price stabilizes and reflects the new information.

Key Insight:

👉 In a semi-strong efficient market, **publicly available information is instantly priced in**, so there's no advantage in reacting to news after it's released.

III. Portfolio Theory and its Application

Portfolio Theory, also known as **Modern Portfolio Theory (MPT)**, is a fundamental financial concept developed by <u>Harry Markowitz</u> in the 1950s. It explains how investors can **construct an optimal portfolio** that **maximizes expected return for a given level of risk** or **minimizes risk for a given level of expected return**, through diversification.

🧠 Core Ideas of Portfolio Theory

1. Expected Return (E[R])

The return an investor expects from a portfolio, calculated as a **weighted average of the returns of individual assets.**

$$E(R_p) = \sum w_i \cdot E(R_i)$$

Where:
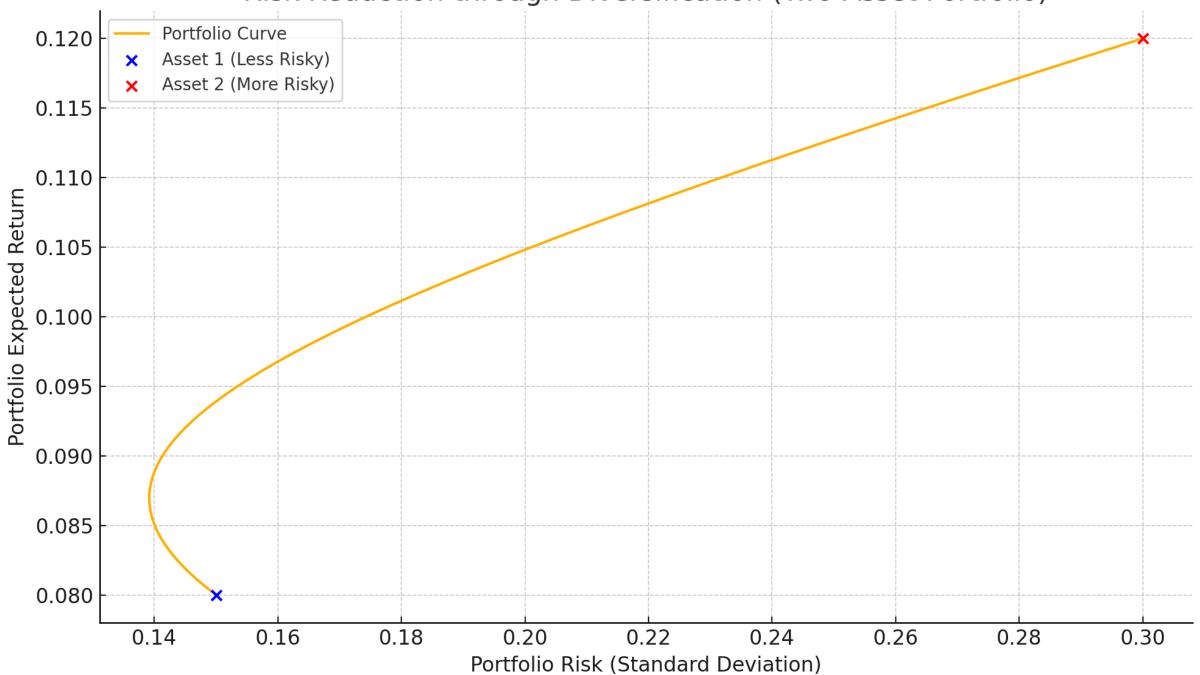
- w_i = weight of asset i in the portfolio

- $E(R_i)$ = expected return of asset i

2. Portfolio Risk (Standard Deviation, σ)

Risk is measured by the **variance** or **standard deviation** of portfolio returns. Importantly, **not just** individual asset risks, but how the assets move together (correlation) determines portfolio risk.

$$\sigma_p^2 = \sum\sum w_i w_j \cdot Cov(R_i, R_j)$$

Risk Reduction through Diversification (Two-Asset Portfolio)
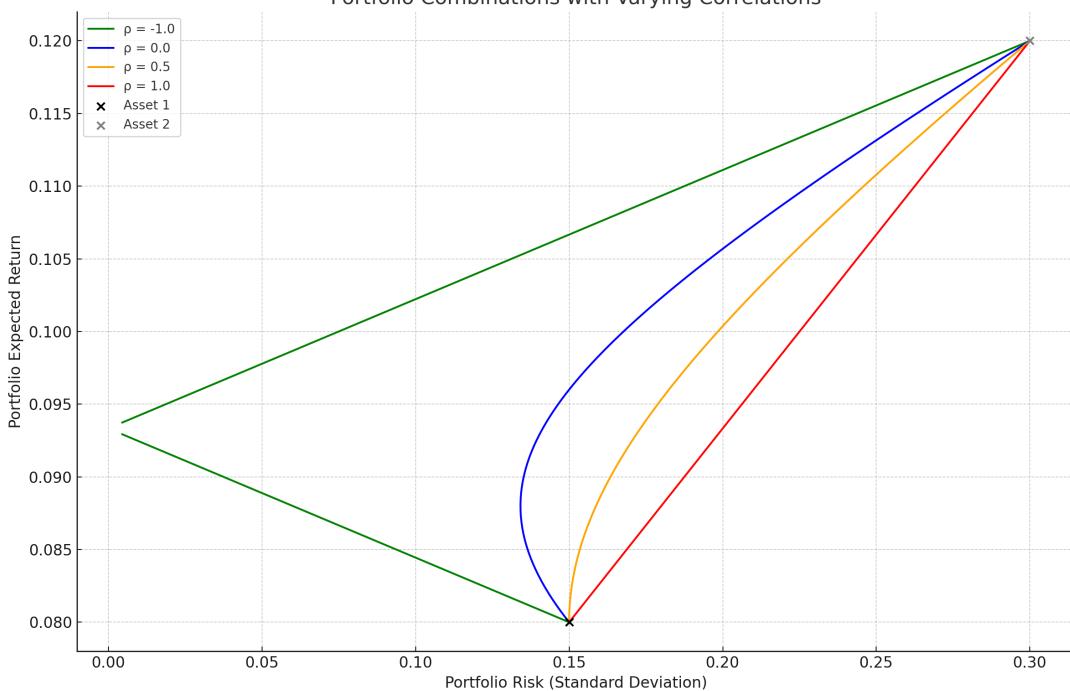
This chart shows how **combining two assets with different risks** can **reduce overall portfolio risk** through **diversification**:

- **Blue point**: Asset 1 (lower risk, lower return)

- **Red point**: Asset 2 (higher risk, higher return)

- The **curve**: All possible combinations (portfolios) of the two assets

    - Notice how the **curve bends leftward**—some combinations have **lower risk than either asset alone**.

    - This happens because the **correlation** between the assets is less than 1 (in this case, 0.1).

Key Insight:

👉 Even if one asset is riskier, adding it to a portfolio can **reduce total risk** if its movements are not perfectly aligned with the other asset.

Portfolio Combinations with Varying Correlations

This chart shows how the **shape of the portfolio risk-return curve** changes based on the **correlation (ρ)** between two assets:

🟩 **ρ = -1.0 (Perfect Negative Correlation)**

- **Most powerful diversification effect.**

- It's possible to create a **zero-risk portfolio**.

🔵 **ρ = 0.0 (Uncorrelated)**

- Risk is reduced significantly, but not to zero.

- Portfolio combinations lie well inside the straight line connecting the assets.

🟠 **ρ = 0.5 (Positive but moderate correlation)**

- Diversification benefit exists but is smaller.

🔴 **ρ = +1.0 (Perfect Positive Correlation)**

- **No diversification benefit.**

- Portfolio risk is simply a weighted average of the two asset risks.

To calculate the **correlation coefficient (ρ)** between two different assets, you can use the following formula:

Correlation Coefficient Formula

$$\rho_{XY} = \frac{\text{Cov}(X,Y)}{\sigma_X \cdot \sigma_Y}$$

Where:

- $\text{Cov}(X,Y)$ = covariance between asset returns X and Y

- σ_X, σ_Y = standard deviations of returns of assets X and Y

💡 Interpretation:

- A correlation close to **+1** means the assets move together.

- A correlation close to **0** means the assets move independently.

- A correlation close to **−1** means the assets move in opposite directions (ideal for diversification).

📊 Example: Monthly Returns of Two Assets

Month	Asset X	Asset Y
1	2%	1%
2	3%	4%
3	-1%	-2%
4	4%	3%
5	1%	0%

Let's convert these to decimals for calculation:

$$X = [0.02, 0.03, -0.01, 0.04, 0.01]$$

$$Y = [0.01, 0.04, -0.02, 0.03, 0.00]$$

🔢 Step 1: Calculate Means

$$\bar{X} = \frac{0.02 + 0.03 - 0.01 + 0.04 + 0.01}{5} = 0.018$$

$$\bar{Y} = \frac{0.01 + 0.04 - 0.02 + 0.03 + 0.00}{5} = 0.012$$

🔢 Step 2: Covariance

$$\text{Cov}(X,Y) = \frac{1}{n-1}\sum_{i=1}^{n}(X_i - \bar{X})(Y_i - \bar{Y})$$

$$= \frac{1}{4}[(0.02 - 0.018)(0.01 - 0.012) + (0.03 - 0.018)(0.04 - 0.012) + (-0.01 - 0.018)(-0.02 - 0.012) + (0.04 - 0.018)(0.03 - 0.012) + (0.01 - 0.018)(0.00 - 0.012)]$$

$$= \frac{1}{4}(-0.000002 + 0.000336 + 0.000896 + 0.000396 + 0.000096) = \frac{0.001722}{4} = 0.000431$$

🔢 Step 3: Standard Deviations

$$\sigma_X = \sqrt{\frac{1}{4}\sum(X_i - \bar{X})^2} = \sqrt{0.000392} = 0.0198$$

$$\sigma_Y = \sqrt{\frac{1}{4}\sum(Y_i - \bar{Y})^2} = \sqrt{0.000472} = 0.0217$$

✅ Step 4: Final Correlation

$$\rho_{XY} = \frac{0.000431}{0.0198 \times 0.0217} = \frac{0.000431}{0.000429} \approx 1.005$$

In practice, this value will be **very close to 1**, which indicates **very strong positive correlation**.

Homework Assignment (Due: June 4)

Pick two combination of stocks (three cases) and calculate their correlation coefficient (<0, very close to 0, and >0 cases)

Example: APPLE vs NVIDIA

Use monthly data for over 5 years to calculate each stock' return and standard deviation

V. Remaining Class Schedule

May 28: Today's Lecture

June 4: Portfolio Theory and Applications

June 11: Review and Quiz2

June 18: Final Exam