- Economic Crisis: General disruptions affecting broader economic activities.
- **Financial Crisis:** More specific, primarily involving banks and financial markets
- **Interrelation:** Prolonged economic crises can trigger financial crises, and vice versa.
- 3.2. The Subprime Mortgage Crisis
 - What are subprime mortgages?
 - Loans given to families with low credit scores and poor solvency.
 - High-risk due to borrowers' inability to reliably repay.
 - Development:
 - Low interest rates post-2000 tech bubble fostered a credit and real estate bubble.
 - Banks targeted less solvent customers, contributing to unsustainable housing demand.
 - Triggers:
 - Federal Reserve raised interest rates (1% to 5.25% from 2004–2006) to 0 combat inflation.
 - Borrowers defaulted, leading to a housing price crash. 0
 - Consequences:
 - Defaults reached 15% in 2007.
 - Bank losses due to declining real estate values.
- 3.3. Mechanisms of Crisis Transmission
 - Securitization:
- sale.co.uk • Banks bundled subprime loans in c MHS sold to global investors.
 - Promised high returns brain asked real risks.
 - Credit Default Swaps (
 - a tainst toan defaults. Deriverve old as "insuran,"
 - Wen defaults street tutions like AIG faced massive liabilities.

3.4. Rescue Efforts

- Government Interventions:
 - Federal Reserve cut interest rates to near-zero levels.
 - \$700 billion Troubled Asset Relief Program (TARP) to buy toxic assets. 0
 - Quantitative Easing (QE) programs to inject liquidity.
- Consequences: Prevented systemic collapse but increased public debt.
- 3.5. European Sovereign Debt Crisis
 - Root Causes:
 - High debt-to-GDP ratios (e.g., Greece at 120%).
 - Fiscal mismanagement and lack of transparency.
 - Timeline: •
 - Began with Greece in 2010, spread to PIIGS nations (Portugal, Ireland, Italy, 0 Greece, Spain).
 - Solutions:
 - Creation of the European Financial Stability Facility (EFSF).
 - Austerity measures exacerbated economic pain.

The lecture emphasizes that utility functions help rationalize investment preferences, quantify trade-offs between risk and return, and predict market behaviors during periods of euphoria or crisis.

Detailed Section-by-Section Analysis

3.1 Risky vs. Risk-Free Investments

- Main Ideas:
 - Risk-free investments have certain outcomes (e.g., T-Bills), while risky investments have probabilistic outcomes.
 - Example: A risk-free investment grows from $\notin 100$ to $\notin 105$ (5% return, no risk). A risky investment can grow to $\notin 150$ or fall to $\notin 80$ with respective probabilities of 0.6 and 0.4, giving an expected return of 22% but with standard deviation $\sigma=34.29\%$ sigma = 34.29%.
 - **Risk Premium:** Extra return (e.g., 17%) required to compensate for risk.

3.2 Human Risk Attitudes

- Types of Risk Attitudes:
 - **Risk-Averse:** Prefers lower risk; requires a positive risk premium. Most common.
 - **Risk-Neutral:** Indifferent to risk; evaluates investments trasef olery on returns.
 - **Risk-Seeking:** Prefers higher risk; acome over returns for riskier investments. Uncommon and one onsidered irrational.
- Implications:
 - Risk aversing varies with economic conflictions and personal circumstances.

3.3 The Mile Minction Dage

- **Definition:** Measures the satisfaction derived from wealth or investments.
- Properties:
 - Upward Sloping: More wealth leads to greater utility.
 - **Concave Shape:** Diminishing marginal utility; each additional unit of wealth brings less incremental happiness.
- Arrow-Pratt Approximation:
 - Formula: $U=E(R)-0.5A\sigma 2U = E(R) 0.5 A \sigma^2$, where AA measures risk aversion.
 - Interpretation:
 - A > 0A > 0: Risk-averse.
 - A=0A=0: Risk-neutral.
 - A < 0A < 0: Risk-seeking.

3.4 Certainty Equivalent

- **Definition:** The risk-free return providing the same utility as a risky investment.
- Example Calculations:
 - For E(R)=22% E(R)=22%, $\sigma=34\%$ \sigma = 34\%:
 - A=1A = 1: Certainty Equivalent = 16.22%16.22%.
 - A=3A = 3: Certainty Equivalent = 4.66%4.66\%.

• Diversification reduces portfolio risk when asset returns are less than perfectly correlated ($\rho < 1 \setminus rho < 1$).

3.4 Case Studies and Examples

- **Example 1: Equally Weighted Portfolio** •
 - Portfolio with two stocks (AA and BB), each with equal weights (xA=xB=50% x A = x B = 50%).
 - 0 If $\sigma A = \sigma B \setminus B$, risk reduction depends on correlation:
 - $\sigma p = \sigma 1 + \rho 2 \text{ sigma } p = \text{ sigma } \text{ sqrt} \{ \frac{1 + \text{ rho}}{2} \}$. Lower $\rho \text{ rho}$ reduces $\sigma p \le p$.

Example 2: Risk-Free and Risky Asset Portfolio

- Mixing a risk-free asset (RfR f) with a risky stock (RsR s):
 - E(Rp)=xfRf+xsE(Rs)E(R p) = x f R f + x s E(R s), where xfx f and xsx s are weights.
 - Risk (σ)/sigma p) is linear for xs>0x s > 0, but non-linear if xs<0x s < 0 (short-selling).

3.5 Practical Formulas and Tools

- Short-Selling: Selling borrowed assets to profit from expected price declines. • Weight of shorted assets is negative.
- **Efficient Frontier:** Represents portfolios offering the best risk-return tradeoff.
 - Without Short-Selling: Segment from risk-free asset to risky asset.
 - With Short-Selling: Extends to a ray beyond the risky as set

Key Takeaways & Actionable Insights Notesal • Key Points: non minimizes isk bit cannot eliminate market-wide risks. Director Ortfolio optime to be on understanding correlations and asset weights. • Risk-return tradeoffs guide efficient portfolio construction.

- Practical Actions:
 - Combine low-correlation assets to reduce risk effectively.
 - Use portfolio theory to optimize returns for a given risk tolerance.

Critical Analysis

- Strengths:
 - Clear explanation of mathematical tools for risk-return analysis.
 - Practical examples reinforce theoretical concepts.
- Weaknesses:
 - Assumes normal distributions for returns, which may oversimplify real-world 0 dynamics.
 - Focuses on theory, with limited discussion of behavioral aspects in investment 0 decisions.
- Biases: Reliance on quantitative models might underemphasize qualitative factors in risk assessment.

- Random Walk: The idea that stock prices move unpredictably due to random information.
- January Effect: An anomaly where small-cap stocks outperform in January.

Lectures 7 - Fund Management

Purpose: To explore theoretical and practical aspects of fund management, with emphasis on strategies like active vs. passive management and evaluating fund performance.

Comprehensive Summary

This lecture focuses on the intersection of theory and practice in fund management. It examines the implications of the Efficient Market Hypothesis (EMH) on fund strategies, contrasting passive (index-tracking) with active (market-beating) approaches. The session explains tools such as market indexes, Exchange-Traded Funds (ETFs), and performance metrics (e.g., Sharpe's ratio, Treynor's ratio). Various methods of stock selection and timing are outlined, along with alternative asset management strategies like hedge funds. Practical exercises are included to reinforce understanding.

Anagement 23 of 30 Core Message: The choice between passive and active fund management reflect beliefs in market efficiency and impacts portfolio performance

Detailed Section-by-Section Anal

- I. EMH Implicati
 - Ideas:
 - EMH implies asset prices fully reflect available information.
 - Believers in EMH favor passive management (e.g., index funds) to mirror 0 market returns.
 - Skeptics of EMH pursue active management, exploiting inefficiencies to "beat the market."

II. Market Indexes

- Main Ideas:
 - Price-weighted index: Based on stock prices (e.g., Dow Jones Industrial Average).
 - 0 Capitalization-weighted index: Considers market capitalization (e.g., S&P 500).
- **Examples:**
 - A price-weighted index may misrepresent economic realities, while a capitalization-weighted index better reflects market trends.

II. Fundamental Analysis vs. Technical Analysis

- **Fundamental Analysis:** •
 - 0 Based on economic factors like earnings and dividends.
 - Relies on the weak form of EMH.
- **Technical Analysis:**
 - Focuses on price patterns and ignores fundamentals.
 - Relies on past trading information to predict future trends.

III. Fundamental Valuation Methods

1. Past Approach (Wealth-Based):

- Values firms based on historical book value and adjusted book value.
- Example: Firm H with historical book value = 2080 M€, adjusted book value 0 = 3480 M€.

2. Present Approach (Comparative):

- Compares financial ratios (e.g., Price-Earning Ratio) of similar companies.
- Example: X (computer game manufacturer) compared to Y; estimated IPO stock price = $3-3.5 \text{ M} \in$.

3. Future Approach (Dynamic):

- Uses discounted cash flows (e.g., Dividend Discount Model)
 Example: Gordon-Shapiro model:
- Example: Gordon-Shapiro model:
- Last dividend = $\notin 6$; growth rate = r^{2} , r^{2} , r^{2} , r^{2} , stock price = $\notin 106$. IV. Technical Auli Se From Note 5: • Charting Techniques: • Bar charte T. • Pott

- - Bar charts, Japanese candlesticks, trend lines (support and resistance).
- **Patterns:**
 - **Trend Patterns:** Channels and triangles. 0
 - **Reversal Patterns:** Head-and-shoulders, diamonds.
- **Moving Averages:**
 - Smoothens short-term volatility.
 - Signal changes when short-term averages cross long-term ones.

V. Using Moving Averages in Fund Management

- Applications:
 - Buy when the market closes 1% above the 200-day moving average.
 - Sell when the market closes 1% below.
- **Outcomes:**
 - Successful in trending markets but prone to losses during periods of high 0 volatility due to transaction costs.