

Lesson 2.3 Quiz: Democratizing Investment and Lending

Module 2: The Access Problem

Prof. Dr. Joerg Osterrieder

Digital Finance — BSc Course (v2026.05)

Q1: Modern Portfolio Theory – Core Insight

What is the **key insight** of Modern Portfolio Theory (MPT)?

- A Diversification can reduce portfolio risk below the weighted average of individual asset risks
- B All investors should hold 100% equities for long-term growth
- C Higher-risk assets always produce higher returns
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Q2: Efficient Frontier Definition

What does the **efficient frontier** represent?

- A The portfolio with the absolute highest expected return
- B The set of portfolios that maximize return for each given level of risk
- C The boundary between stocks and bonds in a portfolio
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Q3: Sharpe Ratio Interpretation

A portfolio has a Sharpe ratio of 0.75. What does this mean?

- A The portfolio has a 75% probability of positive returns
- B For every 1% of risk taken, the portfolio earns 0.75% above the risk-free rate
- C The portfolio returns 75% annually
- D The portfolio beats the market 75% of the time

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Q4: Risk Tolerance Profiling Purpose

Why do robo-advisors require a risk tolerance questionnaire before investing?

- A To verify the client's identity
- B To calculate the expected return of the portfolio
- C To determine the appropriate asset allocation based on the client's risk capacity and preferences
- D To comply with anti-money laundering (AML) regulations

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Q5: Sharpe Ratio Calculation

A portfolio has an expected return of 10%, a standard deviation of 15%, and the risk-free rate is 2%. What is the Sharpe ratio?

- A 0.53
- B 0.80
- C 0.40
- D 0.67

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Q6: Comparing Sharpe Ratios

Portfolio A has $E[r] = 12\%$, $\sigma = 20\%$. Portfolio B has $E[r] = 7\%$, $\sigma = 8\%$. Risk-free rate is 2%. Which portfolio has better risk-adjusted performance?

- A Both are equal
- B Portfolio A (higher return)
- C Portfolio B (higher Sharpe ratio)
- D Cannot be determined without correlation data

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Q7: Fee Impact Calculation

An investor puts \$10,000 into two portfolios that both earn 7% gross. Portfolio X charges 0.25% annually; Portfolio Y charges 1.25% annually. After 20 years, approximately how much more does Portfolio X have?

- A \$1,000
- B \$3,500
- C \$5,500
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Q8: Rebalancing Trigger

A portfolio has a target allocation of 60% equity / 40% bonds with a $\pm 5\%$ threshold band. After a market rally, equity is now 68% and bonds are 32%. What should the robo-advisor do?

- A Sell all equity and move to bonds
- B Nothing — the drift is within the threshold band
- C Rebalance — equity has drifted more than 5 percentage points from target
- D Wait until the next calendar quarter

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Q9: Tax-Loss Harvesting Mechanics

An investor bought ETF-A for \$10,000 and it is now worth \$8,500. The robo-advisor sells ETF-A and buys a similar ETF-B. What is the tax benefit?

- A The investor earns \$1,500 in cash
- B The investor realizes a \$1,500 capital loss that can offset capital gains
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Q10: P2P Lending Definition

In peer-to-peer (P2P) lending, who bears the **credit risk** of borrower default?

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- B The government deposit insurance scheme
- C The P2P platform
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Q11: P2P Return Calculation

An investor lends \$1,000 across 100 P2P loans at an average 8% annual rate. If 5% of loans default completely, what is the approximate net return?

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Q12: P2P Diversification

Why do P2P platforms recommend investing small amounts across many loans rather than large amounts in a few loans?

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- B Smaller amounts earn higher interest rates
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Q13: Robo vs. Traditional Advisor

A robo-advisor and a traditional advisor both construct a 60/40 equity-bond portfolio using the same asset classes. The robo charges 0.25%; the advisor charges 1.00%. Under what condition would the traditional advisor deliver **higher net returns**?

- A If the stock market goes up
- B If the traditional advisor generates at least 0.75% higher gross returns through superior asset selection
- C The robo will always outperform because of lower fees
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Compared to calendar-based rebalancing (quarterly), threshold-based rebalancing (5% band) typically results in:

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- B Fewer trades during calm markets, more trades during volatile markets
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Q15: P2P Platform Risk

In 2019, several Chinese P2P platforms collapsed, and investors lost their principal. Which risk category does this illustrate?

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Q16: Microfinance Interest Rates

Microfinance institutions often charge 25%–45% annual interest. What is the primary reason for these high rates?

- A High fixed operating costs per loan are spread over very small loan amounts
- B Microfinance institutions are unregulated and exploit borrowers
- C Interest rates are set by central banks in developing countries
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In a P2P loan default waterfall, the typical progression is:

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- B Performing → Default → Late → Loss
- C Late → Performing → Default → Written Off
- D Performing → Late → Default → Recovery/Loss

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Q18: Robo-Advisory Herding Risk

If most robo-advisors use the same MPT framework and similar ETFs, what systemic risk might this create?

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Q19: P2P Lending Regulation

A regulator is designing P2P lending rules. Which measure would **most effectively** protect retail investors?

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Q20: Democratization Trade-off

“Robo-advisors have democratized investment access but not financial literacy.” Which of the following best supports this critique?

- Ⓐ Traditional advisors always provide better financial education
- Ⓑ Robo-advisors use MPT, which is too complex for retail investors to understand
- Ⓒ Robo-advisors charge fees, so they are not truly democratic
- Ⓓ Low barriers to entry mean investors may take on risk they do not understand, sell during downturns, or choose unsuitable risk profiles

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