

## Digital Finance 3: Technology in Finance

### Lesson 33: Robo-Advisors ML Aspects

FHGR

December 13, 2025

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**Summary of key concepts presented above.**

## Learning Objectives

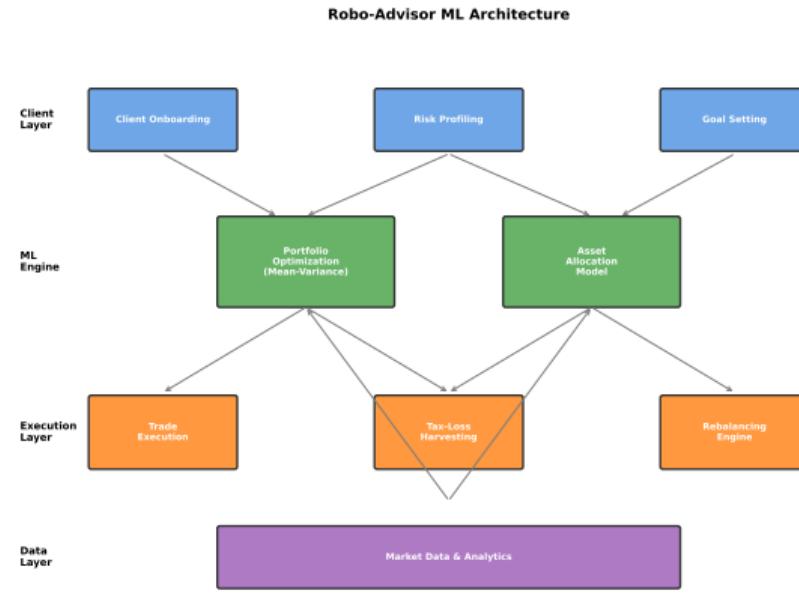
By the end of this lesson, you will be able to:

- Explain robo-advisor system architecture
- Apply ML to risk profiling and portfolio construction
- Understand automated rebalancing algorithms
- Compare robo-advisors with human advisors
- Evaluate portfolio optimization using ML techniques
- Recognize regulatory requirements for automated advice

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**Summary of key concepts presented above.**

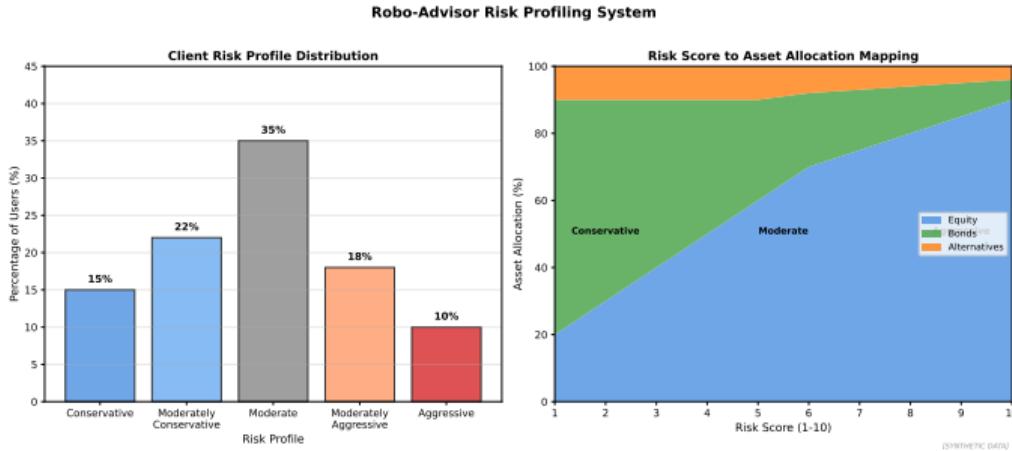
# Robo-Advisor Architecture



(SYNTHETIC DATA)

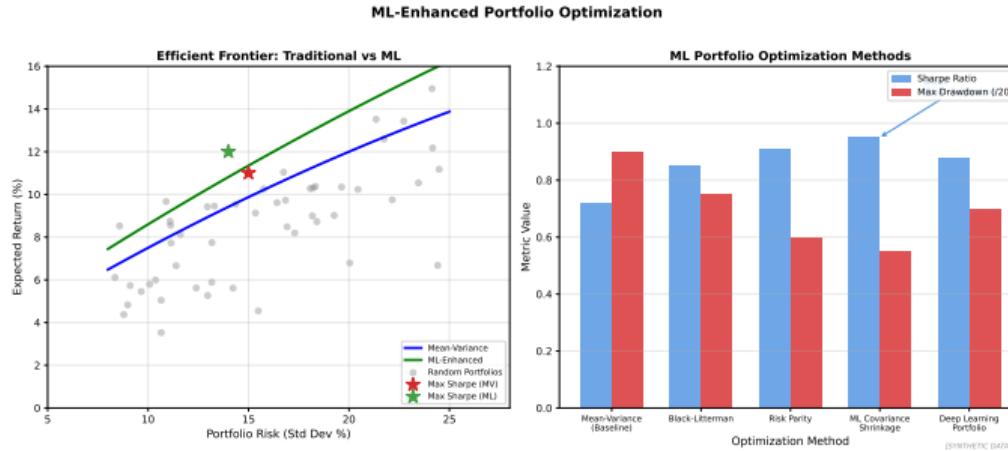
Robo-advisors combine risk profiling, portfolio optimization, and automated rebalancing in one platform.

# Risk Profiling Questionnaire



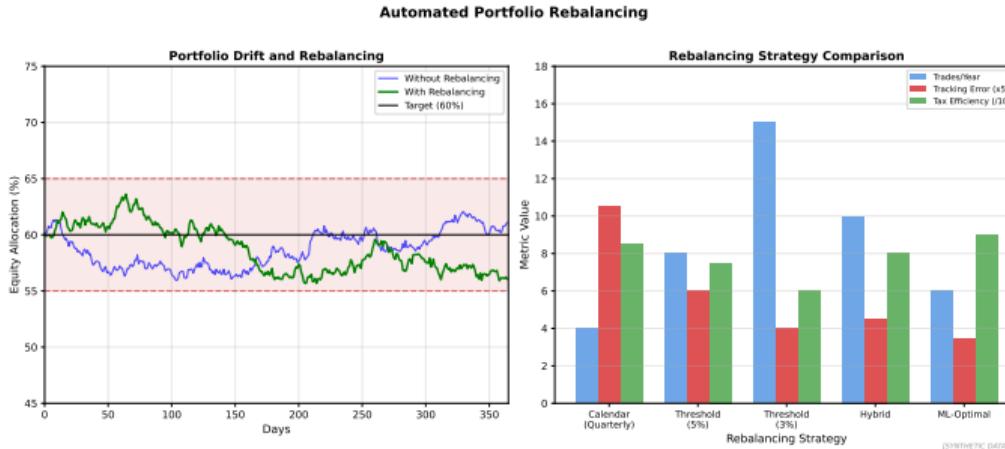
ML models extract risk tolerance from questionnaire responses, replacing subjective human assessment.

# Portfolio Optimization with ML



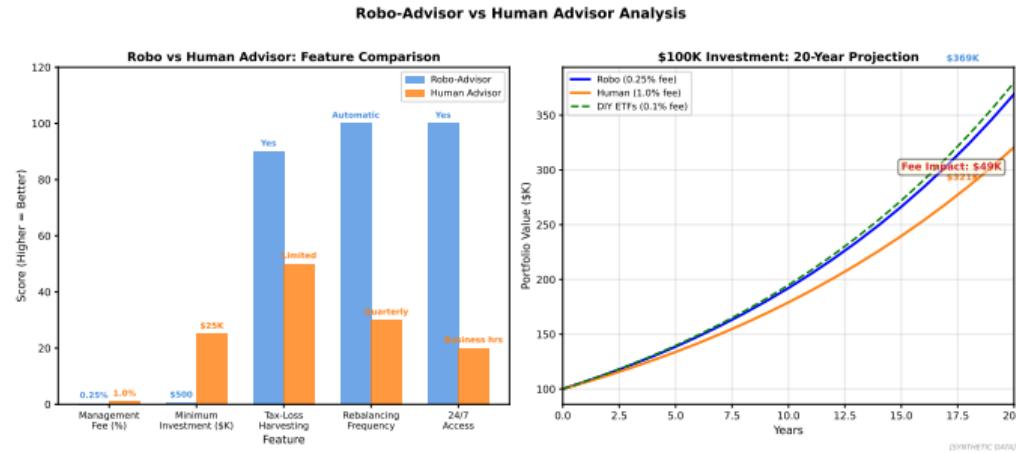
Modern portfolio optimization incorporates ML-predicted returns, risks, and alternative data sources.

# Automated Rebalancing Strategy



Automated rebalancing maintains target allocations while minimizing transaction costs and taxes.

# Robo-Advisors vs. Human Advisors



Robo-advisors excel in cost and consistency; humans in complex planning and behavioral coaching.

## Key Takeaways:

- Robo-advisors democratize professional wealth management
- ML improves risk profiling and portfolio construction
- Automated rebalancing reduces costs and tax drag
- Fee compression: 0.25-0.50% vs. 1.0-1.5% for humans
- AUM: USD 1+ trillion globally (2024)
- Hybrid models combining robo + human gaining traction

**Next Lesson:** Market Prediction Limitations

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Summary of key concepts presented above.