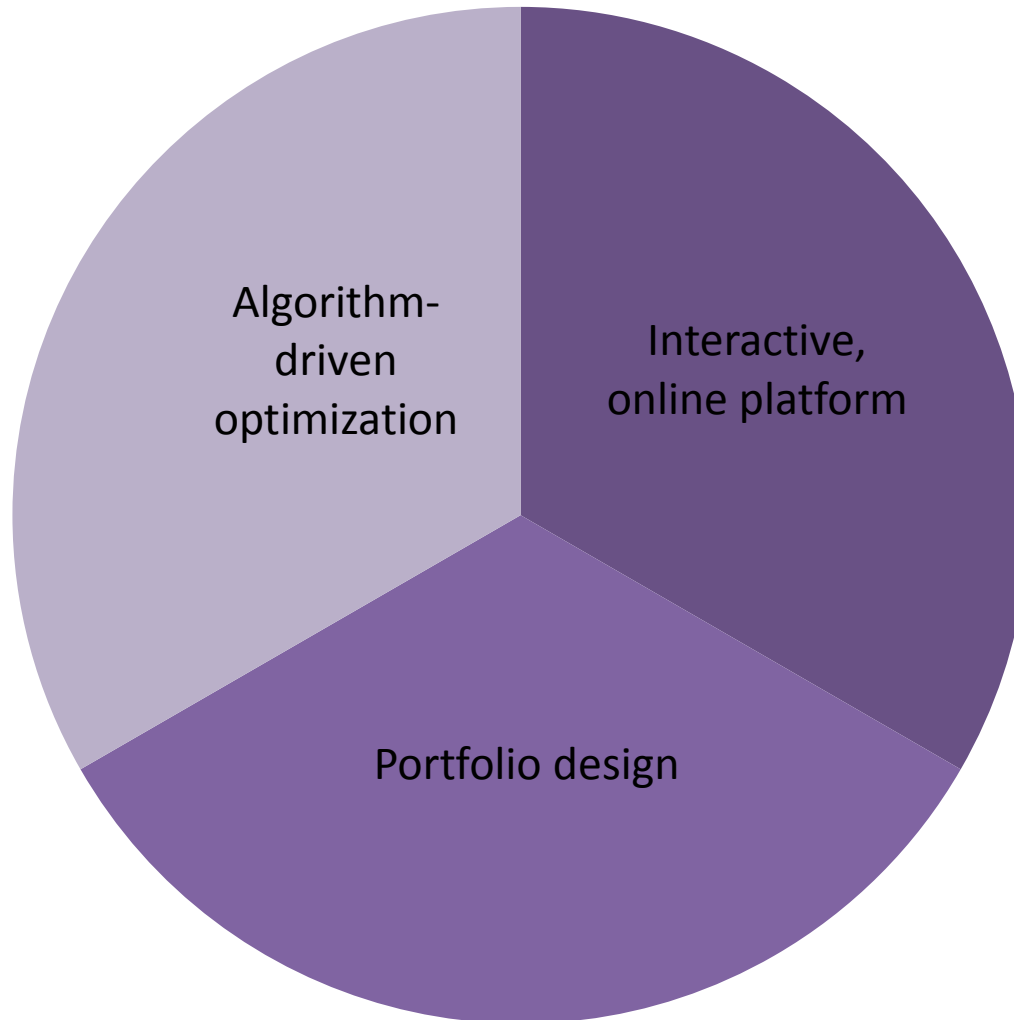


Digital Investment Advice: Inside the Black Box

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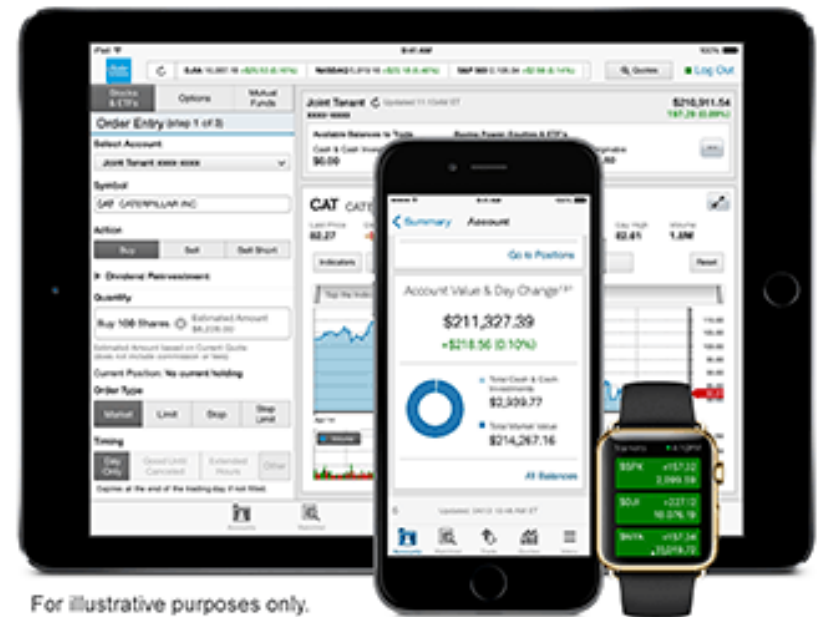
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What Is Digital Investment Advice?



Interactive Platform

- Website and mobile apps
- Online reports
- Portfolio monitoring tools



Portfolio Design

- Trading practices
- Active or passive
- Variation in model selection
- Diversification
- Conflicts of interest

Algorithm-Driven Optimization

$$f(x) = a_0 + \sum_{n=1}^{\infty} \left(a_n \cos \frac{n\pi x}{L} + b_n \sin \frac{n\pi x}{L} \right)$$

- Investment and rebalancing
- Asset allocation
- Fund selection
- Trade execution
- Tax management and efficiency

Benefits

- Automate portfolio management
- Asset allocation and risk management
- Cost efficiencies
- Gateway for assets outside of trusts
- Sophisticated on-line tools

Fiduciary Considerations

- Prudent investor law
- Reasonable care
- Duty of loyalty
- Disclosures

Fiduciary Oversight

- Investment committee review
- Pre-acceptance review process
- Trust investment policy
- Annual trust account review
 - Is model performing as intended?
 - Does it remain appropriate for the trust?

Governance Framework

- First Line
 - Identify, Measure, Monitor & Control
- Second Line
 - Compliance, Enterprise Risk
- Third Line
 - Internal Audit
- Legal

Regulatory Landscape

- Model risk management
- Portfolio risk management and Evaluation
- Cyber security concerns



Model Risk Management

- Algorithm design and oversight
- Appropriate due diligence and oversight of third parties which design or manage the algorithm or software
- Develop, test and back-test the algorithmic code

Portfolio Risk Management

- Governance
- Investment philosophy
- Portfolio risk and investment selection methodology
- Conflicts of interest

Portfolio Evaluation

- Is it the right benchmark
- Performance against benchmark
- Performance attribution
- Controls to swap out non-performing investments

Cybersecurity

- Prevention and detection of cyber threats
- Assess operational and other risks to platform
- Incident management framework

Thank you!!

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Reference Materials

- OCC Supervisory Guidance on Model Risk Management, OCC 2011-12
- FINRA Report on Digital Investment Advice, March 15, 2016
- SEC IM Guidance Update, February 2017, No. 2017-02