THE PROMISES AND PITFALLS OF ROBO-ADVISING

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What is robo-advising? Why is it useful?

Our study

Setting
Impact on investors
Risk, return, trading
Unexpectedly, behavioral biases
Impact on brokerage firm

Takeaways
HOUSEHOLD FINANCIAL PLANNING

A complex problem to frame and solve
  Liquidity planning
  Tax planning
  Housing and mortgages
  Credit card debt
  Insurance
  Investments — wealth management, retirement

Compounded by financial literacy issues
FINANCIAL ADVICE

Lots of room for advice in any *one* of these
  Liquidity planning
  Tax planning
  Housing and mortgages
  Credit card debt
  Insurance
  Investments — wealth management, retirement.

Advising is human-intensive, fragmented, targeted at wealthy.
FINTECH ADVISING B2B, B2C
WHAT IS ROBO-ADVICE?

Automated advice
    Same information as available to human, but algorithmic

Why automate using algorithms?
    Cheaper, allows greater reach
    Easy execution — a click implements advice
    Not subject to advisor conflicts and biases

Does this work? What are its effects?
WHY DO CLIENTS VALUE ROBO-ADVICE?

Source: BlackRock, *Investor Pulse 2015*
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ROBO-ADVISING FOR RETAIL INVESTORS

Most investors are not financially savvy
   They do not know how to invest their money
   They make systematic mistakes and display behavioral biases

Financial advisors are expensive, might be biased

Robo-advising potentially helpful
   Cheap and easy to use
   But, does one size fit all with robo-advising?
OUR SETTING

A large full-service brokerage house in India
800,000+ retail accounts

In July 2015, they introduced a **Portfolio Optimizer Tool**

- obtains existing portfolio holdings from account
- performs Markowitz mean-variance optimization
- proposes optimal weights, depicts outcomes
- single-click execution if desired by investors
- weights as determined by investors
OUR SETTING
ROBO-ADVISING FOR RETAIL INVESTORS

Obtain existing holdings from portfolio
Maximize, analyze & button to execute
Investors less diversified before usage increase the size of their portfolio by more than 80%.

Those diversified before usage do not change (if anything, less stocks)
Investors less diversified before usage decrease the risk of their portfolio by more than 50%

Those diversified before usage have barely lower volatility after usage
Investors less diversified before usage also perform better trades on average.

Those diversified before usage have similar performance.
Investors most diversified before usage pay much higher fees overall.

They trade more even if no better performance. They use the optimizer too often.
GAINING AND LOSING WITH ROBO-ADVISING

Least sophisticated Investors
- Higher diversification
- Higher Performance
- No Change in Fees

Most sophisticated Investors
- Lower diversification
- No Change in Performance
- Higher Fees Paid
WHAT’S IN IT FOR THE SOPHISTICATED?

Behavioral biases affect all investors, including sophisticated investors

Disposition Effect

do not sell loser stocks when should, sell gaining stock when should not

Trend Chasing

purchase stocks that gained recently to “ride the wave”

Rank Effect

sell stocks in portfolio with extreme returns
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Biases decline for EVERYBODY in our setting

Causal identification — missed calls versus calls picked up
SO WHAT?
WHY ROBO-ADVISING IS IMPORTANT

So far, two views of intervention on individual decision-making

LIBERTARIANISM

No intervention

Everybody knows better for themselves

LIBERTARIAN PATERNALISM

Give a Default (Richard Thaler, “Nudge”)

We know better than everybody
SO WHAT?
WHY ROBO-ADVISING IS IMPORTANT

Robo-advising with voluntary uptake helps overcome *algorithm aversion* (Dawes, 1979)

**LIBERTARIANISM**
- No intervention
- Everybody knows better for themselves

**ROBO-ADVISING**
- Explain best choice, easy implementation
- Ultimate active choice is the investor’s

**LIBERTARIAN PATERNALISM**
- Give a Default (Richard Thaler, “Nudge”)
- We know better than everybody
WHAT ABOUT THE BROKERAGE HOUSE?

A flood of robo-advisors in the market now.

Will the demand for human advisors decrease?

Old North State Trust, LLC (2017) says “... we don’t expect robots to ... put us out of business.”

Humans are more willing to trust machines for objective decisions, e.g., Netflix, Amazon. They trust driverless cars less even if safer and lose trust in algorithms quicker (Hosanagar and Cronk, 2016)
Demand for human advising when robo-advising is introduced

Panel A. Change in Length of Client initiated Calls

Panel B. Change in Length of Advisor initiated Calls
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Treating investors with robo-advising increases the demand for human advising, and probably, the type of advising. We are fleshing out these results with more detailed data on interactions between investors and advisors.
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