

Smart(Phone) Investing? A Within Investor-Time Analysis of New Technologies and Trading Behavior

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Summary & Findings

- Two German banks introduce smartphone trading apps. Banks introduce apps at different times, within-bank difference in introduction for Apple vs. Android.
- Investors who start using the apps buy riskier, more positively skewed securities – trading looks more like gambling. Worse performance.
- No evidence investors offset smartphone trades on other platforms
- Results consistent with smartphone trading enabling impulsive trading decisions

Contribution

- Earlier studies look at introduction of internet trading. Generally similar findings. Two main differences:
 1. Cleaner data – can address selection bias
 - Selection biases are important. Major reason people switch trading platform is because they want to change how they trade.
 - Does platform change how people trade vs. provide a flag for identifying people who trade a certain way?
 2. Clearer separation of dimensions of technology
 - Technology changes (1) Ability to trade easily / impulsively (2) Ability to access information
 - Internet trading was a large positive shock to both dimensions
 - Smartphones make it easier to trade impulsively. I'm skeptical that they increase access to information in a relevant way.

Main Results

- Main specification is:

$$y_{i,j,t} = \beta \cdot \textit{Smartphone}_{i,j,t} + \delta_{i,t} + \epsilon_{i,j,t}$$

- For a given investor at a given point in time, trades made using smartphone app appear more impulsive (lottery stocks, positive skewness, etc.) relative to online trades
- Within-investor-time design removes many sources of confounding variation
- $\textit{Smartphone}_{i,j,t}$ is endogenous choice \rightarrow investor selects app platform for these trades
- Difficult to infer changes in investors' overall behavior

Main Results

- The cleanest results about overall behavior use the introduction of the smartphone app in a diff-in-diff:

$$y_{i,t} = \beta \cdot \text{SmartphoneLaunch}_{i,j,t} + \delta_i + \delta_t + \epsilon_{i,t}$$

- Use above specification for non-smartphone trades. Show non-smartphone trades do not offset smartphone trades (either become more lottery-like or no change).
- More direct way to show aggregate affects and avoid selection issues → run diff-in-diff and use total portfolio characteristics as dependent variable

Purchases, Sales, and Net Effects

- Tests examine purchases only. It would be interesting to also test sales or net changes during a month.
- Two ways that app trading could lead to more buying of lottery stocks:
 1. Increase allocation to lottery stocks
 2. Increase turnover of lottery stocks while maintaining the same allocation
- Welfare and asset pricing implications are different
- For welfare/performance tests, Sharpe ratio of individual assets purchased is problematic. Ignores diversification and possibility that assets sold were worse.

Participation and Inclusion

- Paper focuses on changes in behavior of investors who were already included in the investment ecosystem
- Could use the introduction of the apps to test changes in number and/or composition of new traders entering the investment system. Is there a rise in entry by younger investors who trade aggressively?
- Undiversified positions in lottery stocks could be preferable to non-participation, even if it is worse than holding index funds

Other Comments

- At investor-month level → does introduction of smartphone app result in higher trading volume?
- Impulsivity implies more frequent trading and shorter holding periods

Other Comments

- It would be nice to have more information about the apps. Also, nice to have some information for online trading for comparison.
 - Screenshots
 - Advice from brokerage
 - Access to security information
 - Amount of time required to complete a trade

Conclusion

- Interesting and topical paper
- Shows evidence that smartphone apps result in more impulsive trading. I see the results as inconsistent with earlier stories about technology changing behavior by increasing access to information.