

Discussion of

**Beyond Performance: The Financial
Education Role of Robo-Advising**

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Institutional Details

- Delegated robo-advisor portfolios (Wealthfront, Betterment, Vanguard PAS) historically targeted wealthy US clients
- In contrast, BangNiTou is available to ~ **1 billion** users
 - Integrated into AliPay “super app”
 - BangNiTou (Ant & Vanguard) has > 1 million users
 - **Minimum account size ~ \$143 → robo-advice for everyone**
 - BangNiTou uses investor survey to recommend custom portfolio
 - **Investor can adjust risk level, hold robo alongside SD portfolio, view robo holdings, and view educational materials**

Value-added from Robo-advisor?

As Chalmers & Reuter (2020) emphasize, value of advice depends on quality of advice relative to counterfactual behavior, one or both of which will vary with investor sophistication and institutional details

- **My paper:** Exploit time-series variation in availability of advice and compare treated portfolios and control portfolios among those with high predicted demand for advice (*see also Linnainmaa, Melzer, Previtero, Foerster (2021)*)
- **This Paper:** Analyzes within-investor variation in robo and SD portfolios in months around adoption of robo
 1. Robo portfolio >> prior SD portfolio → **interesting but not surprising**
 2. Educational spillover from robo to post-adoption SD → **novel**

Sample of 74,090 (Eventual) Adopters

12 Months Before Adoption

- **67,665 RMB on AliPay**
- 58.4% Low risk (MMF + WMP)
- 39.7% MF
 - 28.8% Index funds

8 Months After Adoption

- **113,087 RMB on AliPay**
- **4,584 RMB robo-advised**
- **161 seconds/month**
- 43.5% Low risk
- 47.0% MF
 - 26.1% index funds

1. Average allocation to robo-advisor among adopters is low
2. Limited time on app should limit educational opportunities
3. We do not observe assets held outside app. Does jump in assets after adoption reflect migration onto app? Does it occur for non-adopters?

Robo-Advisor Improves on Self-Directed? **Yes!**

- **Similar to Rossi & Utkus (2021)**

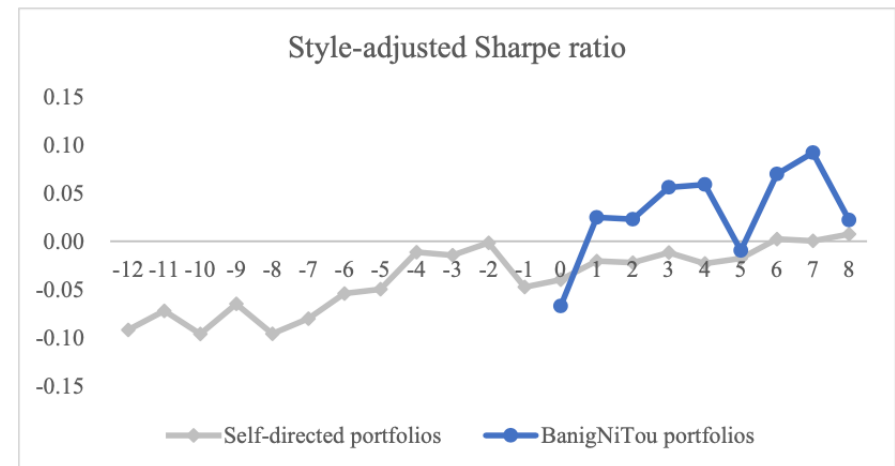
- (Average) BangNiTou portfolio earns higher Sharpe ratio than **prior or current** SD portfolio

- Benefits from higher returns and lower volatility

- If BangNiTou ~ efficient portfolio, not possible for SD to outperform ex ante, but less sophisticated should underperform by more

- Given % allocated to robo, net (robo + SD) improvement is modest

- **Puzzle: Post-adoption SD Sharpe appears to improve before time 0**



Selection into Robo?

Selection into robo positively is correlated with past performance, use of index funds, fewer behavioral biases → **it would be interesting to see takeup rate by decile of sophistication index**

Requiring trades skews sample away from investors who were not exposed to pop-up ads and do not adopt robo → **reduces strength of pop-up ads as instrument for adoption**

	Exposed Ad & Adopt	Exposed Ad & Not Adopt	Not Exposed Ad & Adopt	Not Exposed Ad & Not Adopt
“All” investors	12,114 (8.07%)	137,923	5,930 (3.47%)	164,759
Trading before & after	9,038 (8.87%)	92,882	4,017 (6.40%)	58,744
Trading as % of “All”	74.61%	67.34%	67.74%	35.65%

Gains from Financial Education?

- Provocative claim that robo-advice can improve on counterfactual portfolio **and increase investor sophistication**
- *Important question → I have professional obligation to be skeptical*
- In Chak, et al. (FCA WP), we provide experimental evidence that robo-advice improves debt repayment strategies... but find no evidence of learning... despite studying a relatively simple problem
- Two important caveats: Our experiment lacks repeated exposure to robo and focuses on hypothetical scenarios
- So, how should we think about learning from BangNiTou?

Evidence of Learning?

- Once I see that SD [1,8] dominates SD [-12,-1], I want to know if this arises from mimicking the robo's holdings or following other advice

		Self-Directed Portfolios		BangNiTou Portfolios		
		[-12, -1]	[1, 8]	[1, 8]		
<i>Variables</i>		(1)	(2)	(3)	(3)-(1)	(3)-(2)
<i>Style-adjusted Sharpe Ratio</i>	Mean	-0.049	-0.012	0.041	0.090	0.052
	SE	0.0005	0.0003	0.0008	0.0010	0.0009
<i>Style-adjusted Monthly return</i>	Mean	-0.003	0.006	0.001	0.004	-0.005
	SE	0.0001	0.0002	0.0000	0.0001	0.0002
<i>Style-adjusted Volatility</i>	Mean	0.004	0.010	0.003	-0.001	-0.007
	SE	0.0000	0.0001	0.0000	0.0000	0.0001

- The fact post-adoption return and volatility both spike relative to robo raises questions about extent of mimicking

Evidence of Learning? (2)

Authors' general strategy? Test for within-investor changes in SD portfolio concentration, fund correlation, framing bias, tail return overweighting, extrapolation bias, and availability bias

- Findings point to less concentrated portfolios post adoption and fewer behavioral biases
 - How about including Sharpe ratio as LHS variable in each specification?
- T7 & T8: Baseline using matched sample
- T9: Interaction w/ “low soph.” (above/below median based on each measure before adoption)
 - How about general sophistication index instead, based on prior SD?

Evidence of Learning? (2)

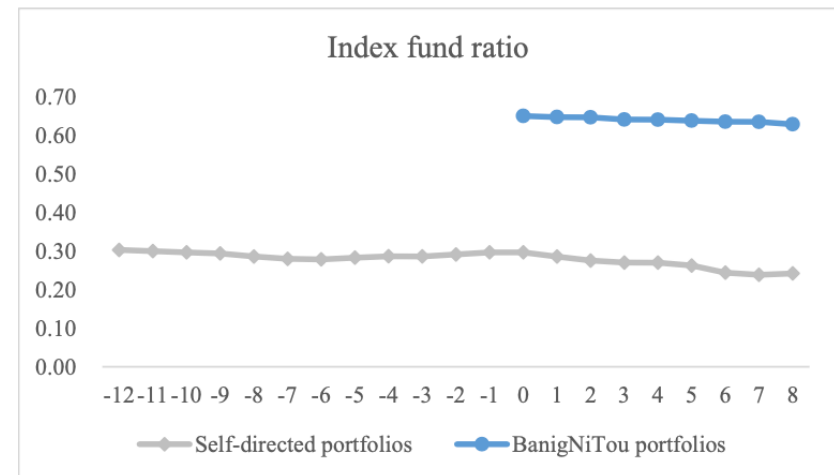
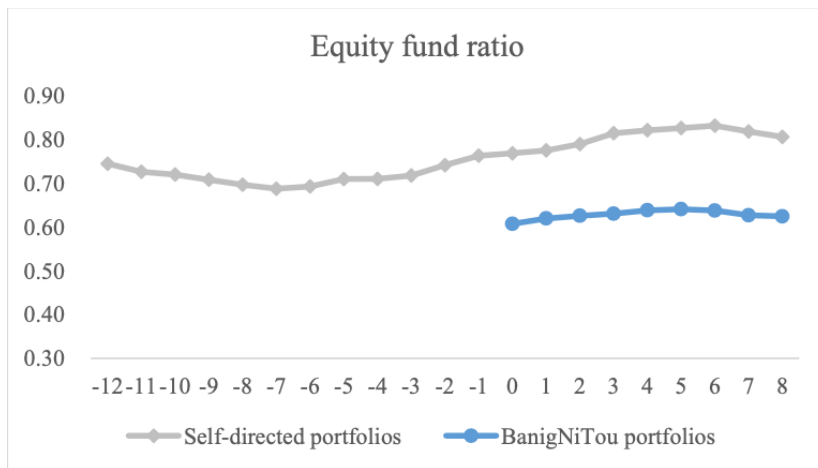
- T11 & T12: 2SLS using exposure to pop-up ads as instrument
 - Is it possible to exploit continuous measure of exposure to pop-up ads?
- T13: Interaction w/ “exposure” (above/below median based on average time spent on robo-advisor app)
 - I like this strategy, but would like to see more than two categories
- T14: Interaction w/ “subscription time” (above/below median)
 - Time spent reviewing materials before adoption is distinct from exposure
- T15: Comparing investors who do and do not review quarterly portfolio statements
 - Very cool use of data from the app... but effects are economically small

More on the Mechanism?

- I believe evidence SD portfolios are changing but want more direct evidence of increases in financial literacy (or rules of thumb)
 - Can authors use within-app surveys to directly measure changes in financial literacy (or reliance on rules of thumb) due to exposure to robo?
 - Can authors use hypothetical portfolio allocation RCT to compare decision-making of those with and without exposure to robo?
- Why don't investors allocate more to robo? Are they trying to avoid paying fee on more of their assets?
- How stable are allocations to robo? Do they rise over time?

Aside: Interesting Evidence of Customization

- BangNiTou portfolios tilt toward index funds (like Vanguard's PAS) but away from equity... suggesting investors SD portfolios hold too much market risk



Summary

- Paper asks an interesting and important question
- Exploits cool real-world data on a wider range of investors than traditionally have had access to robo-advice
- Provocative evidence that exposure to robo improves the performance of other assets managed on the app
- Will be a home run if the authors are able to shed more light on the mechanism and/or confirm changes in education in supplemental surveys and experiments