

CAN PSYCHOLOGICAL AGGREGATION MANIPULATIONS AFFECT PORTFOLIO RISK-TAKING?

Numerous previous experimental studies have shown that subjects are more willing to take multiple better-than-fair gambles if only the aggregated outcome of those gambles will be reported to them, rather than each individual gamble outcome separately.

Due to the consistency of these experimental results, many have suggested that financial institutions should be able to affect investors' risk taking in their real-world financial portfolios by changing the aggregation of the returns information they give to investors. Greater information aggregation may improve investor welfare if piecemeal information causes investors to become too fixated on small short-term losses, leading to excessive risk aversion.

However, these past experiments were conducted in settings that were quite different from a real-world investing environment. The experiments lasted a short amount of time, did not feature real assets, involved small sums of money, and mostly used students as participants. Our study aims to fill some of this gap between the laboratory and the real world.



THE RESEARCH TEAM

This summarized study was conducted by a team of researchers from Harvard and Yale with expertise in behavioral economics, experimental economics, finance, and retirement savings. The team has recently delved into the field of behavioral health economics.

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THE EXPERIMENT

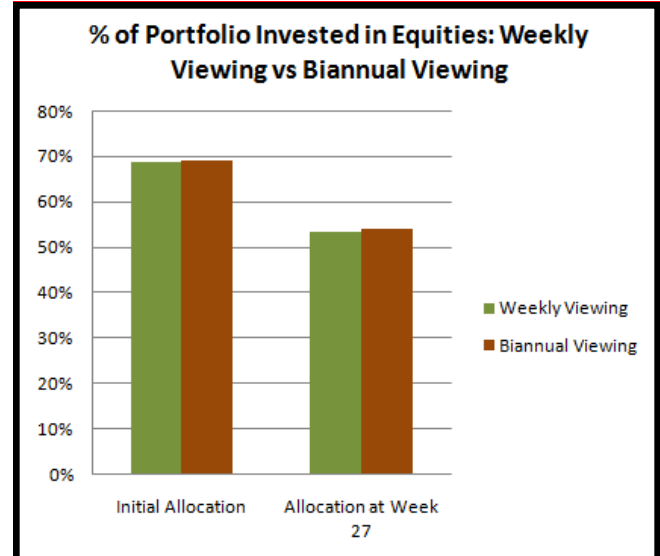
- We recruited 597 participants aged 25 and older and had an annual income of at least \$35,000 from the general U.S. adult population.
- Each participant was given \$325 to divide among four real mutual funds: a U.S. equity index fund, an international equity index fund, a U.S. bond index fund, and a U.S. money market fund.
- Participants could reallocate their portfolio throughout the year, just as if they were making real investments in these mutual funds.
- We paid participants whatever the market value of their portfolio was at the end of the year.

In order to see if information aggregation affects investment decisions, we varied the aggregation of the returns information participants saw in four different ways:

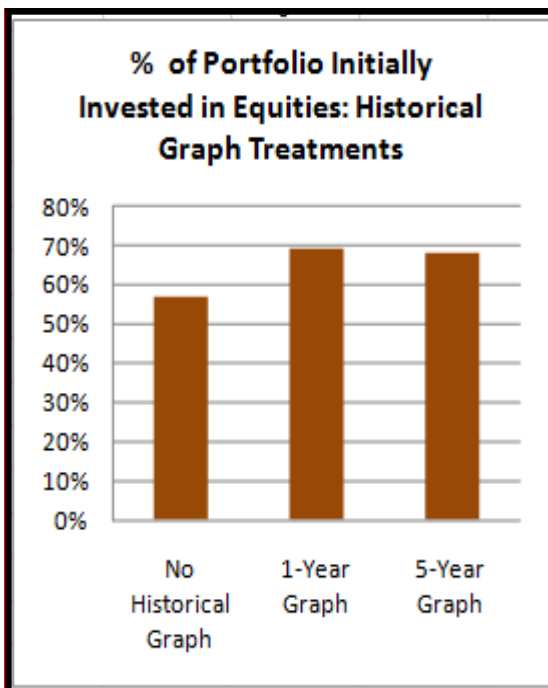
1. Half of participants were paid to view their weekly returns every week. The other half were paid to view their six-month returns once every six months.
2. Within the above groups, half of participants saw only their overall portfolio return over the last week or six months, and the other half saw the return of each individual asset they were holding over the last week or six months.
3. We showed some participants graphs showing the distribution of real annualized one-year returns for U.S. equities, international equities, U.S. bonds, and U.S. money markets from 1970 to 2006. Other participants saw graphs showing the distribution of real annualized five-year returns for the same asset classes and over the same period. Some participants did not receive historical return information.
4. Among the participants who could see the historical returns graphs, some could only see the historical return distributions of four portfolios, each invested 100% in one of the asset classes offered. Other participants could see the return distributions of portfolios invested in whatever mix of asset classes they wished, allowing them to see the risk reduction that comes from diversifying across asset classes.

FINDINGS

- Unlike in prior studies, aggregating returns information did *not* cause participants to choose riskier portfolios.
- Participants who viewed their portfolio return biannually chose portfolios that were about as risky as those of participants who viewed their portfolio return weekly.
- Participants who saw only their overall portfolio returns invested *less* in equities than participants who saw the returns of each of their individual assets.



Graph 1 shows that biannual rather than weekly viewing portfolio returns did not encourage participants to make riskier investments.



Graph 2 shows that participants who viewed *any* historical return invested more in equities.

- Participants' portfolios were not affected by the type of historical returns graph they saw.
- Participants who viewed *any* historical return graph—whether it showed one-year returns or five-year returns—invested 11 to 12 percentage points more in equities. This suggests that participants were not previously aware of how attractive equity returns have been historically.
- The graph effects on equity allocations were especially large among participants without a bachelor's degree.
- Seeing a historical returns graph made participants report increased confidence in their investment decision.

CONCLUSION & REAL WORLD IMPLICATIONS

Contrary to previous studies, this research demonstrates that in a setting closer to a real-world investment environment, aggregating information does not increase people's willingness to take investment risks. The only treatment that significantly increased risk taking was showing participants a graph of historical returns distributions, but the effect did not vary with the type of graph that was shown.

FOR FINANCIAL INSTITUTIONS:

Our results suggest that changing the level of return disclosure aggregation is unlikely to have an impact on portfolio risk-taking in real-life financial portfolios. However, investors may be unaware of how attractive equity performance has been historically, so educating them about historical asset class performance may increase equity allocations.

FOR FURTHER READING

- Anagol, Santosh, and Keith Jacks Gamble, 2008. "Presenting investment results as-set by asset lowers risk taking." Yale University working paper.
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- Gneezy, Uri, Arie Kapteyn, and Jan Potters, 2003. "Evaluation periods and asset prices in a market experiment." *Journal of Finance* 58, pp. 821-837.
- Thaler, Richard H., Amos Tversky, Daniel Kahneman, and Alan Schwartz, 1997. "The effect of myopia and loss aversion on risk taking: an experimental test." *Quarterly Journal of Economics* 112, pp. 647-661.