

Executive Summary

- So far, research in finance has primarily focused on how investors buy and sell *individual assets*. However, assets are usually held in a *portfolio*. Much less is known about how investors evaluate *entire portfolios* and what drives their *portfolio investment decisions*.
- We demonstrate a new stylized fact about how individuals evaluate and allocate funds across portfolios: the portfolio's composition of the number of winner (i.e. realized gain) and loser (i.e. realized loss) assets affects investors' willingness to invest in that portfolio.
 - Experimental evidence: This portfolio composition effect holds despite (i) identical *realized* portfolio returns and (ii) identical *expected* portfolio returns and variance.
 - Field evidence: We find that leading equity market index fund flows are affected by the lagged composition of winner and loser index members

1. Motivation

- Consider the following two portfolios of equally-weighted stocks
 - In particular, same realized portfolio return, but different number of winner and loser stocks

Portfolio X		Portfolio Y	
Stock A	4	Stock K	-2
Stock B	10	Stock L	-4
Stock C	-5	Stock M	-2
Stock D	-7	Stock N	8
Stock E	2	Stock O	-5
Stock F	5	Stock P	5
Stock G	2	Stock Q	-1
Stock H	-9	Stock R	-2
Stock I	5	Stock S	14
Stock J	3	Stock T	-1
Total	10	Total	10

- How would you allocate an investment of \$1000 between these two portfolios?
- If investors only care about *overall portfolio returns* (i.e. form expectations and evaluate risk only from overall portfolio information), then there should be no difference in the willingness to invest.
- However, for *individual assets* it is known that
 - probability of loss drives risk perception (Holzmeister et al. 2020)
 - the way how returns are achieved matters (Zeisberger 2018)
 - people engage in stock-by-stock mental accounting and define gains and losses narrowly rather than broadly (Frydman et al. 2018, Barberis & Huang 2001)

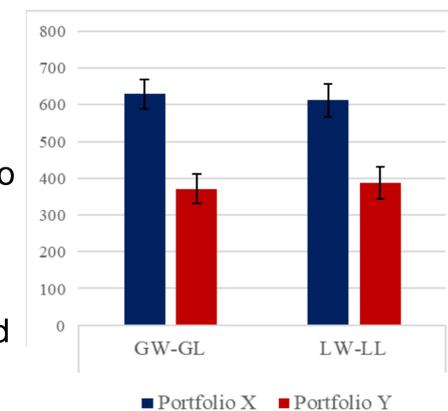
- Do these findings also apply to a portfolio?

2. Experimental Evidence

- **Portfolio Composition:** Number of winner stocks relative to number of loser stocks
- **General Idea:** Two equally-weighted portfolios with the same overall portfolio return, but differences in the portfolio composition (70%/30% versus 30%/70% winner/loser)
- **Procedure:** (1) Observe realized stock and portfolio returns
(2) Allocate investment between two portfolios
(3) Receive feedback about performance

Experiment 1 N = 480	Experiment 2 N = 600	Experiment 3 N = 126
<ul style="list-style-type: none"> • 2 periods • A lot of freedom • Goal: same realized return 	<ul style="list-style-type: none"> • 2 periods • Data generating process known • Goal: same expected return and variance 	<ul style="list-style-type: none"> • 60 periods • Data generating process known • Goal: same expected return and variance

- **Main Result**
 - 26% larger investment in the 70% winner/30% loser relative to the 30% winner/70% loser portfolio ($p < 0.001$)
 - Effect persists even for those participants who state same expected returns and variance



3. From the Lab to the Field

- **Are index fund flows affected by the portfolio composition measure?**
- WSJ reports “Advances” and “Declines” of indices
- **Data:** We link daily fund flow data of leading equity market indices from Morningstar to return data of the index members from Thomson Reuters and Bloomberg

Dependent Variable	Net Flow t	
Composition $t-1$	0.000335* (2.67)	0.000202 (1.91)
Composition $t-2$	0.000545** (4.08)	0.000490** (3.87)
Composition $t-3$	0.000300 (2.11)	0.000249 (1.74)
Fund Return $t-1$		0.00575* (2.79)
Fund Return $t-2$		0.00417* (3.10)
Fund Return $t-3$		0.000848 (0.59)
Constant	-0.000481** (-3.41)	-0.000360* (-3.12)
Observations	92026	88057
R^2	0.041	0.039

t statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Main Result

- Larger fraction of winner index members is related to higher subsequent inflows
- Robust against extreme compositions and skewness

References

Holzmeister, F., Huber, J., Kirchler, M., Lindner, F., Weitzel, U., & Zeisberger, S. (2020). What Drives Risk Perception? A Global Survey with Financial Professionals and Laypeople. *Management Science*.

Grosshans, D., & Zeisberger, S. (2018). All's well that ends well? On the importance of how returns are achieved. *Journal of Banking & Finance*, 87, 397-410.

Frydman, C., Hartzmark, S. M., & Solomon, D. H. (2018). Rolling mental accounts. *The Review of Financial Studies*, 31(1), 362-397.

Barberis, N., Huang, M., & Santos, T. (2001). Prospect theory and asset prices. *The Quarterly Journal of Economics*, 116(1), 1-53.