The Portfolio Composition Effect – Experimental and Field Evidence

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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

<table>
<thead>
<tr>
<th>Portfolio X</th>
<th>Portfolio Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock A 4</td>
<td>Stock K -2</td>
</tr>
<tr>
<td>Stock B 10</td>
<td>Stock L -4</td>
</tr>
<tr>
<td>Stock C -5</td>
<td>Stock M -2</td>
</tr>
<tr>
<td>Stock D -7</td>
<td>Stock N -8</td>
</tr>
<tr>
<td>Stock E 2</td>
<td>Stock O -5</td>
</tr>
<tr>
<td>Stock F 5</td>
<td>Stock P 5</td>
</tr>
<tr>
<td>Stock G 2</td>
<td>Stock Q -1</td>
</tr>
<tr>
<td>Stock H -9</td>
<td>Stock R -2</td>
</tr>
<tr>
<td>Stock I 3</td>
<td>Stock S 14</td>
</tr>
<tr>
<td>Stock J -3</td>
<td>Stock T -1</td>
</tr>
</tbody>
</table>

- 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

<table>
<thead>
<tr>
<th>Experimental</th>
<th>N</th>
<th>Net Flow t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment 1</td>
<td>480</td>
<td></td>
</tr>
<tr>
<td>Experiment 2</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>Experiment 3</td>
<td>126</td>
<td></td>
</tr>
</tbody>
</table>

- 2 periods
- A lot of freedom
- Goal: same realized return
- 2 periods
- Data generating process known
- Goal: same expected return and variance
- 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 index funds from Morningstar to return data of the index members from Thomson Reuters and Bloomberg

Main Result

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

References

