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The Return Gap and Who it Hits Most *

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ABSTRACT

The return gap captures the difference between the average return for a fund and what the average investor actually experiences in returns within that fund. Examining the return gap for a variety of US based equity funds over the past 10 years (2008 to 2018) highlights that investors in mutual funds that particularly target value stocks and investors in funds that particularly target growth stocks suffer the greatest return gap. Contrary to this, investors in index funds and those in impact (sustainable) funds suffer the lowest return gap. This demonstrates the benefit of being passive or being tied to one's investments for non-monetary reasons.

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I Introduction

Most investors like to think of themselves as calculating, rational, and immune from the whims of the market. Yet, whether you denote it 'animal spirits', 'sentiment' or even 'irrational exuberance', human factors affect our markets and our own portfolio decisions. And, for the vast majority, these behavioral elements and biases innate to all of us cause more harm than good to the long-run returns of our portfolios.

Just how much damage do we inflict on our own portfolios by succumbing to behavioral biases such as loss aversion and the hot hand fallacy - well the 'return gap' (or 'investor gap') can shed a good amount of light on that exact issue.

The return gap captures the difference between the average return for a fund and what the average investor actually experiences in returns within that fund. Why might these two numbers not match up exactly? Well, a mutual fund's stated return will reflect the average return of its stock or bond holdings over a period of time. Because investors on average pull their money at the exact wrong time (panicking when the market has already hit a bottom and putting in more when at the top), they may not actually experience this stated return in full. What investors on average are actually experiencing in the fund is better captured by an asset weighted return for the fund (an internal rate of return that factors in fund inflows and outflows).

For instance, even though the average S&P 500 indexed mutual fund delivered 26% returns in 2009, many investors didn't get to experience that because they had sold out at the bottom after experiencing the full weight of the 35% drop in the markets in 2008. So, while the average stated return for mutual funds over this two year period was somewhere near -4.5% (-35%+26%/2), many investors experienced an average annual return of something much closer to -17.5% (-35%+0%/2). This would yield a return gap equal to 13%.

Just what type of fund has the biggest return gap? Well, examining the return gap for a variety of US based equity funds over the past 10 years (2008 to 2018) highlights that investors

in mutual funds that particularly target value stocks and investors in funds that particularly target growth stocks suffer the greatest return gap. On average investors in these funds are losing 2.16% and 1.93% respectively per annum because they are pulling their money at the market lows or adding to these funds at the market highs.

Contrary to this, investors in S&P 500 index funds and those in impact/sustainable funds have the lowest return gaps (0.77% and 0.93%, respectively). This might be surprising, since passive investing and ethical investing seem to be polar opposites (one pretty much ignores the content of the investments; the other is completely predicated on it). But, both investors who take a passive approach to their investing and those that are tied to their investments for ethical reasons resist the urge to try and time the market, which damages so many portfolios.

These return gap numbers are reflected in fund-flow volatility as well. Take the 2008 crisis for instance - while the average index investor actually added 4.2B to S&P 500 index funds in 2008 (a 1.3% jump as a percentage of AUM at the start of 2008), investors in value funds pulled 15.1B (a 2.6% decrease as a percentage of AUM) and investors in growth funds pulled 45.4B (a 4.5% decrease as a percentage of AUM). Because investors on the index and impact investing side are less likely to exit their positions in precipitous downturns, this may partially explain the much lower return gap as compared to value/growth fund investors.

This paper proceeds as follows. Section II highlights the data construction and empirical analysis. Section III concludes the paper.

II Data Construction and Empirical Analysis

In this section, I first detail the construction of the dataset used in this investigation and provide summary statistics. Following this, I summarize the empirical methodology and results.

A Construction of the Data

The dataset used in the proceeding analysis was produced via the Morningstar Direct database. From the Morningstar platform, information on all equity focused mutual funds trading in the U.S. (U.S. dollar based mutual funds) was pulled. This initial list of mutual funds included all open-end funds (currently active or defunct) with assets under management listed as non-zero at anytime from 2000 and forward.

From Morningstar information on each fund's objective was pulled, as well as, information on its AUM, monthly returns, investor return, and volatility. Investor return is an asset weighted return that Morningstar calculates. This metric mimics an internal rate of return for the fund over time, where the weighting is the AUM of the fund at any moment.

To categorize each fund by its style, funds were partitioned into groups that focused on small cap stocks, large cap stocks, dividend-paying firms, growth firms, value stocks, sustainable (impact) stocks, index funds, international firms, and firms in emerging markets. In addition, mutual funds are partitioned by their clientele focus as well - those that focus on retail investors and those that cater to institutional investors.

B Empirical Analysis

Next, with these measures defined, I look at the difference between the mutual fund's stated return over a five year window and the investor return over that same 5-year window. Morningstar Investor Return (also known as dollar-weighted return) measures how the average

investor fared in a fund over a period of time. Investor return incorporates the impact of cash inflows and outflows from purchases and sales and the growth in fund assets.

In contrast to total returns, investor returns account for all cash flows into and out of the fund to measure how the average investor performed over time. Investor return is calculated in a similar manner as internal rate of return. Investor return measures the compound growth rate in the value of all dollars invested in the fund over the evaluation period. Investor return is the growth rate that will link the beginning total net assets plus all intermediate cash flows to the ending total net assets.

Below highlights the mutual fund returns, investor returns, and return gap results for a variety of mutual fund types:

	5 year Investor Return	5 Year Fund Return	5 Year Return Gap
ALL FUNDS	7.274873759	8.213142109	0.938268351
Index Funds	10.32556904	11.08150364	0.7559346
Impact Funds (full)	8.775981469	9.311984939	0.536003469
Impact Funds (narrow definition)	8.2897775	9.16509569	0.87531819
Value	7.946304196	8.674745074	0.728440878
Growth	9.13627185	9.953282453	0.817010603
Dividend	8.44016528	9.530104037	1.089938758
International	5.829752042	6.821465004	0.991712962
Emerging Markets	4.635951321	4.752013613	0.116062293

Figure 1: Return Gap presented over a five year horizon for various mutual fund types.

Next, I examine the same issue yet using a ten year window. Below highlights the mutual fund returns, investor returns, and return gap results for a variety of mutual fund types using a ten year horizon:

	10 Year Investor Return	10 Year Fund Return	10 Year Return Gap
ALL FUNDS	4.290724841	6.108959479	1.818234638
Index Funds	6.67730315	7.443079006	0.765775856
Impact Funds (full)	4.758631013	6.282796203	0.931958481
Impact Funds (narrow definition)	4.4898608	5.6622706	1.1724098
Value	4.447797206	6.603619664	2.155822458
Growth	5.142515699	7.07218704	1.929671342
Dividend	4.471139559	6.069022279	1.597882721
International	2.124920478	3.832414363	1.707493885
Emerging Markets	2.031985263	3.407003684	1.375018421

Figure 2: Return Gap presented over a ten year horizon for various mutual fund types

Next, I examine the same issue yet partitioning the sample by mutual fund clientele focus - retail investors or institutional investors. Below highlights the results:

	5 year Investor Return	5 Year Fund Return	5 Year Return Gap
Institutional Investors	8.388411761	9.157845041	0.769433279
Retail Investors	7.193272592	8.143913343	0.950640752

Figure 3: Return Gap presented over a five year horizon for retail and institutional funds

	10 Year Investor Return	10 Year Fund Return	10 Year Return Gap
Institutional Investors	5.03861257	6.24195988	1.203347309
Retail Investors	4.241058473	6.100127074	1.859068601

Figure 4: Return Gap presented over a ten year horizon for retail and institutional funds

The results on the return gap for institutional investors against those of retail investors highlight that over all funds, retail investors suffer an approximate 0.51% greater return gap per annum (average asset weighted) as compared to institutional investors.

III Conclusion

Just how much damage do we inflict on our own portfolios by succumbing to behavioral biases such as loss aversion and the hot hand fallacy - well the ‘return gap’ (or ‘investor gap’) can shed a good amount of light on that exact issue.

The return gap captures the difference between the average return for a fund and what the average investor actually experiences in returns within that fund. Examining the return gap for a variety of US based equity funds over the past 10 years (2008 to 2018) highlights that investors in mutual funds that particularly target value stocks and investors in funds that particularly target growth stocks suffer the greatest return gap.

Contrary to this, investors in index funds and those in impact (sustainable) funds suffer the lowest return gap. This highlights the benefit of being passive or being tied to one’s investments for non-monetary reasons - these effects seem to counter the desire to try to time the market and suffer a lose in returns due to poor market timing.

References

[1] Fama, E. F., K. R. French (1992). The Cross-Section of Expected Stock Returns. *The Journal of Finance 2* (46), 427-465.

[2] Fama, E. F., K. R. French (1993). Common Risk Factors in the Returns on Stocks and Bonds. *Journal of Financial Economics* (33), 3-56.

[3] Fama, E. F., K. R. French (1997). Industry Costs of Equity. *Journal of Financial Economics* (43) 153-193.

[4] Fama, E. F. (1998). Market Efficiency, Long-term Returns, and Behavioral Finance. *Journal of Financial Economics 49*, 283306.

[5] White, H. (1980). A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica* (48), 817-838.