Research Report

Asset Allocation versus Security Selection – New Insights from Individual Investors

WE DECOMPOSE INDIVIDUAL INVESTORS' PORTFOLIO RETURNS INTO PASSIVE BENCHMARK RETURNS, ACTIVE SECURITY SELECTION RETURNS, AND ACTIVE MARKET TIMING RETURNS. FOR THE AVERAGE INVESTOR IN OUR SAMPLE, PASSIVE BENCHMARK RETURNS EXPLAIN SOME 40% OF VARIATION IN LONGITUDINAL PORTFOLIO RETURNS, SECURITY SELECTION EXPLAINS AN ADDITIONAL 50%, AND MARKET TIMING PLAYS ONLY A MINOR ROLE. THIS STANDS IN STARK CONTRAST TO EARLIER RESULTS ON INSTITUTIONAL INVESTORS WHERE PASSIVE BENCHMARK RETURNS (REFLECTING DIFFERENT ASSET ALLOCATION STRATEGIES) EXPLAIN OVER 90%. THE PREDOMINANCE OF SECURITY SELECTION COMES AT A COST FOR INDIVIDUAL INVESTORS: INVESTORS FROM THE HIGHEST QUINTILE IN TERMS OF SECURITY SELECTION ACTIVITY UNDERPERFORM THEIR PEERS FROM THE LOWEST QUINTILE BY MORE THAN 10 PERCENTAGE POINTS PER YEAR. TRANSACTION COSTS EXPLAIN ONLY PART OF THIS UNDERPERFORMANCE. THE LESS INVESTORS DIVERSIFY, THE WORSE THEY DO.

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Introduction

A large strand of the household finance literature focuses on investment mistakes and the investment performance of individual investors. However, results vary depending on the specific dataset and methodology used. Investment mistakes are often referred to be the potential reasons for the lack of performance among individual investors.

Odean (1999) analyzes the timing of trades made by individual investors. His results show that stocks sold by individuals subsequently outperform the stocks purchased. Barber and Odean (2000) analyze the aggregate performance of all stocks held directly by individual investors. Both studies conclude that individual investors trade too much in single stocks and pay a performance penalty after transactions costs. In our paper, we seek to shed additional light on the investment decisions of individual investors by decomposing their total portfolio returns into three components (Fama, 1972): investment policy (i.e., passive benchmarks from asset allocation strategies), market timing, and security selection.

The classical method to decompose portfolio returns into performance components was developed by Brinson et al. (1986). Investment policy returns correspond to the hypothetical return an investor would achieve if the average asset class weights were kept constant throughout the entire investment period and if the investor invested in the benchmark index of each asset class. Market timing measures the effect of a temporary under- or overweighting of asset classes relative to an investor's average long-term asset class weights. Security selection refers to the active selection of securities within a specific asset class.

According to Brinson et al. (1986), investment policy and thus asset allocation are the key determinants of institutional investors' returns and explains on average 93.6% of the variation in quarterly funds returns across time. So far, research has exclusively focused on institutional investors to determine the importance of investment decisions.

Data and Methodology

In this study, we use a dataset on 7,707 individual investors provided by one of Germany's largest online brokers. We have detailed information on all single securities, demographic data on all individual investors, their monthly holdings, and their daily trading records for the period August 2005 through March 2010. The daily frequency of trading records in combination with monthly holdings allows us to compute the four required return series on a daily basis.

We use the bank's security categorization in conjunction with the Lipper funds database to identify daily asset class weights (investor's actual asset class weights) and to compute individual portfolio returns (investor's actual asset class returns). We use four asset classes: equity, fixed income, cash, and other. The other asset class mainly comprises blended funds that do not belong to any of the other three asset classes, investment certificates, and options. We use the average holding of each asset class for each investor as an approximation of the investment policy weights *(investor's average asset class weights)*.

For investment policy returns, we use asset class benchmark returns and, in order to ensure the robustness of our results, we employ three different asset class benchmarks: a German set of benchmark indices, an international set of benchmark indices, and an own-benchmark approach. Our main analysis is based on a German set of benchmarks since investors have 50% of their equity part, which on average makes up 84.8% of investors' portfolios, invested in German securities.

Our research strategy is as follows: As a first cut, we look at the returns from investment policy, security selection, and market timing

to obtain tentative evidence on how much an investment activity contributes to individual investors' portfolio returns. In a second step, we regress on an investor-by-investor basis each of the three constructed return series on the actual return series. This yields evidence on the relative importance of investment policy, security selection, and market timing in explaining variation in portfolio return time-series.

Empirical Findings

We find that investment policy and security selection are the main determinants of individual investors' performance. On average, each explains about half of the return variation across time. Market timing is negligible. There is, however, considerable cross-sectional variation in the importance of investment policy and therefore also in the importance of security selection among individual investors.

To further investigate this variation, we divide our sample into quintiles based on the importance of investment policy. The individual investors with a low importance of investment policy (quintile 1) have an average R-squared of 10.4%; those with a high importance of investment policy (quintile 5) have an average R-squared of 71.5%. Investors with a low importance of investment policy tend to be younger, poorer, have a slightly shorter relationship with the bank, have smaller investment accounts, trade more, have higher portfolio turnover, a lower share of their portfolio invested in the equity asset class, and a higher share in the other asset classes. Furthermore, the coefficient estimates from a Fama-French & Carhart four-factor model reveal that quintile 1 investors (low importance of investment policy), compared to quintile 5 investors (high importance of investment policy), prefer to tilt their portfolios more heavily toward low-beta, small, value, and momentum stocks.

The quintile of investors, for whom security selection is relatively important, underperforms all other investors by over 8% per year gross of transactions costs and 10% per year net of transactions costs (see Figure 1). Turnover increases with the importance of security selection, but can only partially explain this underperformance. This result is markedly different from results reported in Barber and Odean (2000), who find almost no underperformance in gross returns, but increasing underperformance with turnover in net returns. Differences in gross returns across quintiles 2 to 5 are small in our sample, too. There is, however, one group of investors with very active security selection (i.e., high unsystematic risk shares), high turnover, a higher share of their portfolio invested in other products like certificates and options, and a portfolio tilted toward low-beta and small stocks that underperforms their peers even before accounting for transactions costs. The other products asset class underperforms the equity asset class of these investors' portfolios by approximately 10% per year. Trading in options and structured products aggravates the effect of bad security selection.

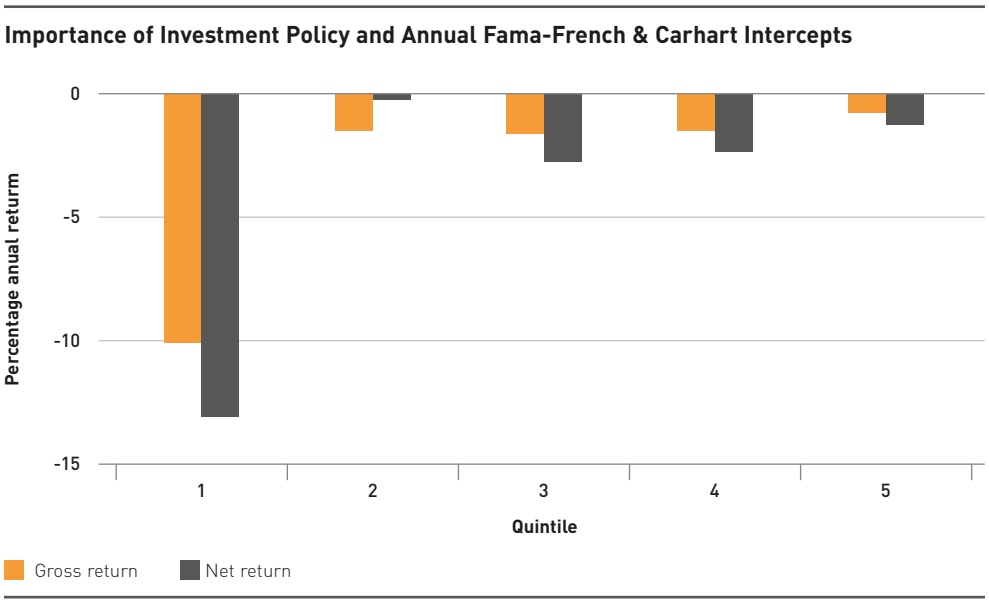

Figure 1: The Dark (Light) Orange Bar Represents the Gross (Net) Annualized Mean Fama-French & Carhart Intercepts for Individual Investor Quintiles Partitioned by Importance of Investment Policy.

Conclusion

In sum, investors trade too much, but transaction costs explain only part of the under-performance. The remainder can be attributed to bad security selection. The less investors diversify, the worse they do. Financial product innovations or professional services that increase self-control and increase portfolio efficiency could be potential solutions.

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