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Investment is style and strategy

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Valorization

Valorization

The studies presented in this dissertation contribute to our understanding of investment management and algorithmic trading which in turn results into smarter investment decision making and increases the aggregate utility of investors. The two research projects offer a distinct contribution for investors in the financial market. Chapters two and three focus on the investment style analysis of US mutual funds as the largest segment of the asset management business in the world, whereas chapter four examines an investment strategy by employing artificial intelligence.

The mutual fund industry has experienced tremendous growth in the last thirty-five years. According to Investment Company Institute (2017), the share of household financial assets held in the US investment companies rose from 3% in 1980 to more than 22% at year-end 2016. The growth of individual pension plans partially explains the increased household reliance on investment companies. Today there are more than 9,500 mutual funds with various investment objectives in the US financial market. With increased competition in the mutual fund industry, fund managers attempt to provide evidence of superior performance to attract more investors. Since the actual risks of these funds are unobservable, some funds may be tempted to deviate from their stated objectives and take higher risks to earn higher returns and consequently a higher performance rank in their stated objective group. This behavior can change the type and level of risks of what investors are supposed to be exposed to. Chapter two and chapter three critically investigate this behavior.

Chapter two introduces a more granular approach of the investment style analysis, which allows investors to measure the gap between actual investment style and stated investment style in a single statistic with a certain confidence level. The novel results of this chapter show that: (1) mutual funds differ substantially in their commitments to the stated investment style, (2) the most misclassified funds significantly underperform well-classified funds by 1.73% per year based on

Carhart alpha of gross return, and (3) misclassified funds appear to be younger, smaller in size and charge higher expense ratios. This insight might serve a motivation for mutual funds not to deviate from their stated investment style, thereby limiting the extent to which investors are exposed to risks they have not been informed of.

Chapter three critically examines different clienteles' reactions to investment style deviation behaviour. Not only do more than 95 million households invest in the US mutual funds, but also various business and institutional investors are involved in this industry. Previous studies show that investors vary with regards to sophistication level, and better-informed investors like institutional investors use more sophisticated tools to monitor fund managers. Hence, this chapter tests how investors with different levels of sophistication respond to the style changing behaviour of mutual fund managers. The novel findings of this chapter show that heterogeneity in investors' sophistication levels strongly relates to heterogeneity in responses to style changing behaviour. The empirical approach that we apply to several proxies of investors' sophistication level indicates that less sophisticated investors reward style-changing behaviour by an increase in fund flow, while more sophisticated investors punish this behaviour by redemption. The results extend the conclusions of previous studies, which treat all investors as a homogeneous group with respect to the style changing of mutual funds.

Technological change has reshaped the way financial assets are traded and has potential to make asset prices more efficient. Algorithmic trading is an example of the technological changes. Previous articles show that due to the growing popularity of algorithmic trading, there is a downward trend in their profitability. Hence, the optimization of algorithmic trading features has gained widespread attention among traders specifically using new machine learning methods. Chapter four employs Reinforcement Learning (RL), which is a branch of machine learning, in a platform of pairs trading strategy. The results show improvement in

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finding of trading opportunities and indicate that our method is robust and performs significantly better than the method with static parameters.

Taken together, the studies presented in this dissertation provide answers to a variety of questions in the field of investment management and financial market. The findings in chapter two and three are of special interest to mutual fund investors and policy makers. The focus of chapter four is on the algorithmic trading with combination of artificial intelligence, which is of interest to high frequency traders in the financial market.