

Empirical Evidence of Cognitive Biases among Chinese Investors

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Abstract: The convoluted world of finance is filled with a number of irrationalities that the science of behavioral finance seeks to explain by bringing cognitive biases. Cognitive bias is a systematic pattern of deviation from rationality and is caused by limited cognitive capacities. By specifically analyzing Chinese investors, the paper aims to identify common cognitive biases exercised by high net-worth Chinese investors that lead to insufficient diversification and naive diversification in portfolio construction and to explain the following scenarios that are not commensurate with classic financial theories: the reason why investors prefer rule of thumbs instead of complete diversification; or when they do diversify, they simply takes N instruments and consider it done; the fact that people stick with a chosen stock or fund even when their prospects are not favored and other opportunity has arisen; and that investors from the same social background as a whole might have experienced certain preferences. And finally, when the cognitive biases are exercised by large enough of a population, stock market might suffer abnormal variances from it. The answers to these questions are studied by qualitative research methodology in this paper, narrative inquiry and inductive approach, to generalize and conclude to observed examples.

Keywords: behavioral finance, cognitive bias, emerging market

1. Introduction

When looking at the variances of stock prices, even the most sophisticated traders would sometimes find themselves wondering, where do some of the abnormal volatilities come from? There are simply times when no event or underlying factor could rationalize the ups and downs, and the price has deviated so much from the pricing model that economists have to continuously add factors to justify the equilibrium. Hence the rise of behavioral finance.

Stemming as a subsidiary of behavioral economics, the subject challenges the assumption of rationality in decision-making and questions the full efficiency of the market that there should be no arbitrage opportunity existing. Now after two decades of evolution, the cognitive biases recognized in behavioral economics can not only be applied to individual consumption behaviors or corporate decisions, but also to all the equity holders in the market, to try to explain some of the most bizarre and unconventional price movements. For example, Reddit vs Wall Street in early 2021 on Gamestop and AMC was a great illustration of how herd behavior could be utilized and cause series of consequences in stock price changes, as Reddit thread users managed to liquid certain hedge

funds using mass derivatives. Yet, many other cognitive biases that are less frequently practiced in real-life are not given equal attention.

The paper aims to identify common cognitive biases exercised by high net-worth Chinese investors that lead to insufficient diversification and naive diversification in portfolio construction. I am choosing this market because I am currently serving as a strategist for the regional team of a leading wealth management platform in China and have access to an abundant source. In addition, the stock market in developing countries is more illiquid than its counterpart in developed countries and more dominated by individual investors. The fact that stocks suffer more from irrational behaviors due to incomplete comprehension in emerging markets has already been explored by several literatures (see Literature Review). The chance to understand whether investors from emerging markets are more prone to cognitive biases serves as another goal of this paper. Conversely, I also intend to explore whether capital markets in emerging countries suffer more from abnormal volatility because of a higher inclination to cognitive biases.

2. Literature Review

As a relatively nascent field, the evolution of studies in behavioral finance has come from a general definition to specific topics in a given market. Still, a large part of the concepts remained unexplored. From the 1980s to the early 2000s, scholars have defined what behavioral finance is and its implied application in stock markets [1,2]. The foundation of Behavioral Finance mainly lies in challenging two assumptions in the classic theory: rationality and opportunity to arbitrage, identifying various cognitive biases contributing to irrational decision-making and the inefficiency of a market. In the last decade, studies have viewed social finance as a descendant of behavioral finance [3], focusing more on social norms, moral standards, religions and ideologies that influence financial behaviors, rather than on an individual basis [4-10].

In recent studies, Oprean and Tanasescu explored the applications of different psychological biases in developing markets [11]. While both yielding to the conclusion of the existence of market inefficiency, different causes are suggested to be the dominating contributing factors in each individual market. In Romania, pessimism has the greater influence on trading volume while in Brazil it is optimism that influences market activity the most. Economou et al. claimed that herding behavior is more inclined to take place in emerging markets because investors believe that the underlying return in emerging markets is higher than the one in developed countries whose securities are large and deep [12], hence the abundant supply of studies and journals on the issue and its form in emerging markets [13-17]. Herding effect continues to be the centre of research in developing markets.

When illustrating limits to diversification specifically, insufficient diversification and naive diversification are stressed [18]. By definition, naive diversification means when investors only look at the number of investment vehicles they invest in and think that achieves the goal of diversification. In fact, they fail to understand the correlations and covariances behind the chosen vehicles. Benartzi and Thaler found that when people diversify, many use simple strategies by allocating $1/n$ of their savings to each of the n available investment options presented [19]. French and Poterba report that investors in the USA, Japan and the UK allocate 94%, 98%, and 82% of their overall equity investment to their domestic equities respectively, showing a strong “home bias” from investors [20]. Home-bias together with ambiguity aversion results in insufficient diversification. Home-bias as a subject has been touched by a few studies [21,22]. It is established that although in different degrees, home-bias does exist in both developed and emerging markets.

3. Methodology

The methodology in this literature is narrative inquiry, with real stories and raw data from a leading wealth management company servicing high net-worth clients in China, to illustrate whether and how investors in China is under-diversified in their portfolio and whether the cognitive biases brought by behavioral finance researchers could attribute to this phenomenon. Among the 4,000 plus clients my regional team is serving, there are about 100 that I actively talk to, men and women, aging from 25 to 82, from young students to retired businessmen, representing a wide range of characteristics and backgrounds. When telling their stories and interpreting the data, I will obscure sensitive information.

Heuristics, the mental shortcut for quicker decision making, is commonly used among retail investors and the sell side to render judgments out of the complex and exuberant outflow of financial information. “Rule of thumb” as a simplified term is frequently referred to as guidance to or even paradigm of investment. Account managers often simplify strategies, putting 50% in equity, 30% in fixed income and 20% in alternative vehicles as the “standard” allocation and treating 8:2 in fixed income to equities as the conservative plan. It is common in the industry that three types of plans will be presented to investors: the aggressive, the standard and the conservative. While a customized plan is a given option for clients with a net worth higher than \$1.6M (¥10 million equivalent), customers with an investable asset from \$1-8 million hardly bother to go with that route, usually following whichever plan their account manager recommend the most. Similarly, if the duration of the fixed income they select is 24 months, investors are more than likely to select an alternative vehicle also around that duration, which perfectly echoes Barberis and Thaler’s definition of naive diversification [18]. The topic with selling leads to the discussion of other biases: framing, availability bias and ambiguity aversion.

The best-selling equity fund in our company is the one with the most marketing events, not necessarily the one with the best performance up until the day of launch or for the next twelve months, signaling the strongest expected cash flow. At the same time, account managers are extremely reluctant to promote newly founded funds without a traceable record, even though the past cannot predict the future. The phenomenon shows a degree of distrust and irrationality caused by a) our sales tend to retrieve what is most available to them and that piece of memory is constantly magnified by ongoing market events; and b) they tend to shy away from the unknown. Additionally, when presenting two similar products with structure, the way our salesperson presents it can largely affect the client’s investment decision. For example, “doubling its value in 3 years” is a far more desirable expression than “annual return of 26%”. Framing bias, the act to render decisions based on how information is presented, is extremely common in the wealth management industry.

In addition to cognitive biases from investors and the sell side, increasing usage of online tools has also amplified the effects of certain biases. The era of digital investment platforms has brought more amateur investors to the market. Apart from serving high net-worth, my company also has a mobile trading application that allows everyone to participate in the equity market through public traded funds with an entry amount as low as ¥1 (equivalent to around \$16 cents). The most popular ones are constantly the ones shown on the first page, even if they might not be the top-performed one of its kind at that given time. Customers choose what are convenient to them and are surprisingly stubborn with their choices even when the prospect of their chosen fund has dimmed.

The dominance of retail investors in China’s A-Share equity market has made high net-worth and fund managers, who are often regarded as shrewd investors, suffered from abnormal volatility partly as a result of herd behavior. It is clearly noted and generally accepted that Institutional investors are more rational than individual ones. Also, domestic investors are easier to be subject to

a social norm than foreign investors [23]. According to the most recent reveal, institutional investors hold 18.7% of China's A-Shares market capitalization—almost double the percentage they held in 2014 and over ten times the amount in 2003 [24]. Despite the rapid growth, the Chinese stock market is still dominated by individual, retail investors. Compared to a 2021 study by Morgan Stanley, institutional investors make around 90% of the daily trading volume on the Russell 3000 index, showing a sharp contrast in a developed market. In the meantime, foreign investors only owned an estimated 7.3% of the total A-share free float market cap on China's domestic equity market, according to UBS estimates. Among all the listed companies, small-cap accounts for around 6 out of 7 of them. Decentralized platforms have eliminated traditional brokers, but also facilitate more arbitrary transaction patterns. No matter when pessimism or optimism is over-dispersed in the market, even shrewd investors are not immune to herd behavior to exercise following unexpected volatility. For example, a fund manager may be a firm believer of mean regression but is forced to sell when there is an event driven panic causing the public to dump his or her chosen stock.

The empirical evidence presented demonstrates a clear pattern of insufficient and naive diversification among investors when constructing their portfolio. Investors and brokers both show the impact of heuristics, framing bias, availability bias, herd behavior, and ambiguity aversion when making decisions, which lead to incomplete diversification.

4. Discussion

While the examples witnessed corroborate the concepts brought by behavioral economics, empirical evidence that could fit into certain theory is no doubt only valid when cross-examined with data. More data needs to be collected and cross-examined to decide whether investors and brokers in China, in particular, suffer more from cognitive biases; how is it compared to the rest of the world and has these cognitive biases caused higher volatility in the stock market conversely.

For example, when looking into heuristics, more concrete evidence needs to be established to see whether investors in all of China, geographically, prefer mental shortcuts to sophisticated diversification compared to the regional clients I have surveyed. Then, is this only in my company or is it firm existing in the wealth management industry. Next step we need to compare the dependency to heuristics of different markets. Is China an anomaly in emerging markets? How does it compare to other Asian countries? Do investors from more developed markets rely on simplified solutions as well? Also, to quantify dependency or preference on heuristics could as well be a task. In many markets, insufficient diversification comes as a result of high transaction costs. In a perfectly efficient market, investors are able to synthesize almost any combinations using substitutes. However, in reality, especially in developed markets, certain financial vehicles are either not available or their transaction costs are so high that it makes no sense to add this asset to the portfolio, even if it means something mathematically. To further dive into the subject, a researcher needs to distinguish which part of the insufficient diversification comes from an unwillingness to follow and understand complicated statistical models. Once the psychological part is separated from the economical part, the relative level of dependency on heuristics of Chinese investors in the world could be discerned. The data could be collected either by questionnaire or retrieved from major wealth management companies that when presented a sophisticated diversified solution and a simplified one, supposing all costs held equal, are investors more willing to take one than the other. The datasets could be cross-validated to see if certain markets strongly deviate from the world average.

On the other hand, a lot more could be explored to see if the cognitive biases held by Chinese investors have actively increased the volatility of China's stock market. As pricing models, CAPM and its derivatives have indicated, trading volume, company size and momentum could all account for price deviations from their values. Fundamentally, stock price is a reflection of supply and

demand. Therefore, collective irrational behavior will inevitably distort the pricing of stocks, intuitively. To what degree though, in each market, would need further analysis and comparison. The evolution of the pricing model would be minimizing the “error” term and to find as many quantifiable factors as possible to build a stronger correlation between stock prices and the model. While impacts of irrational behaviors may be hard to quantify, one way to compare if one market is more dominated by emotions could be looking at their “epsilon” term. If a market has a higher portion of volatility that cannot be accounted for, the market should be viewed as less efficient than the one with more explicit factors.

The literature intends to discuss empirical examples. Of course observed data has its limitation, such as in whether it is a precise representation of the population and in data validity. When a larger and more complete dataset is made available for further research, more vigorous and accurate analysis can be conducted. The application of how to utilize the variances caused by popular cognitive biases could be meaningful for the industry as well, especially for the sell side.

5. Conclusion

The emerging field of behavioral finance still has a lot of subjects to be explored. Certain cognitive biases have been given more attention than others, or simply because they occur more and are easier to be interpreted statistically. While heuristics, framing, herd behavior, availability bias and ambiguity aversion can be observed from Chinese investors and brokers, and these biases inevitably lead to insufficient diversification and naive diversification, some of the factors do have a stronger impact than others, which is yet to be distinguished. The paper aims to identify the cognitive biases, examine the impacts they have on portfolio construction and explore their influences on the capital market. Future research can be conducted on confirmation of the data validity and cross examination.

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