

Mental Accounting and Finance Education

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Abstract

The weaknesses and limitations of the Efficient Market theory have established Behavioural Finance as the dominant theoretical economic model.

The new behavioural theory, by integrating various other disciplines, such as psychology, anthropology and sociology, and by studying investors' emotions and biases, has offered new insights to a meaningful interpretation of investing behaviour, stock market anomalies and the long-term stock markets bubbles.

The research, carried out on a sample of Accounting and Finance students, who will be future investors and stock market professionals, demonstrates that psychology, emotions, biases and cognitive errors have a significant impact on individuals' behaviour and decision-making, and more specifically, on investing behaviour.

Keywords: *rational, biases, errors, behavioural, mental accounting*

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I. Introduction

The Efficient Market theory was a fundamental theory for investing processes, asset prices and stock market procedures until the mid-90s. In an efficient market, investors always make rational decisions, have full access to information and mainly aim at maximizing investment utility. In addition, asset prices fully reflect all relevant and available information, and are readily risk-adjusted to new information. From this perspective, there are no anomalies in stock market processes. In case of market anomalies, these are brief and adjustable, thus, preventing extreme surplus value.

However, stock market bubbles caused by irrational investments have highlighted the weaknesses of the hitherto prevailing theory and the emergence of a more comprehensive financial theoretical model, namely, the theory of Behavioural Finance.

Behavioural Finance interprets stock market processes by relying on various other disciplines, such as psychology, sociology, and anthropology. It is a more "open-minded" economic theory (Thaler, 1999) which aims to understand and predict the effects of human mental processes on markets and businesses, as far as decision making processes are concerned (Alexakis, Ch., Xanthakis M., 2008).

According to the new financial theory, investors are not perfectly rational, but are rather influenced by their emotions, biases and cognitive and emotional errors. Thus, they tend to make irrational investment decisions, which do not derive maximum utility. In addition, available information is not always possible and objective, but sometimes deliberately misleading; as a result, it leads to non-efficient markets, long-term anomalies, and extreme stock price fluctuations.

Overall, Behavioural Finance, a most comprehensive financial paradigm, by combining issues of psychology and emotions in its theoretical approach, offers a more detailed interpretation of financial market processes and helps prevent irrational decisions.

THE RESEARCH

The research sample includes second-semester Accounting & Finance students at the University of Western Macedonia, Greece.

The research was carried out during the first week of semester courses, after the first introductory lecture and before the second session, more specifically, from 23/2/2021 to 1/3/2021, on a sample of 123 second-year students (of a total number of 319), who participated in the survey and answered the questionnaire. It is worth noting that the sample accounts for more than 40% of the total number of students.

Of these, 67 are female, and 89.4% are aged 18-22. Their knowledge of stock market issues is poor (44%) to moderate (40.7%). 42% of the subjects wish to be employed in stock market jobs, whereas 50% of them are rather uncertain. It becomes, therefore, evident that they will be future investors or market professionals and will influence clients' decisions and market equilibrium.

The questionnaire includes large-scale close-ended questions drawn from the rich literature of Behavioural Finance, in which large nine- and ten-point scales are acceptable by a large number of scholars (Derek, Tanniru, 2000; Vavra, 1997). It is designed according to high content validity criteria, as it covers all different dimensions of each construct, in other words, measurable variables.

The questions are treated as problems / tests attempting to indirectly assess a specific behaviour; answers to straightforward questions would be rather negative. In addition, they have been designed to fit the researched students' profile, and academic and age group interests, and they focus on general concepts to avoid respondents' biases.

The questionnaire reliability index (Cronbach alpha > 0.7, which implies the research is reliable), applied to questionnaires carried out via factor analysis, demonstrates that the present research does not allow for further data analysis, as there is no correlation between factors.

Mental Accounting and relevant errors

Mental Accounting

It involves the set of cognitive functions used by individuals and households to organize, evaluate, and monitor economic activities (Thaler, 1999). It implies people's tendency to create different mental accounts and assign them with specific activities/events and how these are perceived and experienced.

Creating Different Accounts

It is closely related to mental accounting, as it basically involves creating different mental accounts in management and decision-making processes.

The creation of different mental accounts describes individuals' tendency to segregate money (or debt) into separate accounts (mental or actual), relying on a variety of subjective criteria, such as purpose or source of money (Pohl, 2013). It describes people's tendency to differentiate the way they spend and invest money and how they manage losses and gains.

The Sunk Cost effect

The Sunk Cost effect is defined as people's tendency to continue investing in events which are obviously no longer relevant to rational decision-making in the future. It implies investors' determination to hold risk-based assets, and their reluctance to avoid wrong choices in the hope of future gains.

Determination to adhere to a loss-making choice caused by investors' endeavour not to incur losses (which will only happen when they sell them) demonstrates irrational behaviour, which urges them to spend time and money on unsuccessful investments and opportunities, preventing utility and profit maximization.

The Sunk Cost effect explains that money value increases or decreases relative to its reference point. The term was borrowed from "playing with house money" used in casinos. When gamblers win, they feel that gains do not belong to them and change their behaviour in subsequent bets.

Investing decisions are made in terms of gains and losses, which are considered a reference point (Mattos, Garcia, 2009). Initial losses may cause risk aversion, whereas prior gains greater risks.

Hedonic framing

Hedonic framing refers to people's tendency to prefer small single gains every day, rather than an equivalent large gain, only once. The opposite is true of losses.

Gains are always gains and losses are always losses. Preference for small gains rather than a large one, as well as preference for a total loss, can help people achieve a better psychological management rather than enjoy financial opportunities.

Hedonic framing implies choosing frames which are attractive. People with self-control problems often engage in hedonic framing to address various problems.

Individuals tend to irrationally choose to segregate gains in order to get satisfaction from success many times and avoid segregating losses in order to experience loss and failure only once. In both cases, they cannot achieve utility maximization.

Research results

Creation of different accounts

The first question, taken from Kahneman and Tversky, 1979 ("Prospect theory: An analysis of decision making under risk"), is directly related to mental accounting, defined as the set of cognitive functions used by individuals and households to organize, evaluate, and monitor economic activities (Thaler, 1999), and implies people's tendency to create different mental accounts during decision-making processes.

The subjects were asked to answer the following question: “You have saved money for your studies, but you want to buy a car. Would you get an interest-bearing loan for that?”

Over 62% of the subjects (sum of answers for items 1, 2 and 3, of which 37.4% chose ‘strongly agree’) answered that they would use their savings instead of getting a loan, which implies they would make a rational decision, that is, use savings rather than make a risky investment, such as a loan.

Only 6.4% (sum of answers for items 7, 8 and 9), would wrongly prefer incurring additional costs and risks (risk of inability to pay off a loan) and not use savings for a risk-based investment.

In addition, neutral answers (13%, item 5), reveal irrational behaviour. A rational behaviour would imply buying a car using savings and, thus, maximising utility.

The Sunk cost effect

The second question, investigating the impact of the sunk cost effect, which highlights people’s tendency to change behaviour towards future events, always relying on prior costs, is based on Thaler’s theory (1980), discussed in “Mental Accounting and Consumer Choice”:

“You have invested time, money and energy in an investment that proves to be a loss. Will you by any means support this investment (i.e., reduce the average cost of buying the securities by investing new capital) until it recovers?”

The survey revealed that 30% (sum of answers for items 7, 8 and 9) of the participating students answered they would support a loss. The phrase “by any means” emphasizes the desperate effort to support a loss-making investment, until it recovers. Thus, the specific number of answers (30%) demonstrates the students’ determination to support an investment in the hope it will no longer be a loss. The subjects remain inactive, although they could change their investment decisions. The fact they are wrongly determined to support a loss related to the segregated mental accounts they have ‘opened’ (gain and loss accounts). The subjects try by any means not to ‘close’ loss-making investment accounts, as ‘closing’ an account implies loss and failure. A wrong decision suggests an unsuccessful personal choice, which will haunt them during their career.

A neutral behaviour (item 5) accounts for 25.3% of the total answers and implies rational behaviour.

Finally, more than 25% of the subjects (sum of answers for items 1, 2, 3) would not keep an investment by any means; they would make a rational investing decision to avoid a loss, restructure their portfolios and take advantage of new investment opportunities.

The house money effect

The third question, investigating the impact of the house money effect, which explains that money value increases or decreases relative to its reference point, is based on Thaler and Johnson (1990), discussed in “Gambling with the House Money and Trying to Break Even”:

“Imagine that you are attending a convention in Las Vegas, and you walk into a casino without really wishing to gamble. While passing the slot machines, you put a coin into one machine and surprisingly you win € 100. Would you change your mind and gamble?”

The analysis found that 48% of the participating students (sum of answers for items 1, 2 and 3), would not change their mind and gamble for more wins. The respondents support their decision (they do not feel the desire to gamble), despite the positive outcome of the first time. Their behaviour is not affected by a temporary gain, and they stick to their prior decision.

To this question, neutral answers, given by 17% of the sample (option 5), demonstrate a rational attitude and behaviour.

On the contrary, 18% (sum of answers for items 7, 8 and 9), change their rational behaviour towards a recent and random gain, and decide to gamble. In other words, they move away from considerations of the Efficient Market theory, which advocates that prior events do not have a substantial effect on subsequent decisions.

Hedonic framing

Questions four and five investigate the cognitive error of hedonic framing (Thaler, 1999, *Mental Accounting Matters*), according to which people tend to prefer small gains every day, rather than a large one, only once. The opposite is true of losses.

The subjects were asked the following question: “Would you rather win: a) smaller amounts at different times or b) a large amount (equal to the sum of the smaller amounts) only once?”

Would you prefer to lose: a) a large amount only once or b) smaller amounts (equal to the large amount) at different times?”

As regards the first part of the question, 57% of the subjects (sum of answers for items 7, 8 and 9) answered they would prefer smaller amounts at different times rather than a temporary gain, which demonstrates an irrational behaviour, as it does not involve maximizing utility, but achieving greater satisfaction. They state they are unable to manage events and seek for confirmation by segregating gains.

Rational behaviour is revealed in 18% of the subjects' answers (sum of answers for items 1, 2,3), and implies decision making, which results in maximizing utility and opportunities to use and invest the entire amount. Similarly, neutral answers (item 5) given by 10% of the respondents reveal a rational behaviour, as they do not state an explicit view about a significant investment. Poor self-control and inability to make rational choices lead to irrational behaviour.

As far as the second part of the question is concerned, it was found that 45% of the subjects prefer to lose small amounts at different times, rather than a large amount only once. Although in the context of hedonic framing they exhibit irrational behaviour towards a gain, in the case of a loss their behaviour is rational.

Finally, 24% of the respondents prefer to lose an amount only once, which reveals an irrational behaviour; in terms of total utility, losing smaller amounts is preferable.

Also in this case, neutral answers (13%) imply an irrational behaviour, and thus, irrational investing decisions.

II. Conclusions

Based on the premise that volatile and changeable emotions cannot be measured via complicated scientific approaches (Fama, 1998), the present survey employed a simple percentage analysis to draw conclusions about the comparison of results and the central trend.

By stating specific views about the researched effects, the participating students, who are also future investors and stock market employees, exhibit an irrational behaviour, driven by biases, and cognitive and emotional errors.

With regard to the sunk cost effect, the analysis demonstrated that a high percentage of the subjects prefer an irrational behaviour towards an investment, in the hope that losses will be recovered. They remain inactive, despite the great number of investment options, and do not restructure portfolios, as selling loss-making securities implies a wrong investing decision, a wrong personal investment choice.

In relation to hedonic framing, the participating students state their preference for smaller gains, thus, indicating inability of a better management of events and maximum utility from an investment. On the other hand, they choose segregate losses, which implies rational behaviour as well as maximum utility; they prefer to lose smaller amounts at different times rather than a large one only once. Thus, management of hedonic framing is characterised by irrationality.

As regards creating different accounts, the subjects make rational decisions and use savings rather than a risk-seeking loan. They do not create different mental accounts and assign them with specific activities/events in which they have engaged.

In addition, the analysis of the house money effect highlighted that money value is not underestimated in relation to its reference point. The subjects exhibit rational steady behaviour to achieve additional gains when they gamble, despite the positive outcome of the first-time bet. They also avoid speculation, underestimating the value of money they have already won.

Overall, the present research demonstrates that the investigation of investors' behaviour towards investments and stock market processes requires integrating psychological and emotional issues, as proposed by Behavioural Finance approaches, rather than the theory of the Efficient Market, which is one-dimensional with many weaknesses.

To conclude, Behavioural Finance is the new dominant economic model, which highlights the importance of psychology and cognitive and emotional errors in investment decision-making processes and stock market stability.

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