Endowment Effect: Experimental Tests and Literature Study

Siu Yu Sheila Wong*

Department of financial engineering, Southwestern University of Finance and Economics, Sichuan, China

*Corresponding author: 41904194@gmail.swufe.edu.cn

Abstract. In everyday economic life, the endowment effect is a very frequent occurrence. It describes the phenomena wherein a person values a possession more highly when they own it than when they do not. At present, the psychological mechanism of this phenomenon is mainly explained by loss aversion, but this theory has great defects. A theoretical area of behavioral finance is endowment effect. In order to analyze the psychological traits of financial market subjects (decision-makers) in financial market behavior and to study investor decision-making behavior and its effects on asset pricing, the field of behavioral finance is founded on theories of behavior, finance, sociology, economics, decision-making, and psychology. It questions conventional economics. The endowment effect contradicts the rational person hypothesis of conventional economics and accurately represents the research techniques of behavioral finance. Future research can combine psychology and economics to further explore the psychological mechanism of this phenomenon. Combined with the influence of endowment on Coase theorem, explore the practical significance of endowment effect.

Keywords: Endowment effect; Coase theorem; Theories of behavior.

1. Introduction

Now imagine two scenarios: starting by supposing that someone has a 0.001 chance of developing a specific illness within a week, and that if they do, they will quickly pass away painlessly. How much is he willing to pay at most to cure the disease? Second, a certain study requires some volunteers. Similarly, as a volunteer there is a 0.001 probability of suffering from the above-mentioned diseases with the same symptoms. If the person participate in this study, how much does he require the researchers to pay him at least? This is a classic experiment on "endowment effect" conducted by Thaler in 1980 [1]. The experiment's findings revealed that, while the individuals' chances of contracting a disease under the two scenarios were equal, they gave different amounts of money under the two situations: in the first scenario, the subjects gave a price of $200, while in the second scenario, the subjects gave a price of $1000. This kind of bid with difference in different scenarios is called "endowment effect" [2].

The term "endowment effect" describes the phenomena wherein a person values something more highly when they own it than when they do not [3]. This concept was first put forward by Thaler (1980), who defined endowment effect as those individuals require more money to sell an item than they are willing to pay for it. Unlike the status quo bias, which focuses on "the state of an event", the endowment effect is more relative to a certain item. Because of loss avoidance, individuals will have a higher valuation of the item they own (Giraud 2007). Individuals will exhibit endowment effects on both private goods like coffee cups (Kahneman, Knetsch & Thaler, 1990), lotteries (Knetsch & Sinden, 1984), sports memorabilia (List, 2003), and public goods like course guidance services (Bischoff, 2008), air (MacDonald & Bowker, 1994), according to the perspective of goods [4].

2. Empirical Study on Endowment Effect

Researchers first looked into how consumers value public assets by studying endowment utility using the contingent valuation method (CVM). They discovered that the lowest price an individual is willing to accept for giving up something he already has is higher than the highest price an individual is willing to pay for purchasing the same thing [5]. Based on the prospect theory put forward by

Kahneman and Tversky (1979), Thaler developed the idea of "endowment utility" up until 1980 and utilized it to explain the difference between WTA-WTP. The endowment effect, according to him, can be described as the fact that an individual typically needs more money to sell an object than they are willing to pay for it.

An early experiment supporting the endowment effect was conducted by Knetsch and Sinden (1984). Participants in the experiment were first given a lottery ticket or a few cash by the investigator. Later, each participant will have the option of exchanging money for lottery tickets or money for lottery tickets. Only a small number of participants elected to swap, and those who received lottery tickets appeared to value them more than those who received cash, according to the findings. But this experiment also caused controversy. If the subject is in a market environment full of learning opportunities, will such behavior disappear? Market players frequently underreport the amount they are actually prepared to pay (WTP) and overstate the lowest price they are willing to take (WTA) when selling, which can result in differences between purchasing and selling prices. According to Coursey, Hovis, and Schulze (1987), as marketization experience grew, the difference between WTP and WTA would progressively close.

Kahneman, Knetsch, and Thaler (1990) carried out a number of new experiments to further confirm the existence of the endowment effect. These experiments made sure that participants had enough opportunities to learn when confronted with market rules. Among them, the mug market trading experiment is very intuitive. In the experiment, each subject will get a mug, and then conduct four rounds of market transactions. The roles of buyer and seller remain unchanged in all rounds. Only one round of transactions will be executed in the four rounds, and all transactions will be executed in that round. The results show that the median selling price is about twice the median buying price, while the number of transactions is less than half of the expected.

Another experiment conducted by Kahneman et al. (1990) revealed whether the low transaction volume was caused by the buyer or the seller. It is still a mug market trading experiment, but this time a third party, the "chooser", was added. They did not have a mug, but were asked to make a choice at different prices: whether to choose a mug or money. The results show that the behavior of the selector is more like the buyer than the seller. The median of the buyer's and the selector's retention prices are very close, while the median of the seller's retention prices is three times that of the buyer. This shows that the low trading volume is mainly due to the seller's unwillingness to give up their things, rather than the buyer's unwillingness to give up their cash. Therefore, the endowment effect still exists in the market environment with full learning opportunities.

3. Influence of Endowment Effect on Coase Theorem

The Coase Theorem states that as long as the transaction cost is zero, the final state of resource distribution has no bearing on the beginning state of allocation of property rights. Additionally, the efficacy of economic activities will not be impacted by the legal ownership distribution of property. In other words, the result (maximization of output value) is unaffected by the legal position if the operation of the market mechanism does not need costs. The best course of action for society is to resolve external issues through the clarification of property rights. Coase's ideas have had a significant influence in recent decades. The transaction cost is assumed to be zero in the Coase Theorem. The Coase Theorem, however, states that if the external resource negotiation cannot result in the best resource allocation, it must be because the transaction cost is too high [6]. Therefore, the creation of new trading tools and techniques to lower transaction costs is objectively motivated. Additionally, institutional innovation can sometimes be more significant than technological innovation in terms of the role it plays in lowering transaction costs. The government is an institution that can reduce transaction costs. In this way, Coase theorem is extended to the political field. Coase theorem can not only deal with externalities, but also explain system changes and constitutional reform, covering a wide range.

Then, whether the market efficiency can reach the optimal level no matter how the property rights are distributed without transaction costs? Considering the existence of endowment effect, this is not the case. It can be clearly observed from the above tests that in the token test, the market efficiency is close to the expectation, and it can be approximately considered that the market efficiency is optimal, which can be clearly seen from the trading volume. Although the market efficiency was dramatically decreased, the transaction cost did not significantly increase in the physical transaction with same transaction rules and procedures, which is clearly attributable to the endowment effect. Due to the endowment effect, a commodity's owner frequently hopes to sell it for a high price because his valuation of the good has been irrationally elevated, but the buyer of the good is unable to accept the high price. This easily results in a decrease in trading volume and has an impact on the efficiency of the market. The initial distribution of resources does not have an impact on the outcome, and resources will still be distributed most efficiently in the absence of transaction costs, claims the Coase theorem. However, contrary to what Coase predicted, resource allocation is really more "sticky." Due to the market's low efficiency, the final allocation outcome frequently resembles the initial allocation. As a result, the final distribution of resources is greatly influenced by the original distribution of property rights. An example can be used to demonstrate this notion. For instance, when a chemical plant is operating nearby, the residents' health is impacted by the exhaust gas that is released during production. How can this issue be resolved? The Coase Theorem states that while the distribution of property rights is unimportant, the process of defining property can be utilized to employ rights to address external issues. In other words, the plant might be granted property rights by the government, granting it the authority to harm the environment. Currently, in order to receive clean air, households must pay a set cost to the manufacturer; A set amount of fees must be paid by the manufacturer to the residents as compensation for contaminating the environment if, on the other hand, the residents are granted the property right, i.e., the right to enjoy clean air. An efficient solution will eventually be discovered through negotiation between the two parties, and the outcome of this solution has nothing to do with who initially had the property right.

The issue will not be as straightforward, though, if the endowment effect is taken into account, as the owner of property rights tends to pay more attention to the worth of their rights and will receive substantial compensation for giving them up. In this instance, if the people are awarded property rights, assume that they will seek P1 in compensation from the factory. Assume that the cost that the locals are willing to pay to the factory is P2 if the property right is granted to the factory. P1>P2 as a result of the endowment effect. In a similar vein, if the manufacturer gains the authority to contaminate the environment, it will demand greater restitution from the locals than it is prepared to give up in exchange for acquiring property rights. Both the buyer and the seller of the property rights may anticipate to pay very different amounts. Similar to the scenario outlined in the prior experiment, the negotiation may fail even if other transaction costs are not taken into account. The preceding experiment demonstrated the low level of market efficiency. When a negotiation fails, the Coase theorem's predicted optimal resource allocation does not occur, and the final property rights distribution depends entirely on the initial distribution plan. Coase theorem obviously does not consider the influence of endowment effect on property rights transaction.

4. Practical Significance of Endowment Effect

The Coase Theorem states that the best things the government can do are to make property rights explicit, lower market transaction costs, and optimize market efficiency. The endowment effect, though, makes it possible that the government's efforts won't be sufficient. The government must take into account the market's low efficiency because the initial distribution of property rights determines how resources are ultimately distributed. In the early stages of allocating property rights, efficiency must take precedence over an excessive reliance on market rules.

Second, since the endowment effect makes it easier to develop a "complacency complex," people should avoid losing what they have. Fear of potential loss brought on by change Social progress must

overcome this inertia because when the social structure changes, people whose interests can be harmed will spend a lot to maintain the old system in order to prevent the agony of the loss [7]. China is currently undergoing a crucial phase of reform and opening. The government should make greater efforts to aggressively support the reform and have a complete understanding of the challenges and hurdles that will need to be overcome. Additionally, the endowment effect and the "loss aversion" theory that underlies it can be used to explain a wide range of economic phenomena. An illustration of the endowment effect in action is when residents of a government demolition site feel that the compensation granted by the government is insufficient and debate with it about the compensation amount. Residents who have lost their homes will demand more compensation in order to feel happy than they would be willing to pay for the identical residence. This becomes more and more obvious when public assets are demanded to be paid for. A poll once revealed that locals would be ready to spend, on average, $0.12 USD to plant street trees, while if street trees were to be felled, the average compensation required was US $56.60.

Owners of stocks frequently adopt a risk-taking attitude when they endure a decrease in stock prices because they are so terrified of losing money. They are willing to keep holding stocks even at the risk of additional price decrease in order to prevent losses, with the hope that the stock price would one day increase along with the real estate market. As a result, an odd occurrence occurs in contrast to the demand curve of conventional economics, the trading volume of stocks or real estate decreases as their price decreases. When the price of stocks or homes declines, one explanation is that people are unwilling to purchase because they anticipate the price to drop much further. This explanation comes from the psychology of individuals. The theory of loss aversion further analyzes the causes of this psychology.

People frequently refuse to alter the surroundings because of the "complacency complex" brought on by the endowment effect, which is evident in their resistance to make concessions in talks [8]. A common illustration is pay rigidity. Instead of a pay cut, people would prefer to quit their jobs. Another illustration is that older businesses may have more ineffective laws and regulations than more recent ones. This is why the new company can establish rules that have never been done before. The employees frequently find it more challenging to accept the modified versions of the former company's original unjust policies, obstructing them. This circumstance can also arise during China's state-owned company reform. The workforce can be against the company's efforts to increase the management style and production effectiveness. This matter needs to be carefully considered, and the workers need to be fairly compensated.

5. Discussion

The endowment effect will persist for a very long period since it strengthens a person's negotiating position in bilateral agreements (Huck, Kirchsteiger, & Oechssler, 2005). Numerous experiments have demonstrated the endowment effect and status quo bias to exist. The idea of loss avoidance can be used to explain these oddities. Endowment has the primary effect of intensifying the agony of letting go rather than intensifying the attraction to the object [9]. One of the main findings of the study on risky decisions is that the best explanation for these decisions is that changes relative to the neutral reference point, rather than income or wellbeing, serve as a major carrier of hypothetical utility. Another significant outcome is that the harm caused by these changes outweighs any improvements to the status quo or benefits that they may provide (Tversky & Kahneman, 1991). In general, the joy of receiving a 300-yuan bonus is significantly stronger than the anguish of losing 300 yuan, which is a form of "loss avoidance." The value function curve of the loss area has a steeper value function curve than the benefit area, as shown by loss aversion [10]. The loss is more strong than the psychological feeling produced by the corresponding gain, which means that when the transaction cost and income effect are equal, individuals see the loss as being more significant than the gain. The initial application of this idea was in the area of risk decision-making. It was first used to explain the

endowment effect by Thaler (1980) in the risk-free field. According to him, customers view the acquisition of things as a win and the loss of money as a loss in the process of selling.

6. Conclusion

After decades of research, people researching this effect can be sure that the endowment effect is real and very common. However, the reasons for its emergence need further exploration. In the long run, the explanation direction of endowment effect should be the mutual supplement of relevant knowledge of psychology and economics. Psychology focuses on the basic research of emotion, cognition, motivation, and other factors, while economics focuses on the empirical research of trading behavior, market mechanism and other factors. Whether in theory or in practice, the in-depth study of endowment effect has far-reaching significance for the development of behavioral finance. Endowment effect belongs to the cross phenomenon between psychology and economics. According to the existing research, the research on endowment effect in psychology mainly focuses on basic research, such as the influence of emotion, cognition, motivation and other factors on endowment effect. At present, there are two approaches to the study of its mechanism: economics and psychology. However, there are corresponding defects in the interpretation of these two orientations, so if combining psychology and economics and using the relevant knowledge of the two disciplines to explain the endowment effect, will it be better? In a word, the endowment effect is a very common phenomenon in daily life, but the reason for its emergence still needs our further precise exploration. The research on its essence, psychological mechanism and other issues has very important theoretical and practical significance.

References

[1] Thaler R H. Toward a positive theory of consumer choice. Journal of Economic Behavior and Organization, 1980 (1): 39-60.

[2] Carmon Z, Ariely D. Focusing on the forgone: how value can appear so different to buyers and sellers [J]. Journal of Consumer Research,2000, 27(3):360-370.

[3] Irmak C, Wakslak C J, Trope,Y. Selling the forest buying the trees: the effect of construal level on seller-buyer price discrepancy [J]. Journal of Consumer Research, 2013,40 (2) : 284-297.

[4] Giraud R. Money matters an axiomatic exploration of the endowment effect and the preference reversal phenomenon. Unpublished Manuscript.

[5] Knetsch J L, Sinden J A. Willingness to pay and compensation demanded: experimental evidence of an unexpected disparity in measures of value[J]. Quarterly Journal of Economics, 1984, 99(3):507-521.

[6] Bornemann T, Homburg C. Psychological distance and the dual role of price[J]. Journal of Consumer Research, 2011, 38(3):490-504.

[7] Coursey, D. L., Hovis, J. L., & Schulze, W. D. (1987). The Disparity Between Willingness to Accept and Willingness to Pay Measures of Value. The Quarterly Journal of Economics, 679- 690.

[8] Hartman, R. S., Doane, M. J., & Woo, C. (1991). Consumer Rationality and the Status Quo. The Quarterly Journal of Economics, 141-162.

[9] Huck, S., Kirchsteiger, G. & Oechssler, J. (2005). Learning to Like What You Have - Explaining the Endowment Effect. Economic Journal, 115(505), 689-702.

[10] Tversky, A., & Kahneman, D. (1991). Loss Aversion in Riskless Choice: A Reference-Dependent Model. The Quarterly Journal of Economics, 106(4), 1039-1061.