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# RATIONAL CHOICES OF SMALL AND MEDIUM-SIZED BUSINESSES, THEIR FINANCE METHODS, AND THE SMALL BUSINESS OWNER'S MORAL HAZARD PROBLEM

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## ABSTRACT

*This study explores the possibility of an efficient legal system. The corporate finance method was used more than once for 50.7% of the available small and medium-sized companies. When utilized more than six times (4.0% of companies), moral hazard was a concern. Using recruited subjects in our experiment, we confirm the mechanism of moral hazard. In contrast, when the selection of subjects is limited, moral hazard hardly exists. Appropriate selection gives incentives to the subject. Maintaining the subject's freedom of choice leads to better selection because of behavioral economics. The results of the experiment suggest the possibility of new legislation based on rational choices of small business owners.*

**KEYWORDS:** *SME Finance Facilitation Act, Moral Hazard, Behavioral Economics*

## 1. INTRODUCTION

The Small and Medium-sized Enterprises (SME) Finance Facilitation Act was enacted in December 2009. The end of March 2011 was the original application deadline, but cash constraints and a severe current situation for SME caused more time to be required. Thus, the deadline was extended from December 2010 and 2011 to March 2011.

The Teikoku Databank referenced small and medium-sized companies' corporate finance methods. In the Financial Facilitation Act's survey on corporate loans, 35.0% of payments were deferred from less than six months to more than five years. In the survey about a company's financial health, 33.9% of companies showed an improvement below plan while 14.4% exceeded their plan.

Furthermore, corporate finance methods were used more than once for 50.7% of the available companies, and moral hazard was a concern among 4.0% companies where corporate finance methods were utilized more than six times. In the background, there is imperfect information when the moral hazard problem occurs, and finding and resolving the problem is essential. This study focuses on the rational choice of the small business owner from a behavioral economics perspective. Based on this, we explore the possibility of a more efficient legal system.

## 2. THE FACILITATION ACT AND THE MORAL HAZARD PROBLEM

Moral hazard is defined as follows: "Because the people who are to act selfish, is suffer phenomenon many people, including the people" (Ito, 2009). Although for some individuals, a reasonable action results in inefficient social results. With incomplete information, it is difficult for institutions to suppress the action.

The SME Finance Facilitation Act, in view of the debt burden of SMEs, aims to smooth the execution of SMEs' business activities. In the SME Finance Facilitation Act, financial institutions will loosen customer loan conditions (Figure 1). SMEs' cash flow can be easily financed. Since it is received from the country, with the assurance of "burnt in" loans from financial institutions, the loan's credit is low. For example, if the customer is not expected to repay the loan, when lending with excessive action, possible damages are enlarged. In addition, small and medium-sized companies receive more loans than necessary.

Thus, contrary actions are required a mechanism may fail to achieve the desired outcome. Business owners will not repay loans unless they are forced to do so. In fact, 44.6% of companies applying under the SME Finance Facilitation Act finished in a single application. More than half of the companies had to apply twice, and 4.0% applied more than six times.

Changes in loan conditions and loan selection are caused due to changes in the behavior of the small business owner. "Reasonable" economics, which maximizes self-interest and profit, is a reason to take action. If repayment is deferred, pursuing profit would do little. Consequently, the small business owner can now use the law, and financial institutions will change loan conditions more than necessary. Despite this, corporate bankruptcies are steadily increasing in SMEs; thus, the financial system itself is questioned.

## 3. OVERVIEW OF PREVIOUS RESEARCH AND THE SIGNIFICANCE OF THIS PAPER

Moral hazard has been considered in relation to the principal (client)–agent (Attorney) problem. For example, in a lawyer–client relationship, the lawyer works for the client despite the outcome in court. This is called an agency relationship, and it applies to economic transactions. Borrowers and banks also have an agency relationship as do governments (policymakers) and SMEs (private enterprises). The successful implementation of government policy depends on the behavior of companies. In other words, for contracts, an agency is a preferred structure.

A contract can avoid the moral hazard problem. In the field of experimental economics, moral hazard experiments are set in relation to the principal–agent problem (Getter and Koenigstein, 2006). In addition, in the finance research domain, experiments measure moral hazard and the effects of incentives using non-collateralized performing loans (Karlan and Zinman, 2007). The main focus of such experiments is the agent's behavior; the agent obtains incentives unless he suppresses behavior that would give his interests priority over the interests of the client.

In the fields of law and economics, moral hazard has been an important analytical tool for game theory within the framework of microeconomics (Shishido and normal wood, 2004). In game theory, subjects such as governments and corporations adopt strategies to maximize gain, which is affected by the other party's strategy. One's perspective suppresses incentives for selfish behavior. However, human behavior, including economic behavior, is influenced by emotions. For human intervention in economic transactions, psychological knowledge is required in addition to economic theory.

Therefore, this study uses behavioral economics—a new field that combines psychology and economics—as an analytical tool. Behavioral economics is primarily a research field led by Kahneman, who was awarded the Nobel Prize in Economics in 2002. From Kahneman's studies, humans are shown to have a property called "loss avoidance." I discuss rational choice using this property.

## 4. AN ECONOMIC EXPERIMENT

We employ a method of experimental economics to examine the mechanism of moral hazard. The procedure of the experiment is as follows: at the beginning, the subjects will be SMEs (the agent). We verify the contents of the loan agreement that has been presented to the financial institution (the principal) and its acceptance or rejection. If accepted, SMEs determine the effort level for loans. The level of efforts from level 1 to level 10 is provided. A low level of effort is low cost, whereby the evaluation of results is also lowered. In contrast, a high level of effort costs more, which increases evaluation results. These relationships are shown in Table 3. When the subject enters the level of effort, the experimenter notes it.

The reasonable choice of SMEs is as follows. When the effort level is 10, the difference between the value of 700 and the effort cost of 300 is a maximum of 400. Therefore, gaining the maximum requires an effort level of 10. Effort cost is a maximum of 50 when the effort level is 8 or 9. The effort cost is 20 from levels 3 to 4, 30 from 5 to 6, and 40 from 7 to 8. Increase in the value of achievements increase the effort level by one unit. The marginal cost is 70 that is constant, and no effort level can exceed the marginal cost. In the case of the small business owner, the optimal choice of the effort level is 10. Rational selection in conventional microeconomics is as explained above.

However, in enforcing the SME Finance Facilitation Act, the small business owner needs to keep the effort level at a maximum; otherwise, the level begins to decline. The standard measures of moral hazard problems limit behaviors in outcomes, but behavior can be changed by giving incentives, as represented by the carrot and stick. For example, if extending the credit facility is the carrot, then aborting the financing or levying a fine is the stick. Introducing a system that extends the deadline to pay a fine would be a reasonable solution.

If borrowers postpone payments, this can be viewed as a short-term benefit to the borrower. However this action has been classified as a “self-destructive choice” by Ikeda (2012) because of the time discount rate. While such a selection deviates from the economic rationality, a range of behavioral economic studies show the importance of human emotions (Ida, 2010).

We introduce a way to limit late repayments. In addition, it is possible to intentionally control the subsequent selection. This is intended to express human and organizational behavior, called commitment. For example, if you do not protect the repayment deadline by committing to a legal liquidation, the repayment deadline is not protected, but postponement is not possible. There is a tendency to avoid loss. This is a gain and loss of the same value, called the loss avoidance. Briefly, it indicates twice the negative value of the gain/loss.

Therefore, I continue using behavioral economics with respect to rational choices of a small business owner. One might be able to suppress a decrease in the level of effort by utilizing loss avoidance. Based on this hypothesis, we perform the following experiment (Figure 3). First, we examine changes in the behavior of pre- and post-SME facilitation method use. Then, we examine the changes caused by giving incentives. It is possible to predict bankruptcies in the SME Finance Facilitation Act. We consider a reasonable selection of managers of SMEs for the moral hazard problem (Figure 4).

Subjects were obtained from college students in Tokyo and from Aoyama Gakuin University (15 men and 17 women aged between 20 and 24 years). Based on the method approved by the Aoyama Gakuin University, Department of Economics, and ethics review committee, personal information was protected. Names and addresses were obtained from subjects. Telephone number was not given to non-research personnel. Using the personal information protection law, the experiment’s results were not divulged. Based on the above considerations, we ensured that participation was voluntary.

## 5. RESULTS AND DISCUSSION

Changes in lending conditions can be seen for incentive, commitment, and loss avoidance. What is the reason for this change in behavior? This study extends the discussion from results of previous and collaborative research. Economic theory is not being considered as a reason for changes in management’s choice. Selection is based on preference, and the preference has been consistent; thus, to maximize utility and profit is considered to be reasonable when comparing the “benefits” and “costs” of the selection.

However, human beings in a real society do not always act rationally. In addition, selections are not always rational. “Bounded rationality,” as proposed by Simon (1957), states that human beings can be irrational despite human computing power, memory, and judgment. In contrast, as typified by the “selection based on reason (reason-based choice)” hypothesis of Shafir (1993) and Shafir–Simonson–Tversky (1993), human beings act based only on utility maximization. When faced with difficult choices, humans sometimes choose one or none of them. The previous study has incorporated the business revitalization problems of SMEs and has attempted to find new possibilities from behavioral economics (Fujimori, 2013a; Fujimori, 2013b).

Recent behavioral economics studies, the “limited rational addiction model,” have analyzed addictive behaviors from the perspective of the non-consistency of time. Conventional economics assumes rational choice. Becker’s focus on economic rationality is considered to be a “rational addiction model,” considering the utility and disutility of addiction. The limitations of human rationality have been re-examined, as has rational choice in terms of lack of consistency (Ida, 2010).

This study uses a reasonable selection of managers who were influenced by the moral hazard problem based on previous studies concerning small business facilitation methods and the small business owner. Perhaps, no SME would desire to postpone repayment or underperform below the plan. In addition, the SME Finance Facilitation Act aimed to give a temporal grace period based on the current situation of SMEs. To take advantage of this system is a wise choice since a reasonable selection of mid-corporate managers exists, and only entrusting the decision on managers would not lead to the effective use of the legal system. Moreover, with the development of legislation, a more efficient approach is expected to uncover psychological effects. Tanaka (1994) states, “social function of law, by giving a predictability to the action, in which is to protect the freedom of the individual” is in line with the philosophy of law; conventional “Law and Economics Academic” can be considered to contribute to behavioral economics research.

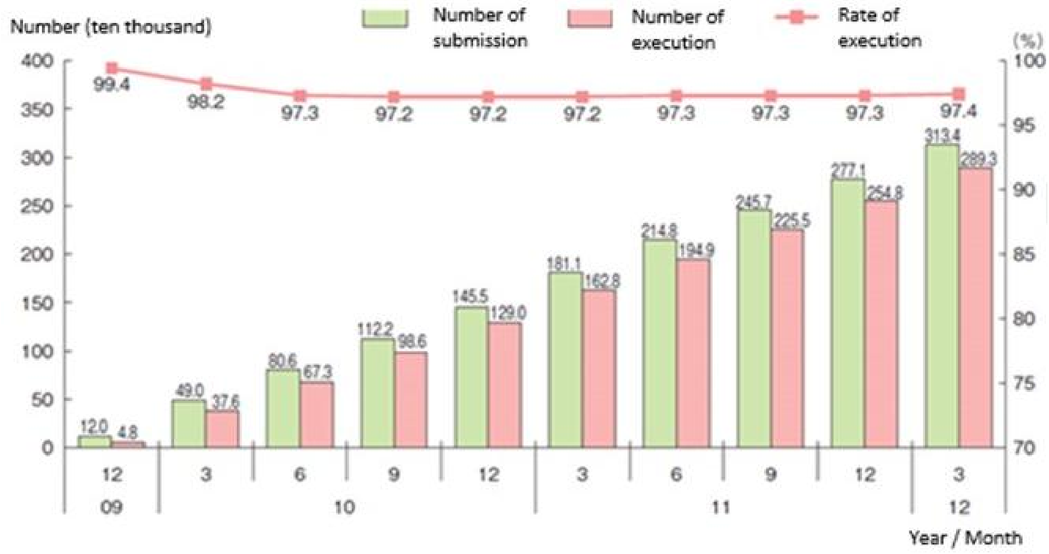



**Figure 1. Change in Loan Conditions, According to the SME Finance Facilitation Act**

*Source: Financial Services Agency: "about the change of loan terms based on the SME Facilitation Act" in 2012.*

"Number" is the enforcement situation of financial institutions 1521 line for SMEs. "Rate of execution" is the rate, excluding the examination and during the withdrawal (number of execution/ number of execution + refusal number).

| Effort level | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Value of outcome | 70 | 140 | 210 | 280 | 350 | 420 | 490 | 560 | 630 | 700 |
| Effort cost | 0 | 20 | 40 | 60 | 90 | 120 | 160 | 200 | 250 | 300 |

**Figure 2. Effort Level, Outcome Value, and Effort Cost: Positive Aspects**

*Source: Ogawa-Kawagoe Sasaki (2012): author's revision in "Experimental Microeconomics," the moral hazard experiment.*

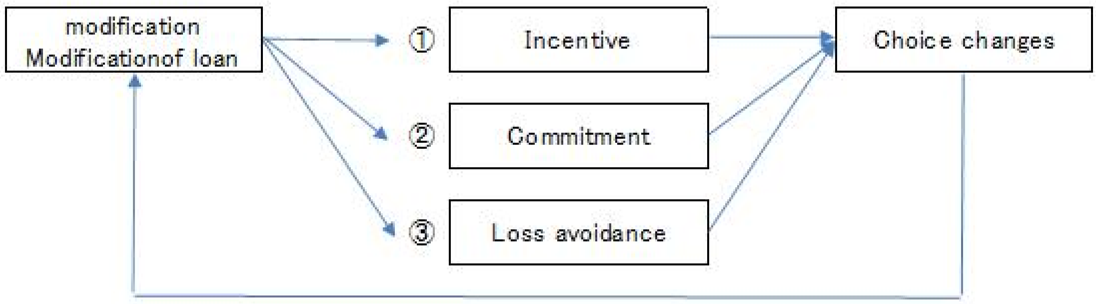



**Figure 3. Experimental Design**

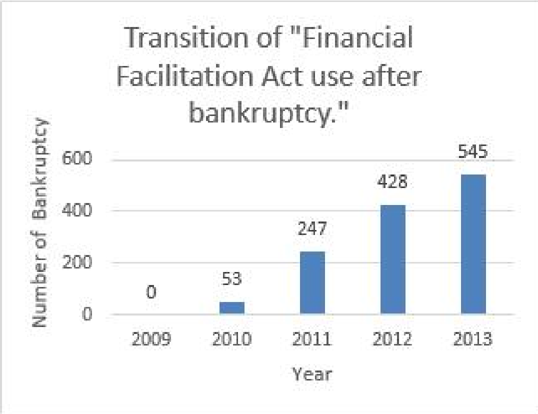
①Incentives (postponement and fine)

Question
・You have received a loan from the bank, we are offered a change of loan conditions.
・You are supposed to repay the 100 million yen after 1 week. On the other hand, Can we extend this after 4 weeks if increased repayments. Do you want to increase how much?
Answer ______________________________

② Commitment (expressed)

Introduction
・ You are responsible for small and medium-sized enterprises.
・Your decision will affect the fate of the management.
I do not change of loan conditions.
CEO Signature ___________________________

③ Loss avoidance




Total number of bankruptcies reached 1,273
・2013 "Financial Facilitation Act use after bankruptcy" is 545.
– Exceeded 2012 fiscal (428) significantly (up 27.3%), I have recorded the most past as a year.
・If you look at the transition of the month, for the first time "Financial Facilitation Act use after the bankruptcy" or later been confirmed in July 2010, the number continues to increase, and recorded an increase year-on-year in succession until July 2013.
・The October 2013 is the largest of 69 past only have been found (monthly).

**Figure 4. Experimental Presentation Screen**

*Source: Teikoku Databank. "12th: Survey of Financial Facilitation Act use, after bankruptcy," based on the transition of the survey results "bankruptcy companies after small and medium-sized business finance facilitation method use" of 2014 was revised and corrected by author.*

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