

## Impact of Direct Regulations on the Korean Credit Card Market and Consumer Welfare

Seong-Hun Yun\*

*The Korean credit card market grew dramatically in scale from 1998, due to a variety of incentives and tax breaks offered by the government. This enhanced the transparency of transactions as well as sparking an economic recovery by boosting domestic consumption. However, it also generated some malign effects. First is that of the number of defaulters on credit card loans in response to ill-considered cash advances granted in the credit card market. Second, credit card firms enjoy oligopolistic market power, allowing them to leave credit card interest rates unchanged at high levels despite falls in market interest rates. The government tackled these problems directly by, for example, imposing regulations on their operations and pricing, forcing credit card firms to cut the share of their cash advances and to lower credit card interest rates, while keeping entry barriers in place. However, given the inefficient cost structure of the credit card industry, whose fixed costs are huge, entry barriers can be abused by credit card firms to maintain the oligopolistic structure by creating excess competition. This was the major culprit in the reckless issuance of plastic money by credit card firms and the massive rise in the number of credit defaulters. In addition, regulations on operations and pricing may well decrease not only the profitability of credit card firms but also the consumer welfare of credit card holders through an adverse selection problem.*

*JEL Classification Number: D82, G21*

**Key words:** adverse selection problem, excess competition, entry barriers, consumer welfare, direct regulations

\*\* Advisory economist, International Economics Team, Institute for Monetary and Economic Research, the Bank of Korea (Tel: 82-2-759-5437, E-mail: microyun@bok.or.kr).

## 1. Introduction

The Korean credit card market grew dramatically in scale from 1998, due to a variety of incentives and tax breaks offered by the government. This enhanced the transparency of transactions as well as sparking an economic recovery by boosting domestic consumption. However, it had some malign effects. First is that of the number of defaulters on credit card loans in response to ill-considered cash advances granted in the credit card market. Second, credit card firms enjoy an oligopolistic market power, allowing them to leave credit card interest rates unchanged at high levels despite falls in market interest rates.

The government tackled these problems directly by, for example, imposing regulations on their operations and pricing, forcing credit card firms to cut the share of their cash advances and to lower credit card interest rates, while keeping entry barriers in place.<sup>1)</sup> However, given the inefficient cost structure of the Korean credit card industry, whose fixed costs are huge, the adverse selection problem of the credit card market, and the strategic behavior of credit card firms, it is most likely that these regulations decrease consumer welfare. Therefore, it is necessary to study the impact of direct regulations on the Korean credit card market and consumer welfare. This is one of the main purposes of this paper.

One of the noteworthy characteristics of the Korean credit market is that credit card firms handle every credit card related operation, such as issuing, acquiring, collecting, and processing. Consequently, the minimum efficient scale is very high and credit card firms should recruit a large number of credit card holders to make profits. In this paper, considering this feature as well as the adverse selection problem which is known as one of the famous characteristics in the credit card market (Ausubel 1991), I find a couple of important implications of the government's direct regulations on the credit card market. First, current regulations on entry barriers do not prevent excess competition, but rather enhance the market power of credit card firms by strategic behavior on their part. Second, regulations on their operations and pricing decrease the consumer welfare of credit card holders as well as the profits of credit card firms through the adverse selection problem. Consequently, it is recommended that regulations on their operations and pricing should be eased while the structure of the credit

Note : 1) The government also imposed important regulations regarding the protection of credit card holders, asset quality, and capital adequacy, etc. They were also intended to resolve credit card problems. These regulations are very important. However, they are not directly related to the market structure, and I shall not study their impacts on the credit card market in this paper.

card market with its high fixed costs should be changed to one with low fixed costs, and after which entry barriers should be lifted.

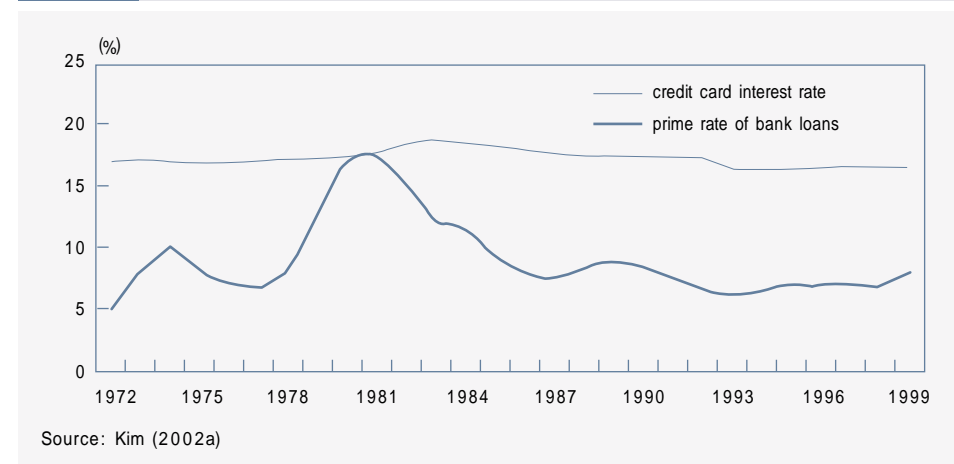
This paper consists of four chapters. Chapter covers the general characteristics of the credit card market. Chapter sets out models for the analysis of the impact of direct regulations on the credit card market and consumer welfare. Lastly, Chapter rounds off this paper with some conclusions and possible implications.

## 2. General Characteristics of the Credit Card Market

### 1. An Imperfectly Competitive Market

The credit card market is basically an imperfectly competitive market, and consequently there is the possibility of market failure. For instance, the U.S. credit card market satisfies most of the conditions required for perfect competition, but it is still characterized as imperfectly competitive. In the U.S., there are around 14,000 visa card issuers whose services are relatively homogeneous, and no price regulation policy is adopted. Moreover, no evidence of collusion on credit card interest rates or their services can be found. Nevertheless, credit card interest rates have been notably higher than market interest rates (with spreads between costs of funds of credit card firms and credit

Figure 1 Credit Card Interest Rates and Prime Rates of Bank Loans



card interest rates being 5-10 percentage points) and sticky in the face of changes in market interest rates. Accordingly, credit card issuers have consistently earned about more than three times the average rate of return for the banking industry (Ausubel 1999, Kim 2002).

Compared to the U.S. credit card market, the Korean credit card market exhibits an oligopolistic structure because of government entry regulations and high fixed costs. The market has grown more than ten times in scale during the past ten years, but entry by newcomers has been prohibited since 1989.<sup>2)</sup> Therefore, the market has had an oligopolistic structure with the four largest firms having around a 90% market share. Since the credit card market has been oligopolistic, credit card interest rates have remained at high levels and card issuers enjoy larger profits than those in the U.S., the criticism has been voiced that the oligopolistic structure exerts a malign influence on the credit card market. In 2001, rate of returns in the credit card industry were something like six times larger than rate of returns in the banking industry. It might be unreasonable, however, to consider high credit card interest rates and high level of profits as malign effects of oligopoly. High credit card interest rates and high level of profits are one of characteristics of the credit card market as is also seen from the U.S. credit card market.<sup>3)</sup>

In the U.S. as well, it was regarded as a social problem that credit card interest rates were abnormally higher than market interest rates. So there were several attempts to regulate credit card interest rates, but these were never put into

Table 1 Profitabilities of the Credit Card Firms and Banks

	Credit card firms	Commercial banks	Citibank	MBNA
ROI	46.1	15.9	20.4	19.8
ROA	4.7	0.8	1.5	3.4

unit: %

Source: Kim and Lee (2002)

2) The new entry by Hyundai Card in 2001 cannot be considered a new entry because it was achieved by acquiring the existing Dynasty Card.

3) Hong (2001) explains that the high profits of the Korean card firms originate in various factors such as cost-reduction effects due to economies of scale, inelastic demand, and temporary excess profits in the rapid growth period as well as the oligopolistic structure.

operation (Kim 2002).<sup>4)</sup> Afterward, regulations of the U.S. credit card market came in the form of heightened public disclosure of credit card interest rates, grace periods and so on. It is believed that the difference in the form of regulation form between Korea and the U.S. arises from the differences in market structure.

## 2. An Adverse Selection Problem

Since card loans such as cash advances are a form of credit loans, the setting of credit card interest rates higher than market interest rates can be understood as reflecting the credit risk. However, the same logic cannot be applied for the prevailing situation in which card interest rates display extremely low elasticity to a change in market interest rates. If the same reason made sense, card interest rates would change as market interest rates rise or fall. Economists argue that card interest rates are higher than market interest rates and inelastic to changes in market interest rates because of the adverse selection problem stemming from the presence of asymmetric information in the credit card market (Ausubel 1991).<sup>5)</sup>

Ausubel (1991)'s arguments can be briefly outlined as follows. He classifies card holders into two groups: consumers with low credit risk and consumers with high credit risk. And he assumes that card issuers do not know which type a card holder belongs to because of asymmetric information. Borrowers representing low default risk are likely to be irresponsive to changes in credit card interest rates because they believe their indebtedness will be short-lived. On the other hand, borrowers representing high default risk are highly responsive to the change in credit card interest rates because credit cards are their best sources of credit. Given this consumer environment, price (credit card interest rates) competition by card issuers can lead to the adverse selection

4) The Credit Card Interest Rate Limitation Act was put again before the House of Representatives in 1987. While the proposal was under discussion, however, products with low interest rates were put out on the market and credit card issuers grew to compete more fiercely, which led to anxiety about a fall in the profitability of banks and made the House of Representatives to reject the proposal. In 1991, Credit and Charge Card Disclosure and Interest Rate Amendments Act was proposed in the Senate, but since the prices of banking stocks declined substantially due to anxiety about a fall in the profitability of banks, the proposal was rejected by the House of Representatives.

5) Since Akerlof (1970) introduced the adverse selection problem for the first time dealing with the used car market, the adverse selection problem has been studied mainly in the insurance market. For instance, when an insurance company intends to increase the number of policy holders by cutting down life insurance premiums, more people in poor health than in good health will apply for the insurance policy (adverse selection) reducing profits of the insurance company. Empirical analyses show the result that annuitants live longer than life insurance policy holders, which proves the presence of the adverse selection problem.

problem, yielding them very low profits. The reason is that only high risk borrowers, who are responsive to the change in credit card interest rates, will borrow more money when interest rates are cut down.<sup>6)</sup> Hence, even when there is no collusion, card issuers are given no incentive to compete on credit card interest rates. In addition, even if the cost of funds decreases, issuers will not reduce credit card interest rates.

Meanwhile, Calem (1992) and Calem and Mester (1995) argue that search costs or switch costs provide an explanation for the market failure of the credit card market. For the credit card market to be perfectly competitive, card holders should be able to transfer to firms which offer favorable terms and no costs related to the transfer should be incurred. In fact, however, there are search costs and switch costs that make credit card interest rates sticky to changes in market interest rates. The arguments runs as follows.

Because customers have insufficient information on credit card interest rates and must bear substantial costs to search for which credit card firms offer favorable terms, they select credit card firms on the basis of non-price factors.<sup>7)</sup> Hence a decrease in credit card interest rates attracts no new customer but only impairs profits, and consequently card issuers lay stress upon non-price competition. Besides this, consumers who have large outstanding card balances with good credit histories are ideal ones to card issuers, but they have difficulty moving to a new credit card firm due to the comparatively high switch costs. This is because when moving to a new credit card firm, those having large balances are likely to be granted lower credit limits or be subject to higher credit card interest rates.<sup>8)</sup>

Consequently, competition in credit card interest rates only brings about falls in credit card firms' profits because search costs and switch costs induce the adverse selection problem. Hence, the difference between credit card interest rates and market interest rates becomes greater than the risk premium of credit card loans, and credit card interest rates display rigidity, even if there are numerous firms without any collusion on price strategies.

Consistent with above theoretical explanation, most empirical studies concerning the credit card market provide some evidence to support the

6) In contrast to credit card loans, in the case of bank loans, an adverse selection problem arises when the interest rate is increased, because firms having good credit, transfer to direct financing market when bank interest rates are increased. See Stiglitz and Weiss (1981) for the adverse selection problem in the case of bank loans.

7) This argument had a direct influence upon establishment of The Fair Credit and Charge Card Disclosure Act in 1988 which forces card issuers to announce publicly interest rates and other conditions.

8) Due to these switch costs, card holders are very faithful, and for this reason credit card firms in the U.S. issue credit cards to college students with even no income (Manning 2000).

argument that an adverse selection problem arises in the credit card market. It is shown that credit card loans are insensitive to card interest rate differentials, and especially for people running close to their limits, and the elasticity of debt to credit card interest rates is very small. And it is also found that an increase in credit limits given to those close to their limits generates an immediate and significant rise in debt, leaving them again close to the limits. Therefore it seems that for people who run close to their limits, the scale of debt has more influence than credit card interest rates on delinquency rates. Hence, a decrease in credit card interest rates is likely to rather lower firms' profits by inducing an adverse selection problem and reduce social welfare by increasing delinquency rates.

Table 2		Important Empirical Results
Source	Empirical Results	
Park (1997)	Empirically analyses the influence of credit card interest rates on card loans, and found that a decrease in credit card interest rates does not bring about substantial increase in card loans, and that the delinquency rate rises by a larger amount than the decrease in interest rates.	
Black & Morgan (1998)	Compare the characteristics of card holders in 1970s and 1980s with those of card holders in 1990s, and found that card holders in the 1990s have a higher propensity to consume, have a strong possibility of being unmarried and being inclined to rent a house rather than buy it, and their debt ratio is high and delinquency risk is also high.	
Ausubel (1999)	Investigates responses to the proposal of pre-approved cards among groups of people with different credit risks, and found that the share of people accepting the proposal is higher for people with high credit risk than for people with low credit risk. He also discuss the tendency for card users to underestimate the possibility of defaulting on their debt. He calls it 'underestimate hypothesis', and argues that the degree of underestimation is higher for less credit worthy card users	
Gross & Shouleles (2001a, 2001b)	Analyses the effects of increasing credit limits and the elasticity of card loans to a change in credit card interest rates, and found that increasing limits causes as expansion of card loans; the average long-run elasticity of card loans to the change in the credit card interest rates is approximately -1.3; the elasticity is smaller for people close to their limits; the elasticity is larger as credit card interest rates decrease; higher credit card interest rates lead to substantially less borrowing rather than switching to other card firms offering lower rates	

### 3. Characteristics of the Korean Credit Market

The Korean credit card market consists of issuers, acquirers, merchants, and value added network services. As of the end of 2002, 25 issuers were in operations, but four major credit card firms-Samsung Card, LG Card, KB Card, and BC Card, hold together about a 90% market share. Value added network services such as authorization, which are provided by VISA and Mastercard in the U.S., are provided by seven firms. Several important characteristics of the Korean credit card market are as follows. First, according to the law, the government is supposed to give entry permission to those who meet the requirements set out in it. Since 1989, however, no newcomers have been permitted to enter the market and in practice there are entry barriers to the credit card market. Second, a card holder of Samsung Card, for instance, is able to purchase only at merchants who are secured by Samsung Card. Therefore, all credit card firms should make efforts to secure as many merchants as possible, and these efforts overlap. Third, each credit card firm separately carries all operations related to the credit card business whereas these are mostly outsourced in the U.S. Therefore, huge fixed costs are required to run the credit card business in Korea.

#### 1. Examination of Regulations on the Credit Card Market

Regulations on the credit card market are divided into two classes, entry regulations which are structural regulations and price and operation regulations which are behavioral regulations. Entry regulations aim at preventing excess entry and excess competition, and price and operation regulations aim at removing the ill effects stemming from the oligopolistic structure. Regarding entry regulations, the government has actually prohibited new entry into the credit card market since 1989. This is mainly because it is anxious about excess entry into the market as well as the instability of the credit card market. Regarding price and operation regulations, because credit card interest rates remained at high levels in the face of the decrease in market interest rates and credit card firms enjoyed huge earnings, the government induced reductions in credit card interest rates showing its understanding of the oligopolistic character of the credit card market. These regulations seem to be aimed at easing the ill

effects of the oligopolistic structure caused by the entry barriers, but they are most likely to distort the market further because it intends to remove the bad effects stemming from one set of regulations with another set of regulations. In this light, this chapter sets out to examine the effects of the government's regulation policy. Problems of entry regulation and price regulation are examined from a comprehensive point of view using analytical methods adopted in the theory of industrial organization, and policy recommendations are also proposed.

#### 1. Examination of Entry Regulations

Since entry regulations are a prerequisite for price and operation regulations, they are examined first.

##### A. Pure theory of excess entry and its implications

One of theoretical grounds for government entry regulations is that entry barriers can prevent excess entry into a market with high fixed costs. The theory of excess entry is that the free-entry equilibrium number of firms can be more than the socially optimal number of firms. Hence the government should consider the possibility of excess entry.

The theory of excess entry was developed by Perry (1984) and Mankiw and Whinston (1986). They demonstrate that if firms produce homogeneous goods, then high fixed costs could create excess entry. Their argument may be briefly outlined as follows.

Consider a two stage game in which a large number of firms decide simultaneously whether or not to enter the industry. Let  $P(X)$  be the inverse market demand function and  $C(X)+K$  the cost function for output  $X$ . Then,  $P(X)$  means the price,  $C(X)$  the variable costs, and  $K$  the fixed (set-up) costs. When  $N$  firms enter the market, each firm's profit ( $\pi_N$ ) is as follows.<sup>9)</sup>

$$\pi_N = P(NX_N)X_N - C(X_N) - K \quad (1)$$

Denote the free-entry equilibrium number of firms by  $N^c$ , then  $N^c$  is the value of  $N$  which satisfies  $\pi_N = 0$  ( $\pi_{N^c} = 0$ ). The socially optimal number of firms

9) Mankiw and Whinston (1986) pose additional assumptions. One of them is that if  $N$  firms enter the market, an individual firm's production  $X_N$  is an decreasing function of  $N$  and total production  $NX_N$  is an increasing function of  $N$ . Besides this,  $P(NX_N) - \frac{dC(X_N)}{dX_N} = 0$  for all  $N$ .

$(N^w)$  that maximizes social welfare (consumer surplus+profit) is less than  $N^c$  for reasons written below.

In the model, social welfare ( $W$ ) can be defined as equation (2).

$$W(N) = \int_0^{NX_N} P(s)ds - NC(X_N) - NK \quad (2)$$

The first order-condition under which the number of firms is socially optimal is equation (3).

$$\begin{aligned} \frac{dW}{dN} &= P(NX_N)N \frac{\partial X_N}{\partial N} + X_N - C(X_N) - N \frac{\partial C(X_N)}{\partial N} - K \\ &= N + N P(NX_N) - \frac{dC}{dX_N} \frac{dX_N}{dN} = 0 \end{aligned} \quad (3)$$

$N^w$  is the value of  $N$  which satisfies equation (3). Note that given the assumptions,  $P(NX_N) - \frac{dC}{dX_N} > 0$  and  $\frac{\partial X_N}{\partial N} < 0$ , which implies that  $N^w > 0$ . Meanwhile, since  $N$  is an decreasing function of  $N$  and  $N^c = 0$ ,  $N^c < N^w$ .

If set-up costs fall to zero ( $K=0$ ), however,  $N^c = N^w =$  and there is no excess entry. So we can say that fixed costs are the source of excess entry. Thus, the government needs to regulate new firms' entry into an industry where fixed costs are very high. On these grounds, the government's entry regulations on the credit card market can be justified.

Going one step further, however, if fixed costs could be cut down, social welfare would be improved without the government entry regulations on the credit card market. As I mentioned earlier, in Korea, the most important factor making up credit card firms' fixed costs comes from the fact that they carry all operations relating to credit cards, such as issuing, collecting, processing, acquiring, etc. and some of their operations such as securing merchants are multiplied. The government adopted a policy in 1999 of preventing the duplication of investment in securing and managing merchants, but it is not effective and credit card firms still compete fiercely to secure merchants. They still consider the number of merchants held by each of them as the most important element in this competitiveness.

In the present state of affairs, therefore, due to the huge set-up costs and inefficient costs structure, if a firm wants to enter the credit card industry, it

should acquire one of the existing firms.<sup>10)</sup> If the inefficient cost structure of the credit card market could be rectified, entry by newcomers would be able to enhance social welfare. For this purpose, set-up costs need to be brought down by offering to the firms some incentives to outsource multiplied operations and afterward, allow new firms to enter the market.<sup>11)</sup>

### B. The theory of excess entry and firms' strategic behavior

The pure theory of excess entry has a weakness, since the model used in the theory leaves out of consideration the strategic behavior of incumbents and the government. If the government is included in the model, it is most likely that incumbents have some incentive to abuse the regulation of excess entry in order to deter entry by newcomers. The reason is that incumbents seek to maintain the inefficient market structure rather than enhance its efficiency through competition. A historical precedent was the case where incumbent automobile firms put pressure on the government, expressing anxiety about the possibility of excess entry (duplicate investment) before Samsung's entry to the automobile industry in Korea.

Based on Kim's (1997, 2000) argument, the possibility is demonstrated below that entry regulations tend to rather protect the monopoly position of incumbents, and reduce social welfare. Kim (2000) assumes a two-period entry game model consisting of an incumbent monopolist firm  $A$ , a potential entrant firm  $B$  and the government which seeks to prevent excess entry. Assume that once firm  $B$  enters the market, its profit under duopoly is more than its set-up costs. Denote set-up costs by  $F$  and firm  $B$ 's profit under duopoly by  $\frac{D}{2}(P_1)$ , where  $P_1$  represents the price level firm  $A$  sets in period 1, then  $\frac{D}{2}(P_1) > F$ . And suppose that the higher the price set by firm  $A$  in period 1, the more post-entry profit firm  $B$  will earn in period 2. That is,  $\frac{\partial}{\partial P_1} \frac{D}{2} > 0$ . Denoting social welfare by  $W_2^M$ , the government allows entry if the increase in social welfare,  $W_2 = W_2^D - W_1^M$  is more than  $F$ . If sales of  $A$ 's product are assumed to decrease when  $B$  enters the market,  $B$ 's profits exceed the increase in social welfare. Namely,  $\frac{D}{2}(P_1) > F$ . Proof of this is omitted.<sup>12)</sup>

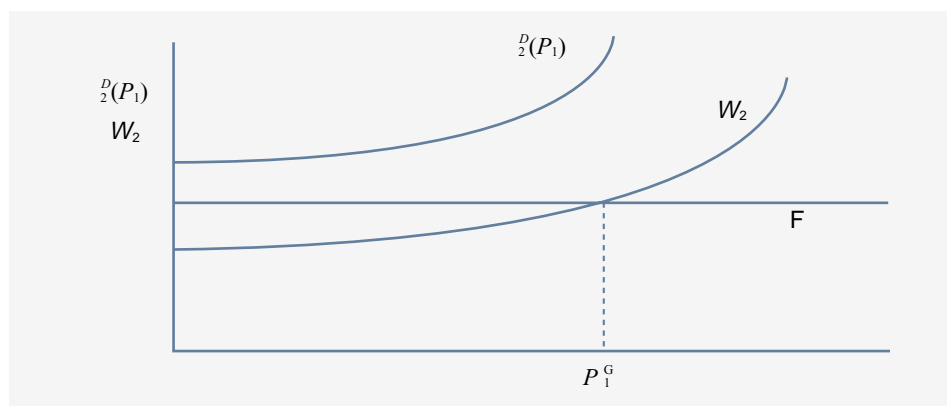
10) So far Lotte has acquired Dongyang Cards, and at present SK is processing the acquisition of the credit card business of Jeonbuk Bank while GE Capital and City Bank intend to acquire the credit card business of Chohung Bank.

11) This means that after setting to right the inefficient cost structure of credit card firms, the government should approve new entry, that the government should remove the inefficiency of the credit card market by permitting new entry.

12) Refer to Kim (2002b) for the detailed proof.

Let  $P_1^G$  be the price in period 1 satisfying  $W_2 = F$ , then the government allows firm  $B$  to enter the industry if the price set by firm  $A$  in period 1 is more than  $P_1^G$ . This is because the increase in welfare coming from  $B$ 's entry into the market exceeds the set-up costs (refer to Figure 2). Under these conditions, firm  $A$  is able to deter firm  $B$ 's entry by using government entry regulation. As seen in Figure 2, firm  $A$  by itself cannot prevent firm  $B$  from entering the market. But if firm  $A$  set the price lower than  $P_1^G$ , then the government becomes anxious about excess entry and does not allow firm  $B$  to enter the market. So firm  $A$  can deter firm  $B$ 's entry by using government regulation. Moreover, firm  $A$  can adopt the strategy of raising set-up costs,  $F$ , meaning that firm  $A$  is able to deter new entry without price-cutting. Consequently, government entry regulations could protect the monopoly position of the incumbent rather than prevent excess entry (Kim 2002b).

Figure 2 Set-up Costs and Entry Regulations



Applying the above argument to the credit card market gives some implications concerning credit card firms' behavior. First, it seems that incumbent firms will strengthen lobbying in order to prevent alteration of the credit card business from the existing license system to a report system and will not cooperate closely with the government's effort to reduce set-up costs. Specifically, the argument predicts that they will compete more fiercely to win over merchants and leave as they are those operations that are replicated among credit card firms.<sup>13)</sup> As long as the government employs entry regulation policy,

13) This behavior of credit card firms may be interpreted as building entry barriers (set-up costs) rather than inducing a making the government verdict that excess entry is emerging in the credit card market.

however, firms will make no effort to cut set-up costs. If the fact that the inefficient cost structure of the credit card industry provides a reason for the problems in the credit card market is taken into account, we should reconsider the appropriateness of the entry regulation policy. Second, credit card firms are expected to comply temporarily with the government's request to cut credit card interest rates and to strengthen credit card purchase marketing so that the government may recognize the possibility in the market of excess entry. Afterward, however, when the government judges the market to be in an excess entry state and no longer worries over entry by newcomers, firms will raise credit card interest rates on the excuse of a fall in their profitability.

This expected behavior by firms does not help the sound development of the Korean credit card market. If the government wants to retain entry regulation for the purpose of preventing excess entry, at the same time it ought to endeavor to improve the credit card market's inefficient structure by designing an incentive system offering firms some motivation to utilize merchants in common and outsource operations as far as possible. Firms have no incentive to do so voluntarily as long as there entry regulation remains in place.<sup>14)</sup> Accordingly, it is necessary to frame a policy to reform the inefficient cost structure of the credit card industry. When that this policy becomes effective, entry regulations can be abolished.

## 2. Examination of Regulations on Operations and Pricing

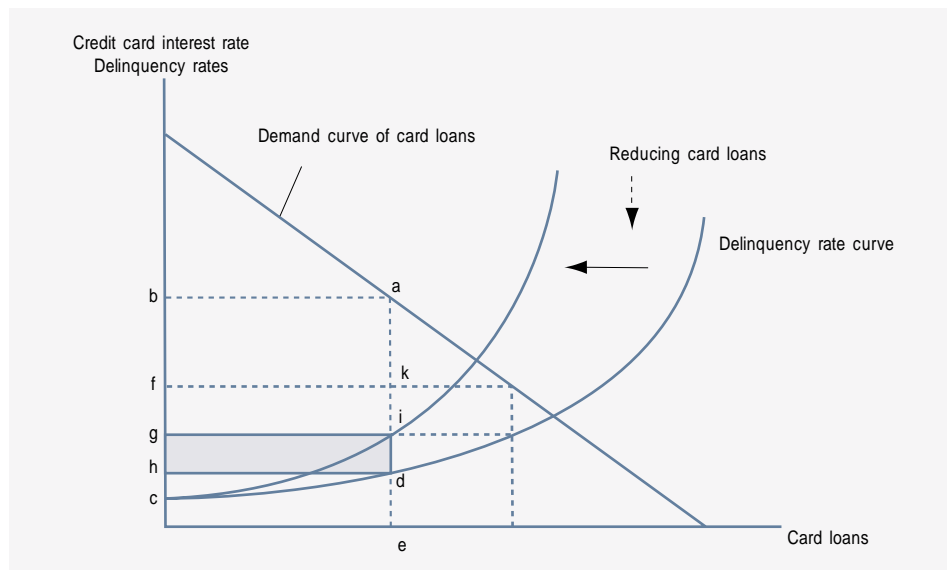
The government's price and operation regulation policies seem fitting in a static analysis, but they can lose validity in the light of dynamic analysis. From a static point of view, credit card interest rate-ceilings and restrictions on card loans can remove the ill effects of oligopoly to some extent by reducing credit card firms' profits and increasing customer surplus by that amount. And government policy aiming to make credit card interest rates differentiated

14) The full explanation of this argument runs as follows. If set-up costs remain at the same level when the size of the credit card market is enlarged and new firms enter the market, excess entry may not be induced (Of course, empirical studies concerning this are needed). And in this case, although the incumbents increase set-up costs, it is not easy to prevent entry by newcomers without entry regulation. This is because when positive economic profits can be generated, new firms enter the market even if social welfare is reduced. With entry regulation, however, the incumbent firms can prevent new entry by increasing set-up costs. The reason is that the government regulates new entry out of consideration for social welfare rather than for firms' profits when new firms make profits but social welfare is reduced. Consequently, entry regulation is likely to intensify the incumbents' market power. If the government carries out a policy designed to lower set-up costs, the possibility of excess entry becomes smaller though new firms enter the market. The preference of this paper is not for allowing entry by newcomers per se, but for cutting the set-up costs (fixed costs).

according to customers' credit risk can also improve social welfare by easing the adverse selection problem.

This process is demonstrated in Figure 3. From the existing empirical results arranged in Section , we note a delinquency rate curve is described as more responsive to card loans than to credit card interest rates. Namely, the curve is supposed as an increasing function of the amount of card loans. If we bring credit card interest rates down along the curve from  $b$  to  $f$ , and yet hold card loans at the same level  $e$ , firms' profits decline by the amount of  $bakf$  and consumers' surplus increases by the same amount. The credit card interest rate cut induces the adverse selection and consequently increases the delinquency rate, but keeping scale of card loans unchanged can prevent these problems. As firms' profits fall into customers' hand, oligopolistic evils decline, but social welfare remains at the same level. The regulatory authorities may be supposed to take this effect into account.

Figure 3 The Influence of Rate-Cutting and Lending Business Reduction



This result, however, could be changed when analysed from a dynamic point of view. In the dynamics, the forced reduction of the share of cash advances could increase the delinquency rate (the curve shifts to the left) lessening firms' profits and reducing social welfare by  $gidh$ . If good credit worthy customers borrow more in response to the credit card interest rate cut, credit

lines to less credit worthy customers must be reduced. But there is no substitute for the credit card market in Korea, those having high risk and whose lines have been reduced must depend on the usurious private money market. Consequently, the possibility of the delinquency rate rising with a shift in the curve to the left.<sup>15)</sup>

Moreover, forced credit card interest rate-cutting and the reduction of subsidiary services are likely to produce harmful effects such as unrest in the retail banking market, distortion of other markets and so on. This is because after credit lines have been reduced, consumers who have become dependent on card loans have little option but to use lending services like private loans at high interest rate, and as a result, more serious social problems may be induced. On the other hand, when card issuers seek to satisfy the reduction standard regarding the share of cash advances by increasing credit card purchases rather than cutting the share of cash advances, firms' non-price competition becomes more intensive and the promotion of card consumption becomes a matter of concern.

Above all else, the government's reduction of credit card interest rates and its regulations on firms' cash advance services can be criticized as over regulation that restricts firms' operations. Because the extremely low elasticity of credit card interest rates to changes in market interest rates is one characteristic of the credit card market, direct regulation is undesirable. It is more desirable to induce credit card interest rate-cutting through improvement of the inefficient market structure and entry by newcomers. In the case of the U.S., as competition has grown keener since the mid-1990s, credit cards whose interest rate level is linked to market interest rates have emerged in the market. The issuance of this kind of credit card has made credit card interest rates more responsive to market interest rates.

Furthermore, since card firms' optimal operation structure ought to be determined as the solution to its profit maximization problem, regulating the structure directly does not seem to be appropriate.<sup>16)</sup> Hence, if the government is anxious about the possibility of card firms' insolvency arising from the increase in card loans, it should take indirect measures, for instance, intensifying firms' prudential regulations and improving firms' risk management.

15) Since it is profitable for credit card firms to reduce credit lines before other firms, there is competition in the reduction of credit lines. Accordingly, the possibility of card users with sub-optimal credit risk falling into credit delinquency becomes stronger.

16) Since the use of credit cards for the purchase of goods and services is on a part with the use of card loans and cash advances in that card issuers offer a form of unsecured loan, it is unreasonable to regulate only card loans (Park 2002).



### .Policy Implications and Concluding Remarks

It is reasonable in the context of the need to protect the credit card market's stability that the government should tackle by tacking indirect measures the possibility of dual insolvency by credit card holders and credit card firms; for instance, intensifying prudential regulation of credit card firms and improving their risk management. The government's direct regulation policy (entry regulations or price and operation regulations), however, is open to doubt and needs to be reconsidered. This is because a direct regulation policy is formulated on a perception that the credit card market has distinctive features including an inefficient cost structure, and so it may be expected to have many ill effects.

To begin with, entry regulations adopted to prevent excess entry can be strategically abused by incumbent credit card firms intending to preserve the oligopolistic structure. In fact, incumbents still compete in securing merchants and do not make any efforts to specialize in particular segments of the credit card business with the consequence that the inefficient cost structure of the credit card market is preserved. In the second place, price and operation regulation policy can worsen firms' profitability and reduce social welfare by inducing the adverse selection problem. Under circumstances that there is no financial institution that substitutes for the credit card firms where card holders can avail themselves of at rates equal to credit card interest rates, cutting the share of cash advances and card loans is likely to drive out those whose credit limits reduced to the curb money market.

Consequently, it is desirable to design a fundamental policy rather than impose direct regulations to enhance the efficiency of the credit card market and regulations ought to accord with the expectations that henceforth the consumer finance market will be deepened. Since excess profits are one characteristic of the credit card business, the policy needs to be framed from the view point of consumers' surplus rather than that of firms' profit, and it is essential for this purpose to reduce the set-up costs and minimize the efficient size before anything else. In addition, it is necessary to permit new entry as far as this does not detract the stability of the credit card market, to specialize the credit card business. As the minimum efficient size gets smaller and more firms enter the market, market concentration ratio becomes lower, which will bring about a overall decline in the credit card interest rates (Hong 1997).

In recent years, enlargement by merger has been presented as a solution to the possibility of credit card firms' insolvency, but it is not a radical answer because

the inefficient cost structure of the credit card market is preserved. Besides this, it seems necessary to give comprehensive consideration to the credit card industry in connection with the possibility of entry into the market by mobile telecommunication firms.

## References

**[In Korean]**

- Kim, B and B. Lee, "How to Improve Soundness and Efficiency in the Korean Credit Card Market," mimeo, Korea Institute of Finance, 2002.
- Kim, Y. "Understanding the Credit Card Market and Debates about Credit Card Interest Rates in the U.S." *Credit Card*, Korea Non-Banking Finance Association, 2002a.
- Kim, J., Entry regulations: Theory and Practice, *Regulations Research Series*, no. 40, Korea Economic Research Institute. 2002b.
- Park, S., "Policy Suggestions for the Korean Credit Card Industry," mimeo, 2002.
- Hong, H., "A Structure-Behavior-Performance Model of the Korean Credit Card Industry," *Economics Review*, vol 44, no. 4, 1997.
- \_\_\_\_\_, "Entry Barriers in the Korean Credit Card Market," presented at Korea Money and Finance Association Conference, 2001.

**[In English]**

- Akerlof, G., "The Market for Lemons: Quality Uncertainty and the Market Mechanism," *Quarterly Journal of Economics*, 89, 1970.
- Ausubel, L., "The Failure of Competition in the Credit Card Market," *The American Economic Review*, Vol. 81, No. 1, 1991.
- \_\_\_\_\_, "Adverse Selection in the Credit Card Market," mimeo, University of Maryland, 1999.
- Black, S. and D. Morgan, "Risk and the Democratization of Credit Cards," FRB of New York, 1998.
- Calem, P., "The Strange Behavior of the Credit Card Market," FRB of Philadelphia, 1992.
- Calem, P. and L. Mester, "Consumer Behavior and the Stickiness of Credit Card Interest Rates," *The American Economic Review*, Vol. 85, 1995.
- Gross, D., and N. Souleles, "Do Liquidity Constraints and Interest Rates Matter for Consumer Behavior? Evidence from Credit Card Data," *NBER Working Paper #8314*, 2001a.
- \_\_\_\_\_, "An Empirical Analysis of Personal Bankruptcy and Delinquency," *NBER Working Paper # 8409*, 2001b.
- Kim, J., "Inefficiency of Subgame Optimal Entry Regulation," *RAND Journal of Economics*, vol. 29, 1997.

- \_\_\_\_\_, "Limit Pricing through Entry Regulation," *Discussion Paper Series*, Institute of Economic Research, Hitotsubashi University, 2000.
- Manning, R., *Credit Card Nation-The Consequences of America's Addiction to Credit-*, Basic Books, 2000.
- Mankiw, G., and D. Whinston, "Free Entry and Social Inefficiency," *Rand Journal of Economics*, Vol. 17, 1986.
- Park, S., "Effects of Price Competition in the Credit Card Industry," *Economic Letters* 57, 1997.
- Perry, K., "Scale Economics, Imperfect Competition, and Public Policy," *Journal of Industrial Economics*, Vol. 32, 1984.
- Stiglitz, J., and A. Weiss, "Credit Rationing in Markets with Imperfect Information," *The American Economic Review*, 71(3)June 1981.