

Exploring the Effects of the Information Asymmetry on the Card-Debt Crisis

Chih-Hsiung Chang
I-Shou University

Chung-Wei Li
I-Shou University

Tung Hsiao
I-Shou University

Sheng-Hsin Chang
(Corresponding Author)
Pingtung University

The article aimed to explore the effects of the information asymmetry on the card-debt crisis in Taiwan's credit card market. The card-debt crisis of the credit cards broke out in Taiwan in 2005. To improve this situation, the financial authorities were forced to intervene in the market. The article employed the documents analysis and collected the related literature and statistical data to construct the information asymmetry model and the proposed hypotheses of the adverse selections and the moral hazards. The results concluded that the card-debt crisis did stem from the information asymmetry, and was alleviated by the intervention of the financial authorities.

Keywords: information asymmetry, card-debt crisis, credit cards, adverse selections, moral hazards

INTRODUCTION

In the modern society, with the changes in people's lifestyles and the rapid development of the information technology, credit transactions and online payments had become a part of daily life. Especially due to the impact of the Covid-19 epidemic, the concept of maintaining the social distance was deeply rooted in people's hearts, which had further deepened people's dependence on the credit transactions, making the credit cards or credit card-based online payments gradually replace the cash as the main payment tool.

In addition, the new private banks and international credit card businesses had been opened up in Taiwan since 1989. VISA International Organization officially authorized Taiwan, attracting two foreign banks, Citibank and American Express, to enter Taiwan first, and began to compete with the domestic banks for this market. As the cumbersome review procedures and stringent regulations were gradually lifted,

people's consumption habits began to change, and the credit cards gradually became the most attractive consumer financial tool that was convenient and could demonstrate the social status.

In reality, the main source of the profits for the banks was the interest revenue from the lending in the past, but with the development of the financial innovation, the consumer finance services such as the credit cards and cash cards had also begun to bring the huge profits to the banks. The credit cards had multiple functions and were more convenient to use. In addition, they were similar and complementary to the cash cards. Therefore, the banks had actively invested in the credit card business. In order to achieve the economies of scale in the number of the credit card issuances, the card-issuing banks issued the credit cards with the looser credit review regulations, making the credit cards a major financial tool in the financial market. It could be seen from Table 1 that the cash advances increased from 14.7 billion in 1996 to 215.6 billion in 2005, and the revolving credit balance also increased from 124.9 billion in 1998 to 494.7 billion in 2005. The magnitude and speed of the growth were very amazingly high.

However, with the increase in the number of card issuances and the rapid changes in people's consumption habits, the cardholders had been induced to the over-consumption and credit over-expansion. The number of credit cards in circulation increased from 5.47 million in 1996 to 45.49 million in 2005, which was almost twice the total population in Taiwan. The situation of the people with multiple cards had become the norm. Due to the cardholders' over-reliance on borrowing for the consumption, the revolving credit of the credit cards had become the main source for the individuals. When the excessive revolving credit exceeded the cardholder's repayment ability, the cardholder's risk of the bad debts increased, followed by a rising overdue ratio of the credit cards. That was because some cardholders with the weak repayment ability couldn't afford the high revolving interest rates and had no choice but to use the debt to finance their debts, which eventually turned into the serious social problems and the human tragedy. This is the so-called "card debt" crisis. Obviously, the card-debt crisis was not only a financial problem, but also an economic problem, and even eventually worsened into a serious social problem.

TABLE 1
THE CREDIT CARD BUSINESS STATISTICS (1996-2005)

Year	Number of Cards in Circulations (thousand)	Amount of Transactions (million)	Cash Advances (million)	Revolving Credit Balance (million)
1996	5467	272387	14702	--
1997	7665	374425	25742	--
1998	10640	491097	39642	124,908
1999	13575	597786	51386	152,768
2000	18276	719770	79768	205,656
2001	24135	771861	103780	259,875
2002	31591	873599	132488	316,328
2003	37850	998885	178398	399,847
2004	44182	1254482	205843	457,932
2005	45494	1420984	215569	494,711

Another factor triggering the card-debt crisis was the high revolving interest rates. Since the establishment of the new private banks in 1989, Taiwan's banking industry had been in a highly competitive environment. In order to seek the sources of the profits, the revolving credit with a revolving interest rate of 20% had of course become the focus of the card-issuing banks. The card-issuing banks had opened the

door to the large-scale card development in order to obtain the huge profits. The result was that people owned the multiple cards, and even the card debtors with the weak financial resources fell into the debts deeply. It was observed from Figure 1 that, regardless of whether it was a public bank or a private bank, the overdue ratios of the credit cards began to rise rapidly in the second half of 2005. Based on Figure 2, it was found that the cumulative amount of the bad debts written off by the credit cards peaked at this time. Among them, the amount of the bad debts written off by the private banks was several times that of the public banks.

FIGURE 1
THE OVERDUE RATIOS IN THE PUBLIC AND PRIVATE BANKS

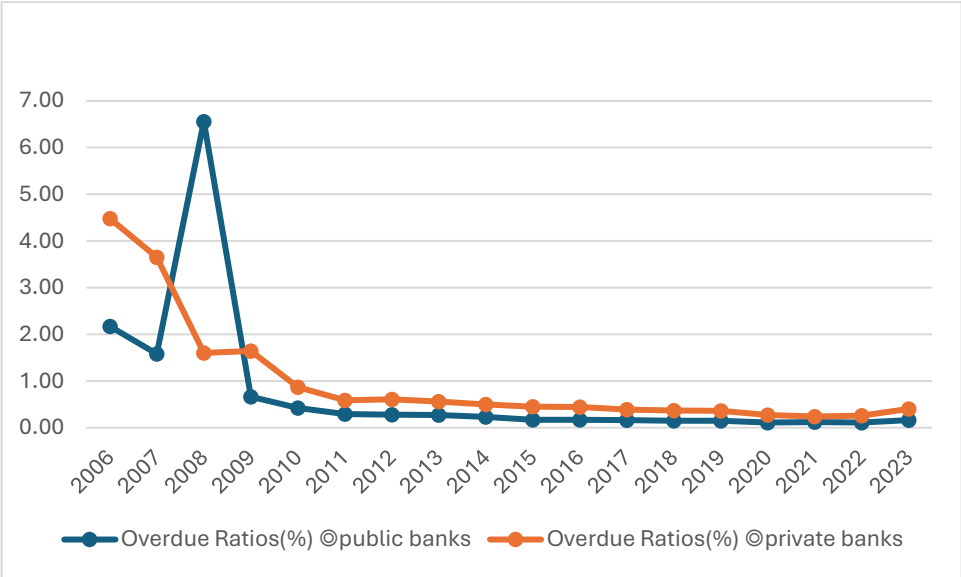
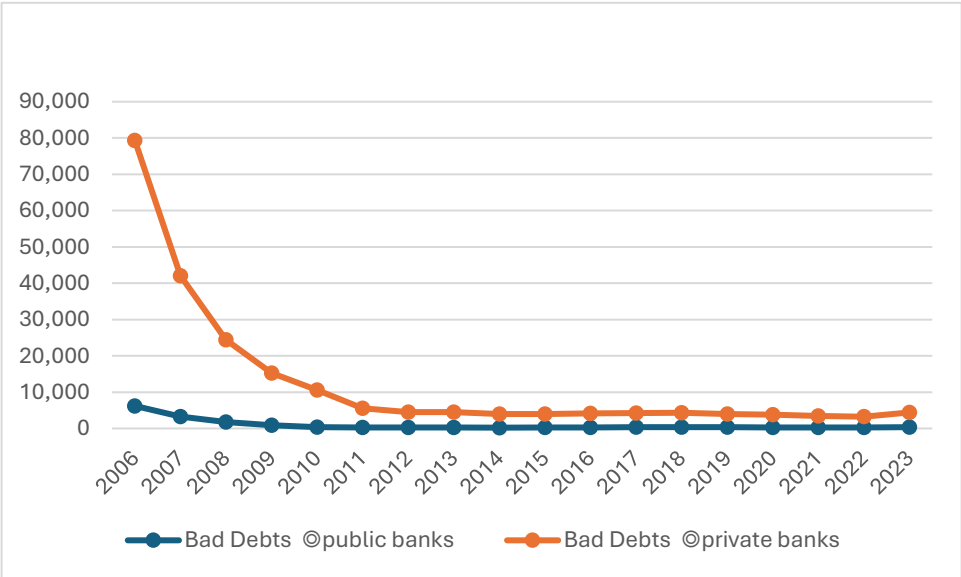


FIGURE 2
THE BAD DEBTS IN THE PUBLIC AND PRIVATE BANKS



Looking back on the past, in the early days of the card-debt crisis, it might be attributed to the card-issuing banks' lack of the business experience in the early stage of the card-issuing business development, and blindly pursuing the number of the cards to earn the profits for the sake of the performance. The result was the information asymmetry in the credit card market, and even the card-debt crisis that contained the social problems. Facing the increasingly serious domestic card-debt crisis, the financial authorities and the card-issuing banks were under the pressure from the public criticism. The financial authorities promoted the "Consumer Financial Debt Negotiation Mechanism" at the end of 2005 to strengthen the management measures related to the credit card and cash card businesses. The card-issuing banks were required to divide the total amount of the debtor's unsecured debts from all the financial institutions (including the credit cards, cash cards and credit loans) by the average monthly income and should not exceed 22 times. Especially after the mandatory "Consumer Debt Liquidation Ordinance" was passed through the legislation in 2008 and implemented, it showed that the determination of the competent authorities to strongly intervene in the information asymmetry of the credit card market and solve the card-debt crisis.

It needed emphasizing that while the "Debt Negotiation Mechanism" was implemented, the financial authorities still remained in the passive role of the moral persuasion, the "Debt Liquidation Regulations" had given the financial authorities the legal basis to actively intervene in the market. The attitude of the financial authorities was clear, and the policy effect was very significant. For example, some card-issuing banks that couldn't bear the operating losses caused by the adverse selection and moral hazard had to choose to withdraw from the credit card market one after another. According to the information provided by the financial authorities, the number of the domestic card issuers had dropped from 51 to 32 (see Table 2).

TABLE 2
THE NUMBER OF THE CARD-ISSUING BANKS

Year	2005	2006	2007	2008	2009	2010	2011
Number of Bankers	51	46	42	41	39	36	36
Year	2012	2013	2014	2015	2016	2017	2018
Number of Bankers	36	36	36	36	36	36	34
Year	2019	2020	2021	2022	2023		
Number of Bankers	36	33	33	33	32		

According to the information provided by the financial authorities, we can see that since the promulgation of the law and after the 2008 financial tsunami, there had been brief fluctuations in the cash advances, revolving credit balances and overdue ratios (see Table 3 and Figure 2). There was still an obvious and stable downward trend, showing that the market failure in Taiwan's credit card market had been greatly improved after the government intervention. However, it had been nearly 20 years since the promulgation of the "Debt Liquidation Ordinance". After the 2008 financial crisis and the 2019 Covid-19 pandemic, whether the phenomenon of the information asymmetry still existed in the credit card market deserved the further study. Therefore, the article intended to collect the relevant literature and statistical data, construct the research model of the information asymmetry, test the hypotheses of the adverse selections and the moral hazards, and explore the role of the financial authorities in Taiwan's credit card market under the information asymmetry.

TABLE 3
THE CREDIT CARD BUSINESS STATISTICS (2006-2023)

Year	Number of Cards in Circulations (thousand)	Amount of Transactions (million)	Cash Advances (million)	Revolving Credit Balance (million)
2006	38324	1380462	88000	350430
2007	36437	1413455	77905	284700
2008	33950	1394057	86854	253662
2009	30567	1365434	35,637	208107
2010	30706	1538923	32650	180,980
2011	32855	1669139	30124	141561
2012	34076	1762752	27752	131874
2013	35946	1913264	26657	118,471
2014	37389	2068336	26719	112905
2015	38518	2,231797	27,200	107955
2016	40702	2422,232	25445	109084
2017	41730	2623159	25548	111114
2018	44031	2883634	26842	113901
2019	47392	3,223000	25465	113947
2020	50116	3019,607	22176	105615
2021	52630	3107706	20421	101157
2022	56244	3490191	20046	105389
2023	58116	4185993	18922	106157

LITERATURE REVIEW

Information Asymmetry

When it came to the information asymmetry, the lemon theory proposed by Akerlof (1970) using the second-hand car market as an example would inevitably be cited. When the seller knew the quality of his car, the buyer could only roughly decide the price he was willing to pay based on the average quality of cars in the market due to the information asymmetry. But for the seller, if he owned the higher-than-average quality car at a price that the buyer was willing to pay, he would suffer a loss, so the better-quality cars would be retained by the seller, causing the market to be flooded with the bad cars, resulting in the inferior cars. The information asymmetry at this time actually contained the adverse selection and moral hazard. Mester (1994), Brito & Hartley (1995) pointed out that the reason why the interest rates of the credit cards remained at a high level was basically due to the information asymmetry and the card issuing companies were unable to compete in interest rates in the credit card market due to the inability to fully grasp the risk-related information of the cardholders. Without the price competition, the prices (interest rates) were subject to the issuing banks and became rigid. Suciú et al. (2011) pointed out the impact of the information asymmetry on US real estate. During the economic crisis, the United States simultaneously experienced the massive unemployment, the collapse of the social system, and a considerable number of bankruptcies.

Because the information asymmetry and the adverse selection had encouraged the banks to raise the interest rates and other speculative behaviors, they had exacerbated the deterioration of the real estate and further affected the overall economic recession. Arrow (1963) investigated the welfare economics of the medical care and first proposed that the information asymmetry might lead to the adverse selection and the moral hazard due to the uncertainty.

Furthermore, Mishra et al. (1998) analyzed many marketing exchanges which were characterized by the information asymmetry between the suppliers and customers and found that the customers were faced with both the adverse selection and moral hazard problems that involved, respectively, the uncertainty about the supplier characteristics and the risk of the quality cheating. In addition, they also proposed that the adverse selection and moral hazard problems existed in the relationships between the suppliers and their employees. Afzal et al. (2008) evaluated the impact of the information asymmetry on the product valuation and claimed that the group with the symmetric information valued the product highly and in close proximity to the real worth of the product, while the group with the asymmetric information undervalued the product. Accordingly, Widarjo et al. (2020) investigated the relationship between the intellectual capital disclosure and the underpricing and showed that the intellectual capital disclosure affects negatively on the underpricing. That is, the intellectual capital disclosure could reduce the asymmetry information between the issuer and the potential investor. Especially, Poth & Selck, (2009) examined the potential for the concept of the artificial information asymmetry used in the political studies which focus on the principal-agent theory and concluded that the artificial information asymmetry appeared to be an important factor in the principal-agent relations.

Accordingly, Zheng et al. (2021) studied the role of the real estate transaction intermediaries and found that with the rapid development of the real estate industry in recent years, the market had continued to be hot and popular, and the number of intermediaries had naturally only increased. As the number of intermediaries increased, their shortcomings in the service quality, moral literacy and other aspects were also fully exposed. Because the customers were at the information disadvantage, they had been deceived by the bad phenomena such as the false housing listings and arbitrary charges, which had led to the complaints. The result of the study was that the information asymmetry was significantly related to the direct and private complaining behavior. Gao & Lu (2010) explored the common phenomenon of the high abnormal initial returns in the initial stage of the newly listed OTC stocks (Initial Public Offerings, IPOs). However, IPOs were good investment targets because the investors not only considered the investment returns, but also investment risks to make correct the investment decisions. The result showed that the information asymmetry was the cause of the IPO initial return and initial return variation changing in the same direction. Hence, the information asymmetry caused the initial price of IPOs to fall in the IPO issuance market. Due to the information asymmetry, the investors' demand for IPOs was more uncertain, resulting in the greater price fluctuations after listing.

Adverse Selections

Ausubel (1991) mentioned that because the credit cards were expensive credit tools, the banks would not lower the interest rates as a competitive tool. That was because the lower interest rates would only increase the customers who originally planned to use the credit cards to borrow money. The credit risk of such customers was very high. If the search costs were added, it would even more difficult to attract the good customers, which would make the banks even less willing to lower the interest rates. The higher interest rates were obviously detrimental to the low-risk cardholders, which was a problem of the adverse selection. Obviously, the adverse selection problem only existed when the banks competed for the high interest rates. This problem did not arise if the bank engaged in non-price competition for the customers who used the credit cards as a means of the transaction. This was why the card-issuing banks did not charge the transaction fees but adopted the non-price competition methods such as lowering the annual fees, providing the transaction subsidies and charging the punitive fees for those with the high credit risks. Pozdena (1991) pointed out that most cardholders considered the convenience of the transactions and usually had moral hazard issues when deciding to use their revolving credit because they usually used their borrowing quota when their ability to repay debts was poor. Therefore, the interest rates of the credit cards

were fixed because the credit card loans were unsecured, and the credit card borrowers had the higher risks. The banks set the higher interest rates to compensate for the risks. The higher interest rates were nothing more than the risk premiums designed to prevent the adverse selection.

On the other hand, Liu (2007) examined the interest rate behavior of the domestic card-issuing banks and its relationship with the overdue credit card loans and tested whether the setting of the credit card interest rates was related to the bank capital costs, information asymmetry, adverse selection problems, credit card switching costs, operating scale or credit risks. It was discovered that the interest rate adjustment behavior of the credit cards would not be affected by its operating scale, credit risk and bank capital cost, which meant that the decision of the credit card interest rate was unreasonable. In other words, the interest rate cuts, and the inter-bank interest rate differences did not lead to the adverse selection problems. However, Lin & Sun (2005) analyzed various forms of the informal finance that widely existed in the developing countries and regions, and agreed that because the small and medium-sized enterprises had opaque information and often couldn't provide adequate guarantees or mortgages, it was difficult for the formal financial institutions to effectively overcome the information asymmetry, resulting in the adverse selection. Similarly, Qi et al. (2011) analyzed the role of the financial development in promoting the technological complexity of exports. They believed that the higher the technological complexity of the product, the greater the uncertainty in the R&D and production processes, and the more prominent the adverse selection problem. The financial development could promote a country's specialized production of the high-tech complex products by solving the adverse selection problem, thereby improving a country's overall export technological complexity.

Furthermore, Qiu et al. (2014) claimed the deposit insurance system was an important measure to promote the reform of the financial system, establish a market-oriented entry, exit the mechanism for the banking industry, and promote the market competition and metabolism. However, the implementation of the deposit insurance system had many problems. Among them, at the beginning of the establishment of the deposit insurance system, the first thing to consider should be whether the adverse selection would occur in the banking market. Accordingly, Lee et al. (2017) verified whether the groups judged to be high risk by underwriting would purchase the policies with the high insured amounts, and whether the groups purchasing high insured policies would result in the high loss rates. The verification results found that the promotion of underwriting the policies increased the average insurance coverage for the death and disability. The phenomenon of the adverse selection disappeared. The implementation of the rate policy had also effectively reduced the phenomenon of the adverse selection between the average insured amount for out-of-pocket medical treatment and the average insured amount for hospitalization days. Effectively controlling the consequences of the adverse selection also reduced the ex-ante moral hazard. Therefore, Neudeck & Podcizek (1996) also aimed to look for various ways to regulate the health insurance market and ask whether the answer could be offered to the problem of the adverse selection. To avoid the inefficiency, the government policy needed to either effectuate some cross-subsidization of the insurance policies within the state sectors or grant the private insurance firms an exclusive right to serve the certain groups of the population.

Accordingly, Wang et al. (2008) examined the relation between the audit tenure and the audit quality in the presence of the information asymmetry among the stockholder, the manager, and the auditor and confirmed that the moral hazard would lead to a suboptimal audit quality only when the problem of the adverse selection existed at the same time. Lu & Zhang (2016) focused on studying the process of the free allocation of the initial carbon emission quotas and the adverse selection of the enterprises which led to the excessive allocation of the government quotas and thus affected the emission reduction effect and the environmental governance. The results showed that in order to avoid this unfavorable situation where the companies had the adverse selection but are not regulated, the government should actively use various means to reduce the regulatory costs and increase the regulation.

Moral Hazard

Suciu et al. also demonstrated that the real estate crisis in the United States was mainly due to the incomplete information and the moral hazard, which led to the deterioration of American real estate and

ultimately an unprecedented economic disaster. At the beginning of the central bank's financial crisis, people did not understand the root cause of the entire financial crisis and had little understanding of the financial institutions, which led to the endless redemption phenomena. In addition, Marc (2024) studied the moral hazard problem between a principal and multiple agents who experienced the positive peer effects represented by a (weighted) network. Under the optimal linear contract, the principal provided the high-powered incentives to the central agents in the network in order to exploit the larger incentive spillovers such the agents created. The analysis revealed a novel measure of the network centrality that captured the rich channels of the direct and indirect incentive spillovers and characterized the optimal contract and its induced equilibrium efforts. Pernell & Jung (2024) explained why the firms took the excessive risks that resulted in failure and found the moral hazard theorists argued that the answer lied in the risk-boosting effects of the government safety net, which insulated the firms from the market discipline. The conventional wisdom by examining how exposure to the government protection had contributed to the recent trends in the bank risk-taking in the USA. Using the panel data analysis of the risky US bank behavior between 1994 and 2015, the results showed that the bank exposure to the government protection was more often associated with the less risk-taking than more of it. Holzapfel et al. (2023) modified the standard moral-hazard model in the insurance economics by trading off a simpler effort model for a richer strategy space, and by focusing on the use of monitoring for the premium differentiation and stressed that an informative monitoring technology was in use if it was sufficiently accurate. Otherwise, the premium incentive from monitoring was not large enough to alleviate the incentive-compatibility constraint to an extent that would make the policyholders better off.

In additional, Chen & Yang (2023) aimed to examine the incentive issues and characteristics of the optimal contract schemes for subsidizing the public transit services under the double moral hazard, which referred to the situations where both the regulator and the operator faced the incentives to engage in the opportunistic behavior due to the information asymmetry in the provision of the public transit service. Chen, et al. (2023) examined whether implementing Urban Residents Medical Insurance Scheme decreased an individual's risky lifestyle behavior before illness, termed ex-ante moral hazard. The ex-ante moral hazard was predicted by the classical economic theory suggesting that the health insurance coverage reduced an individual's incentive to take the preventive efforts to remain healthy. Specifically, Pierret & Howarth (2023) agreed Banking Union was a major policy response to the financial crisis that began in 2007 and the subsequent Eurozone crisis. In other words, the moral hazard had frequently been presented as a major cause of these crises. Therefore, Banking Union could be understood as a response to the moral hazard in relation to the banks and sovereigns. Hudson & Berghäuser (2023) investigated the moral hazard and the property-level flood resilience measures through the panel data from Germany and revealed insights into the dynamic mechanisms concerning the moral hazard that would remain hidden in a cross-sectional survey. Though the indications for the presence of the moral hazard in Germany overall were not verified, a continuing positive association between the insurance purchases and the employment of the flood resilience measures indeed existed despite the overall increasing coverage rates.

PROPOSED MODEL AND HYPOTHESES

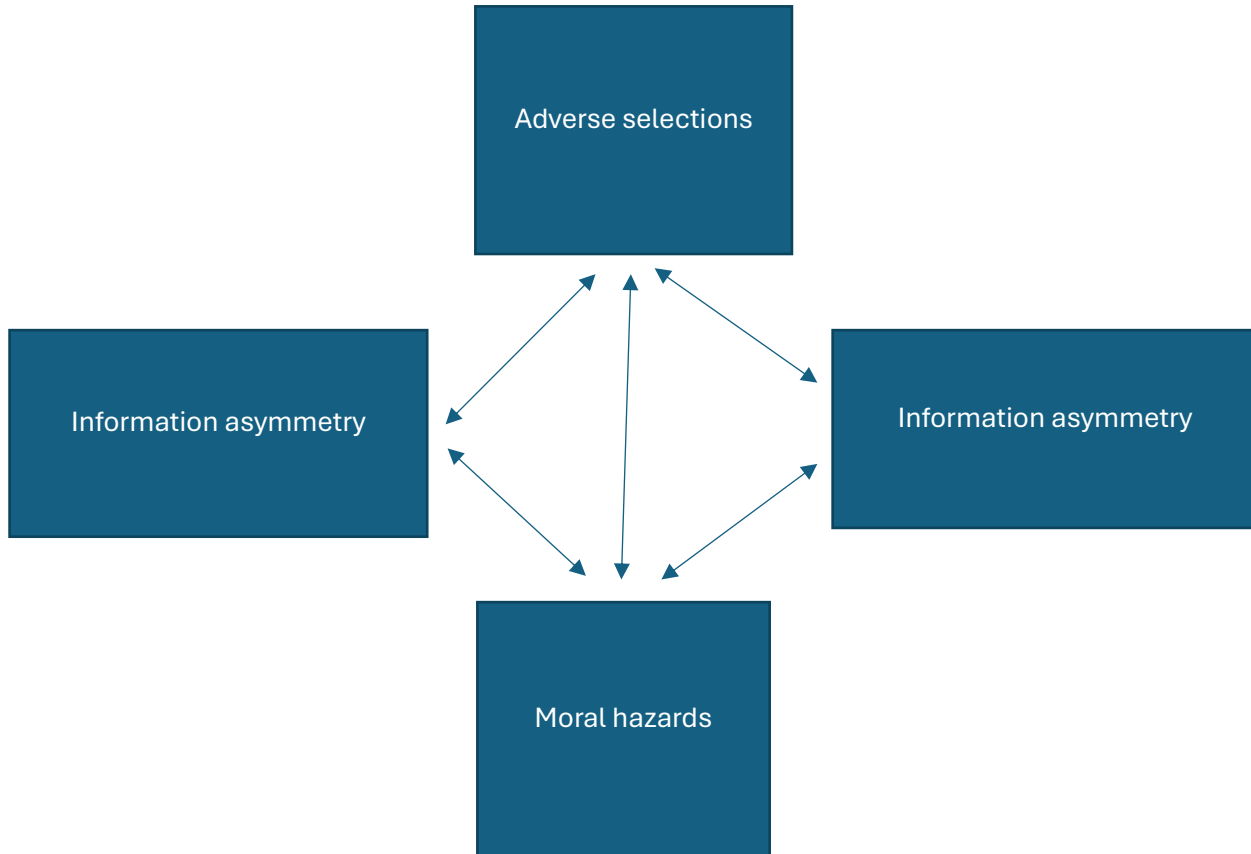
Proposed Model

To explore the effects of the information asymmetry on the card-debt crisis in Taiwan's credit market, the article aimed to collect all the various kinds of data to construct the information asymmetry model (see Figure 3). Based on the literature review above, both the adverse selections and moral hazards were combined into the information asymmetry model. They interacted with each other or individually affected the information asymmetry .

Just like the externalities, public goods and natural monopoly, the information asymmetry was also one of the main reasons for the market failure. In order to reduce the loss of the social welfare caused by the card-debt crisis, and even pursue the Pareto optimal under the most efficient allocation of the resources, the financial authorities were forced to intervene in the market . Based on the model, this article aimed to verify if the information asymmetry existed in the credit market , the card-debt crisis resulted from the information

asymmetry and the financial authorities could improve the information asymmetry in the Taiwan's credit card market.

FIGURE 3
INFORMATION ASYMMETRY MODEL



Hypotheses

To achieve the goal, the article was based on the information asymmetry model, combined with the adverse selections and the moral hazards, to separately design the research hypotheses as follows:

Hypotheses of the Adverse Selections:

H 1: *There was a significant interest rate difference between the public and private banks.*

H 2: *The card-debt crisis resulted from the adverse selections .*

Hypotheses of the Moral Hazards:

H 3: *The card-debt crisis resulted from the moral hazards.*

Hypotheses of the Role of the Financial Authorities:

H 4: *The financial authorities improved the adverse selections and moral hazards*

RESULTS AND DISCUSSIONS

Adverse Selection

The Interest Rate Difference Between the Public and Private Banks

Base on Table 4 , when the card debt crisis was at its peak in 2005, the highest revolving interest rate of the public banks was much lower than that of the private banks. In 2015, the Banking Law was revised to lower the maximum revolving interest rate to 15%, seemingly making the maximum revolving interest rates of the card-issuing banks more consistent. However, after comparing the proportion of the users suitable for the high revolving credit interest rates, it was still found that the proportion of the users suitable for high revolving credit interest rates for the private banks was still much higher than that of the public banks. In other words, After the banking law was revised, the applicable interest rates of the private banks are still much higher than those of the public banks, providing the best conditions for the adverse selection. Therefore, H1 is supported.

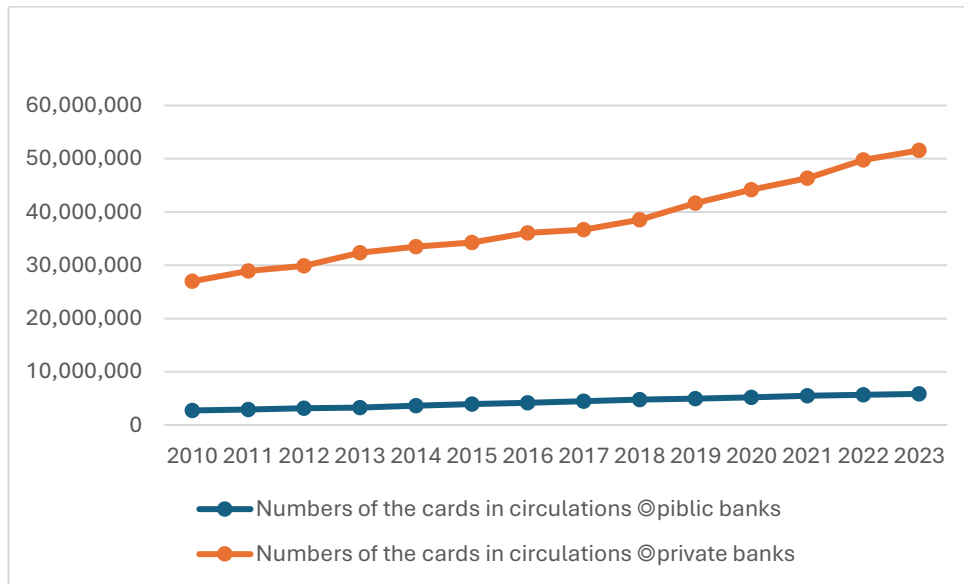
TABLE 4
THE MAXIMUM CREDIT REVOLVING INTEREST RATE AND THE PROPORTION OF
USERS WITH HIGH CREDIT REVOLVING INTEREST RATES IN THE PUBLIC AND
PRIVATE BANKS

The card-issuing banks	Maximum credit revolving interest rate (%)	Proportion of users with high credit revolving interest rates (> 11.875)
Bank of Taiwan	11.875	14.26
Land Bank of Taiwan	15	4.13
Taiwan Cooperative Bank	14.75	13.00
Chang Hwa Commercial Bank	15	44.87
Cathay United Bank	15	30,20
CTBC Bank Co., Ltd.	15	21.59
E.Sun Commercial Bank, Ltd.	15	23.29
Taishin International Bank	15	41.17
Taipei Fubon Commercial Bank Co., Ltd.	15	31.92
Union Bank of Taiwan	15	20.35
HSBC Bank Limited	15	40.36
Far Eastern International Bank	14.99	49.58

The Number of Cards in Circulations

Based on Figure 4, even though the highest revolving interest rate of the public banks was lower than that of the private banks, the number of cards in circulations of the public banks was relatively smaller than that of the private banks. Even after the banking law was revised in 2019, this trend has not changed. Obviously, this was a phenomenon that was against the demand law and violated the free market mechanism, which was enough to prove that the adverse selection still existed in Taiwan's credit card market. Hence, H2 is supported.

FIGURE 4
THE NUMBERS OF THE CARDS IN CIRCULATIONS IN THE PUBLIC AND PRIVATE BANKS



Moral Hazard

Bad Debts

When there was a transaction with the asymmetric information, the problem that arose before the transaction was the adverse selection and the problem that arose after the transaction was completed was the moral hazard. However, the cardholders who owned the credit cards through the adverse selection, whether due to the excessive consumption or improper investment, had accumulated the high debts or had the lower debt repayment capabilities. When "not paying back money" became a specific fact for the cardholders, it proved that the moral hazard caused by the adverse selection in the credit card market had already formed especially during the card-debt crisis because the bad debts of the public banks were much lower than those of the private banks (see Figure 2). Therefore, H3 is supported.

Overdue Ratios

Compared with the bad debts, the high overdue ratios could also present the moral hazards resulting from the information asymmetry. Based on Figure 1, except 2008, the overdue ratio of the private banks was almost higher than that of the public banks even after the financial authorities intervened in the credit card market. The result revealed that the moral hazard did exist in the credit market during or after the card-debt crisis. Hence, H3 is supported.

The Role of the Financial Authorities

Faced with the card-debt crisis, the financial authorities were forced to intervene in the market under the social pressure. Therefore, the debt negotiation mechanism was promoted at the end of 2005 and the more mandatory consumer debt settlement regulations were passed through the legislation in 2007. Based on Figure 1, Figure 2 and Figure 4, the overdue ratios, the bad debts and the numbers of the cards in circulations showed a rapid downward trend after the financial authorities intervened in the market. Therefore, the importance of the financial authorities on improving the adverse selections or the moral hazards was really evident. Hence, H4 is supported.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Combining the themes studied in this article with the consumption patterns of today's society, it was revealed that people no longer relied solely on paper money as a payment tool, and most merchants begun to accept the mobile payments, causing the payment methods to gradually change. In the past, the banks' main source of the profits was the lending business. With the development of the financial industry, the consumer finance services such as the credit cards also begun to bring the huge profits to the banks. However, due to the over-expansion of the credit card issuance and the number of cards in circulations and the rapid changes in people's consumption habits, the phenomenon of people owning multiple credit cards became more common. When this result induced the cardholders to over-leverage, the overdue ratios of the card-issuing banks increased day by day, triggering a card-debt crisis and even extending the financial crisis to the economic recession and the social problems.

In fact, in addition to the card-debt crisis in Taiwan, the similar financial crises did occur in South Korea and Hong Kong. Although the emergence of the cash cards and credit cards had brought the great convenience to people with the financial planning, it also put them in danger of falling into the huge card-debt pressure for people who were not cautious enough. The financial institutions always raised the interest rates to protect or make up for the losses they might suffer. However, due to the adverse selection and moral hazard, on the one hand, the cardholders became the borrowers with the relatively higher risks and also needed to bear the higher interest rates. On the other hand, when the high-risk borrowers accumulated the debts due to the excessive consumption, the overdue ratio of the card-issuing banks increased, and the banks eventually needed to afford the serious operating losses by themselves.

The empirical results showed that all the hypotheses were supported. That is, the information asymmetry did still exist in Taiwan's credit card market. Accordingly, with the launch of the debt negotiation mechanism in 2005 and the implementation of the more mandatory debt settlement regulations in 2007, the various indicators of the credit card market, including the card-issuing volume, cash advances, revolving credit balances and overdue ratios, had all presented a downward trend. Even more specially, it showed that some financial institutions had also chosen to withdraw from the credit card market. It was concluded how important the actions of the financial authorities to intervene in the market were to improve the card-debt crisis under the information asymmetry.

Recommendations

Although the card-debt crisis and the information asymmetry were improved after the financial authorities intervened in the credit market, however, it should be noted that this society should not be optimistic and expected that all the cardholders would abide by the principle of "pay back what they owe". After all, many people still chose to pay only the minimum monthly amount due, which showed that the adverse selections and moral hazards did not disappear and might even come back at any time. Hence, the financial authorities should not relax their vigilance against the adverse selections and moral hazards existing in the credit card market.

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