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Research Article

The Influencing Factors of Intellectual Property Pledge Loan Trust: A Social Network Theory-Based Experimental Study

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This paper studies the behavior of intellectual property pledge loan based on a specific social network and uses the method of experimental research to analyze the impact of factors on the comprehensive trust of intellectual property pledge loan. The results show that if direct cooperation records between enterprises and banks are complete, the larger the scale of cooperation, the higher the trust of intellectual property pledge loans, and the nearer the cooperation record to the present time, the greater the credibility of enterprise cooperation. If there is no direct cooperation record between enterprises and banks, or cooperation record is incomplete, in accordance with the trust evaluation of the recommended members on the intellectual property pledge loan enterprise, the smaller the degree of trust at a certain recommendation node, the lower the credibility of enterprises at this node correspondingly, and the lower the perceived risk tolerance of banks, the lower the cooperation satisfaction in the intellectual property pledge loan enterprises.

1. Introduction

Intellectual property pledge loan can solve the financing difficulties of small and medium-sized enterprises and also can promote their industrial upgrading so as to implement the national innovation and development strategy. With the vigorous promotion of the government, China's intellectual property pledge financing has achieved rapid development. However, existing research shows that innovative small and medium-sized enterprises still face the dilemma of intellectual property pledge financing [1]. The causes are definitely related to the inherent characteristics of innovative small and medium-sized enterprises because most of them are in the start-up stage with less self-owned funds, high operation risk, low management and credibility, and limited mortgaged assets. However, the "information asymmetry" also can be caused by some factors of intellectual property such as intangibility, uncertainty, value fluctuation, and difficult disposal. As a result, the banks are reluctant to lend to patent pledge loan enterprises, and the intellectual property pledge financing business has not been implemented on a large scale.

The bank-enterprise trust in the credit relationship can help credit personnel gain more soft information so as to reduce the degree of "information asymmetry" and the uncertainty of transaction behavior and also help banks comprehensively evaluate the credibility of enterprises to make credit decisions. The financial institutions and enterprises have built an increasingly complex and close capital network through cross shareholding, lending, and other capital connections. The bank-enterprise relationship in patent pledge loans has developed from a two-dimensional and linear relationship to a multidimensional and complex social network. What is the difference in credibility between banks and enterprises under such a complex network? What are the influencing factors of intellectual property pledge loan credibility? How can enterprises improve the comprehensive credibility of intellectual property pledge loans? These problems that deserve high attention need to be solved urgently because they can assist banks in making decisions on patent pledge loans and provide an empirical model for enterprises to improve the efficiency of patent pledge loans.

The research on intellectual property pledge loan involves many academic fields such as intangible asset (patent)

value evaluation, pledge loan, credit rationing, and information asymmetry theory. In recent years, these theories have made great progress. With the development of the intellectual property pledge loan business, gradually increasing research results and diversifying research methods have been achieved. The research contents include theoretical introduction and theoretical discussion on intellectual property pledge loan [2, 3], intellectual property pledge loan mode and government behavior [4], risk early warning based on the perspective of financial institutions [5], and value of intellectual property pledge [6]. At the same time, some scholars have conducted exploratory empirical research on the influencing factors of the patent pledge loan model [7].

Research progress on trust in bank-enterprise credit relationship: trust, as a vital part of people's social and economic communication, plays an important role in solving agency problems [8], reducing transaction and regulatory costs, and preventing moral hazard and adverse selection [9, 10]. It also can improve the relationship between banks and enterprises [11], helping banks make loan decisions in case of scarce information [12]. In addition, a high degree of mutual trust can promote the flow of information and enhance the degree of trust between banks and enterprises, thus producing the "spiral effect" of trust [13]. With the increase of trust between banks and enterprises, the relationship between banks and enterprises is gradually strengthened, and the possibility of reliable behavior by both parties is also increased accordingly. Trust is an important prerequisite for banks to avoid loan risk when carrying out loan business with small and medium-sized enterprises [14]. The final loan amount and loan conditions obtained by an enterprise depend on the bank's comprehensive credit evaluation of the individual enterprise [15]. The network-based repayment commitment of enterprises is highly reliable. It is also a more credible threat for banks to pursue claims against enterprises in the network and easier for enterprises and banks in the cluster to achieve game equilibrium strategy [16].

Research on trust relationship from the perspective of the social network. Social network theory holds that the trust relationship of any subject originates from the social network and is "embedded" in the social network of the specific object [17]. A good trust relationship can expand the social network to obtain more resources and save the transaction cost in dealing with disputes [18]. The interorganizational network can provide effective information and take advantage of them to influence the trust relationship of organizations [19]. In recent years, with the interdisciplinary research of sociology and economics developing rapidly and the theory of social network becoming more comprehensive, a series of research results on the impact of relationship network on individual behavior decision-making have been reported, which also accordingly has aroused a heated attention on the impact of network on trust and credibility. Some scholars believe that relationship network may be the key factor affecting the trust behavior, and the behavior of decision-makers is limited by network relationship and network structure [20]. The enhancement of interorganizational trust is heavily dependent on the strong or weak connection of social network [21, 22]. The interorganizational network can provide effective information and take advantage of them to influence the trust relationship of organizations [23].

To sum up, relevant research in China and abroad has currently achieved certain results, which have laid a theoretical and experimental foundation for this research field, but there are still the following deficiencies: (1) the core problem of intellectual property pledge loan practice is that banks do not trust enterprises applying for this loan enough due to "information asymmetry." At present, there is a lack of in-depth research on the trust of intellectual property pledge loans. (2) The studies of intellectual property pledge loan are mostly on the trust relationship between debtor and creditor, and there is a lack of research from the perspective of network. Trust plays a very important role in helping banks make loan decisions when information is scarce. The relationship between banks and enterprises has developed from a two-dimensional and linear relationship to a multidimensional and complex social network relationship. Studying the cooperation and trust between banks and enterprises in intellectual property pledge loans requires going beyond the enterprise level and adopting a systematic and social network analysis perspective. The contributions of this paper are as follows: firstly, under the analysis on the embedded framework of the social network, this paper structurally describes the trust dimension of intellectual property pledge loans; secondly, this paper makes an experimental study on the influencing factors of intellectual property pledge loan trust for the first time, which provides a basis for the comprehensive evaluation of bank trust and provides strong data support for enterprises to carry out intellectual property pledge loan.

2. Theory and Hypothesis

Social network refers to all formal and informal social relations between a group of specific people [24]. Commercial activities are often associated with social relations, so commercial relations will inevitably build social relations. Social relations constitute social networks and are the basic unit of them. Any economic behavior can be embedded in the social relations of social networks [25]. Social network is regarded as an internal characteristic of social capital. Social capital is taken as a reliable and standard network to improve social efficiency through coordinated action [26]. Social network has significantly influenced the traditional commercial banks, private credit, and network-based personal credit of China, a relationship-typed society. Social networks are conducive to gaining loans for personal credit loans of small and micro enterprises [27]. The relationship-typed loan of commercial banks based on social network can alleviate the financing difficulties of individual credit borrowers [28]. An empirical analysis on the private lending behavior of farmers in China from the perspective of social network found that, with the expansion of the scope of social networks, farmers are more likely to participate in private lending. The larger the amount of lending, the higher the degree of participation [29].

In a close (strong) social network, the stronger the sense of individual responsibility, the lower the default rate [30]. Social network influences credit behavior mainly through the following two mechanisms: first, reputation mechanism. The network is relatively closed, stable, and private, which determines the information symmetry of the reputation mechanism. In case of default, its behavior and bad reputation will be widely spread among network members. The spread of "bad reputation" will make it difficult to obtain trading opportunities in the future and may be possible to be expelled from the credit market. The second is the punishment mechanism. It mainly restricts dishonest behavior through prior confidence threat. That is, the repeated transaction mechanism, information symmetry mechanism, and high homogeneity cognitive model of the network make it greatly possible for breach of contract to be punished, which is conducive to reducing opportunistic behaviors. Of course, it has a serious punishment afterwards. The post-punishment mechanism mainly includes three aspects: the loss of special assets, the loss of reputation, and the loss of expected income. Among them, the loss of special assets is the loss of relational social capital and the possibility of being expelled from the credit market.

Social network is a social structure composed of many nodes that usually refer to individuals or organizations. Social networks represent various social relations, which can connect individuals or organizations from casual acquaintances to close family relationships. Therefore, social network is a form of social organization based on "network" interconnection between nodes. There is a trust relationship in social network transactions, which makes the interdependent trust relationship between network entities form a so-called trust network. Trust based on social network refers to the willingness, intention, or expectation of one node in the "network" to trust other nodes. Intellectual property pledge financing trust based on social network refers to the willingness, intention, or expectation of one node, such as banks, to trust another node, such as intellectual property pledgor, in the network constructed by mutual trust among various nodes.

Based on the analysis of social network, trust theory, and credit theory, this paper analyzes the characteristics of social network trust and constructs a three-dimensional structure model of social network trust in intellectual property pledge financing through an in-depth interview and a questionnaire survey of the credit department of financial institutions. The trust based on social network can be further divided into direct trust and indirect trust, and the fluctuation influence brought by a series of risk factors such as policy and environment at that time will also be considered [31]. Direct trust refers to the trust expectation of nodes A and B to each other in the process of direct historical cooperation. Indirect trust refers to the trust expectation of A and C to each other through the recommendation of node B as in [32]. Risk perception trust refers to the trust generated by people's subjective judgment on the characteristics and severity of a particular risk under the interaction of each node. The main source of direct trust is the statistics and analysis of historical cooperation satisfaction between intellectual property pledge financing members and banks. The importance of the transaction is affected by the scale of cooperation. Understanding the scale of cooperation between the two sides can effectively prevent enterprises from rapidly improving their trust through small-scale cooperation, resulting in a virtual high degree of trust and trust deception for more benefits in the later stage. During the process of direct cooperation between intellectual property pledge financing enterprises and banks, with the pledge financing cooperation expanding, the social network trust of intellectual property pledge financing with dynamic incentive characteristics can reduce the moral hazard of participants, making enterprises more satisfied. Therefore, the research hypothesis is analyzed and put forward:

H1: if there are direct cooperation records between enterprises and banks and the records are complete, the larger the cooperation scale of enterprises, the higher the direct trust of intellectual property pledge financing.

During the process of cooperation between intellectual property pledge financing enterprises and banks, banks will judge the cooperation satisfaction of intellectual property pledge financing enterprises that have cooperated and have certain cooperation records. The formed cooperation satisfaction is not invariable. Just like trust has dynamic characteristics, the cooperation satisfaction formed by the cooperation between the two sides is also dynamic; that is, it will change over time. Therefore, the research hypothesis is analyzed and put forward.

H2: if there are direct cooperation records between enterprises and banks, and the records are complete, within the maximum trust time range, the nearer the cooperation record, the greater the credibility of enterprise cooperation (time attenuation law).

The credit relationship between banks and enterprises and the commercial credit relationship among enterprises form a complex network relationship between banks and enterprises [33]. As a specific type of network members, enterprises are embedded in a rather complex social network. Banks can take advantage of the social network of enterprises to obtain relevant information, except for enterprise finance, such as enterprise behavior and morality character of business owners, which are the main signal to measure the credibility of borrowers. In addition, the trust relationship is not completely decided by direct trust. There is also a relationship hidden behind direct trust, that is, indirect trust. When the historical trust records of the enterprise cannot be fully obtained, the members of the intellectual property pledge financing contract can obtain the information of the direct cooperation between the intellectual property pledge financing members and other banks, that is, indirect trust (recommended trust), through the network information service platform, to assist in decision-making. Therefore, the research hypothesis is analyzed and put forward.

H3: if there is no direct cooperation record between enterprises and banks or there is a cooperation record, the record is incomplete; in accordance with the trust evaluation of the recommended members on the intellectual property pledge financing enterprise, the smaller the degree of trust at a certain recommendation node, the lower the credibility of enterprises at this node correspondingly.

Both the direct trust and the indirect trust are supported by historical cooperation records, lacking a flexible response to trust. In order to improve the feedback efficiency of trust between members and banks, this paper introduces the perceived risk. Under the background of the social network trust of intellectual property pledge financing, the complex policy environment and the imperfect legislative system of policy intellectual property pledge cause the environmental perceived risk affecting the social network trust of intellectual property pledge financing. The expected future cash flow, often regarded as the main guarantee mode of intellectual property pledge financing, becomes the value perceived risk affecting trust due to its character that can increase the uncertainty of intellectual property pledge financing. At the same time, with the continuous renewal and development of the high-tech level, technical intellectual property has become an important factor affecting the cooperation satisfaction of intellectual property pledge financing contract. According to the comprehensive influence of different risk factors at that time, banks will formulate corresponding risk psychological tolerance bottom line for themselves. Analyze and put forward research hypotheses.

H4: the lower the perceived risk tolerance of a bank as a lender, the lower the cooperation satisfaction in the intellectual property pledge financing between the bank and the enterprise.

3. Research Methodology

3.1. Research Methods. Faced with financing difficulties, small and medium-sized enterprises have resorted to intellectual property financing. Within the controllable risk, controlling the risk of intellectual property pledge financing has become a vital way for banks to expand their businesses [34]. Considering the complex and changeable enterprise environment, many factors affect the results of patent pledge financing of small and medium-sized enterprises. Among that, the personal decision of the credit reviewer is very important in the loan process of small and medium-sized enterprises because their personal opinions and decision-making methods decide the results to a large extent. That is, in the real small and medium-sized loan approval process, the personal approval and review opinions of the credit reviewer can directly determine the patent pledge financing results of small and medium-sized enterprises. Therefore, some personal characteristics of the bank loan reviewer are particularly important in the loan approval process. However, it is difficult to separate and control these personal factors in the real approval process. The experimental research can eliminate or control the interference of irrelevant variables on experimental results and accurately measure the influence of independent variables on dependent variables [35, 36]. This part aims to test the existence and completeness of cooperation records, the distance from the present time, the comparison of cooperation record satisfaction, the impact of cooperation scale, the recommendation credibility of other banks to the enterprise, and the risk tolerance of the enterprise through the experimental research method commonly used in economics.

3.2. Models and Variables. A regression model was established to test the above research hypotheses:

$$\mathrm{CT} = \alpha_0 + \alpha_1 * \mathrm{SC} + \alpha_2 * \mathrm{DFPT} + \alpha_3 * \mathrm{RC} + \alpha_4 * \mathrm{RT} + \varepsilon, \tag{1}$$

where CT is comprehensive trust, DEPT is distance from the present time, SC is scale of cooperation, RC is recommended credibility, and RT is risk tolerance.

3.2.1. Experimental Design. Selecting appropriate subjects is of great significance in experimental research, which can obtain accurate and reliable experimental results and also expand the scope of the conclusions. It is important to choose more representative experimental subjects during the experimental design process to increase the reality of the experimental situation. Senior undergraduates are the most suitable subjects in economic management experiments. If professional loan reviewers from banks and other financial institutions are selected as subjects, it will be more externally effective, but it may introduce some potential factors, such as implicit experience and trading habits, and the experimental organization cost may be high [37]. Therefore, following the convention of selecting undergraduates as subjects, this study selects senior undergraduates majoring in accounting as subjects. On the one hand, by studying financial management, management accounting, and other professional courses, they are familiar with the background knowledge involved in the experiment, have good logical thinking ability, and know the property right financing behavior of enterprises well, so they can better understand the experimental task and make rational choices. On the other hand, they do not have inherent thinking patterns like some social participants, so they are easier to achieve the purpose of the experiment. The experimenter shall guide the subjects to complete the experiment on trust intervention in the loan willingness of patent pledge financing; that is, all subjects represent decision-makers, who are the bank loan reviewer during the decision process of patent pledge financing. The incentive method of this experiment combines cash reward with course performance. Cash reward is composed of appearance fee and decision-making results: (1) Appearance fee reward: regardless of the performance of the participants, they will receive an appearance fee of 5 yuan. (2) The decision quality is judged according to the final experimental

results of each experimental participant. The experimental participants with excellent performance shall be given appropriate extra points in the usual grades of the corresponding courses.

3.3. Experimental Process

3.3.1. Pretest Stage. The experiment provides the application information of intellectual property pledge loan from a high-tech small and medium-sized enterprise which applies invention patent loan for its self-developed system that is appraised for about 10 million yuan, and the loan is pledged by the invention patent. Suppose the borrower has 30 chips, which are recorded as M, $M \in [0, 30]$; $M * 100\% * 10$ million represents the amount that borrower A is willing to lend to borrower B. Set T (M/30) is the bank's comprehensive trust to the enterprise in this cooperation. The subjects were required to act as bank loan reviewers, who need to analyze the specific situation of the enterprise and the project itself and then simulate the loan decision-making as shown in Table 1.

3.3.2. Posttest Stage. The decision-making background in the posttest stage is the same as that in the pretest stage. The control group is not intervened. The experimental group adds the following four interference items; that is, scale of cooperation, distance from the present time, recommendation credibility from other bank, and risk tolerance. The subjects need to be selected again according to the intervention results. (1) The loan enterprise has cooperated with the bank, but the scale of cooperation is different. (2) The loan enterprise has cooperated with the bank, but the distance from the present time (far or near) is different. (3) The loan enterprise has cooperated with other banks, but the feedback results of historical cooperation satisfaction (recommendation credibility) are different. (4) The maximum risk that the lending bank can tolerant is different.

4. Analysis of Research Results

4.1. Experimental Validity and Reliability Test. The qualitative method is often used to test validity. Generally, it can be tested by calculating the correlation coefficient matrix, Bartlett Sphericity test, and KMO test. Scholars generally use factor analysis to test the validity. KMO value and validity change in the same direction. The closer the value is to 1, the more suitable for factor analysis, and the better the experiment's validity. By analyzing the validity of the experimental questionnaire, the result is that the value of KMO is 0.773, indicating that it is more suitable for factor analysis. The Sig value of the Bartlett Sphericity test is less than the significance level of 0.001, indicating a significant correlation around variables. Therefore, the experiment has good content validity and aggregation validity.

4.2. Paired Sample T-Test. During the process of analyzing and sorting out the data of the research design, using paired samples statistics of t-test, this paper analyzes the changes and differences among the pretest of the control group and pretest of the experimental group, the posttest of the control group and posttest of the experimental group, the pretest of the control group and posttest of the control group, and the pretest of the experimental group and posttest of the experimental group, respectively. Using the orthogonal experimental design method, the analysis of variance is carried out to indicate the influence of the above different factors on lending chips.

Through paired sample t-test analysis, there is no difference between the mean values of the pretest of the control group and the pretest of the experimental group in Table 2, indicating that the pretest of the control group and the pretest of the experimental group are homogeneous, the data are true and effective, and the pretest and posttest of the control group are not affected by various influencing factors, so there is no difference between the mean values of the pretest and posttest of the control group. However, there are differences between the posttest of the control group and the posttest of the experimental group, as well as the pretest of the experimental group and the posttest of the experimental group, because the posttest of the experimental group is affected by various factors, resulting in a large difference between the posttest of the control group and the pretest of the experimental group.

It can be found from Table 3 that the correlation coefficient between the pretest of the control group and experimental group is close to 1, and $\text{Sig} \leq 0.001$, indicating that the correlation and significance between the pretest of the control group and the pretest of the experimental group are very high; that is, the data homogeneity between the pretest of the control group and the pretest of experimental group is equally reliable. At the same time, the correlation coefficient between the pretest and posttest of the control group is very high, and $\text{Sig} < 0.05$, indicating that the correlation between the pretest and posttest of the control group is high and significant because the pretest and posttest of the control group are not affected by various factors, and there is little difference; that is, the data of the pretest and posttest of the control group are equally effective. The correlation coefficient between the posttest of the control group and experimental group and the pretest and posttest of the experimental group is very low, and Sig is close to 1, indicating that the correlation between the posttest of the control group and the posttest of the experimental group, as well as the pretest of the experimental group and the posttest of the experimental group is low and significant because the posttest of experimental group is affected by various factors, resulting in a large data difference between the posttest of the control group and the pretest of the experimental group. That is, there are significant data differences between the posttest of the control group and experimental group and the pretest and posttest of the experimental group.

It can be seen from Table 4 that $\text{Sig} = 0.79 > 0.05$ in pretest of the control group—pretest of the experimental group, $\text{Sig} = 0.943 > 0.05$ in the pretest of the control group—posttest of the control group, which shows that there is no significant difference between the pretest of the control group and the pretest of the experimental group, and there is

Table 1: Decision to lend chips.

Scale of cooperation	1 (large)								0 (little)							
Distance from the present time	1 (far)				0 (near)				1 (far)				0 (near)			
Recommendation credibility from other bank	1 (large)		0 (little)		1 (large)		0 (little)		1 (large)		0 (little)		1 (large)		0 (little)	
Risk tolerance	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
Lending amount																

Table 2: Paired samples statistics.

Paired samples statistics					
		Mean	N	Std. deviation	Std. error mean
Pair 1	Pretest of control group	18.00	1280	9.002	0.252
	Pretest of experimental group	17.75	1280	8.139	0.227
Pair 2	Posttest of control group	17.973	1280	8.2577	0.2308
	Posttest of experimental group	15.063	1280	6.0228	0.1683
Pair 3	Pretest of control group	18.00	1280	9.002	0.252
	Posttest of control group	17.973	1280	8.2577	0.2308
Pair 4	Pretest of experimental group	17.75	1280	8.139	0.227
	Posttest of experimental group	15.063	1280	6.0228	0.1683

Table 3: Paired samples correlations.

Paired samples correlations				
		N	Correlation	Sig.
Pair 1	Pretest of control group and experimental group	1280	0.894	0.000
Pair 2	Posttest of control group and experimental group	1280	0.003	0.905
Pair 3	Pretest and posttest of control group	1280	0.742	0.022
Pair 4	Pretest and posttest of experimental group	1280	0.000	0.991

no significant difference between the pretest of the control group and the posttest of the control group, to ensure the homogeneity of the experimental group and the control group. However, $\text{Sig} \leq 0.001 < 0.05$ in the posttest of the control group—posttest of the experimental group, and $\text{Sig} \leq 0.001 < 0.05$ in the pretest of the experimental group and posttest of the experimental group indicating that after the intervention of various factors, there are significant differences among the posttest of the experimental group, the pretest of the control group, and the pretest of the experimental group. These factors affect the bank's trust in intellectual property pledge loan enterprises, which will impact the chips that the bank finally decides to lend.

4.3. Analysis of Variance of Orthogonal Experimental Design. According to the analysis of variance of orthogonal experimental design in Table 5, among the influencing factors, risk tolerance and recommendation credibility have a significant impact on the size of chips the bank decides to lend. In contrast, the distance from the present time, the scale of cooperation, and the size of sensitive confidence weight have little impact on it. The relationship of these factors is that recommendation credibility from other banks > risk tolerance > scale of cooperation scale > distance from the present time.

4.4. Analysis of Regression Results. During the data analysis and sorting of the research design, using SPSS 17.0, this paper analyzes regression results on the empirical data to indicate the significant impact of the above different factors on lending chips and verify the above assumptions.

From Table 6, it can be found that there is a correlation between various variables. The scale of cooperation is significantly positively correlated with its available loan amount at 5%, and the impact on cooperation satisfaction is positively correlated. This shows that if there are direct cooperation records between enterprises and banks and records are complete, the larger the scale of cooperation, the higher the direct trust of intellectual property pledge loans. There is a significant negative correlation between distance from present time and its available loan amount at 5%, and the impact on cooperation satisfaction is negative, indicating that if there are direct cooperation records between enterprises and banks and the records are complete, within the maximum trust time range, the closer the cooperation record to the present time, the greater the credibility of enterprise cooperation. There is a significant positive correlation between the recommendation credibility from other banks to the enterprise and its available loan amount at 5%, and a positive correlation with cooperation satisfaction, indicating that if there is no direct cooperation record between the enterprise and the bank, or there is a cooperation

Table 4: Paired sample test.

		Paired sample test							
		Paired difference							
		Mean	Std. deviation	Std. error mean	Confidence interval of difference		T	Df.	Sig.
					Lower limit	Upper limit			
Pair 1	Pretest of control group—pretest of experimental group	0.2460	4.032	0.1130	0.0250	0.4670	2.183	1279	0.790
Pair 2	Posttest of control group—posttest of experimental group	2.9102	10.205	0.2852	2.3506	3.4697	10.203	1279	0.000
Pair 3	Pretest of control group—posttest of control group	0.0234	11.819	0.3303	0.6250	0.6715	0.071	1279	0.943
Pair 4	Pretest of experimental group—posttest of experimental group	2.6875	10.126	0.2830	2.1322	3.2428	9.495	1279	0.000

Table 5: Tests of between-subjects effects.

Tests of between-subjects effects					
Dependent variable: Y chip					
Source	Type III sum of square	Df.	Mean square	*F*	Sig.
Corrected model	44667.344	6	7444.557	5485.421	0.000
Intercept	290405.000	1	290405.000	213980.973	0.000
Scale of cooperation	7507.813	1	7507.813	5532.029	0.000
Distance from present time	7411.250	1	7411.250	5460.879	0.000
Recommendation credibility	7653.828	1	7653.828	5639.619	0.000
Risk tolerance	7605.000	1	7605.000	5603.641	0.000
A. *R* square	0.963		Adjusted *R* square	0.963	

Table 6: Regression analysis results.

Model	*B*	Standard error	Standard coefficient	*T*	Sig.
(Constant)	14.90	0.11		139.33	0.00
Scale of cooperation	4.79	0.08	0.40	59.29	0.00
Distance from present time	−4.75	0.08	−0.40	−58.77	0.00
Recommendation credibility	4.81	0.08	0.41	59.55	0.00
Risk tolerance	4.79	0.08	0.40	59.29	0.00
	R	*R* square	Adjust *R* square	Error of standard estimation	Durbin–Watson
	0.978a	0.96	0.96	1.25	1.95

record, but the record is incomplete. The smaller the degree of recommendation credibility, the lower the credibility of the enterprise at a recommendation node. The results further support the previous hypothesis. There is a significant positive correlation between the risk tolerance and its available loan amount at 5%. The results show that the lower the bank's tolerance for perceived risk, the lower the cooperation satisfaction between it and intellectual property pledge loan enterprises. To some extent, this provides a reasonable explanation for the previous assumptions of this paper.

5. Conclusion

This paper embeds the behavior of intellectual property pledge loan into a specific social network and uses the method of experimental research to test the impact of cooperation scale, cooperation time attenuation, recommendation credibility, and perceived risk on the comprehensive trust of intellectual property pledge loan. The result is as follows:

(1) If direct cooperation records between enterprises and banks are complete, the larger the scale of cooperation, the higher the trust of intellectual property pledge loans

(2) The nearer the cooperation record to the present time, the greater the degree of cooperation trust of the enterprise

(3) If there is no direct cooperation record between the enterprise and the bank, or cooperation record is incomplete, the smaller the degree of trust at a certain recommendation node, the lower the credibility of enterprises at this node correspondingly, in accordance with the trust evaluation of the recommended members on the intellectual property pledge financing enterprise

(4) The lower the perceived risk tolerance of the bank, the lower the credibility of intellectual property pledge loan enterprises

Therefore, on the one hand, loan enterprises need to continuously strengthen exchanges with existing cooperative banks to increase cooperation time and scale. On the contrary, they should focus on their own reputation and pay attention to enterprise integrity and maintain it by avoiding any form of deception, so as to improve their comprehensive trust.

The limitation of our study is that the research method of this paper is experimental research, and the follow-up research can cross-verify the research results of this paper by means of interviews, case studies, experimental research, and so om so as to form an evidence triangle and make the conclusion more reliable.

Data Availability

Data could be accessed by request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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