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Catastrophe mechanism of investor trust mutation under negative effect in P2P platform

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Given progress in the era of big data coupled with the spread of regulatory policies for the Internet lending industry, P2P platform investors face a huge amount of real-time information. Simultaneously, investors' trust in the P2P platform is in flux under the influence of internal and external factors. In particular, the establishment of an online lending industry framework and regulatory mechanisms have put the P2P platform under great pressure to clean up and change. The negative publicity related to the P2P platform emerges on a regular basis. With the continuous accumulation of negative information, the investor's trust may gradually reduce. This will seriously affect the future operation of the online lending platform. It is a problem that the P2P platform and the entire network lending industry urgently need to prevent and avoid. The catastrophe theory can explain this phenomenon of sudden change and also provides a powerful tool for the study of investor trust evolution in this paper. Therefore, on the basis of the study on the initial trust building and influencing factors of the investors in the early stage, this article based on investor trust mutation model constructed by catastrophe theory, discusses the influencing factors of investor trust mutations in the context of group negative events and attempts to find the critical point or boundary of trust mutations to prevent and circumvent them.

Keywords: P2P platform; Catastrophe theory; Investor trust, Opinion dynamics; Simulation

1. INTRODUCTION

Since 2016, the China Banking Regulatory Commission issued a series of policies and guidance on the rectification of the Internet lending sector, clearly established an industry institutional framework, established a long-term supervision mechanism for ths industry, cleared a large number of illegal businesses and platforms, and promoted the online lending industry to a standard development stage. At the same time, the P2P platform also encountered unprecedented challenges and bottlenecks. Many platforms have collapsed and transformed due to business areas that do not meet relevant regulations. In 2017, the incidence of business closure and problem platforms was consistently above 60%. The continuous accumulation of negative information in the industry can easily lead to group negative events in the online lending industry and trigger a crisis of trust. In this context, the trust of investors in the P2P platform will be greatly affected, and investors' trust may suddenly change. Once the trust of investors has abruptly changed, the P2P platform will face the risk of liquidity caused by centralized payment, and it will have serious consequences for the continued stable operation of the P2P platform. Therefore, it must be guarded against. It is of great practical significance for the P2P platform's stable operation

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and liquidity risk prevention to study the sudden changes in investor trust in the P2P network lending platform.

The establishment of a trust mechanism is not static, but evolves dynamically with the development of society and the interaction between the parties to the transaction. The existing literature studies mostly analyze the factors influencing investor trust from a static perspective [1−3], and minimal literature focuses on the dynamic changes in trust. Research on the trust of online lending investors found that the main factors affecting the trust of investors are individual psychological traits, borrower information, and platform's risk control ability [4−6]. According to the research conclusions of Chapter 3, the information disclosure of the platform is the main factor affecting the trust of investors in view of the unique operating model, interest rate setting method, and survival status of the P2P platform in China. It includes financial information such as net cash flow and interest management fees, as well as social capital and risk control measures of the platform. Therefore, in combination with the existing literature and the above-mentioned research, external influence factors mainly consider the impact of P2P platform information disclosure on investor trust in the investor trust evolution model we construct.

China's P2P platform is undergoing industry clean-up and regulation. At the time of these changes, negative information emerged. As negative information emerges on the occasion of the P2P platform changes, whether the acceptance of negative information by the network of borrowing investors and the transfer and interaction with other investors will have an impact on investor trust. Simultaneously, whether or not the accumulation of negative information in the industry or the occurrence of adverse events (e.g. Ezubo. event) will lead to sudden and qualitative changes is an issue that the P2P platform needs to guard against and must deal with. Once this kind of sudden change occurs, it will easily cause investors to focus in a concentrated manner. This will cause the liquidity risk that the capital chain breaks to the P2P platform, and will seriously affect the sustained and stable development of the P2P platform and the network lending industry. Therefore, the influence mechanism of negative information transmission and interaction between investors on trust transformation of investors will be explored., based on the perspective dynamics. At present, the evolution of viewpoints can be roughly divided into two categories. One is a case study based on real group events; the other type is model-based research, which builds mathematics or computer models for group events and further studies the laws of operation, based on existing research results in psychology, sociology, and other related disciplines. Its main research methods are mathematical methods and computer simulations. Furthermore, perspective dynamics is a class of models that apply mathematical model or physics research to sociological phenomena [7]. Therefore, this article will study the impact of investor perspectives on the evolution of investor trust based on perspective dynamics.

In network group events, the process of forming and reaching the extremes of attitude evolution is an important factor of group behavior. It can be said that group polarization is the fuse of online community events. The rapid development of information technology allows users to obtain faster and wider information through the Internet, but it also leads to polarization or reversal of the individual's opinions or attitudes. The events that easily lead to an attitude polarization on the Internet generally involve issues such as politics and people's livelihood that are closely related to the interests of the online community. Individuals generally hold a priori view of these events. In the process of interacting through the network, if there are supporters, they will reinforce each other's viewpoints. When they encounter different views, they may make their opinions extreme by the conflict of opinions [8,9]. The models that consider the relevant psychological theories in the evolution of group perspectives mainly include D-W models [10−12]and J-A models [13,14]. The D-W model considers that when the individual viewpoints are close, their viewpoints will approach each other and gradually become unified, and the model based on this is constructed to discuss the influence of different viewpoint thresholds on the evolution of the group viewpoints. Studies have shown that high thresholds make the view evolve towards consistency, while low thresholds encourage group perspectives to form multiple small groups.

The study of the dynamic process of the evolution of investor groups can be divided into top-down and bottom-up categories. Top-down is to solve the dynamical differential equations, so as to obtain the evolutionary characteristics of the system. Top-down is that using computer simulation methods to study the macroscopic evolutionary dynamics characteristics of the system through the emerging phenomenon of interaction between individuals. With the development of computer technology, computer-based modeling and Monte Carlo simulation are becoming important research methods for social group behavior. This kind of method simulates the evolution process of group attitudes, abstracts the micro-interactions and interactions between individuals from reality observations, and reveals the group behaviors that emerged. This type of computational experiment method is not only suitable for the study of the complex social system self-organization, dynamic evolution and interaction between macro and micro levels, but also together with traditional methods to form a more comprehensive, deeper understanding and analysis of complex social issues. The dynamic evolution of the trust mechanism is not only influenced by external context factors, such as the disclosure of information on the P2P platform, the exchange of views of the investor community, but also influenced by the individual personality traits of investors. Kumpfer[15] and Roberts et al.[16] proposed that individual personality traits have a decisive influence on cognition. We classify the personality traits of individual investors into three categories based on sensitivity to events or information: sensitive individuals, neutral individuals, and apathetic individuals. Sensitive individuals are extremely sensitive to events or information and vulnerable to external influences. It is difficult to maintain the independence of psychological cognition. Apathetic individuals pay less attention to the development and spread of external events or information, and can better maintain their independence. Neutral individuals is a type between sensitive and apathetic individuals. We will examine the influence of internal factors on the evolution of investor trust from the perspective of individual investor characteristics.

The evolution of investor trust may be catastrophic due to the emergence of negative information, and this mutation has a non-linear, non-continuity character. Simultaneously, traditional empirical research cannot reveal the evolutionary mechanism of investor trust. However, the cusp catastrophe theory can describe the sudden change of the individual's psychology or behavior, and can explain this phenomenon of sudden change of discontinuity well, thus providing an effective method for the study of this paper. Therefore, in the context of the P2P platform's confidence crisis and mass incidents, We, based on the multiple roles of investors' internal individual traits and interactions and external platform information disclosure between with investor group perspectives, established an investor trust model based on catastrophe theory and adopted a scale-free network structure as a connection model for social networks [17]. In recent years, using social computing methods to study social phenomena has become an important sociological research method [18,19]. We use social computing methods to study the mutation of investor trust, help to clarify the process and mechanism of trust mutations, and effectively prevent large-scale situations in which investors focus on redemption. Therefore, it is of great significance for the stable operation of P2P platforms. That we use social computing methods to study investor trust mutations help to elucidate the process and mechanism of the occurrence of trust mutations, and effectively prevent large-scale situations in which investors focus on redemption. It also has important implications for the stable operation of P2P platforms.

2. INVESTOR TRUST CATASTROPHE MODELS

Deffuant uses continuous values to characterize individual viewpoints and proposes a continuous viewpoint model on a fully connected network. That is, the D-W model. The model can be effectively simulated by computer simulation, and its dynamic properties can be qualitatively understood. However, this model only considers the assimilation effect in social psychology without considering the repulsive effect. The J-A model based on the extended model of D-W considers the assimilation and repulsion effects in social psychology on a fully connected network. The J-A model is defined as follows:

Assimilation rules: If the attitude between individual A and individual B is less than d_1, ie, $|x_A - x_B| < d_1$, the attitude values of individual A and individual B are updated to:

$$x'_A = x_A + \mu(x_B - x_A)$$
$$x'_B = x_B + \mu(x_A - x_B)$$

The parameters μ represent the individual's personal characteristics, $\mu \in (0, 0.5)$. Psychologist Carley believes that individual traits are a set of features that remain relatively stable over time. It usually does not change with time, but it is a key factor in determining the behavior [20]. Therefore, we classify individuals into three categories by traits: sensitive, neutral, and independent. Sensitive individuals are susceptible to other individuals. Neutral individuals are affected to some degree by other individuals. Independent individuals are not easily affected by other individuals and tend to make decisions themselves. Therefore, the value of μ in the sensitive individuals is larger, followed by the neutral ones, and the individual ones have smaller values.

Repulsion rule: If the attitude between individual A and individual B is less than d_2, ie., $|x_A - x_B| > d_2$, then the attitude values of individual A and individual B are updated to:

$$x'_A = x_A - \mu(x_B - x_A)$$
$$x'_B = x_B - \mu(x_A - x_B)$$

In the existing D-W model and J-A model, one-dimensional attitude description is mainly adopted for individual attitudes, which are divided into two types: discrete type and continuous type. In discrete form, attitude is represented by two discrete values, and the continuous type is represented by the values on an interval.

We use continuous $x_i \in (0, 1)$ to indicate the trust value of investors to P2P platform. We believe that the formation of investor trust is not only influenced by individual characteristics, but also by the information disclosure on the P2P platform. We observe that with the accumulation of negative information, sudden changes in investor trust can result. The catastrophe theory takes the variation of the behavior of the potential function near the critical point (ie, the equilibrium point) as the research goal, and divides the critical point of the system into two categories: non-degenerate and degenerate. It proposes that the potential function exhibits simpler properties around the non-degenerate critical point of the system. However, around the critical point of degradation, the system structure presents an extremely unstable state. As long as the parameters change slightly, the system topology property will change and the mutation will occur. In the field of social psychology, there is a sudden change in people's attitude towards public policy [21,22]. The person's evaluation degree is the state variable, and the dynamic mechanism of the evaluation degree is constructed by using social dynamics. At the same time, the cusp catastrophe theory is used to investigate the sudden change of state variables under the influence of continuous changes of multiple control parameters.

Basic mutation models include fold-over mutations, cusp-type mutations, swallow-tailed mutations, butterfly-type mutations, hyperbolic umbilicus mutations, elliptical umbilical mutations, and parabolic umbilical mutations. Among them, because the cusp catastrophe model can express complex connotations in a concise system structure, it has been widely used. The cusp catastrophe model has a state variable which jumps at the critical point of the system; the cusp catastrophe model has two control variables. The continuous change of the control variable will cause the state variable to reach the critical point of the system and jump occurs. Therefore, we use the cusp catastrophe model to measure the differences in trust between individual investors.

The potential function of the cusp catastrophe model is shown in Equation 3: Among them, x is a state variable, and u and v are control variables.

$$v(f) = f^4 + uf^2 + vf$$

In order to achieve the equilibrium of the system, x is derived to get the formula 4:

$$\frac{\partial v(f,u,v)}{\partial x} = \frac{1}{4}f^3 + 2uf + v$$

The equilibrium points of the system are all satisfied:

$$\frac{1}{4}f^3 + 2uf + v = 0$$

Figure 1 depicts a graphical representation of the system's equilibrium points (ie, Equation 5) discrete changes due to continuous changes in parameters. The trifoliate surface of the upper part is the balanced surface x of the system, consisting of the first half, the second half, and the folds. The first half and the second half represent the two steady states of x, and the folds are the unreachable regions of x. The lower part is the control plane formed by the control variables u and v, and the two sharp lines are singularities. When the values of u and v reach the two lines, mutations will take place. The two lines c_2 and d_2 indicate that the investor's trust suddenly jumps from one stable state to another.

In this paper, u represents the investor's trust value, $u = x$. v represents the level of disclosure of the platform, $v \in (0, 1)$. f represents the individual's level of trust in the platform. Therefore, the trust distance between individual A and individual B is $d = |f_A - f_B|$. When the trust degree f of individual A and individual B is located on the same curved surface of the cusp catastrophe model, that is, they are in the normal state or in the same abnormal state, it means that the two individuals have similar levels of trust. Therefore, the assimilation rule is used to update the trust value. If the trust degree f of individual A and individual B is located on different surfaces of the cusp catastrophe model, it means that the trust degree of the two individuals differs greatly. Therefore, the repulsive rule is used to update the trust value.

3. SIMULATION EXPERIMENTS AND ANALYSIS

According to the model in the previous section, we used Anylogic software to build a simulation model. Multi-agent simulation is used for modeling. Each agent represents an individual participating in the P2P network loan information interaction in a social network. The network structure between Agents is a scale-free network structure, which is a model of a network structure that shows that it is closest to the real world. In each evolution time step, the interaction between each individual and other individual is as follows: First, determining whether the individuals are connected. If they are not connected, evolution goes to the next time step If connected, then the evolution according to the rules proposed in the previous section is performed. After that, according to the trust value of the two agents and the degree of information disclosure of the platform, the trust degree of the two agents to the platform is calculated according to Equation 5. If it is calculated that the degree of trust between the two is on the same surface of the cusp catastrophe model, the evolution of trust based on the assimilation rule is carried out and their trust will approach each other. If it is calculated that the degree of trust between the two is located on different surfaces of the cusp catastrophe model, the trust evolution will be carried out according to the rule of exclusion, and the difference in trust between them will further increase. This process is shown in Figure 2.

Table 1 Comparison of evolutionary results of three network structures.

	Random network	Small World Network	Scale-free network
Number of simulations		500	
Steady-state time	35	25	26
Steady state subset	2	2	2
Number of simulations		100	
Steady-state time	32	20	25
Steady state subset	2	2	2
Number of simulations		50	
Steady-state time	20	10	15
Steady state subset	4	3	3

3.1 Impact of network structure and number of investments on investor trust evolution

We first compared the evolution of investor trust under three widely used network structures (random networks, scale-free networks, and small-world networks). Figures 3, 4 and 5 show the evolution of investor trust in the P2P platform under random networks, small-world networks, and scale-free networks, respectively. From a graphical point of view, the impact difference of the three network structures on the formation of the final evolution is not significant. In the steady state, the three network structures all form two clusters of subsets, and there are significantly more downwardly convergent individuals than upwardly convergent individuals. Based on this, we conducted further data analysis. The results are shown in Table 1. When the number of investors is less than 100, the simulation results are less stable. However, when the number is greater than 100, regardless of the number of people, the time for the three network structures to reach steady state is relatively small. When the number of investors changes and the network structure changes, we find that the steady-state time under the scale-free network structure is the most stable among the three network structures.

Therefore, we have reached the following conclusions: Comparing the results of the evolution of the trust values of the number of different investors under different network structures, we find that the three network structures (random network, small-world network, and scale-free network) have minimal difference, but the scale-free network structure is the most stable and it is the investor relationship network that the is most suitable and realistic. Therefore, the scale-free network structure was chosen for follow-up experiments. At the same time, because the evolution of the network structure is relatively stable when the number of investors exceeds 100, we set the number of simulations to 500.

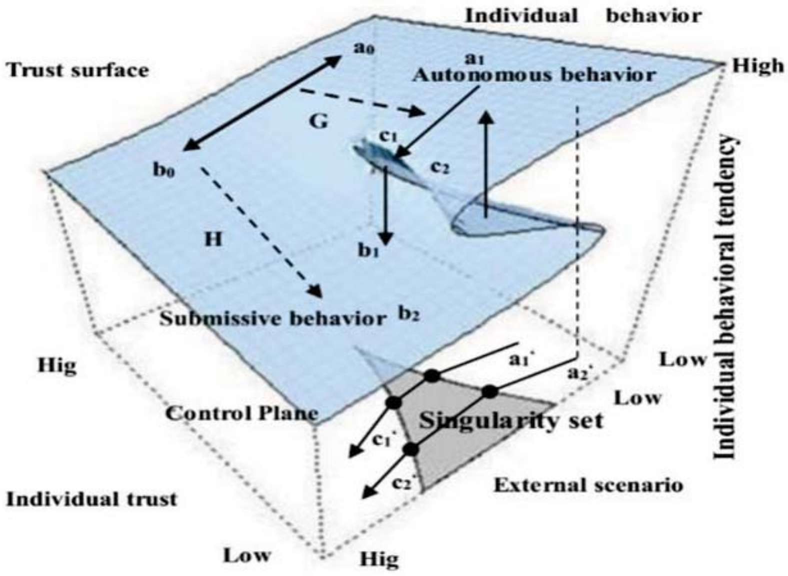

Figure 1 The cusp mutation model.

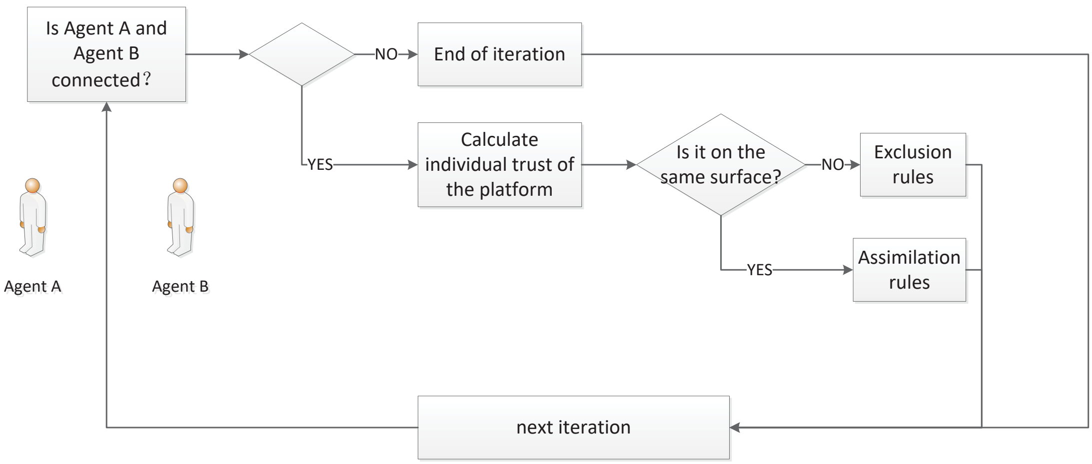

Figure 2 Simulation evolution process.

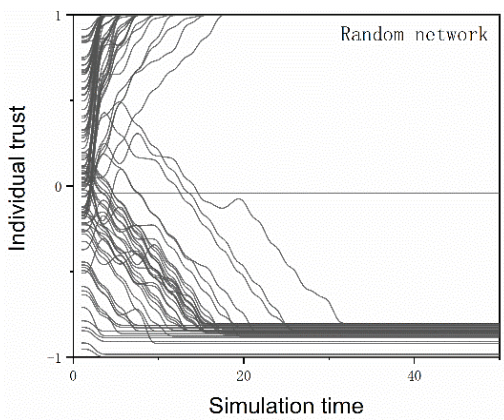

Figure 3 Random network evolution results.

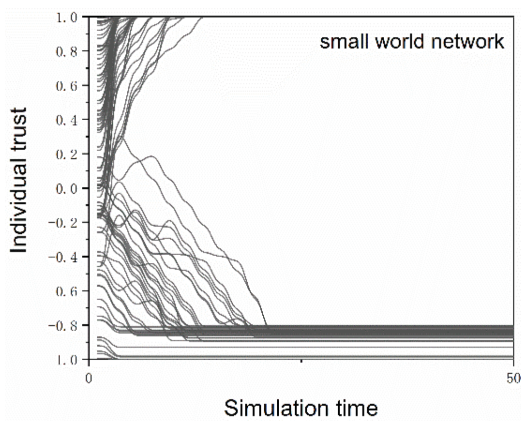

Figure 4 The evolution of small-world networks.

3.2 The influence of investors' individual traits on the evolution of trust

We will separately study the evolutionary results of investor trust in the P2P platform when the individual investor characteristics are all sensitive, neutral, or indifferent. Simultaneously, we will study the evolutionary results when the three individual traits exist on the investor relations network on average, and this means the above results explore the effects of

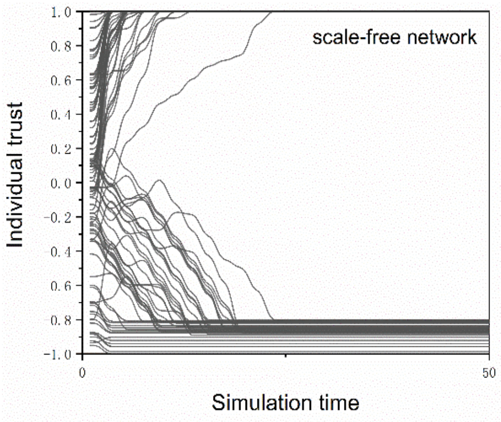

Figure 5 Scale-free network evolution results.

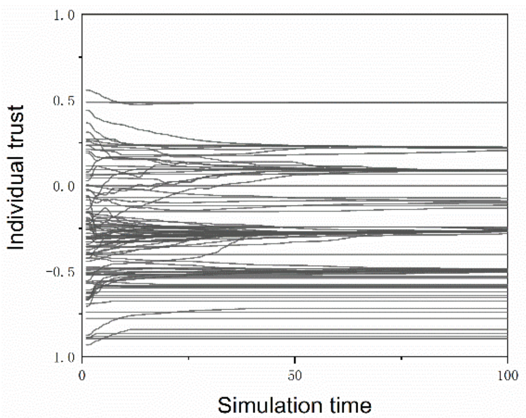

Figure 6 All individuals are apathetic individuals.

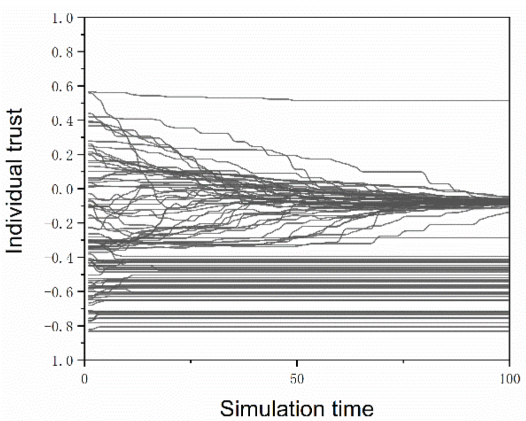

Figure 7 All individuals are neutral individuals.

individual investor traits on the outcome of trust evolution.

It can be seen from the figure that apathetic investors are difficult to influence by the opinions of other individuals and tend to think independently. The individual investor's trust in the P2P platform as a whole has no obvious convergence effect, and there is no obvious subset in the steady state. For neutral investors, such individuals will be affected by other individuals to a certain extent, but they will not be completely affected. Therefore, the convergence effect of trust in Figure 7 is more obvious than that in Figure 6, but the convergence time is longer, which combines the characteristics of sensitive

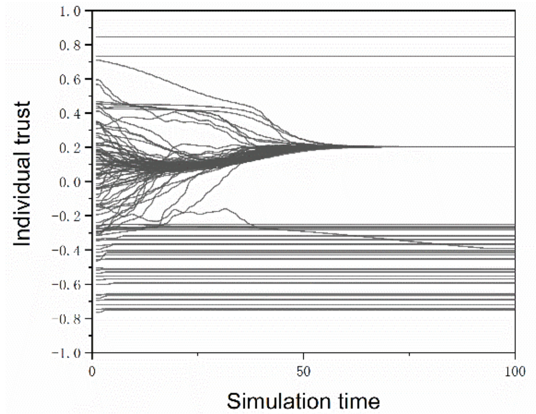

Figure 8 All individuals are sensitive individuals.

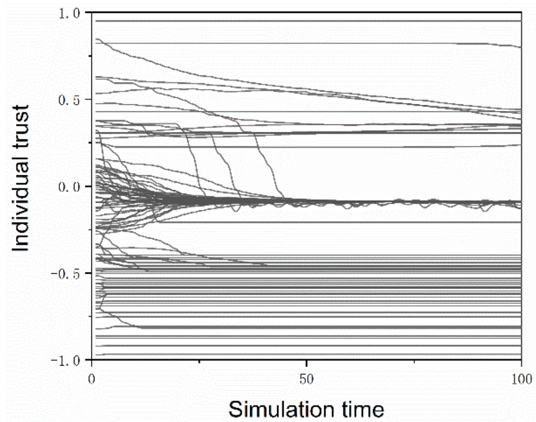

Figure 9 Average ratio of three types of individuals.

individuals and apathetic individuals. For sensitive investors, they are easily affected by the opinions or behaviors of other individuals. Therefore, the convergence speed is fast and the convergence effect is obvious. When sensitive, apathetic, and neutral investors exist on average, apathetic investors maintain their independent thinking characteristics. However, the simultaneous existence of neutral and sensitive investors makes the convergence rate faster, and although the convergence effect is worse than that for sensitive investors, it can also form a distinct subset.

Comparing the evolution of investor trust values under different investors' traits, we can draw the following conclusions: Compared with neutral investors, sensitive investors are more affected by the interaction of group perspectives, and the resulting fluctuations in trust in the P2P platform are also greater. Apathetic investors' trust in the platform is less affected by the interaction of group perspectives and the evolutionary trend is relatively stable.

3.3 Influence of individual factors and platform factors on investor trust mutation

Based on the previous research findings, we know that the factors influencing investor's trust are not only individual factors, but also related to the degree of information disclosure on the P2P platform. Therefore, we will study the influence of the weight of individual factors and the weight of the platform

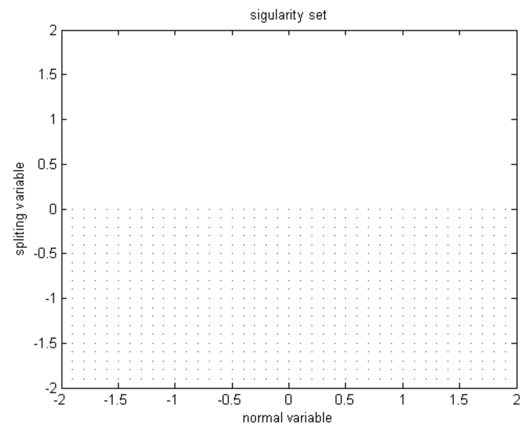

Figure 10 (a) Bifurcation point set

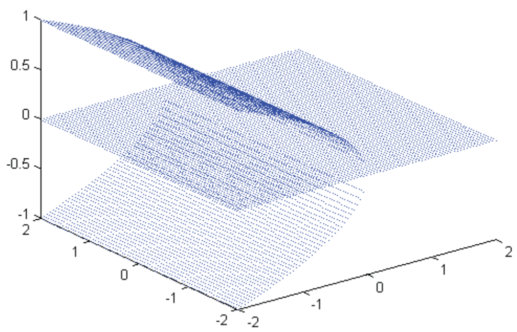

Figure 10 (b) mutation graph

Figure 10 $\beta = 0, \alpha \in (0, 1)$.

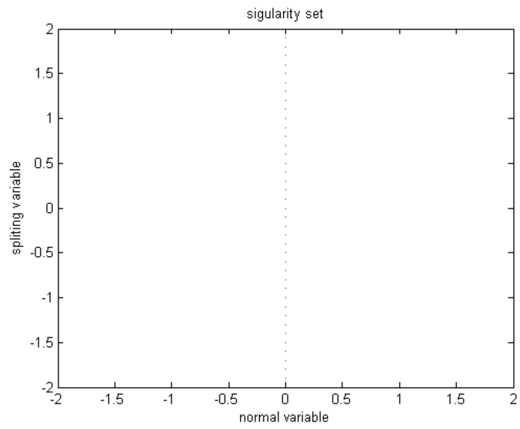

Figure 11 (a) Bifurcation point set

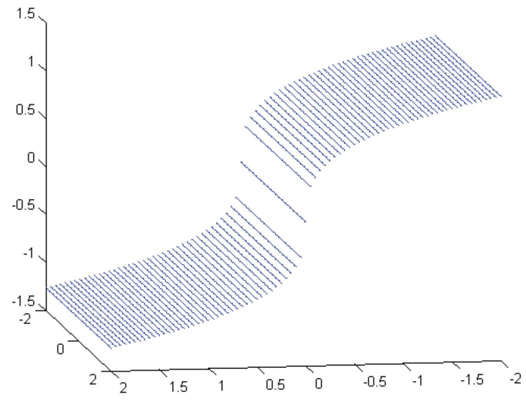

Figure 11 (b) mutation graph

Figure 11 β=1, α=0.

factors on the trust mutation of investors.

The catastrophe model for investor trust is as follows:

$$\frac{1}{4} f^3 + 2uf + v = 0$$

We add $\alpha \in (0, 1)$, $\beta \in (0, 1)$ to the formula, α and β respectively represent the individual weight of investors and the degree of disclosure of P2P platform information on the impact of investor trust mutations. That is:

$$\frac{1}{4} f^{+} 2\alpha u f + \beta v = 0$$

When $\beta = 0$, no matter how much α is, the graph does not meet the characteristics of the mutation graphs. Bifurcation point sets and mutation graphs are shown in Figure 10.

Therefore, β is set as 1, and the effect of the change of α on investor trust mutation is discussed. The result is shown in the figure below.

From the figure we find that as α gradually increase from 0 to 1, the range of divergent point sets increases. When $\alpha = 0$, the investor's trust in the P2P platform is not easily mutated, and the graph tends to a logistic graph. When $\alpha = 1$, the folds of the mutation graph increase, which indicates that the range of investor trust mutations increases. When $\alpha = 1$, and β gradually increases from 0 to 1, the influence of trust mutations on investors is shown in the following chart.

As can be seen from the figure that as the gradual increase of β, the range of the divergent point set becomes smaller and the fold of the mutation graph decreases, that is, the scope of the investor's trust in the platform is prone to sudden change.

In Equation 6, the independent variable associated with the regular factor α is the P2P platform information disclosure, and the independent observation variable related to the divergent factor β is the individual attitude. In mutation theory, α determines the location of the mutation and β determines the degree of mutation[29]. In the evolution of investor trust, the level of disclosure of platform information determines the position of structural mutations that investors trust. This type of mutation includes two aspects: the construction of trust or the destruction of trust, and the degree of mutation is determined by the individual attitude variable. This shows that the deterioration of investor trust in real life is due to external changes in platform information and the extent of this deterioration is determined by the attitude of individual investors. From this, it can be concluded that different investors have different trust results due to different evaluations of the same negative information.

With the continuous changes in information disclosure and individual attitudes of P2P platforms, when there is a possibil-

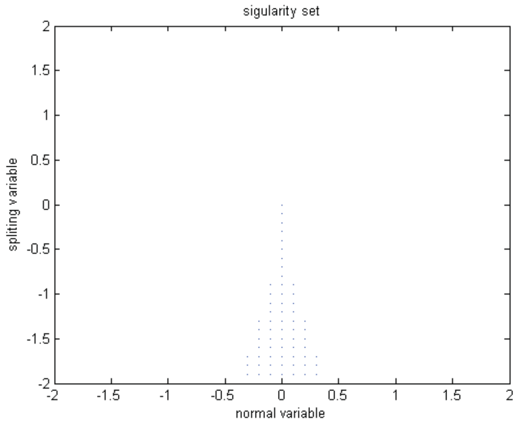

Figure 12 (a) Bifurcation point set

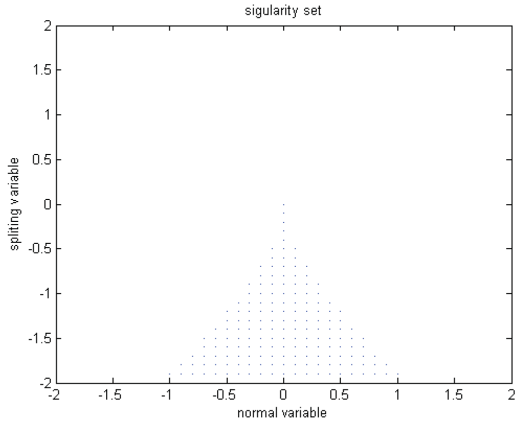

Figure 13 (a) Bifurcation point set

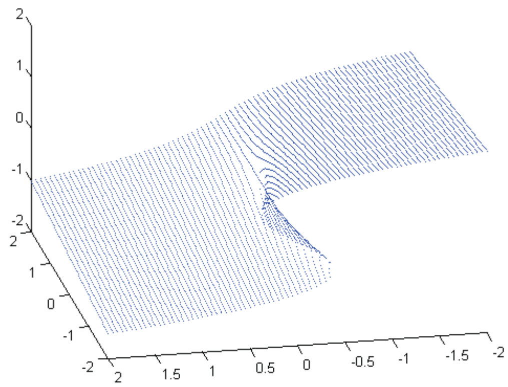

Figure 12 (b) mutation graph

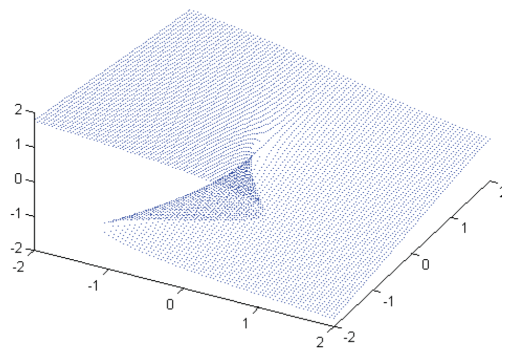

Figure 13 (b) mutation graph

Figure 12 β=1, α=0.5.

Figure 13 β=1, α=1.

ity of sudden change in investor trust, external random disturbances, ie. changes in P2P platform information disclosure, will cause perturbation jumps in the equilibrium state of individual investor trust. We focus on the sudden jump from trust to mistrust. The existence of perturbation jumps shows that the change of platform information disclosure is a management factor that needs to be focused. From the above figure, we can see that even if the attitude of investors is positive, there is always an unstable region for the level of information disclosure of the platform. Only when this area is traversed, the change in trust of investors on the P2P platform is more gradual and predictable.

3.4 The influence of individual traits and platform information disclosure on the evolution of individual trust

Through the previous experiments, we found that the trust of sensitive investors is more affected by external factors. Therefore, we will discuss the path of trust evolution of sensitive investors under different P2P platform information disclosure degrees. The result is shown in the figure below.

We find that the degree of information disclosure on the P2P platform has a significant impact on the evolution of investor trust. When the level of information disclosure on the platform is low, the investor's trust in the platform is mainly derived from the his own attitude and the interaction of a group perspective. At this time, the individual investor's trust value will quickly reach steady state, and investors who choose to trust the platform will be more stable. At the initial stage, investors who are uncertain whether to trust the platform will approach the direction of distrust by interacting with other investors' perspectives. This process takes longer and fluctuates than investors who trust the platform. When the level of information disclosure on the P2P platform is high, investors and platforms involved in network lending basically reach information symmetry, and individual investors will converge toward trust. When the level of information disclosure on the P2P platform is medium, the evolution of investor trust is an inverted U-shaped evolution. In the early stages of evolution, the information disclosed by the platform increased the investor's confidence in the platform, but as the evolutionary time advances, incomplete symmetry of information and the interaction of opinions among investors lead to a reverse change in the evolution of investor trust in the P2P platform. The overall process showed an inverted U shape.

From this we conclude that for sensitive investors, the more information disclosure on the P2P platform, the faster the in-

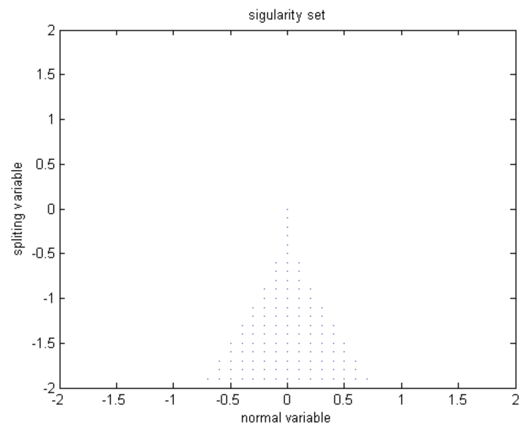

Figure 14 (a) Bifurcation point set

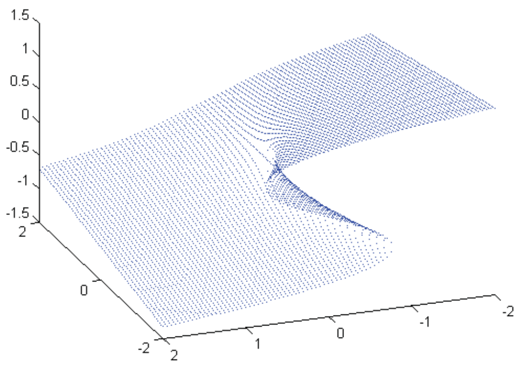

Figure 14 (b) mutation graph

Figure 14 α=0.5, β=0.5.

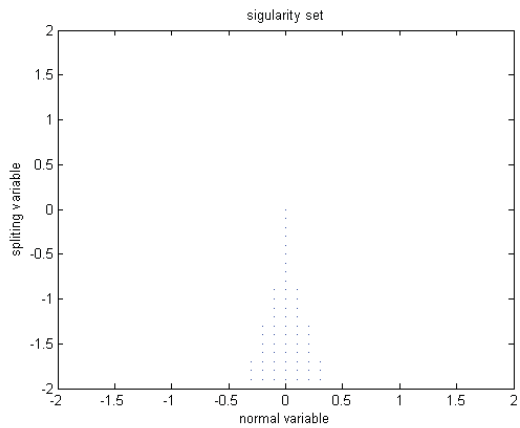

Figure 15 (a) Bifurcation point set

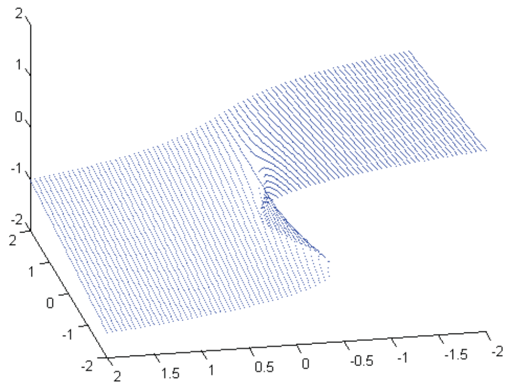

Figure 15 (b) mutation graph

Figure 15 α=0.5, β=1.

vestor's trust in the P2P platform will be formed and more stable. When the level of information disclosure on the P2P platform is medium, the trust of investors has evolved into an inverted U-shaped evolution, and trust has rapidly emerged and has gradually become distrustful.

4. CONCLUSION

The trust of investors in the P2P platform is constantly changing under the influence of internal and external factors. Accumulation of negative information will lead to sudden changes in the trust of investors, and this kind of mutation will cause investors to focus on redemption, which will be fatal to the continued development of the P2P platform and online lending industry. Therefore, P2P platforms need to pay close attention and focus on preventing the occurrence of the above situations. This study constructs an evolutionary model of investor trust based on the mutation theory, analyzes the evolutionary path of investor trust under the influence of internal and external factors. At the same time, this study has studied the factors in which investors' trust in the P2P platform will mutate, and how to prevent and circumvent this mutation. Through the study of investor trust mutations, this article opens up a new perspective on the research of online lending. The conclusions of the study are as follows: First, according to the classification of individual traits, sensitive investors' trust on P2P platforms is more susceptible to external factors, such as the interaction of opinions between investors, and the steady state of trust is more likely to be broken and the possibility of mutations is more likely to occur. Second, the mutation of investor trust is mainly due to information disclosure on the

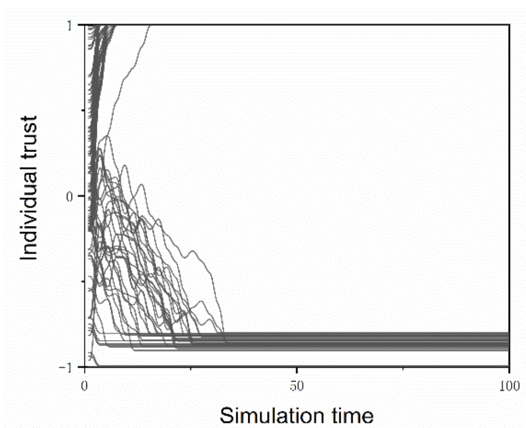

Figure 16 The level of information disclosure on the platform is low.

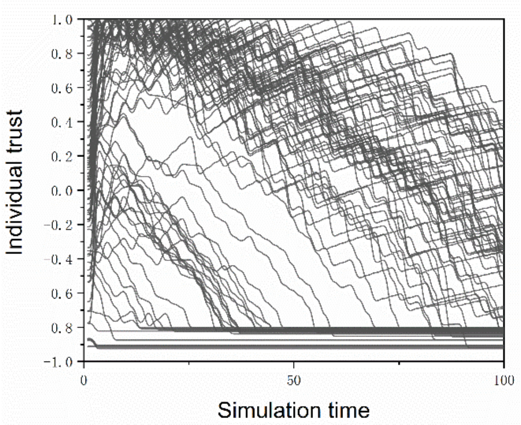

Figure 16 The level of information disclosure on the platform is medium.

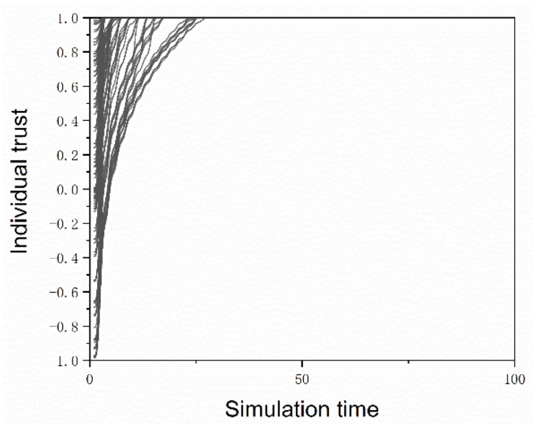

Figure 16 The level of information disclosure on the platform is high.

P2P platform, such as negative information on the deterioration of financial status and social capital. When the level of information disclosure is low, investors' trust in the platform can easily be mutated, and the degree of mutation depends on the individual characteristics of the investor. Third, for sensitive investors, the information disclosure on the P2P platform has a significant impact on the evolution of its trust. The more disclosure information and transparency of the P2P platform, the easier it is for investors to trust the platform.

The above theoretical models and research conclusions are helpful for the P2P platform to evade and guard against the risk of centralized redemption caused by investor trust mutation, which is of great significance for promoting the sustainable and stable development of the P2P platform and network lending industry. In the catastrophe model constructed in this study, the P2P platform information disclosure variables simply distinguishes between three cases of information disclosure: more, less, or middle, and does not further distinguish and explain the types and quality of disclosure information. Therefore, it is necessary to continue to refine and improve the classification of information disclosure in the future research so as to present the true evolution mechanism of investor trust mutations, and then to prevent and circumvent them more specifically.

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