

# A Study on Credit Appraisal System of C2C E-Commerce

—Based on the Analysis of Taobao

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## Abstract

In the virtual network environment, the C2C e-commerce has some problems in product quality, service, credit speculation. At present the credit appraisal system offered by domestic C2C e-commerce website ensures the network security to a certain extent while it has some problems in identity verification, evaluation rules and model, credit of buyers and sellers and so on. Focused on the largest national C2C shopping website—Taobao, this article mainly analyzes the present situations and problems of the credit appraisal system, puts forward some improved suggestions of the real-name authentication, credit and transaction appraisal rules and so forth, and then establishes improved credit appraisal system.

## Keywords

C2C, E-Commerce, Online Shopping, Credit Appraisal

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## 1. Introduction

It is well-known that the indirect exchange based on the media of credit tool and system is an important feature of e-commerce exchange pattern [1]. And the existence of the indirect exchange depends on the trust relationship between the consumers and the sites, namely the credit relation which is especially obvious in the C2C e-commerce because the online transactions of C2C e-commerce will be involved in many persons, great amount and frequent transactions [2]. However, it is very difficult to fully understand the credit standing of the counterparty. For example, any Internet user ordered a lot of goods and then denied it by oath, or the online orders of sincere purchasers went down like a stone in water [3]. So there is mutual suspicion between the web-

sites and online users and lack of trust is one of the most important reasons why the consumers won't buy goods online. The main reason causing the credit problems is that there is no good e-commerce credit appraisal system, which can't ensure the subject of trading fully understand the credit standing of the counterparty before the transaction while the subject won't be punished after the transaction [4]. Therefore it is necessary to establish a good improved credit appraisal system in order to solve the credit problems of e-commerce and develop e-commerce healthily and rapidly.

In this context, it is essential to study on the domestic C2C website credibility and trust, which is the important guarantee for establishing and improving the C2C e-commerce credit appraisal system [5].

At present, most C2C e-commerce websites have set up their own credit evaluation system, but it is not very good. On one hand, the C2C transaction participants are generally individuals or small businesses which have not high reputation and both can't understand each other or acquire the accurate identity of transaction object; on the other hand, separate sites have limit in the capital, technology and talents [6].

Taobao established by Alibaba in 2003 April is a C2C trading platform and it has become the first domestic C2C website, whose users share absolute advantage in the market [7]. Taking Taobao website as an example and analyzing the credit appraisal system of Taobao, this paper points out the current defectiveness of the C2C e-commerce credit evaluation system, and then proposes the improved measures on construction of C2C e-commerce credit evaluation system [8].

## 2. The Current Situation of C2C E-Commerce Credit Appraisal System

Credit appraisal system is a tool and mechanism applying in e-commerce for the generation and propagation of credit information. Its purpose is to judge the quality of products and services offered by the sellers and payment of the buyers by analyzing the previous transaction information and then to reduce the credit risk in the transaction. The basic principle of credit appraisal system is that both parties of the transaction do mutual evaluations on such respects as product quality, delivery and payment after finishing the deal, which will form the information feedback of credit. Then the credit information feedback from all transactions will come into a comprehensive credit scores which shows the user's credit standing and for other users' reference [9].

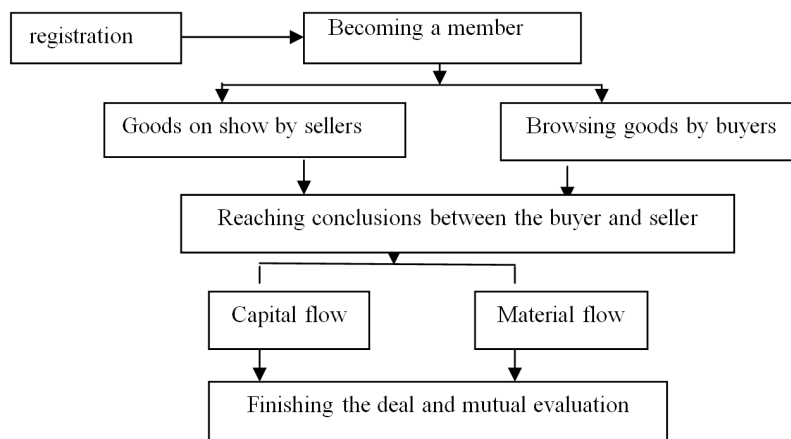
At present, most C2C e-commerce websites have set up their own credit evaluation system. Those websites offer the users platform to evaluate the counterparty's credit through the credit appraisal system based on the model of credit scoring.

### 2.1. The Credit Appraisal System of Taobao

In Taobao website, the commodity transaction process is shown in the following **Figure 1**:

According to the commodity transaction process of Taobao e-commerce, this paper analyzes the credit appraisal system of Taobao from different sections in detail as follows:

a) Registered Members: Whether you are a buyer or seller, you can be registered on Taobao.com free, and the operation is simple.



**Figure 1.** The commodity transaction process of C2C e-commerce.

b) Authentication Ways: If you are a seller, the authentication will be finished by two steps of the identity certification and bank account authentication; if you are a buyer, it's unnecessary to require the identity certification.

c) Safety Payment: In safety payment, Taobao makes use of Alipay which is the third party payment tool.

d) Credit Appraisal System:

1) The evaluation rules of the seller made by the buyer:

The evaluation information of the seller made by the buyers without the identity certification is also added into the credit scores.

Precondition of evaluation: Evaluation will be done after the successful completion of the transaction. If there's a refund during the transaction and the buyer chooses "unreceived goods" or "retured purchase", then this transaction will be regarded as being cancelled after the completion of the refund. In this case, there won't be any evaluation or credit scores.

Effective time of evaluation: The evaluation won't be effective until both parties have finished the evaluation [10].

Credit scoring rules: The effective evaluation of the completed transaction by payment of Alipay will be scored while the evaluation of the successful transaction without payment of Alipay won't be scored. Each transaction can be evaluated once. 1 point will be added into the credit score when it is a good evaluation, no point will be added when it is a neutral one, 1 point will be deducted when it is a bad one.

2) Anonymous evaluation rules made by buyers:

If the buyer chooses to evaluate anonymously, the records of the transaction and evaluation will be shown anonymously, and the evaluation information will be added into the credit scores. Meanwhile, the anonymous evaluation can't be changed into real-name one. If the real-name evaluation is changed into the anonymous one by the buyer within 30 days, then the changed information will be shown anonymously but won't be added into the credit scores again.

3) Absent evaluation rules:

If one party makes a good evaluation but the counterparty doesn't evaluate, then the credit appraisal system will make a good evaluation automatically 15 days after the successful transaction. If one party makes a neutral or bad evaluation but the counterparty doesn't evaluate within the limited periods of evaluation, then the system won't make any evaluation automatically. If both parties don't evaluate within the limited periods of evaluation, then there's no evaluation records and scores.

4) The display of evaluation and scoring rules:

If both parties make good evaluation (including the good one made by the system automatically), then the contents of evaluation will be shown immediately and the credit scores will be added 1 point. If one party makes a neutral or bad evaluation and the counterparty also make the evaluation, then the contents of evaluation will be shown 48 hours after finishing the mutual evaluation and the corresponding score will be added. If one party makes a neutral or bad evaluation but the counterparty doesn't evaluate, then the contents of evaluation will be shown 48 hours after expiration of limited periods of evaluation and the corresponding score will be added.

5) The modification and deletion rules of evaluation:

The evaluator has a chance to modify the neutral or bad evaluation into the good one or delete the evaluation within 30 days. The modified evaluation can't be deleted or modified again and will be scored as per the above-mentioned rule.

6) The credit scores of the buyer and the seller:

The credit scores of the buyer and the seller will be scored respectively.

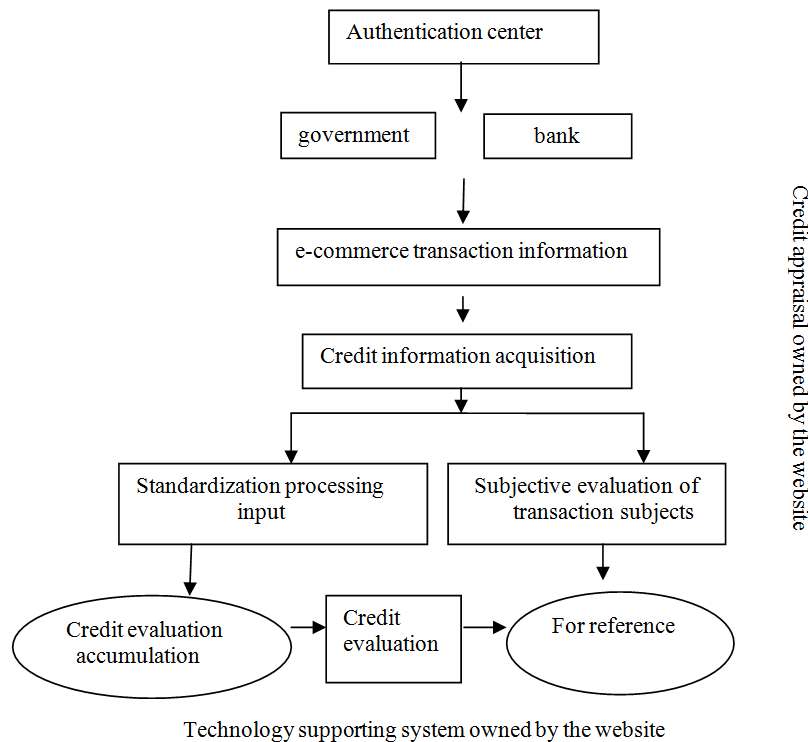
7) Repeatedly transactions between the same accounts:

The scores of repeatedly transactions between two same accounts won't be scored exceeding six times per month.

## 2.2. The Common Structure of the Existing C2C E-Commerce Credit Appraisal System

By analyzing the credit appraisal system of Taobao, this paper concludes the common structure of the existing C2C e-commerce credit appraisal system shown in [Figure 2](#) as follows:

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**Figure 2.** The common structure of the existing C2C e-commerce credit appraisal system.

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### 3. The Defects of the Existing C2C E-Commerce Credit Appraisal System

Through analyzing the credit appraisal system of Taobao, it is not difficult to see that the existing C2C e-commerce credit appraisal system has some defects, though the credit appraisal system of Taobao ensures the security of the online transaction and reduces its credit risks to some extent. Based on the defects of the credit appraisal system of Taobao, this essay analyzes the common problems of the existing C2C e-commerce credit appraisal system [11].

#### 3.1. Lack of Effective Authentication to Buyers or Sellers

The purpose of authentication is to make sure that one user has a only name and then to reduce the action of mendacious credit. At present, most websites will verify the registered seller by landline phone number or authentication, which can't guarantee the uniqueness of the seller under the specific conditions in China. But the buyers can go online shopping on those websites as long as they are registered. Therefore, some sellers can register many accounts to do some mendacious transactions with themselves to enhance their credit standing. However, if all users are required to pass the authentication, then some buyers will feel too trouble to consume.

Take Taobao as example in authentication, the common buyers are easy to register by writing down basic personal information as user's name, tel No., e-mail address, etc. But the sellers are required to pass authentication of ministry of public security and bank system in addition to write down some basic personal information when they are registered, which also takes a little lone time. Overall, Taobao should strengthen the authentication of buyers to make sure that one user has a only name, meanwhile, it should also reinforce the authentication of sellers by adding other necessary ways in addition to the authentication of ministry of public security and bank system.

Therefore, there are two requirements in improving the ways of the authentication: one is able to effectively prevent the “credit speculation”, the other is not to increase barrier of common consumers into the online market.

### 3.2. Too Simple Credit Evaluation Model

The credit evaluation system of Taobao sets up the subjective comprehensive evaluation, as well as the evaluation of products, services and logistics which has the ratings of 1 - 5 points respectively. The credit evaluation model of Taobao is outgoing that of other e-commerce websites, but some of its evaluating indicators have not been more detailed. For instance, the buyer may make the evaluation of 4.7 points which shows the dissatisfaction in some respects as the discrepancy between the product and the picture described, the quality discrepancy between them, bad services, etc. But the current credit evaluation model can't show those detailed problems.

### 3.3. Unclear Evaluation Timeliness

In some websites, the buyer may evaluate after clapping the product instead of the real successful transaction, which offers the seller chances to do fake evaluation. And some buyers may make good evaluation even if the transactions can't be completed due to certain reasons, which may causes distorted credit standing. Even worse, the sellers may gain good credit ratings by mutual clapping commodities each other. Meanwhile, the unclear evaluation timeliness leads to the problem of unfair evaluation basis. For example, being afraid to get a bad evaluation in revenge, the party who evaluates firstly will choose to make a good evaluation or not to evaluate even though he is not fully satisfied. In this case, the credit ratings are also distorted.

The rule of Taobao is comparatively reasonable in evaluation timeliness. Taobao stipulates that the evaluation information would be added into the credit ratings when the transaction is made by Alipay, which ensures the truth of the credit ratings, though some credit information of other transactions of COD or local trading won't be included [12]. And the credit evaluation contents made by the party firstly will not shown until the counterparty makes the evaluation, so both parties may evaluate objectively according to their real feelings.

### 3.4. Credit Separation between the Buyer and the Seller

The credit evaluation system of Taobao divides the credits of the buyer and the seller separately, which is a great progress compared with other websites because the natures of buying and selling are not same. For buyers, their concern is the credit of the seller while for sellers, is the credit of the buyer. But at present credit evaluation systems of most sites don't divide them separately.

## 4. The Improved Credit Appraisal System of C2C E-Commerce

### 4.1. Improving the Evaluation Rates

The low evaluation rates cause the distorted results of the credit appraisal model. In order to protect the users' privacy, the websites won't require evaluation imperatively, for some buyers are unwilling to let other know what kind of products they have purchased. Therefore, the writers think if some users won't accept the imperative evaluation rule, then the websites may adopt other methods. For instance, add an item of giving up the evaluation in the credit appraisal system. If the user chooses the item, he will give up the chance to evaluate the counterparty. Another suggestion is to adopt the default way, *i.e.*, if one party or both parties won't make any evaluation within the limited time, then the system will regard it as giving up the evaluation automatically.

### 4.2. Adopting More Ratings

The less the ratings are set, the low the accuracy of the evaluation is, which is sure to affect the accuracy of the credit scores. Currently, all C2C e-commerce websites classify the evaluation ratings into three ratings of the good, neutral or bad evaluation which can't show the true feelings of the users. Therefore, the writers suggest that the ratings should be classified into five situations, *i.e.*, very good, good, just ok, need improving, dissatisfied and scored 2 points, 1 point, zero, minus 1 point, minus 2 points respectively.

### 4.3. Determining the Transaction Scoring $T_c$ by Considering Comprehensive Factors

In the existing evaluation system, the scores made by the buyers are vague and general. In fact, the factors af-

fecting the users' scoring include product quality, performance, price ratio, the seller's services, the speed of logistics, etc. So we may introduce the factor weight allocation system into the scoring system to quantize the users' scoring.  $T$  means the comprehensive scores which is made by the buyer to the seller.  $C_k$  is the scores of some certain factor.  $a_k$  is the relative weight.  $m$  is the number of factors which affect the scoring of the buyer. There is the calculation formula as follows:

$$Tc = \sum_{k=1}^m C_k a_k \quad \left( k = 1, 2, \dots, m, 0 \leq a_k \leq 1, \sum_{k=1}^m a_k = 1 \right) \quad (1)$$

Take the product quality and the services of the seller as an example, if the buyer thinks they are very important, then the website will set their great weights, say, product quality taking 60% and services of the seller taking 40%, then the final comprehensive scores are equal to quality points  $\times$  60% + service points  $\times$  40%. In this way can the scores made by the buyer be more accurate and objective.

#### 4.4. Considering the Historical Positive Ratings of the User Being Evaluated

The scores of the user being evaluated include both the scores of this transaction and the historical scores.  $T_1$  means the scores of this transaction considering the historical positive ratings,  $\omega_1$  stands for the corresponding weights. But how to set the weights? If the seller have done transactions  $n$  times, then the historical positive scores of the seller is recorded as  $N_G$ . And then there is the formula as  $\omega_1 = \frac{N_G}{N}$ .

$$T_1 = \omega_1 \cdot Tc = \frac{N_G}{N} \cdot Tc \quad (2)$$

From this, it can be seen that the more the historical positive rates the seller gets, the faster the accumulated scores increase.

#### 4.5. Considering the Transaction Amount

To solve the problem of fake credit scores made by the seller through frequent small transactions, the transaction amount should be one factor of evaluation.  $T_2$  means the scores of this transaction considering the factor of transaction amount. Then

$$T_2 = \omega_2 \cdot Tc \quad (3)$$

We can set  $\omega_2$  according to the different product pricing ratings. For instance,  $\omega_2$  will be set as 0.1 for the prices of 0 - 1 yuan, 0.2 for 1 - 100 yuan, 0.4 for 100 - 500 yuan, 0.6 for 500 - 1000 yuan, and so on.

#### 4.6. Considering the Credit Ratings of the User Making the Evaluation

In order to protect the seller from suffering malicious bad evaluation and to prevent the seller for making fake credit, the credit ratings of the user making evaluation should also be considered in the evaluation. The user of higher credit ratings makes the evaluation which will affect the credit of the seller greatly.  $T_3$  means the scores of this transaction considering the factor of the credit ratings of the user making the evaluation. Then

$$T_3 = \omega_3 \cdot Tc \quad (4)$$

Similarly, we can set  $\omega_3$  according to different credit ratings of the sellers. The higher the credit ratings of the buyer are, the greater  $\omega_3$  is.

$T$  is the final scores of this transaction after considering the above-mentioned factors. Then  $T = \frac{T_1 + T_2 + T_3}{3}$ .

Considering the above-mentioned formulae (1)-(4) can get the following formula:

$$T = \frac{T_1 + T_2 + T_3}{3} = \frac{(\omega_1 + \omega_2 + \omega_3)Tc}{3} = \frac{(\omega_1 + \omega_2 + \omega_3) \sum_{k=1}^m C_k a_k}{3}$$

## 5. Conclusion

Based on the comprehensive analysis of the C2C e-commerce credit appraisal system of Taobao, this essay concludes that the established and improved credit management system is the key management of C2C e-commerce and an important guarantee for developing the whole e-commerce healthily. In the suggestions of improving the current C2C e-commerce credit evaluation system, this paper puts forward the amendatory ways in authentication, evaluation methods, accumulated scores rule and so on, which solves the main problems of the current simple accumulated credit scores way by processing the data of evaluation. To perfect the credit appraisal system of C2C e-commerce, it is necessary to improve in transaction rules of e-commerce, credit system and so forth. Due to the limited sources and energy during the research, the research methods and angles of thinking are not complete.

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