

An Analysis of the Dilemmas of C2C E-commerce Credit Evaluation Systems and Breakthrough Strategies: Postprint

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Abstract

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Full Text

An Analysis of the Dilemma and Breakthrough Path of the C2C E-Commerce Credit Evaluation System

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Abstract

[Purpose/Significance] In the “Internet Plus” era, credit issues in C2C e-commerce have become increasingly prominent. Researching the developmental dilemmas of C2C e-commerce credit evaluation systems and exploring breakthrough paths holds practical significance. **[Method/Process]** Starting from credit evaluation itself, this paper analyzes the importance of credit evaluation

for all participants in e-commerce, deconstructs the deficiencies in existing C2C e-commerce credit evaluation systems, and explores a breakthrough solution—constructing a third-party credit evaluation system. **[Result/Conclusion]** The paper proposes construction principles and pathways for a third-party credit evaluation system, arguing that development should initially be government-led before transitioning to a market-led model.

Keywords: C2C; e-commerce; credit evaluation; third-party credit evaluation system

1. Introduction

In March 2015, Premier Li Keqiang first introduced the “Internet Plus” action plan in the government work report, stating: “Formulate an ‘Internet Plus’ action plan to promote the integration of mobile Internet, cloud computing, big data, and the Internet of Things with modern manufacturing, and to foster the healthy development of e-commerce, industrial Internet, and Internet finance” [1]. The “Internet Plus” initiative aims to drive the transformation and upgrading of traditional industries through the Internet, seeking to incorporate more activities into the online realm. This has added further fuel to the already rapidly developing C2C e-commerce sector.

Since the 1990s, China’s e-commerce has gradually developed, with C2C online shopping flourishing as an increasing number of people choose to shop online. According to statistics from the China E-Commerce Research Center, by June 2015, the number of online shoppers in China had reached 417 million, compared to 350 million in the first half of 2014, representing a year-over-year growth of 19.1% (see Figure 1 [Figure 1: see original paper]) [2]. Additionally, the latest data from the China Internet Network Information Center (CNNIC) shows that by June 2015, China’s Internet user population had reached 668 million [3]. These figures indicate that online shoppers account for 62% of all Internet users, meaning that more than three-fifths of Chinese Internet users have experienced online shopping.

However, while enjoying the convenience of C2C e-commerce, we must also pay attention to its shortcomings. Monitoring data from the China E-Commerce Complaints and Public Service Platform reveals that in the first half of 2015, online shopping complaints accounted for 33.86% of all e-commerce complaints—the highest category (see Figure 2 [Figure 2: see original paper]) [2]. The primary issue in these complaints was online sales of counterfeit goods, representing 13.65% of the total. Deceptive practices in online shopping constituted 26.13% of all complaint issues (including counterfeit sales at 13.65%, online fraud at 8.23%, and price fraud at 4.25%) (see Figure 3 [Figure 3: see original paper]) [2]. Evidently, credit issues have become the “number one cancer” in C2C e-commerce, and addressing this credit crisis is a challenge we must confront.

2. Conceptual Definitions and Literature Review

E-commerce (electronic commerce) refers to a new form of trade in which entities with commercial capabilities (government, enterprises, individuals, etc.) utilize modern digital information technology and computer network technology to achieve rapid exchange of information flow, material flow, and capital flow. In short, e-commerce refers to the electronicization of entire trade activities (as defined by the 1997 World E-Commerce Conference). C2C represents one type of e-commerce transaction model, namely customer-to-customer—electronic commerce between individuals. The C2C e-commerce credit evaluation system refers to a mechanism where, after completing a transaction, both parties evaluate each other based on the transaction experience, forming credit information feedback. These evaluations are aggregated into the user's credit record and credibility rating according to certain methods, reflecting the user's credit status and serving as a reference for other users' transaction decisions [4].

Based on retrieval results from the China National Knowledge Infrastructure (CNKI) and the Institute of Electrical and Electronics Engineers (IEEE), scholars both domestically and internationally have conducted extensive research on C2C e-commerce credit issues from perspectives including economics, management, information science, psychology, and sociology. This research primarily includes:

First, studies on trust. S.P. Marsh analyzed basic trust and general trust, proposing a set of formulas for measuring situational trust [5]. A. Abdul-Rahman and S. Hailes proposed a trust model from the perspective of trust degree analysis [6]. L. Mui et al. demonstrated the relationship among trust, reputation, and reciprocity through Bayesian theory [7]. Yan Zhonghua and Mi Jianing established a theoretical framework for trust, analyzing its impact on e-commerce [8].

Second, studies on credit evaluation mechanisms. Scholars have conducted in-depth research from theory to practice, and from external environment to internal management, proposing numerous methods to improve C2C e-commerce credit evaluation mechanisms and constructing various models. These include: dynamic credit evaluation models based on game theory principles [9], trust evaluation models based on BP neural network technology [10], trust measurement models based on Beta distribution functions [11], credit rating evaluation models based on mathematical statistics [12], multi-dimensional credit evaluation models based on trust influencing factors [13], trust models based on rating credibility [14], perceived trust and reputation models based on cognitive risk [15], online reputation auction evaluation models based on grey theory [16], reputation evaluation models based on collaborative filtering [17], reputation feedback aggregation models based on transaction time value [18], trust degree estimation models based on topological transformation [19], and trust evaluation models based on fuzzy comprehensive evaluation and entropy weight methods [20], among others.

Third, studies on credit evaluation systems. These mainly include credit evaluation factor systems [21], credit evaluation indicator systems [22], third-party credit evaluation certification systems [8], and credit evaluation feedback systems [23].

Overall, existing research on C2C e-commerce credit issues includes both theoretical and empirical analysis, qualitative and quantitative approaches, and technical and non-technical perspectives. However, current studies only make partial improvements and optimizations to existing credit evaluation systems without fundamentally transforming them. Credit issues in C2C e-commerce encompass many aspects: from the perspective of subjects, they include consumer credit, online merchant credit, and e-commerce platform credit; from the perspective of content, they include product information, product quality, reputation information, price information, transaction information, credit evaluation, and logistics information. This paper approaches the issue from the perspective of credit evaluation in C2C e-commerce, analyzing the developmental dilemmas of existing credit evaluation systems and exploring solutions.

3. The Significance of Credit Evaluation in C2C E-Commerce

Credit evaluation in C2C e-commerce refers to the mutual evaluation by both parties after successful transaction completion, with these evaluations being aggregated into users' credit records and ratings. Credit evaluation holds significant importance for all participants in C2C e-commerce.

3.1 The Metric for Online Consumers For online consumers, credit evaluation serves as a crucial reference metric in the virtual shopping environment. "Due to the particularity of the online retail market, the product display information on shopping pages has limited practical meaning and value. Its nature determines that users hold certain biases toward it, with only basic information such as size, color, and type being commonly used for product selection. Stories, reviews, and ratings from those who have actually used the product generate greater trust" [24]. Online consumers can learn about product attributes, value, and cost-effectiveness through others' credit evaluations, or compare other users' consumption experiences to determine whether a product suits them. According to CNNIC data, in 2014, the most important factor influencing online consumers' purchasing decisions was product online reputation, cited by 71.1% of users (see Figure 4 [Figure 4: see original paper]) [24]. Product online reputation primarily derives from consumers' credit evaluations. Based on a comprehensive questionnaire survey on online shopping consumer evaluations conducted by the authors in August 2015, 93% of consumers pay attention to product credit evaluations when making purchasing decisions (see Figure 5 [Figure 5: see original paper]). These data fully demonstrate consumers' high regard for credit evaluation.

3.2 The Lifeblood of Online Merchants For online merchants, credit evaluation represents their lifeblood. The more positive credit evaluations they receive, the more vigorous their vitality; conversely, negative evaluations threaten their survival. CNNIC data from 2014 shows that 71.1% of consumers consider product online reputation when shopping online, and 62.3% consider merchant credibility [24]. This demonstrates that credit evaluation directly affects merchants' reputation and sales volume, serving as a crucial guiding indicator for profitability. As the saying goes, "One positive review brings immense wealth, one negative review spells eternal infamy." The importance of credit evaluation to merchants is further evidenced by the various tactics they employ to "protect their ratings," which include: (1) striving for as many positive reviews as possible, and (2) eliminating neutral and negative reviews. As shown in Figure 6 [Figure 6: see original paper], survey results indicate that 61% of consumers abandon purchases after seeing negative reviews, with purchase desire inversely proportional to negative review rates, while 70% of consumers experience increased purchase desire after seeing numerous positive reviews. Therefore, credit evaluation significantly influences consumer purchasing decisions.

In addition to these consumer-facing measures, merchants also hire "Internet water armies" to fabricate data, artificially inflate reputation and positive reviews, boost sales figures, and maliciously attack competitors. It can be said that online merchants will resort to any means necessary to obtain favorable credit evaluations.

3.3 The Energy Source for E-Commerce Platforms For e-commerce platforms, credit evaluation serves as an energy source. Platforms require a continuous influx of merchants and consumers to accumulate energy, and credit evaluation is a key reference indicator for attracting them. CNNIC data from 2014 shows that 62.3% of consumers consider website reputation when shopping online (see Figure 4) [24]. If consumers and merchants perceive a platform as inferior and filled with false information, the platform will lose traffic and development momentum. The "snowball effect" in economics can further explain the importance of credit evaluation to platforms. Known as the "law of increasing returns," the snowball effect means that once an initial advantage is obtained, the snowball grows larger and the advantage becomes more apparent. Whether from online consumers or merchants, credit evaluations represent an information source for platforms. Once information is released, it spreads in all directions, much like ripples spreading across a calm water surface after a stone is thrown. This phenomenon is called the "wave effect." If numerous positive credit evaluations are disseminated, platform development will snowball, continuously generating, aggregating, diffusing, and accumulating energy, with its propagation speed, breadth, and impact growing geometrically. Therefore, all e-commerce platforms must prioritize the credit evaluations of consumers and merchants, as they form the cornerstone of platform reputation.

4. Developmental Dilemmas of Existing C2C E-Commerce Credit Evaluation Systems

China's current C2C e-commerce credit evaluation system is a closed management system oriented toward transaction volume, controlled by individual e-commerce platforms. Each user's credit rating derives from the historical record of mutual evaluations between transaction partners. The rating system employs an accumulation mechanism: after successful transactions, both parties evaluate each other, with ratings divided into three categories—"positive," "neutral," and "negative"—accumulating +1, 0, and -1 points respectively. The platform's reputation system calculates user credit through these records and assigns credit levels accordingly. The system also includes corresponding reward and punishment measures, offering more traffic 倾斜 and policy preferences to users with excellent reputations, while penalizing credit manipulation, false transactions, and breach of contract behaviors through measures such as credit point clearance or account suspension. However, numerous deficiencies exist in the system's actual operation.

4.1 Incomplete System Design The system exhibits several shortcomings: (1) Lax identity verification. While C2C platforms maintain strict verification systems for sellers, buyer verification is relatively simple to attract more customers. On Taobao, for instance, buyers can register simply by verifying their mobile phone number or email and creating a username. (2) Overly simplistic and general rating scales. Evaluations are limited to "good, neutral, poor," with absolute divisions insufficient for complete expression of credit evaluation. (3) Lack of transaction amount consideration. Using Taobao as an example, credit accumulation correlates with transaction frequency rather than amount. Transactions of 1 yuan and 1,000 yuan receive equal evaluation opportunities and credit accumulation, enabling some merchants to build reputation through small honest transactions before conducting large-value transactions, creating a credibility loophole. (4) Lack of evaluation timing consideration. Evaluations from different time periods have varying impacts on credit, but the current system does not differentiate between evaluations from different periods or apply weighting. (5) Lack of evaluator credibility consideration. Evaluations from high-credibility users are more trustworthy, but the current system treats evaluations from high- and low-credibility users identically, which is unreasonable. (6) New user credit dilemma. The system does not differentiate between new and existing users in credit calculation, leaving new users without a credit foundation. Due to "public psychology effects," most consumers prefer transacting with high-credit established users, causing slow growth for new users and creating a credit accumulation dilemma.

4.2 Low Evaluation Credibility Survey results on "online consumer credit evaluation" show that 35% of online shoppers fill out credit evaluations, while 65% do not actively do so (see Figure 7 [Figure 7: see original paper]). Among consumers willing to provide evaluations, 6% provide brief evaluations such as

“good,” “not bad,” “satisfied,” or “okay” with only a few words; 13% provide evaluations induced by various merchant incentives (see Figure 8 [Figure 8: see original paper]), with most evaluations being overly positive and lengthy, exceeding actual product conditions. Data also reveals two extreme groups who actively provide evaluations: those highly dissatisfied with products (7%) who give negative evaluations that deviate below actual conditions, and those highly satisfied (9%) who give positive evaluations that are overly favorable and exceed actual conditions.

Analysis of data and survey results indicates that most online consumers lack the habit of actively filling out credit evaluations. Even among the 35% who do, only 6% provide evaluations that accurately reflect product conditions, while 22% provide evaluations exceeding actual conditions and 7% provide evaluations below actual conditions. This raises questions about the reference value and credibility of these evaluations. While these issues involve another research area and are not elaborated upon here, it is clear that the existing C2C e-commerce credit evaluation system lacks effective mechanisms to incentivize consumer participation and suffers from low credibility.

4.3 Inadequate Supervision and Management As the current credit evaluation system is dominated by individual e-commerce platforms without unified management standards or supervision norms, it operates in a fragmented manner with numerous management loopholes and disharmonious behaviors. On one hand, the virtuality and anonymity of cyberspace relax consumers’ self-constraint, while the lack of regulatory mechanisms exacerbates their arbitrariness, allowing them to make purchases and returns at will, provide evaluations casually without personal credit concerns, and even engage in irrational behaviors such as malicious negative reviews, merchant defamation, and abusive or threatening remarks (see Figure 8 [Figure 8: see original paper]).

On the other hand, some merchants also engage in reckless behaviors, confronting consumers online with irresponsible remarks that harm consumers (see Figure 9 [Figure 9: see original paper]). Additionally, various illegal practices exist, such as creating multiple accounts to boost sales and reputation, hiring “Internet water armies” to fabricate data, employing “professional positive reviewers” to create false praise, hiring “professional negative review deleters” to remove neutral and negative reviews, and employing “professional negative reviewers” to attack competitors with malicious reviews that disrupt normal business operations.

Finally, e-commerce platforms competing for market share also manipulate credit evaluations by 屏蔽 negative reviews and presenting only positive ones. Driven by profit maximization, platforms design reputation mechanisms to increase transaction volume and platform reputation, achieving economies of scale by avoiding the presentation of merchants’ negative credit evaluations and creating a false impression of overwhelmingly positive reviews that fails to reflect actual credit conditions.

4.4 Weak Evaluation Interactivity Although credit evaluation is theoretically bidirectional, practical operation exhibits a degree of unidirectionality with weak interactivity. In actual online shopping, only consumers' evaluations of merchants function effectively, while merchants' evaluations of consumers rarely serve any purpose. Survey data shows that 85% of online merchants do not pay attention to consumer reputation or reference merchant-to-consumer evaluations (see Figure 10 [Figure 10: see original paper]). The reason is that the current credit evaluation system does not affect consumers' credit records or accumulation, lacking corresponding reward and punishment mechanisms, while merchants are willing to transact with every consumer driven by profit. This unidirectional nature creates inequality between transaction parties, as consumer evaluations can influence merchant sales while merchant evaluations have negligible impact on consumers, resulting in inherent unfairness in the current system.

4.5 System Fragmentation The existing credit evaluation system is fragmented, with each e-commerce platform independently managing its own system, resulting in severe fragmentation. First, platforms arbitrarily establish their own credit evaluation systems with different evaluation indicators, scoring mechanisms, and feedback systems, lacking standardization and causing confusion in C2C e-commerce credit evaluation models. Second, there is insufficient legal supervision and management of existing C2C e-commerce credit evaluation systems, with regulatory loopholes leading to numerous credit disputes. Third, this fragmentation causes platforms to evade negative reviews for profit maximization, creating credit falsification. Finally, fragmentation creates unnecessary credit barriers, forming credit islands that lack data exchange between platforms. Consumers must register on different platforms without universal account access, and merchants must register separately on each platform with no ability to freely import or export accumulated credit across platforms, creating information barriers and increasing transaction costs. Fragmentation not only restricts merchants' business expansion but also limits platform development, resulting in a certain degree of credit resource waste.

5. Constructing a Third-Party Credit Evaluation System for C2C E-Commerce

To address the payment bottleneck in e-commerce, this paper draws upon Taobao's third-party payment method—Alipay—to explore solutions for improving the existing credit evaluation system. Alipay provides “intermediary collection and payment services” and “third-party guarantee” functions in e-commerce transactions. As a third-party payment tool, Alipay offers a secure fund transfer platform for both parties, responsible only for capital turnover without participating in the bargaining between buyers and sellers. Adopting a value-neutral stance, either party can cancel the transaction and receive a refund if dissatisfied. Alipay's operational model successfully resolved transaction fund security issues in e-commerce. Similarly, to overcome the developmental

dilemmas of existing credit evaluation systems, this paper proposes introducing a third party to construct an independent C2C e-commerce credit evaluation system. This system does not involve third-party evaluation of transaction parties but rather provides an independent evaluation platform solely for receiving and transmitting credit evaluations between shopping parties. Independent of both transaction parties and platforms, this system adopts a value-neutral stance. Compared with current platform-dominated systems, the third-party credit evaluation system represents business outsourcing from an economic perspective, effectively overcoming existing problems and ensuring fair, effective expression and recording of credit evaluations.

5.1 Construction Principles

5.1.1 Principle of Independence and Objectivity

Independent of both transaction parties and e-commerce platforms, this system ensures operational independence from the source, with open and transparent evaluation processes that guarantee credibility and objective fairness. The system will implement strict real-name registration, faithfully recording each member's credit history, ensuring equal identity verification, and establishing a dispute evaluation arbitration mechanism. Once false or disputed evaluations emerge, immediate tracking and arbitration will be conducted to ensure evaluation authenticity, effectively resolving issues of impure evaluation motives and false reviews. Consequently, merchants will no longer be able to exploit system loopholes to artificially inflate reputation and sales, and platforms' manipulation of credit evaluations will be effectively prevented.

5.1.2 Principle of Comprehensiveness and Scientific Rigor

The system will implement a more comprehensive evaluation system with professional user evaluation management services, ensuring specialization and professional standards in interface design, system settings, evaluation collection and review, and user experience analysis. It will comprehensively consider various influencing factors to improve system scientificity, refine rating scales, incorporate weights for evaluation timing, transaction amount, and evaluator credibility, and implement protective measures for new users' credit scores to ensure fairness of opportunity and impartiality of credit evaluation effects. All indicators must be organically integrated to form a coherent system with more scientific calculation and evaluation methods.

5.1.3 Principle of Equal Bidirectionality

The system must effectively ensure equal status for both transaction parties in credit evaluation, allowing not only consumers to influence merchants' credit but also merchants' evaluations of consumers to function effectively, ensuring bidirectional credit evaluation effects. The system will not favor either party, faithfully recording and presenting both sides' evaluations as reference data and credit accumulation basis. Both parties can equally reference credit evaluations to independently decide whether to continue transactions. This will encourage consumers to shift from "acting on impulse" to "being cautious in words and

actions,” while elevating merchants’ status in credit evaluation from “helpless” to “equal footing.”

5.1.4 Principle of Unified Sharing

The system will break the current fragmented situation by cooperating or integrating various platforms’ evaluation systems to establish unified evaluation models and standards. Through unified management, it will break information barriers, achieve information interoperability, enable universal account access and data sharing, and fundamentally reduce e-commerce information costs.

5.2 Implementation Models

5.2.1 Market-Led Model

From a cost-benefit perspective, the likelihood of existing third-party consulting and evaluation companies independently participating in C2C e-commerce credit evaluation systems is low, due to high investment costs and lack of profit mechanisms, as well as entry barriers since existing platforms will not hand over user data to third-party institutions. Therefore, market-led construction of third-party credit evaluation systems can only be initiated jointly by dominant C2C e-commerce platforms through contractual agreements to outsource credit evaluation management to professional third-party companies that provide evaluation management services. To prevent platforms from influencing third-party companies’ independent operation, an integration management center should be established, comprising a government supervision group and an e-commerce management group. The former would accelerate data integration across platforms and promote evaluation outsourcing, while the latter would supervise third-party companies’ operations to ensure standardization and fairness. The key to market-led operation lies in platforms’ willingness to improve and cooperate on credit evaluation systems, though feasibility is currently low and awaits further market development and promotion.

5.2.2 Government-Led Model

In a government-led third-party credit evaluation system, the primary driving force comes from relevant government departments (such as the Ministry of Commerce), which would integrate data from various C2C e-commerce platforms, unify credit evaluation models, and delegate evaluation management to professional third-party assessment companies responsible to and supervised by the government. Third-party assessment companies would maintain equal cooperative relationships with e-commerce platforms. To ensure standardization, a supervision and inspection team should be formed, comprising government department members and platform coordinators. Government members would supervise independence and fairness, while platform coordinators would oversee transaction data and daily operations to ensure scientific rationality. This model’s advantage lies in the government’s authority to effectively leverage organizational coordination advantages for rapid system establishment, making it highly feasible. However, government leadership would increase public financial burden to some extent, requiring comprehensive consideration.

6. Conclusion

Facing the ever-evolving development of Internet connectivity and increasing numbers of online shoppers, establishing online credit systems is imperative. This paper approaches C2C e-commerce credit evaluation and proposes constructing a third-party credit evaluation system to overcome existing developmental dilemmas. This idea remains in its initial stages, requiring further research for establishment and deepening. The author believes that future development of C2C e-commerce third-party credit evaluation systems should proceed along this path: initially establishing third-party evaluation company management models through government leadership, then transitioning to market-led models as the market matures, with government shifting from funding management to supervisory management while the market plays a more dominant role. We firmly believe that through standardized guidance, C2C e-commerce credit evaluation systems will advance in a more scientific direction.

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Yu Li: Responsible for research design;

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