

Data-Driven Analysis of Cross-Border E-Commerce Dispute Appeal Failures and User Emotions: A Case Study of Platform S

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Abstract: As cross-border e-commerce expands, transaction disputes and inefficiencies in appeal handling have become major concerns affecting platform ecosystems and merchants' business confidence. This study examines Platform S using 10,576 actual dispute appeal records from January to December 2025. Python-based tools are used for descriptive statistics, multidimensional cross-tabulation, and text classification to identify the reasons for seller appeal failures and their distribution patterns. The analysis also examines the association between appeal outcomes and seller sentiment. The findings show an overall seller appeal failure rate of 79%. "Logistics and Delivery Receipt Issues" and "Products Not as Described" are the leading reasons, together accounting for more than 51% of failures. This indicates that information asymmetry and fulfillment uncertainty in cross-border transactions are closely associated with appeal outcomes. "Seller Procedural and Evidence Issues" are also common, reflecting weaknesses in procedural compliance and evidence management. Sentiment analysis further reveals markedly negative sentiment in notes from sellers whose appeals failed. Frequent complaints include "I cannot understand the rules" and "The platform favors buyers." These findings indicate that appeal failures not only stem from factual disputes but also undermine users' trust in platform fairness. Based on these findings, the study proposes improvements in four areas: guidance on platform rules, user segmentation, operational procedures, and platform rule design. These recommendations aim to help sellers improve appeal success rates and provide a basis for data-informed decisions to strengthen platform dispute handling and governance efficiency.

Keywords: Cross-border e-commerce; Dispute appeals; Platform S; Information asymmetry; Platform governance

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1. Introduction

Cross-border e-commerce (CBEC) represents the close integration of globalization and digitalization. As China promotes high-quality foreign trade development, builds its digital economy, and deepens Belt and Road cooperation, CBEC is becoming an important driver of connections between domestic and international markets and economic integration ^[1]. Continued improvements in internet infrastructure and greater connectivity among

global payment networks have substantially expanded consumers' access to products worldwide. CBEC has also provided small and medium-sized enterprises with an efficient, low-cost channel for accessing international markets, strengthening the resilience and inclusiveness of China's foreign trade.

Online dispute resolution (ODR) provides channels for negotiation between buyers and sellers and for platform intervention in disputes. On Platform S, which is examined in this study, buyers and sellers first negotiate after a buyer initiates a dispute. Unresolved disputes proceed to platform adjudication, and either party may appeal if dissatisfied with the decision. Appeal review therefore involves reassessing the transaction facts and the original decision, examining the evidence, and checking compliance with submission deadlines and appeal procedures. Analyzing records of seller appeals that were not accepted can help identify the types of disputes involved and areas for improvement in evidence submission guidance and review procedures.

Previous studies have examined dispute governance in CBEC from the perspectives of institutional design, rights protection, and ODR mechanisms. Building on this research, routine platform records can provide more detailed operational insights into the transaction disputes and evidence and procedural issues involved in appeals. This analysis requires a distinction between dispute types and review issues. Disputes over logistics or product descriptions indicate the transaction matters involved, whereas insufficient evidence and late evidence submission reflect specific issues recorded during the review process. These aspects are related, but dispute types should not be treated as direct explanations for unsuccessful appeals.

This study draws on 10,576 operational records of appeal reviews conducted on Platform S in 2025, focusing on seller appeals that were not accepted in the review round examined. It combines structured operational fields with notes and applies descriptive statistics and rule-based text classification to examine the distribution of dispute types and evidence and procedural issues. The study addresses the following question: "What are the main disputes involved in records of seller appeals that were not accepted, and what implications do the associated evidence and procedural issues have for appeal management?" Drawing on theories of ODR, information asymmetry, and process optimization, it recommends dispute-specific guidance on evidence submission, pre-submission checks and deadline reminders, and improvements to review feedback. These recommendations provide case-based evidence to support improvements in appeal management on CBEC platforms.

2. Literature review

2.1. Current state of domestic and international research

Dispute handling on e-commerce platforms involves both resolving transaction disputes and designing and improving the procedures used to address them. Research on ODR provides a foundation for understanding these activities. Katsh and Rifkin offered an early systematic account of ODR in their book. They argued that information technology does more than change how parties communicate: it also acts as a "fourth party" that shapes the dispute resolution process^[1]. Rule examined early business applications of ODR and discussed its potential to resolve large volumes of low-value transaction disputes at lower costs than traditional litigation, including disputes arising from cross-border transactions^[2]. Kaufmann-Kohler and Schultz explored the challenges that ODR poses to established approaches to justice, including procedural safeguards, applicable law, and cross-border enforcement^[3]. Goodman assessed online mediation websites and discussed the opportunities and limitations of online mediation during its early development^[4]. The volume edited by Abdel

Wahab, Katsh, and Rainey brought together research on the institutional development and professional practice of ODR, covering public-sector involvement, procedural standards, and trust ^[5]. Katsh and Rabinovich-Einy developed the concept of digital justice, emphasizing both dispute resolution and dispute prevention ^[6]. This perspective suggests that dispute records can serve not only as accounts of individual cases but also as resources for identifying recurring problems and improving business procedures. Katsh and Rule examined existing knowledge of ODR and questions requiring further investigation ^[7].

Research on individual platforms has also examined users' experiences of dispute handling. From a platform governance perspective, Parker *et al.* discussed the importance of managing relationships among different groups of platform participants ^[8]. This perspective provides a basis for considering how dispute handling affects the interests of buyers and sellers and the long-term functioning of a platform. Procedural justice theory offers a further framework for understanding users' evaluations. Lind and Tyler showed that acceptance of decisions depends not only on the outcomes themselves but also on perceptions of procedural fairness ^[9]. Colquitt operationalized procedural justice through criteria such as opportunities to express views, influence over outcomes, and consistent decision-making. He distinguished these criteria from informational justice, which concerns the adequacy, honesty, and timeliness of explanations ^[10]. These distinctions help separate users' evaluations of procedures from their evaluations of the information provided during dispute handling.

At the empirical level, Liu and Wan analyzed social media comments about Xianyu's dispute resolution mechanism using word frequency, topic, and sentiment analysis. They identified concerns about returns and refunds, ease of use, outcome fairness, and access to customer service, demonstrating how text analysis can help identify problems in platform dispute handling ^[11]. However, social media comments primarily reflect experiences and evaluations that users choose to share. They cannot be treated as equivalent to facts established through platform review, nor do they provide a complete account of evidence submission and review decisions.

Advances in text mining and sentiment analysis provide methodological tools for examining expressed opinions and experiences. Pang and Lee reviewed the foundations and methods of opinion mining and sentiment analysis, covering supervised and unsupervised approaches, including methods that use sentiment lexicons and machine learning ^[12]. In platform dispute handling, appeal-related text may contain both factual accounts and expressions of sentiment. Such text can help identify concerns about procedures and outcomes. However, sentiment polarity alone does not establish whether users perceive a procedure as fair. Interpretation also depends on who wrote the text and why it was recorded. User-written statements should therefore be distinguished from staff summaries and review notes. The availability of text may also be selective, although the mechanism underlying missing text cannot be established without further analysis.

Together, these studies provide a basis for examining platform dispute management while highlighting the need to distinguish the questions that different data sources can address. User comments are useful for examining participants' evaluations of dispute handling. Internal operational records provide a complementary perspective by documenting review outcomes and specific issues identified during case processing. However, these records are also shaped by their administrative purpose, recording practices, and completeness. Research using internal records therefore needs to define the unit of analysis and the meaning of recorded outcomes. It must also distinguish the subject of a transaction dispute from issues concerning evidence, deadlines, and procedural requirements during review.

Against this background, this study focuses on the review of seller appeals on cross-border e-commerce

Platform S. It combines structured operational fields with review notes to examine dispute types and evidence and procedural issues in records of appeals that were not accepted in the review round examined. Whereas studies based on user comments primarily assess perceptions of dispute resolution mechanisms, this study uses internal operational records to describe specific issues arising during appeal review. It relates these issues to evidence submission guidance, deadline management, and review feedback. Methodologically, the study combines statistical analysis of structured fields with sentiment analysis of the recorded text. This approach examines review outcomes and textual sentiment within a common analytical framework, providing complementary information and case-based evidence to inform platform appeal management.

2.2. Theoretical Basis

2.2.1. Online dispute resolution mechanism

Online dispute resolution (ODR) is a mechanism for resolving disputes through information and communication technologies. Katsh and Rifkin systematically examined ODR applications, emphasizing the role of technology in organizing information, facilitating communication, and handling disputes. This study draws on this framework to clarify the place of appeal review within platform dispute handling ^[1].

Dispute handling on Platform S includes negotiation between buyers and sellers, platform adjudication, and subsequent appeal review. Appeals follow an existing decision and may involve further verification of transaction facts, supplementary evidence, and procedural requirements. This study therefore codes dispute types separately from evidence and procedural issues. Dispute types identify the matters involved in an appeal, such as logistics or product descriptions. Evidence and procedural issues identify problems concerning submitted materials or procedures documented in the review records. The study also distinguishes the decision on whether to accept an appeal in the current review round from the final resolution of the transaction dispute. This distinction prevents confusion between the meanings of outcomes at different stages.

2.2.2. Information asymmetry theory

Information asymmetry refers to differences in participants' access to relevant information. Focusing on uncertainty about product quality, Akerlof demonstrated how information differences between buyers and sellers affect transactions. Recent research has extended this perspective to digital transactions ^[13]. Pandey, Mittal, and Chawla examined the relationships between seller signals, consumer information asymmetry, and perceived uncertainty in secondhand luxury goods transactions ^[14].

This study applies this perspective to understand evidence submission and fact verification in appeals. In cross-border transactions, sellers, buyers, and logistics providers hold different pieces of information about dispatch, receipt, and transit, respectively. Platforms review cases using transaction records and materials submitted by these parties. Missing or conflicting materials may make it more difficult to verify the facts. This study therefore examines issues documented in review records, including insufficient evidence, inconsistent materials, and supplementary evidence, to explore how information submission and verification can be improved. The theory serves an explanatory role in this study. The available data do not directly measure the degree of information asymmetry and are insufficient to establish its causal effect on appeal outcomes.

2.2.3. Process optimization theory

Process optimization focuses on how business activities connect. It identifies problems in information transfer, task allocation, and operating procedures to develop improvements. Davenport and Short linked information

technology with business process redesign, providing a foundation for understanding operational problems within the overall process ^[15]. Through a case study, Teixeira, Ferreira, and Ramos further connected business process management methods with data analysis and performance improvement. Their work provides a recent reference for using operational data to analyze processes ^[16].

This study applies this approach to appeal submission, the provision of supplementary materials, review decisions, and outcome feedback. It examines records of late evidence submission, repeated submissions, and verification of submitted materials to identify stages that require further examination. Based on this analysis, it recommends document checklists, pre-submission checks, deadline reminders, and explanations of the reasons for review decisions. The aim is to improve document preparation, coordination between procedural stages, and explanations of outcomes, rather than simply increase appeal approval rates. Because complete data on the time spent at each stage and on outcomes before and after implementation are unavailable, these recommendations are management proposals based on record analysis. Their effectiveness requires further evaluation.

The three perspectives serve different purposes. ODR helps define procedural and classification boundaries. Information asymmetry theory helps explain evidence issues, while process optimization theory guides the development of management recommendations. Together, they support this study's description and discussion of appeal records.

3. Platform S overview and platform dispute resolution process

Platform S is an e-commerce platform that facilitates cross-border product transactions and provides after-sales dispute handling services for buyers and sellers. The transaction disputes examined in this study mainly concern product descriptions and logistics fulfillment. After a buyer initiates a dispute, the parties first enter a negotiation stage. If negotiation fails, the platform intervenes and issues a decision. Either party may appeal if dissatisfied with the decision, and the platform reviews the grounds for the appeal and the relevant materials. The resulting operational records provide data for examining dispute types and evidence and procedural issues in seller appeals that were not accepted. This study uses operational data from the platform's appeal reviews in 2025. To protect the platform's identity and business information, it is referred to as "Platform S," and neither its corporate name nor information that could directly identify transaction participants is disclosed.

4. Data analysis

4.1. Data acquisition

This study adopts an empirical approach. The data extraction window extends from January 1 to December 30, 2025, covering 11 months. This period was selected to capture appeal dynamics over a relatively complete and continuous annual operating cycle while avoiding potential data distortions from unusually high activity during events such as major year-end sales campaigns. This choice was intended to ensure that the findings reflect stable patterns under the platform's routine governance practices. The original dataset contains 10,713 valid appeal case records, each serving as an independent unit of analysis.

4.2. Data preprocessing and research process

To ensure analytical accuracy, we systematically preprocessed the original data through five main steps: data cleaning, rule-based classification, statistical analysis, visualization, and cross-tabulation.

- (1) Data cleaning: We checked the completeness and consistency of the original 10,713 records and removed invalid records with missing key fields or logical inconsistencies. The final sample contained 10,576 valid records.
- (2) Classification rule development: We developed a classification function that assigned cases to three main categories based on the “Primary Reason for Appeal Non-Acceptance” field: “Seller Procedural and Evidence Issues,” “Platform Operational Issues,” and “Other.” Keywords extracted from the “Notes” field were then used to identify subcategories, such as “Logistics and Delivery Receipt Issues” and “Products Not as Described.” Successful appeals were further classified using the “Responsible Party for Successful Appeals” field. Unmatched records were labeled “Pending Manual Classification.”
- (3) Data classification and statistical analysis: We used `df.apply()` to apply the classification function and generate the “Failure Reason Category” and “Failure Reason Subcategory” fields. We then selected cases labeled “Not Accepted,” calculated the count and percentage for each category, summarized the distribution of the 15 most frequent subcategories, and saved the results to an Excel file.
- (4) Multidimensional visualization: We generated four charts to illustrate the category structure: a pie chart of the main categories, a bar chart of the 15 most frequent subcategories, a stacked chart comparing subcategories across the main categories, and a bar chart of the 25 most frequent detailed subcategories.
- (5) Multidimensional cross-tabulation: We examined the distribution of failure reasons by “Appealing Party” and “Refund Ratio” to identify the difficulties faced by different parties during the appeal process.

The overall process comprised six steps: data loading, rule development, automated classification, statistical analysis, visualization, and cross-checking. Implemented in Python, this process converted unstructured text into structured categories and provided a quantitative basis for improving the platform’s appeal mechanism.

4.3. Interpretation of results

Using the preprocessed dataset ($N = 10,576$), this study combines descriptive statistics and multidimensional cross-tabulation to systematically analyze dispute appeal outcomes on a CBEC platform. The analysis examines the factors influencing these outcomes, their distribution patterns, and the underlying mechanisms. The main findings are as follows.

4.3.1. The composition and distribution characteristics of appeal outcomes

The data distribution indicates that reasons for appeal failure on the platform fall into three main categories. “Logistics and Delivery Receipt Issues” account for 25.90%, making them one of the leading reasons for failure. “Products Not as Described” accounts for 25.20%. Together, these categories represent more than half of all failures, indicating that product information accuracy and logistics fulfillment disputes are central challenges in seller appeals. Among the 25 most frequent specific reasons, “Style Mismatch” (722 cases) and “Insufficient Delivery Confirmation Details” (553 cases) rank first and second. They are followed by “Non-Delivery by the Deadline” (449 cases), “Delivery Address Mismatch” (427 cases), and “Color Mismatch” (411 cases). “Seller Procedural and Evidence Issues” account for 6.70% of failures and include delayed responses and insufficient evidence. Specific issues include “Duplicate Appeals” (223 cases), missing or invalid tracking numbers for onward delivery (239 cases), and “Late Evidence Submission” (99 cases). Failures related to “Platform Operational Issues” account for 2.00% and include inconsistent interpretations of rules and incorrect system decisions. See **Figures 1 and 2**.

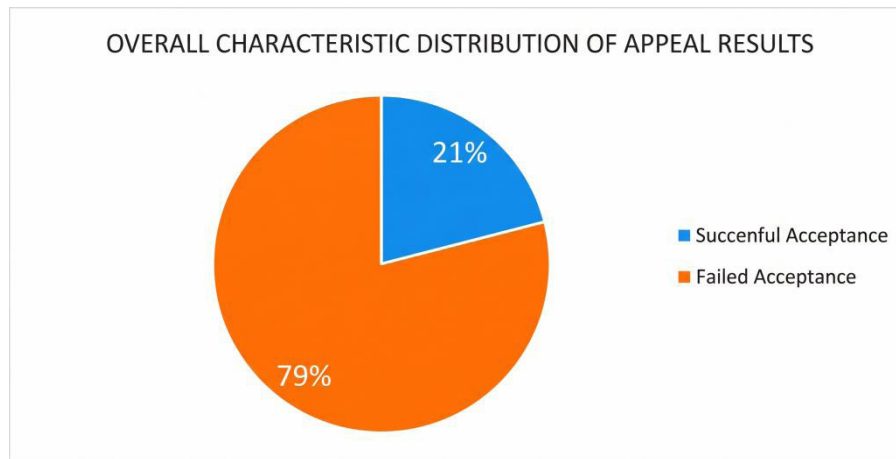


Figure 1. Overall distribution of appeal outcomes

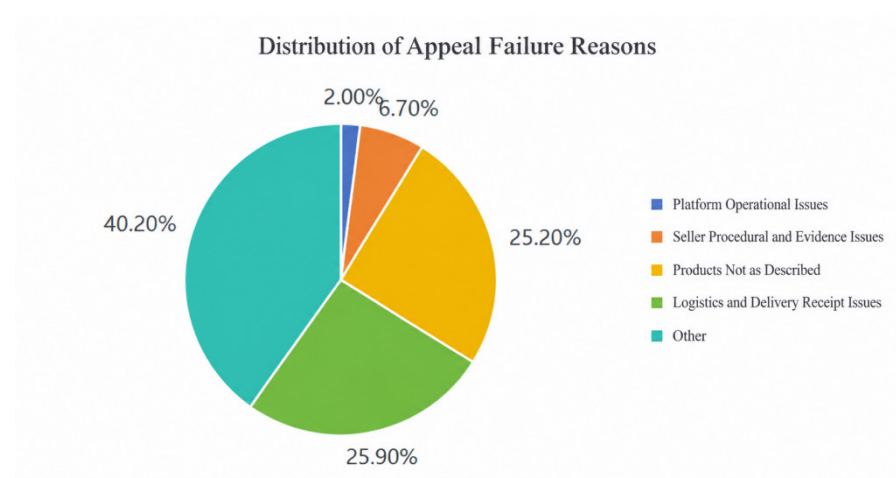


Figure 2. Reason for appeal failure category distribution

These findings reveal two main patterns. First, missing logistics tracking information and discrepancies in descriptions of key product attributes are the two most prominent substantive disputes in the platform’s current dispute resolution system. Uncertainty in cross-border logistics fulfillment and the accuracy of product information play decisive roles in adjudication outcomes. Second, a substantial proportion of failures arise from inadequate procedural compliance and evidence preparation by sellers. These avoidable failures could be prevented through clearer rules and procedural guidance. The platform also has room to improve rule clarity and consistency in implementation. Improving appeal success rates therefore requires sellers to strengthen procedural compliance and evidence submission. It also requires the platform to improve rule design and operational procedures and support broader collaboration across the service ecosystem, including closer logistics coordination.

4.3.2. Detailed subclass distribution of appeal failure reasons

Figure 3 clearly shows the distribution of the 23 most frequent reasons for appeal failure. “Style Mismatch” (722 cases) and “Insufficient Delivery Confirmation Details” (553 cases) are the leading reasons. These findings

highlight missing logistics tracking information and discrepancies in descriptions of key product attributes as the two most prominent issues in the platform’s current dispute resolution system. They are followed by “Non-Delivery by the Deadline” (449 cases), “Delivery Address Mismatch” (427 cases), and color mismatch (411 cases). These results further confirm the decisive roles of uncertainty in cross-border logistics fulfillment and product information accuracy in dispute adjudication outcomes.

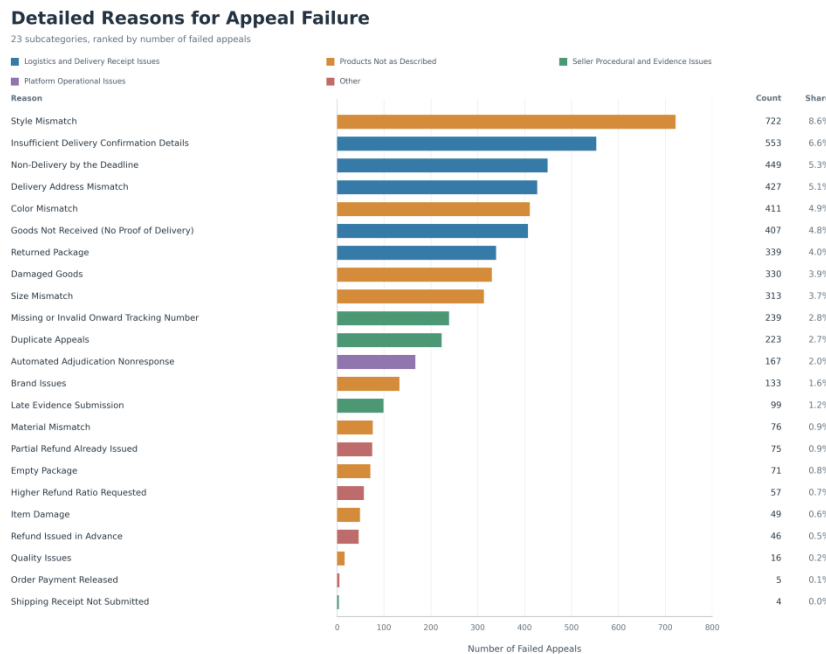


Figure 3. Top 23 detailed subclass distribution

The figure also shows that some failures stem from sellers’ operational and procedural errors. Examples include “Duplicate Appeals” (223 cases), missing or invalid tracking numbers for onward delivery (239 cases), and “Late Evidence Submission” (99 cases). These avoidable failures could have been prevented through clearer rules and procedural guidance. Together with the substantive disputes discussed above, they account for the majority of appeal failures.

4.3.3. Cross-tabulation analysis of the appealing party and the categories of failure causes

Figure 4 clearly shows the distribution of reasons for appeal failure when sellers are the appealing party. In terms of percentages, “Logistics and Delivery Receipt Issues” (31.20%) and “Products Not as Described” (27.20%) are the leading reasons, together accounting for nearly 60% of failures. “Seller Procedural and Evidence Issues” (6.20%) and “Platform Operational Issues” (1.40%) account for smaller shares. The corresponding counts are 2,118 cases for “Logistics and Delivery Receipt Issues,” 1,846 for “Products Not as Described,” and 2,236 for “Other.” Seller procedural and evidence issues and platform operational issues account for 420 and 166 cases, respectively, consistent with their smaller percentage shares.

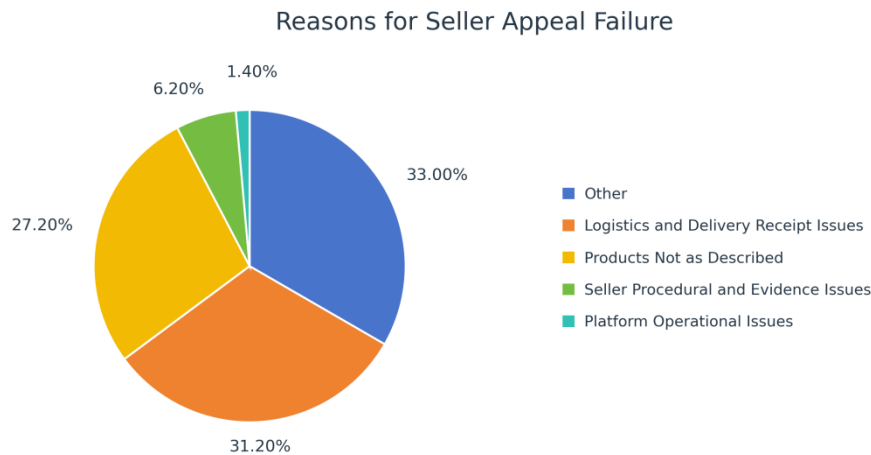


Figure 4. Category analysis of reasons for failed appeals when the seller is the appellant

Overall, seller appeal failures are concentrated in product description and logistics issues. These categories account for large shares and substantially more cases than other categories. This indicates that disputes over the objectivity of product descriptions and the facts of logistics fulfillment remain the main substantive factors behind seller appeal failures. Both present major barriers to sellers seeking redress. Although platform operational factors account for a small share, they still indicate room for improvement in rule enforcement, information synchronization, and consistency in decision-making.

Figure 5 illustrates the categories of appeal failure reasons when buyers are the appealing party. “Other” is the leading category, accounting for 70.50% of failures, followed by “Products Not as Described” at 17.00% and “Seller Procedural and Evidence Issues” at 9.00%. “Logistics and Delivery Receipt Issues” account for 3.50%, while “Platform Operational Issues” represent less than 0.1% and have a negligible impact on appeal failure.

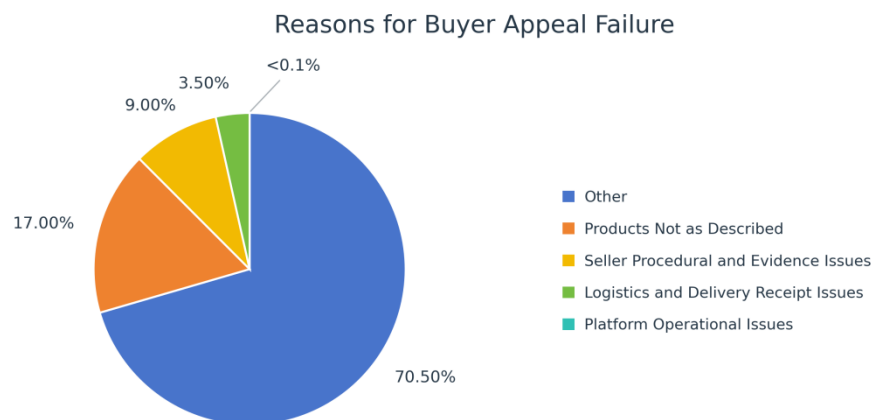


Figure 5. Category analysis of reasons for unsuccessful appeals when the buyer is the appealing party
A comparison with seller appeals shows that seller appeal failures mainly concern the determination of

transaction facts, such as product descriptions and logistics. Seller appeals include 166 cases involving “Platform Operational Issues,” compared with only one buyer appeal. This indicates that sellers more frequently contest platform decisions, potentially reflecting reviewer errors or differences in rule interpretation. Buyer appeal failures mainly involve requests that do not meet appeal eligibility criteria, such as requests for a higher refund ratio or cases in which a partial refund has already been issued, rather than disputes over responsibility. The remaining failures concern logistics and product descriptions, with only one case challenging the platform’s decision. These findings indicate that buyer appeal failures largely arise from a mismatch between appeal expectations and platform rules, whereas seller appeal failures more often result from insufficient evidence or procedural errors. Buyers therefore need clearer guidance on platform rules, while sellers urgently need greater awareness of evidence requirements and closer adherence to procedures.

4.3.4. Analysis of the correlation between the number of appeal cases and the buyer’s identity level

Table 1 presents the distribution of failed appeals by buyer membership level. In absolute terms, VIP1 buyers account for 3,870 failed appeals, substantially more than other groups. This is associated with the group’s large size and high transaction activity. It also suggests room for improvement in these buyers’ awareness of compliance requirements, ability to navigate the appeal process, and understanding of platform rules. VIP2 buyers follow with 2,837 failed appeals, indicating that users at lower and intermediate membership levels are the main source of platform disputes. Standard users (D0) account for 863 failed appeals. Although this number is considerably lower than those for VIP1 and VIP2 buyers, this group remains a notable source of disputes.

Table 1. Distribution of failed appeals by buyer membership tier

Buyer member tier label	Number of appeals
D0	863
VIP1	3,870
VIP2	2,837
VIP3	571
VIP4	155
VIP5	1
(blank)	7
Total	8304

The number of failed appeals declines markedly as membership level increases. Two factors may explain this pattern. First, higher-tier members have more experience using the platform and may therefore be less likely to encounter disputes. Second, the platform may adopt more cautious or differentiated approaches when adjudicating disputes involving higher-tier members, indirectly affecting the number of failed appeals.

4.3.5. Analysis of the impact of e-commerce promotional cycles on the number of customer complaints

Figure 6 shows clear cyclical fluctuations and seasonal peaks in the number of dispute appeals on the platform. Appeals totaled 1,192 in January before falling to 991 in February. This pattern may be related to a concentration of after-sales disputes following major promotional campaigns at the beginning of the year. Appeal numbers rose again in March, with further peaks in April, June and September.

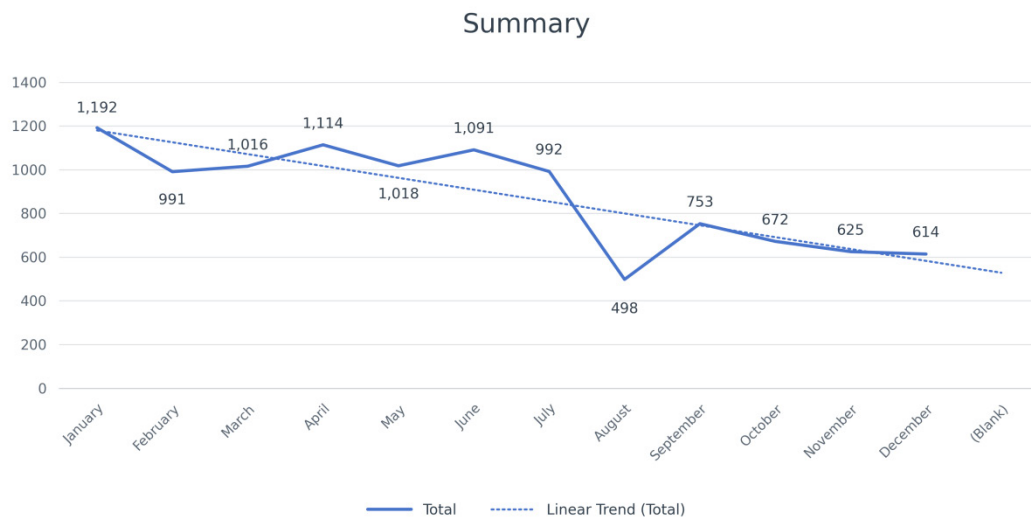


Figure 6. Monthly aggregated number of complaints

This distribution indicates a strong association between appeal volumes and peak e-commerce sales periods. Increased order volumes during major promotional campaigns generate more revenue but also lead to more after-sales cases and greater pressure on appeal handling. Smaller peaks in months such as March, May, and September may coincide with regional promotions or platform campaigns. This suggests that the timing of platform activities directly affects fluctuations in dispute volumes.

4.3.6. User sentiment analysis based on comment text

To further examine how appeal outcomes affect users' subjective emotional experiences, this study conducted sentiment analysis of appeal notes. SnowNLP was used to calculate a sentiment score for each note, ranging from 0 to 1. Scores closer to 0 indicate more negative sentiment, whereas scores closer to 1 indicate more positive sentiment. The scores were then compared between the "Not Accepted" and "Accepted" groups.

Figure 7 illustrates appellants' emotional characteristics across different appeal outcomes. The frequency distribution plot on the left shows that samples in the "Not Accepted" group are heavily concentrated in the low-score range of 0–0.2. Frequencies in this range are substantially higher than in other ranges, and the number of observations drops sharply as sentiment scores increase. The "Accepted" group contains fewer observations overall, with no clear concentration in any score range. The box plot on the right further quantifies these differences. The median and the lower and upper quartiles of sentiment scores are generally lower in the "Not Accepted" group than in the "Accepted" group, indicating stronger negative emotions among appellants whose appeals are rejected. The "Not Accepted" group also contains numerous high-score outliers, some approaching 1. This suggests that a small number of unsuccessful appellants still use positive language. By comparison, the "Accepted" group contains only a few isolated high-score observations. Overall, appeal outcomes substantially affect the sentiment expressed in appellants' texts. Appeal failure is more likely to elicit negative expressions, while appeal acceptance can alleviate negative emotions to some extent.

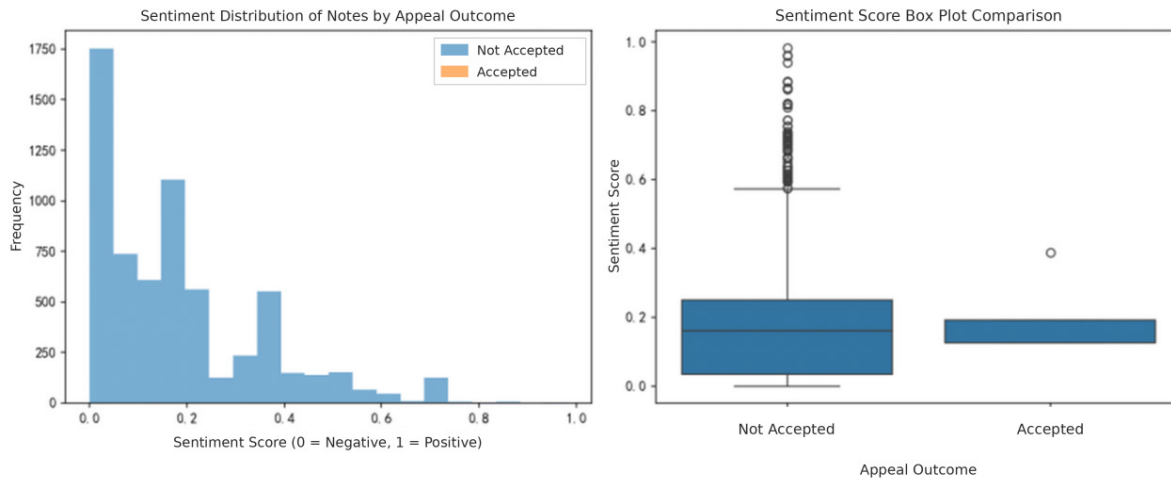


Figure 7. Frequency distribution histogram and grouped boxplot of emotional scores in appeal notes

Figure 8 shows that valid observations are present only in the low refund ratio range of 0–30%. No failed appeal cases appear in the medium and high ranges of 30–70% and 70–100%. Within the 0–30% group, sentiment scores are generally low, with a median near 0.2 and most observations concentrated in the lower score range. This indicates that users whose appeals fail and who receive only small refunds generally express strong negative emotions. This group also contains numerous high-score outliers, some exceeding 0.8 or approaching 1. These observations suggest that a very small minority of users maintain a positive tone in their notes despite unsuccessful appeals and low refund ratios. The sample distribution indicates that platform compensation ratios are concentrated at 30% or below when appeals fail. Small refunds combined with appeal rejection are highly likely to elicit negative expressions among appellants. Only a few users maintain positive sentiment despite the refund outcome.

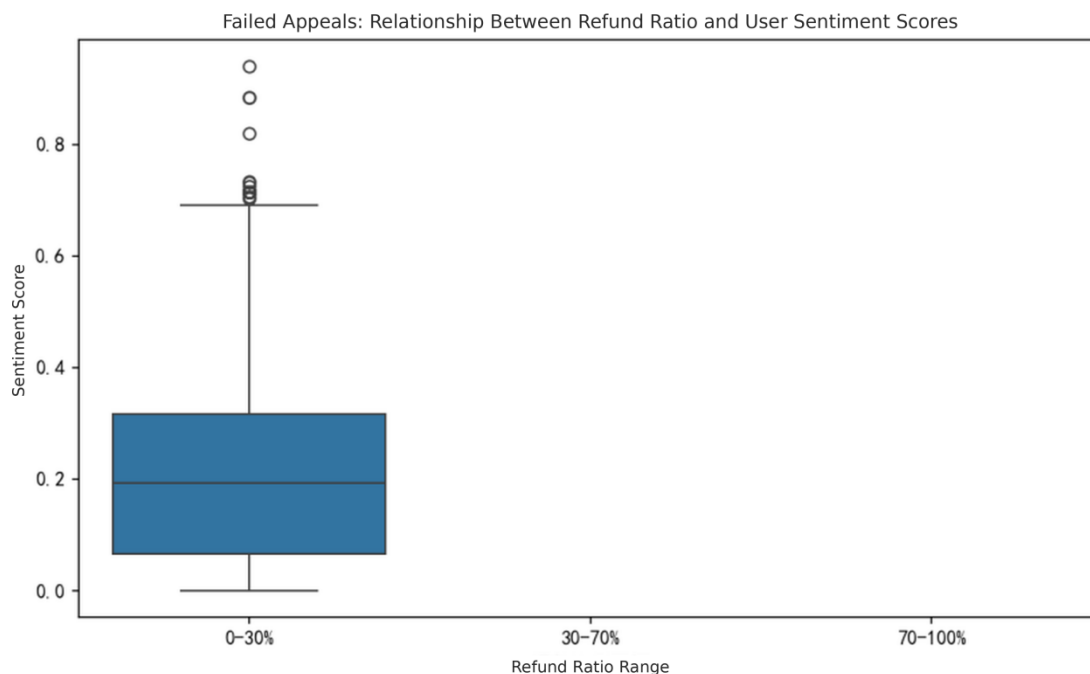


Figure 8. Grouped boxplots of refund rates for failed appeal cases

The sentiment analysis thus provides a subjective perspective on the actual consequences of appeal failure. High failure rates not only cause financial losses for sellers but also continue to erode their trust in platform governance and their business confidence. Future improvements should therefore aim to reduce failure rates and restore users' perceptions of procedural fairness through more transparent rules and clearer guidance on evidence submission.

5. Improvement strategies

The analysis identifies "Seller Procedural and Evidence Issues" as a frequent cause of appeal failure. The sentiment analysis further reveals recurring complaints in notes on unsuccessful appeals, including "I cannot understand the rules" (156 occurrences) and "The evidence was submitted, but the appeal still failed" (143 occurrences). These complaints indicate widespread confusion about evidence requirements and rule wording. The platform should therefore introduce an intelligent appeal pre-check system within the after-sales service interface for each order. This system should guide users through entering their reasons and uploading supporting documents. It should also provide real-time feedback on missing materials and whether requests meet platform rules, reducing appeal failures caused by procedural errors or misunderstandings of the rules.

Differentiated service strategies can improve resource allocation efficiency. The study finds that appeal failures decline markedly as membership level increases. Two factors explain this pattern. Higher-tier members have more experience using the platform and are less likely to encounter disputes. The platform also adopts more cautious or differentiated approaches when adjudicating their disputes. Platform dispute governance should therefore incorporate user segmentation. VIP1 users and other groups with frequent disputes should receive more guidance on rules and risks before transactions. For higher-tier users, the platform should maintain service quality while ensuring fair and consistent adjudication. A user credit scoring system could also be developed using appeal behavior data. Indicators could include appeal success rates, the authenticity of supporting documents, and signs of malicious appeals. Users with high credit ratings could receive simpler appeal procedures and shorter processing times. Users with low credit ratings and high risk should undergo stricter document checks and, where necessary, additional manual review. User segments and credit ratings should also be updated dynamically, with category labels adjusted promptly based on subsequent appeal behavior and outcomes. This would support dynamic management throughout the user lifecycle.

Operational procedures should be improved across all stages to make after-sales appeal handling more professional and better suited to service needs. The preceding analysis shows that the timing of platform activities directly affects fluctuations in dispute volumes. The platform should establish a dynamic system for early dispute warnings and resource allocation. Before major promotional campaigns, it should strengthen compliance guidance for sellers and improve its intelligent system for initial dispute handling. After these campaigns, it should promptly increase customer service and review resources. These measures would help manage recurring appeal peaks while ensuring timely dispute resolution and a smooth user experience.

Platform rules should be refined to improve their practical applicability and provide clearer guidance. The analysis of after-sales appeal data shows that many failed appeals arise from inconsistent rule interpretations, incorrect system decisions, and delays in information synchronization. To establish fair, transparent, and efficient platform governance, the platform should develop a process for improving rules that draws on data, user participation, and the needs of different situations. First, it should clarify rule wording by converting

complex provisions into practical guidelines supported by examples, reducing disputes caused by ambiguous interpretations. Second, it should introduce a “rule impact assessment” before implementing major revisions or new rules. Simulation tests, surveys, and data-based projections could assess potential effects on sellers, product categories, and dispute scenarios. Finally, users affected by the rules should be invited to participate in discussions through seller committees and online hearings. The platform should also publish regular reports explaining which suggestions were adopted and why. This would establish a continuing feedback process for after-sales services and make platform rules an evolving agreement jointly developed by the platform and its users.

6. Conclusion

Using Python, this study analyzes more than 9,000 recent dispute appeal records from Platform S. It combines the platform-assigned “Primary Reason for Appeal Non-Acceptance” field with text from the “Notes” field. The quantitative analysis identifies the main problems underlying seller appeal failures and their distribution patterns. The findings provide guidance for sellers to reduce risks and improve appeal success rates. They also inform efforts by e-commerce platforms to improve appeal procedures and operational efficiency.

First, the dispute appeal mechanism on the CBEC platform is characterized by high barriers and low approval rates, with an overall seller appeal success rate of only 21%. An empirical analysis of 10,576 appeal records shows that seller appeal failures mainly arise from three interacting factors: limited transparency of logistics information, disputes over delivery confirmation, and assessments of the objectivity of product descriptions. Second, the distribution of failure reasons differs markedly between appealing parties. Seller appeal failures are concentrated in factual disputes concerning logistics and product descriptions, whereas buyer appeal failures are spread across procedural factors. This indicates that the platform places a greater burden of proof on sellers. Monthly fluctuations in appeal volumes are also closely associated with e-commerce promotional cycles, highlighting the need for a dynamic dispute warning system. Sentiment analysis further reveals the hidden costs of appeal failure. Sentiment scores are substantially lower in the unsuccessful group than in the successful group, and frequent expressions include “unfair” and “I cannot understand the rules.” These expressions reflect confusion and reveal clear weaknesses in procedural transparency and user education on platform rules.

Based on these findings, this study recommends systematic improvements in rule design, operational procedures, and user guidance. The platform should make adjudication standards more detailed and transparent, implement differentiated service strategies, and improve operational procedures across all stages. These measures would make after-sales appeal handling more professional and better suited to service needs.

Improving CBEC dispute appeal mechanisms requires joint efforts from platforms and sellers. Progress is needed in making rule design more user-friendly, process execution more intelligent, and user support more systematic. Only by advancing all three areas together can platforms reduce the sunk costs arising from information asymmetry and build a fairer, more efficient, and more trustworthy ecosystem. This would provide a sound governance foundation for the high-quality development of China’s CBEC sector.

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Disclosure statement

The author declares no conflict of interest.

References

- [1] Katsh E, Rifkin J, 2001, *Online Dispute Resolution: Resolving Conflicts in Cyberspace*. Jossey-Bass.
- [2] Rule C, 2002, *Online Dispute Resolution for Business: B2B, E-Commerce, Consumer, Employment, Insurance, and Other Commercial Conflicts*. Jossey-Bass.
- [3] Kaufmann-Kohler G, Schultz T, 2004, *Online Dispute Resolution: Challenges for Contemporary Justice*. Kluwer Law International.
- [4] Goodman JW, 2003, The Pros and Cons of Online Dispute Resolution: An Assessment of Cyber-Mediation Websites. *Duke Law & Technology Review*, 2(1).
- [5] Abdel Wahab MS, Katsh E, Rainey D, (Eds.), 2012, *Online Dispute Resolution: Theory and Practice*. Eleven International Publishing.
- [6] Katsh E, Rabinovich-Einy O, 2017, *Digital Justice: Technology and the Internet of Disputes*. Oxford University Press.
- [7] Katsh E, Rule C, 2016, What We Know and Need to Know About Online Dispute Resolution. *South Carolina Law Review*, 67(2): 329–344.
- [8] Parker GG, Van Alstyne MW, Choudary SP, 2016, *Platform Revolution*. W. W. Norton.
- [9] Lind EA, Tyler TR, 1988, *The Social Psychology of Procedural Justice*. Plenum Press.
- [10] Colquitt JA, 2001, On the Dimensionality of Organizational Justice: A Construct Validation of a Measure. *Journal of Applied Psychology*, 86(3): 386–400.
- [11] Liu Y, Wan Y, 2023, Consumer Satisfaction with the Online Dispute Resolution on a Second-Hand Goods-Trading Platform. *Sustainability*, 15(4): 3182.
- [12] Pang B, Lee L, 2008, Opinion Mining and Sentiment Analysis. *Foundations and Trends in Information Retrieval*, 2(1–2): 1–135.
- [13] Akerlof GA, 1970, The Market for “Lemons”: Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, 84(3): 488–500.
- [14] Pandey S, Mittal S, Chawla D, 2024, Tackling Consumer Information Asymmetry and Perceived Uncertainty for Luxury Re-Commerce Through Seller Signals. *Journal of Retailing and Consumer Services*, 79: 103736.
- [15] Davenport TH, Short JE, 1990, The New Industrial Engineering: Information Technology and Business Process Redesign. *Sloan Management Review*, 31(4): 11–27.
- [16] Teixeira AR, Ferreira JV, Ramos AL, 2024, Optimization of Business Processes through BPM Methodology: A Case Study on Data Analysis and Performance Improvement. *Information*, 15(11): 724.

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