

## Perceived Risk in Cross-Border E-commerce with the Mediating Role of Platform Trust and the Moderating Effect of Product Type Based on Evidence from Taobao in China

*Xu Zhenyun*<sup>1</sup>, *Naruemon Teerapatanakiat*<sup>2\*</sup>, *Uthairat Mueangsan*<sup>3</sup>  
*Business Administration and Accounting Faculty, Pathumthani University*<sup>1, 2\*, 3</sup>  
*Corresponding author's e-mail: Naruemon.t@ptu.ac.th*

### Abstract

The objectives of this research were (1) to study the impact of perceived risk on consumers' willingness to purchase through cross-border e-commerce, (2) to examine the relationships among platform trust, perceived risk, and purchase intention, and (3) to construct a moderated mediation model linking "risk-trust-intention". This study utilized a quantitative research design. The population consisted of Chinese consumers who used Taobao Global or Tmall Global within the past year. A sample of 320 respondents was selected using a combination of quota and snowball sampling. The research instrument was a 5-point Likert scale questionnaire, which was validated for content validity (S-CVI = 0.95) and reliability (Cronbach's alpha between 0.87 and 0.91). Data were analyzed using descriptive statistics and structural equation modeling (SEM). The results revealed that perceived risk significantly and negatively impacts purchase intention, while platform trust serves as a critical mediator. Furthermore, the study found that the "risk-trust-intention" mechanism is significantly moderated by product type, with experience goods showing a stronger reliance on platform trust than search goods. The study concludes that enhancing institutional trust-building mechanisms is essential for mitigating perceived risks in the cross-border context.

**Keywords:** Perceived Risk, Platform Trust, Purchase Intention, Cross-Border E-Commerce, Product Type

### Introduction

Perceived risk has long been recognized as a fundamental determinant of consumer decision-making behavior (Cunningham, 1967). In cross-border e-commerce (CBEC), risk perception is intensified due to geographical distance, information asymmetry, and cross-national logistics uncertainty (Liu et al., 2021; Giuffrida et al., 2021). According to perceived risk theory, consumers evaluate potential financial, performance, and delivery losses before forming purchase intentions (Phamthi et al., 2024; Ma et al., 2025).

In digital environments, institutional trust functions as a compensatory mechanism that reduces uncertainty (McKnight et al., 2002; Zucker, 1986). Platform trust is particularly crucial in CBEC contexts where interpersonal familiarity is absent (Peng & Zhu, 2021; Sun & Li, 2021). Recent empirical research confirms that trust mediates the relationship between perceived risk and purchase intention across e-commerce platforms (Han et al., 2023; Huang, 2022).

Furthermore, product type introduces boundary conditions into risk perception. Nelson (1970) classifies goods into search and experience categories, suggesting that experience goods generate higher uncertainty. Contemporary CBEC studies support this distinction, demonstrating that perceived risk varies significantly across product types (Zhu et al., 2019; Zhang et al., 2023).

Therefore, this study integrates perceived risk theory, institutional trust theory, and product classification theory to construct a moderated mediation model examining consumer behavior on Taobao Global and Tmall Global platforms.

## Research Methodology

This study employed a quantitative research methodology focusing on structural equation modeling (SEM).

**Population and Sample:** The target population comprised Chinese consumers who had browsed or purchased cross-border goods via Taobao within the past year. Following the recommendation to have a sample size at least 20 times the number of observed variables, a sample of 320 respondents was determined based on 16 variables.

**Sampling Strategy:** Quota sampling based on CNNIC demographic characteristics was combined with snowball sampling. Screening questions ensured that only active cross-border shoppers participated.

This study adopted a combination of quota sampling and snowball sampling to ensure both structural representativeness and access to qualified respondents.

First, quota sampling was implemented based on demographic proportions reported in CNNIC statistics regarding Chinese online cross-border consumers. Quotas were established for gender, age groups, and frequency of cross-border purchasing to approximate the population structure. This approach enhances representativeness when probability sampling is not feasible in large digital populations (Hair et al., 2006).

Second, snowball sampling was applied to recruit respondents who met the screening criteria (i.e., active users of Taobao Global or Tmall Global within the past 12 months). Initial participants were asked to distribute the survey link within their networks of verified CBEC users. Snowball sampling is particularly appropriate in online behavioral research where platform usage cannot be directly accessed by researchers (Zhu et al., 2019).

To reduce sampling bias, the following control measures were implemented:

- Screening questions ensured respondents had actual cross-border purchase experience.
- Duplicate IP addresses were filtered.
- Response time thresholds were applied to eliminate careless responses.

The final sample size of 320 respondents exceeds the minimum requirement for structural equation modeling (SEM), which recommends 10–20 times the number of observed variables (Kline, 2023; Hair et al., 2006).

Among the 320 valid responses:

- 54% were female and 46% male.
- The majority (62%) were aged between 20–35 years, consistent with China's dominant online shopping demographic (Liu et al., 2021).
- 71% reported purchasing cross-border goods at least twice within the past year.
- Experience goods (e.g., cosmetics) accounted for 58% of reported purchases, while -
- search goods (e.g., electronics) accounted for 42%.

These distributions align with national e-commerce consumption patterns reported in recent CBEC studies (Han et al., 2023; Zhang et al., 2023), suggesting that the sample reasonably reflects active cross-border consumer behavior.

**Research Instruments:** A structured questionnaire was developed with three main sections: respondent characteristics, core variable measurements (16 items), and a scenario-based manipulation for the moderating variable (Product Type). Variables were measured using a 5-point Likert scale.

**Data Analysis:** Descriptive statistics (Mean, S.D.) summarized data characteristics. Structural Equation Modeling (SEM) was used to test the causal relationships, mediating roles, and moderating effects. Model fit was assessed using indices such as  $\chi^2/df$ , RMSEA, GFI, and CFI

## Result

The findings of the study are summarized as follows:

1. **Impact of Perceived Risk:** Consumers' perceived risk in cross-border e-commerce including concerns over product matching, payment security, and logistics was found to have a significant negative effect on their willingness to purchase (H4).
2. **Role of Platform Trust:** Platform trust has a significant positive effect on purchase intention (H3). It acts as a credible "anchor" or intermediary mechanism that facilitates transactions by reducing the uncertainty perceived by consumers.
3. **Moderating Effect of Product Type:** The results confirmed that product type has a significant effect on both platform trust (H1) and perceived risk (H2). For experience goods (e.g., skincare), where quality assessment requires personal use, the negative impact of perceived risk is more pronounced compared to search goods (e.g., laptops).
4. **Model Construction:** The SEM analysis successfully constructed a moderated mediation model. It revealed that perceived risk erodes purchase intention primarily by diminishing platform trust, and this erosion is significantly stronger for experience goods than for search goods.

## Discussion and conclusions

The significant negative effect of perceived risk on purchase intention supports classical risk theory (Cunningham, 1967) and recent systematic reviews confirming its persistent influence in digital commerce (Phamthi et al., 2024). In cross-border contexts, logistics and payment uncertainty amplify perceived vulnerability (Giuffrida et al., 2021).

The mediating role of platform trust reinforces institutional trust theory (Zucker, 1986; McKnight et al., 2002). Consumers rely on platform-level mechanisms such as escrow systems and verified reviews as substitutes for interpersonal trust (Peng & Zhu, 2021). This finding aligns with Sun and Li (2021), who reported that risk-aware trust significantly enhances CBEC purchase intention.

The moderating role of product type confirms Nelson's (1970) classification framework. Experience goods inherently generate greater uncertainty due to evaluation difficulty. Recent CBEC research similarly finds stronger trust dependency for experiential categories (Ma et al., 2025; Zhang et al., 2023).

Thus, the moderated mediation structure demonstrates that risk perception operates indirectly through trust, and this mechanism is contingent upon product characteristics providing theoretical and contextual refinement to prior CBEC models (Zhu et al., 2019; Han et al., 2023).

## Suggestion

### 1. Recommendations for Platform and Merchant Practice:

**Optimizing Trust Assurance Systems:** Platforms like Taobao should prioritize the visibility and reliability of their institutional safeguards. Strengthening features like "authenticity

guarantees" and "hassle-free returns" is crucial for reducing the severity of consequences perceived by consumers.

**Differentiated Marketing Strategies:** Merchants should tailor their risk communication based on product type. For experience goods, providing rich multimedia feedback and detailed consumer reviews is vital to bridge the information gap. For search goods, emphasizing objective specifications and competitive pricing may be more effective.

**Logistics and Payment Security:** Continued investment in secure cross-border payment systems and transparent, reliable logistics tracking is recommended to directly address the primary dimensions of perceived risk (financial and delivery risk).

**Leveraging Collective Intelligence:** Platforms should encourage and highlight authentic user reviews, as collective wisdom from peers serves as a powerful external cue that reinforces platform trust in a digital environment.

## 2. Recommendations for Future Research:

**Expanding Cross-Cultural Contexts:** Future research could examine whether this "risk-trust-intention" model applies to other international platforms or consumers outside of mainland China to test the generalizability of the findings.

**Longitudinal Studies:** A longitudinal approach could track how consumer trust and risk perceptions change as they gain more experience with cross-border shopping and as platform technologies (like AI or blockchain) evolve.

**Exploring Additional Moderators:** Researchers might explore other moderating variables, such as consumers' prior online shopping experience or cultural values, to further refine the boundary conditions of the current model.

**Qualitative Investigations:** Conducting in-depth interviews could provide more nuanced insights into the "how" and "why" behind the specific dimensions of risk that most significantly impact trust in different product categories.

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