Received: 2 November 2015 | Revised: 27 February 2017 | Accepted: 14 March 2017

DOI: 10.1111/isj.12144

WILEY

RESEARCH ARTICLE

To sell or not to sell: Exploring sellers' trust and risk of chargeback fraud in cross-border electronic commerce

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Funding information
Fundamental Research Funds for the Central Universities, Grant/Award Number: 2014B18914; Humanities and Social Sciences Foundation of the Ministry of Education in China, Grant/Award Number: 16YJC630028

Abstract

Over the past few decades, chargeback fraud from buyers has been identified as a major risk faced by online sellers, particularly small- and medium-sized enterprises, in cross-border electronic commerce. However, most previous studies have focused on trust and perceived risk from the buyers' perspective and in domestic online marketplaces, while neglecting the importance of sellers' trust and perceived risk in the success of online transactions and the significance of cross-border transactions. To fill this gap in the literature, this study examines both the antecedents and the impacts of sellers' trust in buyers and their perceived risk of chargeback fraud on sellers' intention to trade with buyers in the context of cross-border e-commerce. To this end, we develop a conceptual model that identifies a set of institutional mechanisms to enhance sellers' trust and reduce their perceived risk. Hypotheses are tested via a survey of 443 sellers on DHgate.com, one of the major cross-border e-commerce websites connecting the small- and medium-sized enterprises of mainland China with overseas buyers. Our research makes concrete contributions to e-commerce research and generates useful insights for third-party online transaction platforms and online trade policy makers.

KEYWORDS

chargeback fraud, cross-border, e-commerce, institutional mechanisms, sellers, trust, perceived risk

1 | INTRODUCTION

The rise of third-party trading platforms, such as eBay.com and DHgate.com, has enabled small- and medium-sized enterprises (SMEs) to sell products and services online to a large number of potential buyers from all over the world. These SMEs seek to avoid intense competition in their home markets and to seek actively new business opportunities in cross-border online commerce. As emphasized in the extant literature on e-commerce, the success and continuance of online transactions hinge on the trust between transacting parties, particularly as a result of the social complexity,

uncertainty, and risks involved in online trading (Gefen, Karahanna, & Straub, 2003; McKnight & Chervany, 2002; Pavlou & Dimoka, 2006; Yoon & Occeña, 2015). Indeed, "price does not rule the web; trust does" (Reichheld & Schefter, 2000, p. 107). It is notable that nearly all previous studies examine the determinants of trust and transaction risks from the buyers' perspective, assuming that buyers were placed in a disadvantaged position relative to sellers, which subjects the former to the opportunistic behavior of the latter (eg, Fang et al., 2014; Gefen et al., 2003; Koh, Fichman, & Kraut, 2012; Pavlou, 2003; Pavlou & Gefen, 2004; Pennington, Wilcox, & Grover, 2003).

This assumption may not always hold, considering the common problem of chargeback fraud faced by SMEs and other merchants in e-commerce transactions. Chargeback fraud, also known as friendly fraud, occurs when buyers claim a refund for purchased items without returning the items to sellers, typically on the basis of some unfounded excuses such as "items are not delivered" or "transactions are unauthorized" (Khan, 2015). The fraudulent incentive of buyers to get "free" items online is accentuated by the credit card protection policy commonly adopted by third-party online platforms, which often allows buyers to reverse charges for up to 180 days if they are not satisfied with the ordered items (Clemons, 2007). Unlike face-to-face transactions with buyers in stores where the credit card institutions take full responsibility in disputes of chargebacks, an online merchant is held accountable for the loss of delivered items despite all the measures she has taken to verify the transactions (Riley, 2008). In addition to the refund, the seller is further required to pay chargeback fees to credit card companies and bears the risk of account termination on an online trading platform if the chargeback claims are excessive or the unsatisfied buyers leave negative comments on the platform. According to a LexisNexis report (2013), merchants incur a $279 loss for every $100 of fraud loss.[1] Some online marketplaces do not even allow sellers to leave negative feedback for buyers (Sun, 2010), thus encouraging buyers to engage in opportunistic behavior. As a result, sellers experience a high risk of chargeback fraud associated with the rapid growth of credit card use in online transactions.

On the other hand, cross-border e-commerce represents an emerging online market for SMEs. A PayPal-commissioned report indicates that more than 130 million cross-border shoppers worldwide will spend over US $300 billion by 2018 (PayPal Media Modern Spice Routes, 2013). Compared with domestic e-commerce, cross-border e-commerce brings more business opportunities, especially from emerging markets, such as China and Brazil (PayPal Media Modern Spice Routes, 2013). However, cross-border trading and delivery are far more complicated and risky than either the traditional offline market or the domestic electronic market, because of the high information asymmetry between international buyers and sellers, poor legal enforcement across countries, language and culture barriers, and high shipping costs in international trading (Gomez-Herrera, Martens, & Turlea, 2014; Gessner & Snodgrass, 2015; Savrula, Incekarab, & Senerb, 2014). Given the high complexity and uncertainty in cross-border transactions, the risk of chargeback fraud looms larger for online merchants, especially SMEs who are endowed with considerably less financial resources than large enterprises.

Even though chargeback fraud imposes transaction risk for sellers, which further increases in cross-border transactions, relatively little research effort has been devoted to the determinants and consequences of trust and perceived risk (PR) from the sellers' perspective. The existing literature is overwhelmingly concerned with the protection of buyers' interests and with this standpoint pays exclusive attentions to antecedents of buyers' trust and perceived risk in online transactions. Researchers have proposed a variety of institutional mechanisms (such as structural assurances, escrow services, and credit card guarantees) that place an emphasis on enhancing buyers' trust and mitigating their transaction risks (Fang et al., 2014; Gefen & Pavlou, 2012; Koh et al., 2012; Pavlou & Gefen, 2004). Although previous studies have enriched our knowledge of the buyers' view of e-commerce and developed effective solutions for counteracting buyers' risks in e-commerce, the success of online transactions requires not only buyers' trust but also sellers' trust (ST) and continued use of online marketplaces (Sun, 2010). In the absence of transaction mechanisms that can protect sellers from buyers' opportunistic behavior, sellers can choose to walk away from transactions that have

[1]A coauthor of this study set up a small enterprise to conduct international business online in the capacity of a seller. His company also experienced tremendous financial losses stemming from chargeback fraud.

suspicious incentives. Thus, understanding the sellers' perspective on trust and perceived risk is as equally important to the continuance of e-commerce as the buyers' perspective.

This study seeks to bridge the above research gaps by shifting the focus to sellers' trust and perceived risk of chargeback fraud in the context of cross-border e-commerce. Drawing on information signaling theory (Spence, 1974) and the sociological perspective (Shapiro, 1987; Zucker, 1986), we develop a conceptual model that identifies a comprehensive set of determinants of sellers' trust and perceived risk of chargeback fraud. To demonstrate the necessity to consider the sellers' view, we also aim to examine the consequences of sellers' trust and perceived risk on their intention to sell online. We select a leading cross-border e-commerce platform, DHgate.com, one of the largest e-commerce marketplaces in China, as the empirical setting for a hypothesis test of the conceptual model. China has surpassed the United States as the world's biggest trading nation and is a growing influence in global commerce (Bloomberg News, 2013), suggesting that it is an ideal setting for our research.

This paper makes contributions to e-commerce research in the following ways. First, we extend existing e-commerce literature by examining the determinants of the critical foundations of e-commerce—trust and perceived risk of transacting parties—from the sellers' perspective. Specifically, we identify institutional mechanisms that can enhance sellers' trust and mitigate their perceived risk of chargeback fraud. Second, we expand previous models of institution-based trust and perceived risk by conceptualizing and testing the effects of institutional mechanisms that accommodate the more complicated and risky cross-border e-commerce context. Third, we provide strong evidence about the critical role of sellers in the continuance of e-commerce transactions. The findings about the effects of sellers' trust and perceived risk on sellers' intention to trade challenge the dominant assumption that the success of online transactions primarily depends on buyers' trust and perceived risk because buyers are subject to sellers' opportunistic behavior. As an alternative, our research indicates that sellers are also susceptible to buyers' fraudulent behavior and both their trust and perceived risk determine the intention to trade with buyers.

2 | LITERATURE REVIEW

Previous studies in e-commerce indicate that trust and perceived risk are the principle determinants of online transaction behavior (eg, Gefen et al., 2003; Pavlou, 2003). Trust refers to both a belief that the trusted party will behave in accordance with the trusting party's confident expectations of the former party's benevolence, integrity, and ability and the willingness of the trusting party to accept vulnerability on the basis of these expectations (Fang et al., 2014; Gefen et al., 2003; Mayer, Davis, & Schoorman, 1995). Trust acts as a cornerstone for successful online transactions and the formation of buyer-seller relationships in e-commerce because online transactions feature high uncertainty and risks that arise from the information asymmetry between buyers and sellers (Chiu, Wang, Fang, & Huang, 2012; Pavlou & Gefen, 2004). Most studies have exclusively examined trust of buyers in sellers on the basis of the assumption that the sellers are in a more advantageous position to behave opportunistically in online transactions (eg, Fang et al., 2014; Gefen & Straub, 2004; Gefen et al., 2003; Hong & Cho, 2011; Jarvenpaa, Tractinsky, & Vitale, 2000; Pavlou & Gefen, 2004). Buyers' trust in sellers is portrayed in these studies as a functional mechanism to sustain online transactions and purchase intention. Recent literature demonstrates that the importance of trust in stimulating online purchases of buyers depends on the effectiveness of institutional mechanisms (Fang et al., 2014; Gefen & Pavlou, 2012).

Perceived risk refers to the belief of a transaction party that a loss could possibly occur as a result of the opportunistic behavior of another party (Jarvenpaa et al., 2000; Pavlou & Gefen, 2004). The extant literature in e-commerce is principally concerned with the online transaction risk to buyers, arguing that the incomplete information possessed by buyers of sellers engenders uncertainty of transaction and subjects buyers to the opportunistic behavior of sellers (Bélanger & Carter, 2008; Gefen & Pavlou, 2012; Pavlou & Gefen, 2004). The perceived risks of online transactions, such as low-product quality, poor after-sales service, theft of credit card information, and breach of privacy, inhibit buyers' purchase intention (Corbitt, Thanasankit, & Yi, 2003; Jarvenpaa & Tractinsky, 1999; Kim & Benbasat, 2006).

Recent studies also indicate that the effects of buyers' perceived risk on their purchase decision are contingent on the effectiveness of institutional structures (Gefen & Pavlou, 2012).

Consistently, existing studies have examined the institution-based antecedents of trust and the perceived risk of online transactions from the buyer's perspective (eg, Gefen & Straub, 2004; Gefen et al., 2003; Koh et al., 2012; Pavlou & Gefen, 2004). For example, Gefen et al (2003) find that a buyer's trust in an e-vendor is heavily influenced by the buyer's perception of institution-based antecedents, such as situational normality (buyer's assessment of transaction success on the basis of how normal the situation appears to be), structural assurance (buyer's assessment of transaction success on the basis of the security mechanisms of online transaction), and the buyer's perception of the ease of use of a website. Pavlou and Gefen (2004) also indicate that a buyer's perceived effectiveness of institutional mechanisms (PEIM) designed by third parties or online transaction intermediaries exerts strong impacts on a buyer's trust and perceived risk in sellers. Focusing on returning customers, Fang et al (2014) corroborate the functional role of PEIM in shaping buyers' trust, finding that PEIM positively moderates the relationship between buyers' satisfaction and their trust in vendors. Koh et al (2012) instead emphasize the role of information indices and signals of sellers in determining a buyer's trust, specifically demonstrating the positive effects of both information indices about sellers' attributes (such as country of origin) and information signals acquired by sellers on buyers' trust in sellers.

In sum, while the existing literature has long established relationships between trust, perceived risk, and online transaction activities, this research stream approaches the phenomenon predominantly from the buyers' perspective and examines the effects of various institutional mechanisms that are intended to protect buyers from the opportunistic conducts of sellers, on the basis of the assumption that buyers are more likely to be subject to sellers' opportunism rather than vice versa, and thus, their attitude and perception determine the success of online transactions. This view is apparently biased to the extent that it paints a partial picture of the e-commerce marketplace, since sellers, as the players on the supply side, also have the option of discontinuing transactions or even rejecting orders from buyers when they lose trust in the latter or perceive a high risk of transaction with buyers. Like sellers, buyers also harbor incentives to behave opportunistically. As aforementioned, sellers face the common risk of chargeback fraud of buyers, which causes a loss of delivered goods and incurs the penalty of chargeback fees. Thus, research effort is warranted for the examination of trust and perceived risk from the sellers' perspective; in so doing, such research will complement existing e-commerce research to develop a balanced account of the forces that can sustain online transactions.

In addition, the existing literature assumes away the e-commerce context of country of origin, as a result of an exclusive focus on domestic settings where buyers and sellers are in the same country, with very few exceptions that investigate the antecedents of buyers' trust in cross-border, global B2B e-commerce (Koh et al., 2012). Prior research indicates that order fulfillment and delivery of products or services ordered online acts as a critical factor influencing buyers' trust in online vendors, which determines the repurchase decisions of buyers, because the delivery capability of vendors is out of the control of buyers and thus places buyers in a vulnerable position (Bart, Shanker, Sultan, & Urban, 2005; Qureshi et al., 2009). Failure to deliver ordered items on time or with the shipping method promised would instigate a violation of psychological contract—the perceived obligations of vendors (Morrison & Robinson, 1997)—and consequently impairs the trust of buyers in vendors (Pavlou & Gefen, 2005). While the body of extant literature acknowledges the risks arising from delivery problems to online buyers and the implications for buyers' trust in vendors, it neglects to examine the risks imposed on vendors that may result from buyers' opportunistic behavior after online orders are delivered, such as chargeback fraud. Moreover, the opportunism of buyers, such as unjustifiable claims for refunds, could also lead to violation of the psychological contract held by vendors towards buyers' obligations in e-commerce transactions.

The aforementioned risks to vendors become even higher in cross-border e-commerce. In these situations, the information asymmetry between buyers and sellers tends to be very high because transactions across countries face a variety of barriers such as culture, language, and legal enforcement, which increase trade costs and risks of cross-border delivery, especially for SMEs (Gessner & Snodgrass, 2015; Gomez-Herrera et al., 2014). Moreover, cross-border transaction intermediaries normally require sellers to upload company information online for seller account approval, whereas buyers can open accounts immediately without approval, which accentuates information asymmetry between buyers and sellers. Thus, international e-commerce is more complicated and risky than the

domestic online market, suggesting that trust is even harder to establish in the cross-border context. Although researchers have started to pay some attention to the cross-border context of e-commerce (Koh et al., 2012), concerns with buyers' trust and risk perception continue to dominate the focus of research, even though buyers and sellers are likely to have different perceptions of trust and risks in cross-border transactions.

3 | THEORETICAL DEVELOPMENT AND HYPOTHESES

This paper aims to address the limitations of the existing literature by investigating the antecedents of trust and perceived risk from the sellers' perspective in the context of cross-border B2C online transactions. To highlight the importance of the sellers' perspective for e-commerce transactions, we also examine the effects of trust and perceived risk on sellers' intention to trade. We combine the sociological perspective on trust (Shapiro, 1987; Zucker, 1986) and signaling theory (Spence, 1974) to develop our conceptual model. First, we adapt the prior conceptualization of trust (Mayer et al., 1995) to define seller's trust in buyers as the willingness of sellers to accept vulnerability on the basis of positive expectations of buyers' integrity and benevolence. Because a seller faces the entire population of buyers who have access to a specific e-commerce website, a seller's trust is conceptualized as trust in a community of buyers. This is in line with the view of Pavlou and Gefen (2004), who argue that the nature of online e-commerce renders "one-to-many" trust deserving of special attention. Second, we adapt the concept of perceived risk (Jarvenpaa et al., 2000; Pavlou & Gefen, 2004) to our particular research context and define it as a seller's belief that a loss could possibly occur as a result of buyers' chargeback fraud. This notion is different from transaction risks unrelated to the integrity of buyers, such as the legitimate request for a refund because of product loss during delivery.

3.1 | Conceptual model

According to the sociological perspective, trust is produced by institutional mechanisms to govern economic transactions because these relatively independent social infrastructures create a shared basis for common understandings of "how things are done" (Shapiro, 1987; Zucker, 1986, p. 64). As a result, the installment of institutional mechanisms provides assurance of functional economic exchanges to transacting parties and controls the risks associated with transactions. In e-commerce, institutional mechanisms are established by online transaction intermediaries and platforms to mitigate transaction risks and facilitate transaction success (Fang et al., 2014; Pavlou & Gefen, 2004). Given that the mechanism design is not tailored to any specific transactions or traders but rather institutionalized to create the confidence of exchange parties that the transactions will take place as promised (Fang et al., 2014), it should provide a security net for sellers to assure them that buyers will behave as expected. Thus, third-party online platforms should design an institutional mechanism to protect sellers and help them to secure the payments of buyers and solve the problems arising from online transactions.

In addition to third-party specific mechanisms that are developed by specific websites or online marketplaces, there exist general online transaction mechanisms that operate beyond the control of any specific online platforms (Fang et al., 2014; Grabner-Krauter & Kaluscha, 2003). In the context of cross-border e-commerce, sellers' trust and risk assessment may also depend on a general institutional mechanism that can produce a system of cross-border delivery to ensure reliable and effective shipment of online orders from sellers to buyers. Without the safeguard of this mechanism, the challenges of international shipments would increase the opportunistic incentives of transacting parties, especially the likelihood of chargeback fraud of buyers (Gomez-Herrera et al., 2014). For example, fraudulent buyers could conveniently use the excuse of "items not received" to claim refunds for items actually received. When a cross-border delivery system is weak, sellers would face high uncertainty in item delivery.

Alternatively, institutional mechanisms can increase the confidence of sellers and mitigate their transaction risk by providing information about buyers that can facilitate sellers to distinguish the good or trustworthy buyers from the bad or opportunistic buyers. As indicated in the literature review, information asymmetry between buyers and sellers

increases concerns and risk perceptions about transactions. To bridge the information gap, sellers could rely on information cues that are transmitted through the third-party online platforms and signal types of buyers. According to signaling theory (Spence, 1974), information cues that serve as an effective signal should lead to a separating equilibrium, in which the bad type and good type of buyers demonstrate unique characteristics or engage in distinctive behaviors. In online shopping, buyers could reveal their types through either intrinsic characteristics that direct their transaction behavior or purchase behavior that is driven by their types.

In the context of cross-border e-commerce, a prominent information cue that can set honest shoppers apart from deceitful ones is the nationality of buyers, since countries are distinctive entities that represent unique value systems, culture, and social norms, which connote differential degrees of trustworthiness and integrity of country of residence (Koh et al., 2012). Moreover, past purchase behavior also manifests a buyer's type because an opportunistic buyer is more likely to engage in fraudulent behavior than a trustworthy buyer is. Historical data can be collected and made accessible to sellers through an institutional feedback mechanism established by an online platform to facilitate the success of online transactions (Pavlou & Gefen, 2004). This third-party specific mechanism would offer credible feedback to sellers about the past trading behavior of buyers in cross-border e-commerce.

Overall, on the basis of the sociological perspective (Shapiro, 1987; Zucker, 1986) and the signaling theory (Spence, 1974), we uncover a set of third-party specific and third-party independent institutional mechanisms that are posited to influence sellers' trust in buyers and their perceived risk of chargeback fraud: seller protection mechanism, cross-border delivery mechanism, feedback mechanism, and mechanism on buyers' national integrity. In accordance with our research context, we further classify these into country-level mechanisms (cross-border delivery and buyers' national integrity) and marketplace-level mechanisms (seller protection and feedback mechanism). Consistent with existing literature (eg, Fang et al., 2014; Gefen et al., 2003; Pavlou & Gefen, 2004), we adopt the view that it is *traders' perception about the effectiveness of transaction mechanisms* that determines their attitudes towards other transacting parties and risk perceptions. As a result, we develop a conceptual model (Figure 1) that encompasses the effects of the following institutional factors on sellers' trust and perceived risk: perceived national integrity (PNI) of buyers, perceived effectiveness of cross-border delivery (PECBD), perceived effectiveness of feedback mechanism (PEFM), and perceived effectiveness of seller protection (PESP).

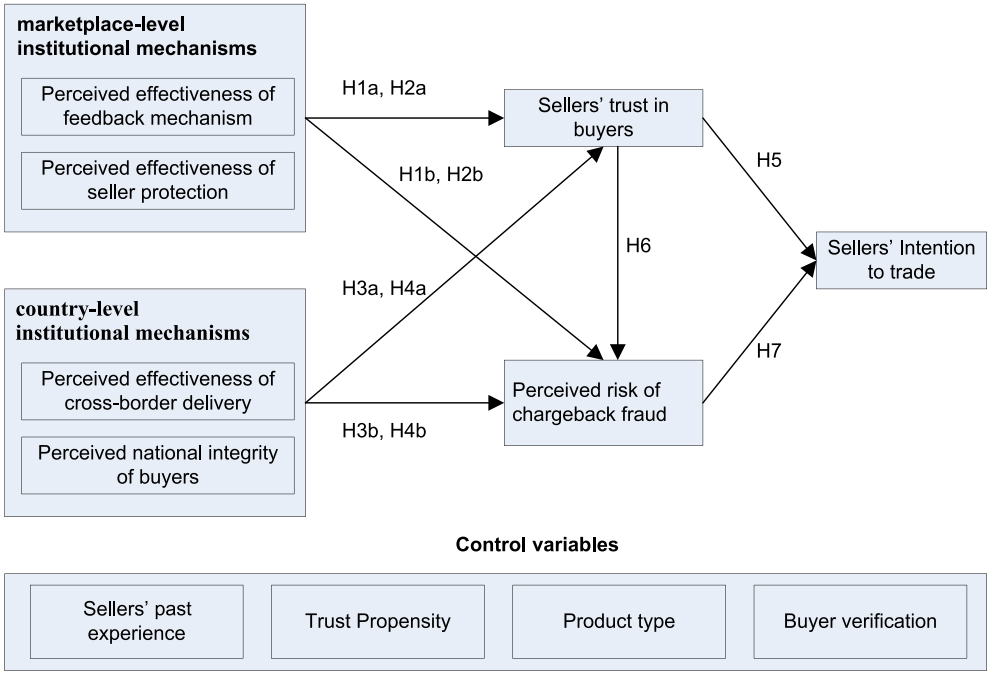

FIGURE 1 The research model [Colour figure can be viewed at wileyonlinelibrary.com]

3.1.1 | Perceived Effectiveness of Feedback Mechanism (PEFM)

Many third-party online transaction platforms, such as DHgate or eBay, develop mutual feedback mechanisms so that both buyers and sellers can provide comments about each party's behavior in transactions and get access to past transaction records. In essence, feedback mechanisms are reputation systems that accumulate and disseminate information about each party's trading behavior (Pavlou & Gefen, 2004). From the seller's perspective, a feedback mechanism is only effective when it provides credible information cues that can help sellers to better distinguish between honest and fraudulent buyers. In other words, the effectiveness of feedback mechanism is determined by the ability of a third-party transaction platform to display buyers' integrity on the basis of their past transaction activities, such as sellers' comments, buyer account status (eg, premium buyers in DHgate.com), and age of the registered account. Thus, we define the PEFM as the extent to which a seller can ascertain that the feedback mechanism designed by a third-party online platform provides accurate and reliable information about buyers' past trading activities.

Prior studies have established that an effective feedback mechanism can help buyers to establish trust not only in individual sellers but also in the entire community of sellers (Ba & Pavlou, 2002; Houser & Wooders, 2006; Lee, Im, & Lee, 2000; Pavlou & Gefen, 2004). From the perspective of sellers, we argue that feedback mechanisms also enable sellers to assess whether the marketplace functions as expected and disseminate cues about buyers' past transaction activities that may provide sellers with the basis to build trust in buyers. Thus, an effective feedback mechanism facilitates the building of transaction norms that bolsters sellers' confidence and trust in the community of the marketplace (Pavlou & Gefen, 2004).

Moreover, according to information signaling theory, within a normal and trustworthy marketplace, buyers' reputation derived from their trading behavior would be viewed as an effective and reliable index of their integrity. These information cues about transaction activities can be collectively viewed as a surrogate for the reputation of online buyers that can help to build sellers' trust in the community of buyers. The greater the information indices on buyers' reputation, the higher the trust level that sellers may develop, because sellers would have a better ability to distinguish good and bad buyers in a functioning market environment.

Furthermore, because an effective feedback mechanism provides credible and accurate information that enables the distinction between honest and fraudulent buyers, it helps sellers identify (and thus avoid) fraudulent buyers. Further, it also sends a strong signal to buyers that sellers could rely on the feedback mechanism to set apart good buyers from bad. As a result, a functional feedback mechanism should deter buyers from acting opportunistically or reduce their incentive for doing so, thereby reducing sellers' concerns regarding possible chargeback fraud. In addition, it creates an implicit norm that each party is expected to abide by, and violation of these rules would result in sanctioning (Fukuyama, 1995; Pavlou & Gefen, 2004), thus providing assurance to sellers about the buyers' conduct in online transactions.

Therefore, we posit that

H1a. *The perceived effectiveness of feedback mechanism increases sellers' trust in buyers.*

H1b. *The perceived effectiveness of feedback mechanism reduces sellers' perceived risk of chargeback fraud when transacting with buyers.*

3.1.2 | Perceived Effectiveness of Seller Protection (PESP)

Some third-party platforms provide seller protection mechanisms that safeguard merchants against financial losses in the event of an unauthorized purchase, such as a chargeback request on the basis of an “item not received” claim. These protection mechanisms operate on different requirements and vary across different third-party platforms. For instance, eBay and DHgate.com both cover physical items that are sold and shipped with proof of delivery, but countries and regions are different in terms of coverage. Moreover, eBay requires a signature confirmation of delivery in addition to proof of shipment for all payments over US$750, while DHgate.com does not impose such requirement. In contrast, Amazon's seller protection policies only cover payment-related chargebacks, such as stolen credit cards, while Amazon sellers are responsible for chargeback fraud associated with other service-related reasons, such as

nonreceipt of goods. Thus, the effectiveness of seller protection as perceived by sellers would be different across sellers, because of the restrictions and requirements of seller protection policies applied to different scenarios.

Adapting the concept of a protection mechanism for buyers from prior research (Chellappa & Pavlou, 2002; Pavlou & Gefen, 2004) to the protection of sellers in cross-border transactions, we define the PESP as the extent to which sellers believe that these mechanisms ensure that their trading with buyers in a cross-border transaction platform can be fulfilled in accordance with their expectations. According to the sociological perspective on trust (Shapiro, 1987; Zucker, 1986), the institutionalization of operating mechanisms that are not customized to any particular transactions or traders would produce trust of exchange parties by establishing rules and norms to control exchange behavior and provide insurance against future deviant behaviors and outcomes. Seller protection mechanisms create a security net for sellers to ensure payments from buyers and resolve disputes in online transactions.

The guarantees supported by the institutional protection mechanisms increase sellers' confidence in the fulfillment of transactions and also send a signal to the community of buyers about the expected purchase behavior in online transactions. As a result, the protection mechanisms facilitate the building of sellers' trust in buyers. Further, by installing protection mechanisms to protect sellers' interests, third-party platforms mitigate sellers' perceived risk of fraudulent buyer behavior, because the protection mechanisms reduce social uncertainty by providing a framework to govern transactions and direct buyers to behave in a socially acceptable way (Gefen, 2000; Pavlou & Gefen, 2004). By restraining buyers' opportunistic incentives and minimizing payment uncertainty, a functional protection mechanism helps to lower sellers' perceived risk of buyers' chargeback fraud. As the effectiveness of protection mechanisms as perceived by sellers increases, their trust in buyers grows and their perceived risk recedes. Therefore, we posit that

H2a. *The perceived effectiveness of seller protection increases sellers' trust in buyers.*

H2b. *The perceived effectiveness of seller protection reduces sellers' perceived risk of chargeback fraud.*

3.1.3 | Perceived Effectiveness of Cross-Border Delivery (PECBD)

Compared with domestic e-commerce, the success of international trade is more heavily dependent on the delivery network between buyers and sellers across countries. Because it is also more challenging to manage international delivery logistics, sellers face higher risk of transaction and uncertainty of payment in cross-border e-commerce. For instance, cross-border delivery is more likely to be subject to delay and errors, hence increasing the chance of "item not received" claims as well as an incentive for chargeback fraud. As noted in the literature, poor delivery performance is viewed as a major factor contributing to cross-border transaction risk (Koh et al., 2012; Lopez-Nicolas & Molina-Castillo, 2008). Thus, a reliable and effective cross-border delivery mechanism is needed to ensure timely receipt of online orders and to support the success of cross-border e-commerce. Consistent with prior studies, the PECBD is defined as the extent to which sellers believe that cross-border e-commerce platforms have developed effective order management mechanisms to guarantee that their goods can be delivered on time with proof of delivery.

From the sociological perspective on trust (Shapiro, 1987; Zucker, 1986), an effective cross-border delivery mechanism should create a sense of security for sellers on the basis of objective structures and institutions that ensure delivery of online orders to international buyers. When the security of delivery is institutionalized, transacting parties would develop a shared understanding that successful delivery, as a normal situation, is what it ought to be (Gefen et al., 2003; McKnight, Cummings, & Chervany, 1998; Zucker, 1986). Because the delivery outcome is in accordance with what sellers expect, they develop trust in the community of international buyers. In contrast, when the delivery mechanism is weak, successful cross-border delivery would not be deemed typical or as anticipated (Gefen et al., 2003); as a result, sellers' trust in buyers would be reduced.

Moreover, sellers' concern regarding buyers' fraudulent incentives will grow if they perceive that the cross-border delivery system is ineffective, because in this situation, buyers could justifiably file claims for items not received. Thus, a functional delivery mechanism can effectively mitigate sellers' perceived risk. For example, some e-commerce

platforms cooperate with logistics and insurance companies to offer shipping insurance for a package that is lost or damaged in transit. In addition, cross-border delivery mechanisms can effectively manage online orders by requesting proof of delivery and signature confirmation, which demonstrate a buyer's identity and delivery address and consequently reduce the risk of chargeback owing to the "item not received" claim initiated by a buyer. Because infrastructures for international delivery vary across countries, sellers perceive the effectiveness of cross-border delivery at differential levels, which causes variation in their trust and perceived risk. On the basis of the above arguments, we posit that

H3a. *The perceived effectiveness cross-border delivery increases sellers' trust in buyers.*

H3b. *The perceived effectiveness cross-border delivery reduces sellers' perceived risk of chargeback fraud when transacting with buyers.*

3.1.4 | Perceived National Integrity of Buyers (PNI)

Cross-border e-commerce presents more challenges for online transactions than domestic e-commerce because of the drastic differences in culture, language, and legal enforcement between countries (Gessner & Snodgrass, 2015; Gomez-Herrera et al., 2014; Hofstede, 2001). The cross-country differences give rise to differences in characteristics and behavior of consumers in global trading (Walters, 1997; Yavas & Green, 1992). To the extent that the value systems, cultures, and institutions vary significantly across countries, country-of-origin sends a reliable signal about the traits of local residents that are shaped by these social norms (Koh et al., 2012). Prior research indicates that the nationality of a firm or a seller serves as a reliable information cue to judge the firm's or the seller's trustworthiness (Koh et al., 2012; Zaheer & Zaheer, 2006).

In cross-border transactions, transacting parties tend to have high information uncertainty regarding the nature of their counterparts; a salient cue that can bridge the information gap in this context is the perceived integrity of the country-of-origin of the traders, which signals the expected behavior and beliefs about the moral character of the traders in a country (Koh et al., 2012). Following Koh et al (2012), we define the PNI of buyers as the extent to which buyers located in a country are presumed to adhere to moral principles in their actions. The value system and culture as overarching social norms of a country shape buyers' behavior in an expected direction. Thus, sellers would expect that buyers from a country with a high national integrity would conform to social norms that value adherence to moral principles; thus, the community of buyers from this type of country is perceived as possessing high integrity, which induces high trust from sellers. This proposition is consistent with the view that trust builds on social norms that most people are expected to conform to (Fukuyama, 1995; Mackie, 2001).

Given that high national integrity signals social norms that value adherence to moral and ethical principles, buyers from a country with high integrity would be expected to follow social rules and customs, which prevent them from engaging in opportunism (Doney, Cannon, & Mullen, 1998). The higher the national integrity of a country, the less likely it is that buyers from the country will deviate from social virtues and act opportunistically. In contrast, countries with low integrity may exhibit less conformity to social virtues, and opportunistic conduct will tend to be more tolerated, hence triggering sellers' concern regarding the fraudulent behavior of buyers. Taken together, we thus posit that

H4a. *The perceived national integrity of buyers increases sellers' trust in the buyers.*

H4b. *The perceived national integrity of buyers reduces sellers' perceived risk of chargeback fraud when transacting with buyers.*

3.2 | Consequences of Sellers' Trust and Perceived Risk

To highlight the importance of sellers' trust and perceived risk, we will now examine their impacts on sellers' intention to trade. Adapting the concept of transaction intention from prior research (Gefen et al., 2003; Pavlou & Gefen, 2004) to our research context, we define sellers' intention to trade as a seller's intention to sell products to the community of buyers. Most cross-border e-commerce platforms, such as DHgate.com (the online platform where we collected data for empirical test), allow sellers to cancel orders before shipping without any penalty imposed by the platforms, given

that various unexpected contingencies could occur, including out-of-stock items, unavailability of the delivery network, and buyers' requests, among others. In-depth interviews conducted with 21 sellers indicated that these sellers would definitely cancel an order if they were suspicious of buyers' incentives or if they perceived a high likelihood of chargeback risk, such as when buyers had poor transaction reviews or unverified addresses. One coauthor has set up an online store, and his e-commerce experience as a seller confirmed these insights from the in-depth interviews.

To the extent that trust represents a trustor's expectation of a trustee's integrity (Gefen et al., 2003; Mayer et al., 1995) and perceived risk reflects a transacting party's belief about possible unexpected losses in transactions (Jarvenpaa et al., 2000; Mayer et al., 1995), both the positive expectation of traders' traits and the negative perception of transaction risk give rise to attitudinal changes, which cause behavioral intentions that are consistent with the organizational cognition (Jarvenpaa et al., 2000; Pavlou & Gefen, 2004). Given this overarching logic, we argue that sellers' trust increases, and perceived risk of chargeback fraud dampens their intention to trade. Since trust lessens the high social uncertainty of online transactions (Gefen & Straub, 2004), sellers' trust in buyers leads to the expectation that buyers would not engage in fraudulent behavior and that payment from buyers can be secured. As a result, high trust triggers a positive attitude toward transaction with buyers, which fosters the behavioral intention to trade. This proposition parallels the positive association robustly supported in extant literature between buyers' trust in online vendors and their purchase intention (eg, Gefen, 2000; Gefen & Straub, 2004; Pavlou & Gefen, 2004).

In contrast, when sellers perceive a high risk of chargeback fraud from buyers, the negative perception activates an unfavorable attitude toward trading with the opportunistic buyers, which inhibits their incentive to sell. As noted before, the challenge of order management in cross-border delivery, coupled with the one-time nature of an online transaction (Gefen & Straub, 2004), accentuates the chargeback risk for sellers. In this one-shot game across national borders, fraudulent buyers have a strong motivation to act opportunistically. Thus, sellers must exercise caution in dealing with potentially opportunistic buyers to minimize the possibility of financial losses stemming from buyers' fraudulent behavior. The negative effect of sellers' perceived risk on their intention to trade echoes the negative relationship between buyers' perceived risk and their behavioral intention in e-commerce (eg, Gefen, 2002; Jarvenpaa et al., 2000; Pavlou, 2003).

Following previous studies examining the relationship between trust and the perceived risk of buyers (eg, 2000; Luo, 2002; Pavlou & Gefen, 2004), we postulate a negative relationship between sellers' trust and their perceived risk of chargeback fraud to complete the structuring of our conceptual model. The key reasoning is that sellers' trust, as indicative of their positive expectations of buyers' integrity and the willingness to accept vulnerability, attenuates sellers' concerns regarding buyers' fraudulent incentives and behavior. In other words, when sellers develop high trust in buyers, they are confident that buyers will not do harm to them by filing fraudulent chargeback claims. The above arguments lead us to posit that

H5. *Sellers' trust in buyers increases sellers' intention to trade in the cross-border online marketplace.*

H6. *Sellers' trust in buyers reduces their perceived risk of chargeback fraud.*

H7. *The perceived risk of chargeback fraud from buyers decreases sellers' intention to trade in the cross-border online marketplace.*

3.3 | Control variables

To examine the influence of the abovementioned antecedents of trust and perceived risk of chargeback fraud on transaction intention, and the relationships among these antecedents, this study controls for four factors: one factor that may influence perceived risk, product type; one factor that may influence trust, trust propensity; and two factors that may influence trust and perceived risk, buyer verification, and sellers' past experience.

3.3.1 | Product type

We use dummy variables to control for the effects of two kinds of product types, tangible (physical) goods and intangible goods (eg, digital content). Tangible goods are those that can be physically touched (eg, a TV) while intangible

goods do not have a physical nature (eg, e-books, commercial software, audio or video files, or virtual currencies). Currently, most seller protection policies do not cover intangible goods since their delivery does not include verifiable and traceable shipping documentation, such as that provided by third-party logistical companies (eg, DHL or UPS). Thus, we expect that product type will affect sellers' perceptions of risk in a cross-border online marketplace. The dummy variable is coded as "1" if vendors mainly sell tangible goods and "0" if this is not the case.

3.3.2 | Buyer verification

We use a dummy variable to measure whether or not a buyer is verified. A verified buyer has provided additional evidence to third-party platforms to confirm their identity or shipping address. Sellers tend to be more confident that delivering goods to these buyers will not result in chargeback fraud. Therefore, we expect that buyers with a verified identity status will receive higher trust from sellers, while unverified accounts are likely to increase the level of risk perceived by sellers.

3.3.3 | Trust propensity

Individual propensity to trust, also known as disposition to trust, refers to a person's psychological tendency to be willing to depend on others in different contexts (Gefen, 2000; Kim & Kim, 2005; Mayer et al., 1995; McKnight et al., 1998). In this research, trust propensity relates to the internal personal characteristics of sellers. Some sellers have a naturally higher inclination to believe that people are, in general, trustworthy and that their behaviors conform to social norms. Sellers with a high degree of trust propensity are more likely to believe that buyers participating in an online transaction market are ingenuous. In this study, we control for the effect of trust propensity on sellers' trust in buyers.

3.3.4 | Seller's past experience

The number of successful transactions between a buyer and a seller represents the performance quality of both sellers and buyers in an online marketplace. As the number of successful transactions with buyers grows, sellers can gradually build general opinions regarding the integrity of buyers (Tirole, 1996). Successful transactions are effective signals that a buyer can transmit to manifest his or her honesty or integrity to sellers. Thus, sellers will adjust their assessment of the trustworthiness of a community of buyers' as the number of successful transactions increases. Specifically, more positive experiences with buyers enhance sellers' trust in buyers and encourage sellers to approve transaction orders and fulfill transaction obligations, such as delivering goods on time.

4 | STUDY DESIGN AND METHODOLOGY

In this research, we do not consider third-party platforms that only support online buyer-seller information exchange and that do not have integrated transaction mechanisms (eg, Alibaba.com). Our proposed hypotheses are tested via sellers on the DHgate online marketplace. DHgate.com is one of the biggest e-commerce websites connecting mainland China-based SMEs with overseas buyers, providing a platform in which people can order Chinese-manufactured products directly through the site—similar to eBay, Amazon, and Yahoo auctions where many international small merchants sell items around the world. Several payment methods are available on DHgate.com, including PayPal, credit card, and Skrill. As a transaction platform, DHgate targets mainly at small- and medium-sized Chinese sellers and buyers from all over the world. All sellers on DHgate.com are registered members. When they register, a professional team from DHgate will verify their qualifications by checking their business license and other legal certificates. Only verified small- and medium-sized Chinese sellers can become VIP DHgate members and sell items on Chinese wholesale website.

The measurement items in our study were adapted from prior studies. The items were modified on the basis of a major pretest of the survey instrument with a sample of 65 sellers on DHgate. Constructs were measured using items on 7-point Likert-type scales anchored from "strongly disagree" (1) to "strongly agree" (7) (see Appendix A). In addition, the dummy control variables were coded as 0 and 1.

To obtain data for our research, an online survey was performed using a leading Chinese Web-based survey platform. We created a questionnaire in English that was reviewed for content validity by a group of IS academics from three universities. As the questionnaire was administered in Chinese, we translated the English questionnaire to Chinese and then back to English to ensure conceptual equivalence (Brislin, 1970). A professional translator and two research assistants independently translated the original items from English into Chinese. The researchers analyzed the independently translated Chinese versions of the items and came to an agreement on the final version for the questionnaire. The questionnaire was then translated back into English by another professional translator to confirm translation equivalence. The URL of the questionnaire was authorized and then published in the official seller forum of DHgate (http://bbs.dhgate.com/forum.php#hp-lc-8). Forum members also received a private message from the forum manager soliciting their participation in the survey. The message described our research purpose, provided the URL of the questionnaire, and, as an incentive, offered respondents the opportunity to register in a draw to win an iPhone6. The questionnaire was pilot tested among a group of 53 sellers, who were not included in the main survey. We found preliminary evidence that the scales were reliable and valid.

For the main survey, a total of 500 completed survey responses were received within one month, and 57 invalid or suspicious responses were removed (eg, duplicate IP addresses or unreasonable survey completion times). Subsequently, 443 complete and valid responses were obtained for quantitative data analysis. Prior to data collection, the required sample size was computed on the basis of the power analysis technique using G*Power 3.0 (Faul et al., 2007). For our conceptual model and a medium effect size ($1 - \beta = .95$, $\alpha = .05$), the sample size should be at least 121. Thus, 443 responses exceeded the requirements for detecting a medium effect using the partial least square path modeling (PLS-PM) technique. All of the respondents were DHgate sellers. To test for nonresponse bias, we compared the demographic characteristics of respondents in the early and late waves of data collection and found no significant differences. Likewise, we compared the demographic characteristics of respondents and nonrespondents in the second wave of data collection and found no significant differences.

4.1 | Data analysis

Our proposed research model was evaluated via PLS path modeling in SmartPLS 3.0M. PLS path modeling has become popular in modern quantitative research, particularly because it has notable advantages, such as minimal demands on measurement scales, sample distribution, and sample size. It excels at causal-predictive analysis in which hypothesized relationships are complex and few bases have been established (Hair, Hult, Ringle, & Sarstedt, 2014). The control variables were included as additional exogenous variables.

Most respondents were male (82.30%), educated (80.95% with at least a bachelor degree), and below 45 years of age (96.04%, as shown in Table 1). This is consistent with our expectation: most small- to medium-sized sellers participating in cross-border e-commerce are younger and have a good educational background, enabling them to learn and understand how to use effectively the e-commerce platforms. The top 4 markets for global sales were United States (36.28%), UK (28.34%), Canada (12.13%), and Australia (11.53%). These 4 countries accounted for most (88%) trade.

4.2 | Construct reliability, convergent validity, and discriminant validity

To test convergent validity and reliability, we used 3 metrics: average variance extracted (AVE), Cronbach α, and composite reliability. As illustrated in Table 2, the values of AVE and composite reliability for all constructs are satisfactory, with composite reliabilities of 0.860 or more and AVEs of 0.673 or above. Further, as suggested by Nunnally (1978), Cronbach α is greater than 0.70 for all constructs. Thus, the measurement items appear reliable and converged on the latent constructs.

To assess discriminant validity, we used the techniques of Fornell and Larcker (1981), Chin (1998), and Henseler, Ringle, and Sarstedt (2015). First, we compared the square root of the AVE for each construct to the correlations with other constructs (see Table 3). We found that the square root of AVE for each construct was higher than its

TABLE 1 Descriptive statistics for sample

Gender, %	
Male	82.30
Female	17.70
Age, %	
18-24	6.12
25-34	55.13
35-44	34.79
45-54	3.25
55-64	0.71
65+ y	0.00
Education level, %	
High school (nongraduate) or below	0.32
High school graduate or equivalent	4.53
College diploma graduate or equivalent	14.20
Bachelor's degree or equivalent	74.62
Master's degree or equivalent	5.77
Doctoral degree or equivalent	0.56
The major target markets, %	
USA	36.28
UK	28.34
Canada	12.13
Australia	11.53
France	4.86
Germany	4.75
Other	2.11

TABLE 2 Item convergent validity measurement

Construct	Composite Reliability	Cronbach α	AVE
Perceived effectiveness of feedback mechanism	0.886	0.806	0.721
Perceived effectiveness of cross-border delivery	0.896	0.767	0.811
Perceived effectiveness of seller protection	0.901	0.834	0.751
Perceived national integrity	0.864	0.763	0.680
Sellers' past experience	0.872	0.781	0.695
Trust propensity	0.877	0.791	0.705
Perceived risk of chargeback fraud	0.884	0.802	0.717
Sellers' trust in buyer	0.860	0.753	0.673
Sellers' Intention to trade	0.885	0.801	0.721

Abbreviation: AVE-average variance extracted.

correlations with other constructs. Second, we assessed discriminant validity by making a comparison between the loadings of an item on its associated construct and its cross-loading on other constructs. For our model, all items loaded on their corresponding constructs more strongly than on other constructs (see Table 4). Third, the heterotrait-

TABLE 3 Correlations between constructs (square root of AVE on diagonal)

Construct	PEFM	PECBD	PESP	PNI	PPE	TP	PR	ST	INT
PEFM	**0.849**								
PECBD	0.222	**0.900**							
PESP	0.531	0.345	**0.867**						
PNI	0.458	0.198	0.510	**0.824**					
PPE	0.421	0.316	0.513	0.363	**0.833**				
TP	0.496	0.185	0.449	0.526	0.353	**0.839**			
PR	−0.568	−0.322	−0.588	−0.521	−0.521	−0.364	**0.847**		
ST	0.338	0.398	0.457	0.443	0.448	0.344	−0.496	**0.820**	
INT	0.477	0.412	0.571	0.527	0.414	0.476	−0.512	0.497	**0.849**

Abbreviations: AVE-average variance extracted; INT-sellers' intention to trade; PECBD-perceived effectiveness of cross-border delivery; PEFM-perceived effectiveness of feedback mechanism; PESP-perceived effectiveness of seller protection; PNI-perceived national integrity; PPE-sellers' past experience; PR-perceived risk of chargeback fraud; ST-sellers' trust in buyer; TP-trust propensity.

monotrait ratio of correlations, a new approach for assessing discriminant validity in variance-based structural equation modeling (SEM), as suggested by Henseler et al (2015), was used. Table 5 shows that all heterotrait-monotrait ratio of correlation values were below the 0.90 threshold. To further test for multicollinearity, we computed variance inflation factors. These ranged between 1 and 5, suggesting that multicollinearity was not a problem in our study. Overall, there was strong empirical support for the reliability and validity of the constructs in our research model.

4.3 | Common method bias (CMB)

We conducted several tests to assess the potential threat of CMB. First, we performed Harman single-factor test by entering all of the constructs into a principal components factor analysis (Podsakoff & Organ, 1986). Five factors were produced, and the first accounted for just 33.26% of the variance. This suggests that there is unlikely to be significant CMB. Second, following the recommendation of Kock (2015) and Kock and Lynn (2012), we conducted a full collinearity test and found that all variance inflation factors were lower than 3.3. Thus, CMB does not appear to be of concern in our study. Third, following the recommendation of Podsakoff, MacKenzie, Lee, and Podsakoff (2003), we performed a method factor test via PLS-PM. The results suggest no significant CMB in our data.

5 | RESULTS

5.1 | Hypotheses testing

In total, the empirical test supported most hypotheses in our research model. We computed t-statistics and path significance levels for each of the hypothesized relationships using the bootstrapping method. Path coefficients and R^2 values were obtained by running the PLS algorithm to assess the predictive performance of the structural model. The construct measuring sellers' intention to trade had an R^2 value of 0.341, indicating that the model accounted for 34.1% of the variance in sellers' intention to process and deliver goods after receiving buyers' payment. Moreover, more than half of the variance in sellers' perceived risk of chargeback fraud (R^2 = 0.527) was explained by their perceptions of feedback mechanism effectiveness, seller protection policies, national integrity, the effectiveness of cross-border delivery, and sellers' trust in the community of buyers. Moreover, 36.4% of the variance in sellers' trust in buyers was captured by the four exogenous variables. Overall, the empirical results strongly confirmed the power of our research model in explaining sellers' intentions to trade.

TABLE 4 Loadings and cross-loadings

ITEM	PEFM	PECBD	PESP	PNI	PPE	TP	PR	ST	INT
PEFM1	**0.821**	0.225	0.442	0.430	0.347	0.375	−0.479	0.285	0.438
PEFM2	**0.870**	0.174	0.460	0.359	0.356	0.446	−0.480	0.284	0.382
PEFM3	**0.856**	0.168	0.450	0.378	0.369	0.440	−0.487	0.292	0.394
PECBD1	0.213	**0.897**	0.343	0.187	0.299	0.179	−0.292	0.348	0.375
PECBD2	0.188	**0.904**	0.279	0.170	0.271	0.154	−0.289	0.368	0.366
PESP1	0.500	0.314	**0.857**	0.450	0.430	0.396	−0.510	0.420	0.546
PESP2	0.453	0.311	**0.884**	0.430	0.454	0.403	−0.506	0.397	0.475
PESP3	0.427	0.271	**0.859**	0.445	0.452	0.369	−0.511	0.372	0.461
PNI1	0.362	0.138	0.437	**0.855**	0.305	0.429	−0.477	0.366	0.422
PNI2	0.372	0.231	0.420	**0.862**	0.347	0.439	−0.415	0.422	0.466
PNI3	0.407	0.114	0.406	**0.751**	0.241	0.439	−0.395	0.301	0.417
PPE1	0.371	0.255	0.433	0.317	**0.850**	0.315	−0.436	0.384	0.339
PPE2	0.363	0.218	0.452	0.256	**0.825**	0.256	−0.417	0.318	0.287
PPE3	0.322	0.311	0.402	0.330	**0.825**	0.306	−0.448	0.411	0.401
TP1	0.414	0.138	0.376	0.416	0.323	**0.833**	−0.372	0.302	0.415
TP2	0.410	0.163	0.356	0.434	0.270	**0.846**	−0.264	0.278	0.367
TP3	0.424	0.166	0.399	0.477	0.293	**0.839**	−0.276	0.284	0.415
PR1	−0.477	−0.257	−0.491	−0.431	−0.442	−0.322	**0.847**	−0.400	−0.456
PR2	−0.463	−0.280	−0.462	−0.448	−0.441	−0.271	**0.846**	−0.416	−0.423
PR3	−0.501	−0.282	−0.538	−0.445	−0.442	−0.330	**0.846**	−0.443	−0.421
ST1	0.287	0.339	0.385	0.367	0.352	0.296	−0.449	**0.869**	0.427
ST2	0.338	0.286	0.438	0.409	0.428	0.361	−0.398	**0.727**	0.400
ST3	0.193	0.353	0.286	0.302	0.311	0.173	−0.361	**0.857**	0.389
INT1	0.408	0.242	0.435	0.400	0.368	0.354	−0.444	0.392	**0.734**
INT2	0.377	0.426	0.497	0.448	0.300	0.405	−0.386	0.428	**0.890**
INT3	0.423	0.379	0.517	0.487	0.379	0.446	−0.466	0.442	**0.912**

Abbreviations: INT-sellers' intention to trade; PECBD-perceived effectiveness of cross-border delivery; PEFM-perceived effectiveness of feedback mechanism; PESP-perceived effectiveness of seller protection; PNI-perceived national integrity; PPE-sellers' past experience; PR-perceived risk of chargeback fraud; ST-sellers' trust in buyer; TP-trust propensity.

TABLE 5 Heterotrait-monotrait ratio

	PEFM	PECBD	PESP	PNI	PPE	TP	INT	PR
PEFM								
PECBD	0.283							
PESP	0.647	0.431						
PNI	0.589	0.256	0.640					
PPE	0.532	0.406	0.638	0.465				
TP	0.620	0.238	0.552	0.681	0.445			
INT	0.593	0.526	0.698	0.675	0.518	0.596		
PR	0.706	0.411	0.717	0.666	0.657	0.454	0.637	
ST	0.428	0.524	0.570	0.577	0.576	0.438	0.638	0.634

Abbreviations: INT-sellers' intention to trade; PECBD-perceived effectiveness of cross-border delivery; PEFM-perceived effectiveness of feedback mechanism; PESP-perceived effectiveness of seller protection; PNI-perceived national integrity; PPE-sellers' past experience; PR-perceived risk of chargeback fraud; ST-sellers' trust in buyer; TP-trust propensity.

As shown in Figure 2, most hypotheses received strong support. Perceived effectiveness of the feedback mechanism had a significant impact on perceived risk (β = −.257, t = 4.945, p < .001), supporting H1b. However, it did not have a significant impact on seller's trust (β = .001, t = .019), failing to support H1a. Seller protection mechanism has a significant positive effect in sellers' trust in buyers (β = .133, t = 2.486, p < .05) and a significant negative effect on sellers' perceived risk of chargeback fraud (β = −.191, t = 3.127, p < .01), supporting H2a and H2b, respectively. Perceived effectiveness of cross-border delivery has a significant positive effect on sellers' trust (β = .232, t = 2.672, p < .01), supporting H3a, but it has a null effect on perceived risk of chargeback fraud (β = −.052, t = .921). Thus, H3b is not supported. As expected, perceived national integrity has a significant, positive effect on sellers' trust (β = .229, t = 3.139, p < .01), but a significant, negative effect on perceived risk of chargeback fraud (β = −.167, t = 2.859, p < .01), thus supporting H4a and H4b. While sellers' trust significantly enhances their intention to trade with buyers (β = .323, t = 4.080, p < .001), their perceived risk of chargeback fraud reduces the intention to trade with buyers (β = −.352, t = 5.442, p < .001), thus supporting H5 and H7, respectively. Finally, sellers' trust significantly reduces their perceived risk of chargeback fraud (β = −.149, t = 2.539, p < .05), thus supporting H6.

5.2 | Post hoc assessments of mediating effects

Given the conceptual model, we speculate that sellers' trust and perceived risk act as the mediating variables between the four antecedents and sellers' intention to trade. We use the bootstrapping method (Preacher & Hayes, 2008) to test for multiple mediation effects. Bootstrapping is a nonparametric resampling procedure that does not impose the assumption of normality on the sampling distribution. This method involves repeatedly sampling from the data and estimating the indirect effects of mediators in each resampled dataset. On the basis of the repeated samples, an empirical approximation of the indirect effects can be estimated and used to construct 95% confidence intervals (CIs) for the indirect effects. If the CI for a mediator contains 0, it means that the indirect effect is insignificant and thus the

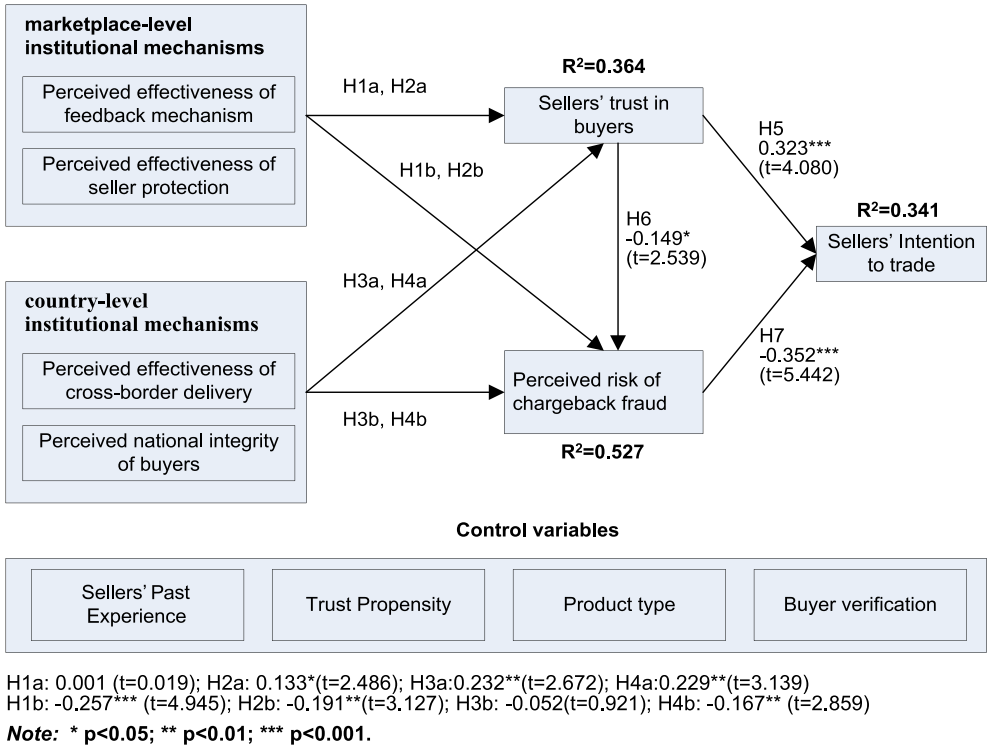

FIGURE 2 The research model with empirical results [Colour figure can be viewed at wileyonlinelibrary.com]

mediating effect is not supported. In addition, a contrast between the two mediators can be conducted to show how their indirect effects can be distinguished in terms of magnitude on the dependent variable. Following Preacher and Hayes' (2008) recommendations, the bias-corrected bootstrapping method is used. Prior studies have suggested that bootstrapping is in general superior to the Sobel test (eg, Williams & MacKinnon, 2008). The bias-corrected bootstrap performs best in both statistic power and Type I error rate (Preacher & Hayes, 2008). By using Preacher and Hayes' SPSS method, each independent variable (IV) can be tested in a separate model if two or more IVs are included. In each model, one IV may be identified as the primary IV to be examined, and other IVs may be treated as covariates.

Table 6 shows the results of our tests for mediating effects, in which PNI, PECBD, PEFM, and PESP are the IVs, sellers' trust and perceived risk are the mediators, and intention to trade is the dependent variable. First, a model is examined in which PNI is the IV (model 1 in Table 6) with PECBD, PEFM, and PESP treated as covariates. As Table 6 shows, PNI does have a significant total effect on intention to trade (β = .272, *t* = 6.477). When the mediators, sellers' trust and perceived risk, are introduced, PNI still has a significant direct effect on INT, but the effect is decreased (β = .219, *t* = 5.030). An examination of the specific indirect effects shows that only sellers' trust acts as a mediator, since its 95% CI does not contain 0. The contrast between the indirect effects of sellers' trust and perceived risk has a 95% CI of −0.015 to 0.095, indicating that the indirect effects of sellers' trust and perceived risk do not differ significantly, despite the fact that one indirect effect is significantly different from 0 and the other is not. Similar findings are obtained when we examine model 3, which has PECBD as the IV, and model 4, which has PESP as the IV, respectively. Finally, we examine model 2, in which PEFM is the IV (see Table 6). Since the CI does

TABLE 6 Summary of the tests of mediating effects

Total Effect of IV on DV		Direct Effect of IV on DV		Indirect Effects				
							BC 95% CI	
Coefficient	t value	Coefficient	*t* value			Point Estimate	Lower	Upper
Model 1: PNI as the IV								
0.272	6.477	0.219	5.030	Total		0.053	0.009	0.124
				Mediators	ST	0.040	0.008	0.101
					PR	0.013	−0.014	0.047
				Contrast	ST vs PR	0.027	−0.015	0.095
Model 2: PEFM as the IV								
0.158	3.707	0.134	3.033	Total		0.024	−0.015	0.064
				Mediators	ST	0.008	−0.004	0.029
					PR	0.016	−0.021	0.054
				Contrast	ST vs PR	−0.08	−0.049	0.034
Model 3: PECBD as the IV								
0.230	6.179	0.183	4.770	Total		0.047	0.006	0.119
					ST	0.040	0.004	0.113
					PR	0.007	−0.005	0.038
				Contrast	ST vs PR	0.033	−0.005	0.112
Model 4: PESP as the IV								
0.269	5.923	0.222	4.724	Total		0. 047	0.006	0.099
					ST	0.031	0.007	0.078
					PR	0.016	−0.017	0.059
				Contrast	ST vs PR	0.015	−0.035	0.074

Abbreviations: BC-bias-corrected bootstrap; DV-dependent variable; PEDBI-perceived effectiveness of seller protection; PEFM-perceived effectiveness of feedback mechanism; PESP-perceived effectiveness of seller protection; PNI-perceived national integrity; ST - sellers' trust; PR - perceived risk IV-independent variable.

contain 0 (−0.015 to 0.064), this means that sellers' trust and perceived risk do not act as mediators. In other words, the direct impact of PEFM on intention to trade is not mediated by sellers' trust or perceived risk. In summary, the analyses show that only sellers' trust partially mediates the impact of PNI, PESP, and PECBD on intention to trade, whereas the impact of PEFM on intention to trade is not mediated through sellers' trust or perceived risk.

6 | DISCUSSION

6.1 | Research implications

While the trust and perceived risk of transacting parties are critical foundations for the success of e-commerce, the extant literature is exclusively concerned with buyers' trust and their perceived risk of online transactions on the basis of the assumption that buyers are subject to the opportunistic behavior of sellers, owing to information asymmetry in online transactions. This study challenges this assumption and calls attention to the need to protect sellers from the fraudulent behavior of buyers, such as chargeback fraud. Drawing on the sociological perspective (Shapiro, 1987; Zucker, 1986) and the signaling theory (Spence, 1974), we develop a conceptual model to examine the antecedents of sellers' trust and perceived risk as well as their effects on sellers' intention to trade online in the context of cross-border e-commerce. In so doing, this paper contributes to the e-commerce literature in the following ways.

First, this study extends the body of extant literature on the determinants of trust and perceived risk from the sellers' perspective. Specifically, we propose and test the effects of a comprehensive set of institutional mechanisms on sellers' trust and their perceived risk of chargeback fraud. We find that the mechanism of perceived national integrity enhances sellers' trust and reduces the perceived risk of chargeback fraud, because the country of origin sends credible signals to sellers about the trustworthiness of the community of buyers, thus narrowing the information asymmetry between sellers and buyers. This finding complements Koh et al study (Koh et al., 2012) that demonstrates a positive association between the national integrity of sellers and buyers' trust, suggesting that the country of residence of both buyers and sellers is a critical factor that can give rise to mutual trust in e-commerce. Further, we show that the perceived effectiveness of seller protection mechanism also increases sellers' trust and mitigates their perceived risk of chargeback fraud. This finding highlights the importance of providing a payment security net for sellers in online transactions, which stands in sharp contrast to the dominant view in the extant literature about the necessity to protect buyers from the opportunistic behavior of sellers (eg, Fang et al., 2014; Gefen et al., 2003; Koh et al., 2012; Pavlou & Gefen, 2004; Pennington et al., 2003). In this sense, our research broadens the scope of existing literature by developing "the other half" of a balanced account of mechanisms designed to protect transacting parties in e-commerce.

Contrary to our expectations, the perceived effectiveness of feedback mechanism does not increase sellers' trust. This surprising result might perhaps be due to the fact that the observed information cues only register the buyers' behavior, which go beyond the control of sellers and thus may disguise the true type of buyers. For example, fraudulent buyers may repeatedly purchase from multiple sellers to earn enough credits and maliciously initiate chargeback later. As a result, sellers do not perceive a buyer's information presented through the feedback mechanism as a credible signal of the buyer's integrity. The null effect of feedback mechanism about buyers' behavior on sellers' trust contrasts with the positive effect of a feedback mechanism about sellers' behavior on buyers' trust, which exists in a domestic online marketplace (Pavlou & Gefen, 2004). The difference in the effects of feedback mechanism between international and domestic e-commerce suggests that market geography (international vs domestic) may act as a contingent condition for the relationship between the feedback mechanism and the trust of transacting parties. On the other hand, the feedback mechanism proves effective in reducing sellers' fear of buyers' chargeback fraud. This result is consistent with prior studies demonstrating the effectiveness of feedback mechanism in mitigating buyers' perceived risk, further corroborating the importance of providing transaction feedback for both parties.

Second, we contribute to existing literature by examining a third-party independent institutional mechanism tailored specifically to cross-border e-commerce, ie, the cross-border delivery mechanism. The results show that the

perceived effectiveness of this general institutional mechanism enhances sellers' trust in buyers, but surprisingly does not influence the perceived risk of chargeback fraud. The lack of effect on perceived risk might be due to the fact that this general mechanism is mainly intended to facilitate the success of delivering ordered items from sellers to buyers as opposed to safeguarding against any fraudulent behavior of buyers. Interestingly, the asymmetric effects of this general institutional mechanism on sellers' trust and perceived risk contrast with the asymmetric effects of the third-party specific feedback mechanism on sellers' trust and perceived risk. The contrast suggests that different institutional mechanisms play distinctive roles in shaping trust and perceived risk as two critical foundations of e-commerce.

Furthermore, extant literature indicates that institutional mechanisms in e-commerce could convey messages that evoke either positive or negative framing effects on the perceptions of transacting parties (Fang et al., 2014). To the extent that the feedback mechanism provides evidence of the fraudulent conduct of buyers, while the cross-border delivery mechanism emphasizes the assurance of successful product shipment, they connote different outcomes of transactions with buyers, which may explain why they trigger differential effects on sellers' trust and perceived risk. From this standpoint, our research provides additional support to the framing effect that exists in online transactions.

Third, our research demonstrates the strong effects of sellers' trust and the perceived risk of chargeback fraud on their intention to trade with buyers online, which challenges the conventional stance that the continuance and success of online transactions hinge on buyers' trust and perceived risk because buyers are more likely to be subject to sellers' opportunistic behavior (Fang et al., 2014; Gefen et al., 2003; Koh et al., 2012; Pavlou, 2003; Pavlou & Gefen, 2004; Pennington et al., 2003). In addition, substantial risk also arises from buyers' fraudulent conduct in cross-border e-commerce. This study shows that either when sellers' perceived risk of chargeback fraud increases or when their trust declines in buyers and further heightens the perceived risk, they would be much less inclined to sell products to buyers. Moreover, sellers' trust mediates the effects of most institutional mechanisms on sellers' intention to trade. Overall, these findings highlight the importance of sellers' trust and perceived risk, underlining the necessity to consider sellers' interests in designing mechanisms to sustain cross-border online transactions.

6.2 | Managerial implications

Our study provides useful recommendations for cross-border platform developers and cross-border transaction policy makers. Cross-border online platforms should allocate enough resources to build effective operational mechanisms to protect sellers against fraudulent buyers, in addition to the ones designed for the protection of buyers. To enhance sellers' trust in buyers and reduce their perceived risk of chargeback fraud in cross-border trades, third-party specific platforms should strengthen the institutional mechanism regarding the national identity of buyers and the institutional mechanism for seller protection. Since sellers generally deem country of residence as a credible signal of buyers' trustworthiness, cross-border platforms should flag up for sellers the potential risks associated with buyers from countries of low national integrity.

Investments in feedback mechanisms can mitigate sellers' concerns regarding buyers' chargeback fraud, but may not work effectively to increase sellers' trust in buyers. Specifically, online cross-border platforms should consider implementing programs that increase the transparency of buyers' identity. For example, one idea to consider would be an online signature mechanism in which buyers are required to "sign" online for each transaction. In addition, a biometric fingerprint identity mechanism integrated within the mobile app of a cross-border transaction platform could be implemented to prevent unauthorized transaction claims. Moreover, third-party platforms as an aggregate should work together to design a standard delivery system that is tailored specifically to cross-border transactions. For example, they may form a consortium to set up an effective tracking mechanism for goods ordered from international buyers. In this way, they could increase substantially sellers' trust.

To counteract the fraudulent incentives of buyers, financial and trade policy makers should be advised to reconsider and reform the chargeback system that has been long in existence to mainly protect buyers from the risks of online transactions. The chargeback mechanism has proven a double-edged sword: while it safeguards buyers against sellers' opportunism, it also fosters the fraudulent incentive of chargeback claims on the part of buyers. As shown in

our study, sellers' concern regarding chargeback fraud inhibits their intention to trade, which may potentially constrain the growth of cross-border e-commerce. To curb buyers' opportunism, policy makers may consider adopting a nationwide real-name registration system in which buyers are required to associate their legal name with their online purchase accounts so that fraudulent buyers cannot create multiple online accounts with different email addresses to disguise their identity. Moreover, policy makers should consider adjusting the 180-day chargeback period, which actually magnifies buyers' fraudulent incentives. For example, for the "item not received" chargeback claim, buyers should only be given the right for a short claim period, during which most products are delivered in normal situations. This policy could also be applied to unauthorized transactions, because credit card holders are expected to report any unauthorized payments promptly.

6.3 | Limitations and future research

This study has several limitations, which create avenues for future research. First, while we focus on the direct effects of the various mechanisms, further research efforts are merited regarding examination of the boundary conditions of these effects on sellers' trust and perceived risk. Useful insights could also be generated from future studies into the conditions under which the institutional mechanisms could substitute for the influences of trust or perceived risk. Second, the impacts of trust and perceived risk on sellers' intention to trade may depend on the effectiveness of institutional mechanisms. Prior research indicates that when institutional mechanisms are either very strong or very weak, trust and perceived risk of buyers become immaterial in influencing buyers' transaction intention (Gefen & Pavlou, 2012). It thus merits research efforts to investigate the extent to which the strong effects of sellers' trust and perceived risk on their intention to trade would vary at different levels of the effectiveness of the institutional mechanisms examined in this study. Third, the effectiveness of the proposed mechanisms may vary between SMEs and large enterprises. Future research can extend our conceptual model to this group of online sellers. Fourth, our study is based on a cross-sectional research design, while the causal effects of our conceptual model would ideally be examined in a longitudinal design. Finally, the proposed effects of some institutional mechanisms on either sellers' trust (feedback mechanism) or perceived risk (cross-border delivery mechanism) are not supported in this study. Thus, future research may further reexamine these specific relationships.

ACKNOWLEDGEMENTS

We would like to thank the Senior Editor, the Associate Editor, and two reviewers for their helpful comments. This work was supported by "Fundamental Research Funds for the Central Universities" (project no. 2014B18914) and The Humanities and Social Sciences Foundation of the Ministry of Education in China (project no. 16YJC630028).

REFERENCES

Ba, S., & Pavlou, P. A. (2002). Evidence of the effect of trust in electronic markets: Price premiums and buyer behavior. *MIS Quarterly*, 23(4), 243–268.

Bart, Y., Shanker, V., Sultan, F., & Urban, G. L. (2005). Are the drivers and role of online trust the same for all web sites and consumers? A large scale exploratory empirical study. *Journal of Marketing*, 69, 133–152.

Bélanger, F., & Carter, L. (2008). Trust and risk in e-government adoption. *The Journal of Strategic Information Systems*, 17, 165–176.

Bloomberg News (2013). *China eclipses U.S. as biggest trading nation* [online]. Available online at http://www.bloomberg.com/news/articles/2013-02-09/china-passes-u-s-to-become-the-world-s-biggest-trading-nation [20 Aug 2016].

Brislin, R. W. (1970). Back translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, 1(3), 185–216.

Chellappa, R. K., & Pavlou, P. A. (2002). Perceived information security, financial liability and consumer trust in electronic commerce transactions. *Logistics Information Management*, 15(5–6), 358–368.

Chin, W. W. (1998). The partial least squares approach for structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 236–295). . London: Lawrence Erlbaum.

Chiu, C. M., Wang, E., Fang, Y. H., & Huang, H. Y. (2012). Understanding customers' repeat purchase intentions in b2c e-commerce: The roles of utilitarian value, hedonic value and perceived risk. *Information Systems Journal*, 24(1), 85–114.

Clemons, E. K. (2007). An empirical investigation of third-party seller rating systems in e-commerce: The case of buysafe. *Journal of Management Information Systems*, 24(2), 43–71.

Corbitt, B. J., Thanasankit, T., & Yi, H. (2003). Trust and e-commerce: A study of consumer perceptions. *Electronic Commerce Research and Applications*, 2(3), 203–215.

Doney, P. M., & Cannon, J. P. (1997). An examination of the nature of trust in buyer–seller relationships. *Journal of Marketing*, 61, 35–51.

Doney, P. M., Cannon, J. P., & Mullen, M. R. (1998). Understanding the influence of national culture on the development of trust. *Academy of Management Review*, 23(3), 601–620.

Fang, Y., Qureshi, I., Sun, H. S., McCole, P., Ramsey, E., & Lim, K. H. (2014). Trust, satisfaction, and online re-purchase intention: The moderating role of perceived effectiveness of e-commerce institutional mechanisms. *MIS Quarterly*, 38(2), 407–427.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences, *Behavior Research Methods*, 39(2), 175–191.

Fornell, C., & Larcker, F. D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.

Fukuyama, F. (1995). *Trust: The social virtues and the creation of prosperity*. New York, USA: Free Press.

Gefen, D. (2000). E-commerce: The role of familiarity and trust. *Omega*, 28(6), 725–737.

Gefen, D., & Pavlou, P. A. (2012). The boundaries of trust and risk: The quadratic moderating role of institutional structures. *Information Systems Research*, 23(3), 940–959.

Gefen, D., & Straub, D. W. (2004). Consumer trust in b2c e-commerce and the importance of social presence: Experiments in e-products and e-services. *Omega*, 32(6), 407–424.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1), 51–91.

Gessner, G. H., & Snodgrass, C. R. (2015). Designing e-commerce cross-border distribution networks for small and medium-size enterprises incorporating Canadian and U.S. trade incentive programs. *Research in Transportation Business & Management*, 16, 84–94.

Gomez-Herrera, E., Martens, B., & Turlea, G. (2014). The drivers and impediments for cross-border e-commerce in the EU. *Information Economics and Policy*, 28, 83–96.

Grabner-Krauter, S., & Kaluscha, E. A. (2003). Empirical research in on-line trust: A review and critical assessment. *International Journal of Human-Computer Studies*, 58, 783–812.

Hair, J. F., Hult, G. M. T., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks, USA: Sage.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135.

Hofstede, G. (2001). *Think local, act global: Intercultural co-operation and global management* (2nd ed.). Munich, Germany: Vahlen.

Hong, I., & Cho, H. (2011). The impact of consumer trust on attitudinal loyalty and purchase intentions in B2C e-marketplaces: Intermediary trust vs. seller trust. *International Journal of Information Management*, 31(5), 469–479.

Houser, D., & Wooders, J. (2006). Reputation in internet auctions: Theory and evidence from eBay. *Journal of Economics and Management Strategy*, 15(2), 353–369.

Jarvenpaa, S. L., & Tractinsky, N. (1999). Consumer trust in an internet store: A cross-cultural validation. *Journal of Computer-Mediated Communication*, 5(2), 1–3.

Jarvenpaa, S. L., Tractinsky, N., & Vitale, M. (2000). Consumer trust in an internet store. *Information Technology and Management*, 1(12), 45–71.

Khan, A. (2015). Bitcoin—Payment method or fraud prevention tool? *Computer Fraud & Security*, 15(5), 16–19.

Kim, D., & Benbasat, I. (2006). The effects of trust-assuring arguments on consumer trust in internet store: Application of Toulmin's model of argumentation. *Information Systems Research*, 17(3), 286–300.

Kim, Y. H., & Kim, D. J. (2005). A study of online transaction self-efficacy, consumer trust, and uncertainty reduction in electronic commerce transaction. In *Proceedings of the 38th Annual Hawaii International Conference on System Sciences*, Hawaii, USA.

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration*, 11(4), 1–10.

Kock, N., & Lynn, G. S. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for Information Systems*, 13(7), 546–580.

Koh, T. K., Fichman, M., & Kraut, R. (2012). Trust across borders: Buyer-supplier trust in global b2b e-commerce. *Journal of the Association for Information Systems*, 13(11), 887–922.

Lee, Z., Im, I. L., & Lee, S. J. (2000). The effect of negative buyer feedback on prices in internet auction markets. In *Proceedings of the 21th International Conference on Information Systems*, Brisbane, Australia.

LexisNexis (2013). True cost of fraud(SM) study says merchants are incurring a $279 loss for every $100 of fraud losses. Available online at http://www.lexisnexis.com/risk/newsevents/press-release.aspx?Id=1379105834100604 [24 Aug 2015].

Lopez-Nicolas, C., & Molina-Castillo, F. J. (2008). Customer knowledge management and e-commerce: The role of customer perceived risk. *International of Information Management*, 28, 102–113.

Luo, X. (2002). Trust production and privacy concerns on the internet: A framework based on relationship marketing and social exchange theory. *Industrial Marketing Management*, 31(2), 111–118.

Mackie, G. (2001). Patterns of trust in Western Europe and their genesis. In K. S. Cook (Ed.), *Trust in society* (pp. 245–281). New York: Russell Sage Foundation.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709–734.

McKnight, D. H., & Chervany, N. L. (2002). What trust means in e-commerce customer relationships: An interdisciplinary conceptual typology. *International Journal of Electronic Commerce*, 6(2), 35–59.

McKnight, D. H., Cummings, L. L., & Chervany, N. L. (1998). Initial trust formation in new organizational relationships. *Academy of Management Review*, 23(3), 473–490.

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information Systems Research*, 13(3), 334–359.

Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationships marketing. *Journal of Marketing*, 58(3), 20–38.

Morrison, E. W., & Robinson, S. L. (1997). When employees feel betrayed: A model of how psychological contract violation develops. *Academy of Management Review*, 22, 226–256.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York, USA: McGraw-Hill.

Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce*, 7(3), 69–103.

Pavlou, P. A., & Dimoka, A. (2006). The nature and role of feedback text comments in online marketplaces: Implications for trust building, price premiums, and seller differentiation. *Information Systems Research*, 17(4), 392–414.

Pavlou, P. A., & Gefen, D. (2004). Building effective online marketplaces with institution-based trust. *Information Systems Research*, 15(1), 37–59.

Pavlou, P. A., & Gefen, D. (2005). Psychological contract violation in online marketplaces: Antecedents, consequences, and moderating role. *Information Systems Research*, 16, 372–399.

PayPal Media Modern Spice Routes (2013). *The cultural impact of cross-border shopping*, [online]. Available online at https://www.paypal-media.com/assets/pdf/fact_sheet/PayPal_ModernSpiceRoutes_Report_Final.pdf), [24 Aug 2015].

Pennington, R., Wilcox, D., & Grover, V. (2003). The role of system trust in business-to-consumer transactions. *Journal of Management Information Systems*, 20(3), 197–226.

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12(4), 531–544.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.

Preacher, K., & Hayes, A. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879–891.

Qureshi, I., Fang, Y., Ramsey, E., McCole, P., Ibbotson, P., & Compeau, D. (2009). Understanding online customer repurchasing intention and the mediating role of trust—An empirical investigation in two developed countries. *European Journal of Information Systems*, 18, 205–222.

Reichheld, F. F., & Schefter, P. (2000). E-loyalty: Your secret weapon on the Web. *Harvard Business Review*, 78(4), 105–113.

Riley, P. (2008). Understanding friendly fraud. Merchant Talk.

Savrula, M., Incekarab, A., & Senerb, S. (2014). The potential of e-commerce for SMEs in a globalizing business environment. *Procedia - Social and Behavioral Sciences*, 150, 35–45.

Shapiro, S. P. (1987). The social control of impersonal trust. *American Journal of Sociology*, 93(3), 623–658.

Spence, M. A. (1974). *Market signaling*. Cambridge, MA, USA: Harvard University Press.

Sun, H. (2010). Sellers' trust and continued use of online marketplaces. *Journal of the Association for Information Systems*, 11(4), 182–211.

Tirole, J. (1996). A theory of collective reputations (with applications to the persistence of corruption and to firm quality). *The Review of Economic Studies*, 63(1), 1–22.

Walters, P. G. P. (1997). Global market segmentation: Methodologies and challenges. *Journal of Marketing Management*, 13(3), 165–177.

Williams, J., & MacKinnon, D. P. (2008). Resampling and distribution of the product methods for testing indirect effects in complex models. *Structural Equation Modeling*, 15, 23–51.

Yavas, V. B., & Green, R. (1992). Global consumer segmentation versus local market orientation: Empirical findings. *Management International Review*, 32(3), 265–272.

Yoon, H. S., & Occeña, L. G. (2015). Influencing factors of trust in consumer-to-consumer electronic commerce with gender and age. *International Journal of Information Management*, 35(3), 352–363.

Zaheer, S., & Zaheer, A. (2006). Trust across borders. *Journal of International Business Studies*, 37(1), 21–29.

Zucker, L. G. (1986). Production of trust: institutional sources of economic structure, 1840–1920. In B. M. Staw, & L. L. Cummings (Eds.), *Research in organizational behavior* (pp. 53–111). Greenwich, CT: JAI Press.

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How to cite this article: Guo Y, Bao Y, Stuart BJ, Le-Nguyen K. To sell or not to sell: Exploring sellers' trust and risk of chargeback fraud in cross-border electronic commerce. *Info Systems J*. 2018;28:359–383. https://doi.org/10.1111/isj.12144

APPENDIX

SURVEY ITEMS

Sellers' intention to trade (McKnight, Choudhury, & Kacmar, 2002).

INT1. Given the chance, I predict that I would consider selling products to buyers in DHgate.com in the future.

INT2. It is likely that I will sell products to buyers in DHgate.com in the near future.

INT3. Given the opportunity, I intend to sell products to buyers in DHgate.com.

Trust propensity (Gefen, 2000; McKnight et al., 2002).

TP1. Most Internet buyers are reliable.

TP2. Most Internet buyers keep promises and commitments.

TP3. Most Internet buyers are honest.

Trust in buyers (Ba & Pavlou, 2002; Doney & Cannon, 1997; Gefen, 2000; McKnight et al., 2002).

ST1. Buyers on DHgate.com are in general reliable.

ST2. Buyers on DHgate.com are in general honest.

ST3. Buyers on DHgate.com are in general trustworthy.

Perceived risk of chargeback fraud (Jarvenpaa et al., 2000; Pavlou & Gefen, 2004).

PR1. There is a considerable chargeback fraud risk involved in selling goods to DHgate buyers.

PR2. There is a high potential for chargeback fraud involved in selling goods to DHgate buyers.

PR3. My decision to sell goods to DHgate buyers is risky owing to the high potential for chargeback fraud.

Perceived effectiveness of feedback mechanism (Pavlou & Gefen, 2004).

PDBI1. I feel confident that DHgate's rating and feedback mechanism gives accurate information about buyers' credit.

PDBI2. A considerable amount of useful information about the transaction history of buyers is available via DHgate's transaction record mechanism.

PDBI3. I believe that the transaction record mechanism in DHgate is helpful.

Perceived national integrity (McKnight et al., 2002; Koh et al., 2012; Morgan & Hunt, 1994).
To what extent do you agree or disagree with the following statements (where X represents the country of residence for the majority of your customers):

PNI1. Buyers from country X generally behave with integrity.

PNI2. Most buyers from country X are honest in their dealings with others.

PNI3. In general, most buyers from country X keep their promises.

Perceived effectiveness of seller protection (Pavlou & Gefen, 2004).

PESP1. I believe DHgate.com will protect me in case of problematic transactions with buyers as long as I comply with its seller protection program.

PESP2. I am confident that receiving credit card payments is safe in case of disputed purchases from buyers on DHgate.com as long as I comply with its seller protection program.

PESP3. I believe DHgate.com protects me from losing my money to claims and chargebacks resulting from buyer complaints.

Sellers' past experience (Pavlou & Gefen, 2004).

PPE1. My sales experience on DHgate.com is positive.

PPE2. I feel satisfaction about my past sales experience on DHgate.com.

PPE3. Regarding past sales experience, I am very happy with using DHgate.com for selling.

Perceived effectiveness of cross-border delivery (Doney & Cannon, 1997).
To what extent do you agree or disagree with the following statements (where X represents the country of residence for the majority of your customers):

PECBD1. I believe that shipping goods from China to X is effective.

PECBD2. I believe that shipping goods from China to X is reliable.