

Trust, Risk and Alternative Website Quality in B-Buyer Acceptance of Cross-Border E-Commerce

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ABSTRACT

Cross-border e-commerce (CBEC) has become an imperative mode for global trade. Research on cross-border e-commerce historically focuses mainly on the customer's behavior intention to purchase on a CBEC platform. However, B-buyers are more important compared with C-buyers for CBEC platforms. This is because B-buyers can contribute more gross merchandise volume (GMV) in a CBEC platform, and thus more margin for the firm. The authors apply trust transfer theory, perceived risk, and alternative website quality to study repurchase intention, focusing on B-buyers. The results show that perceived risk, trust in provider, and trust in the website affect repurchase intention significantly, where trust in website is found to be the most important factor. In addition, the authors found that the dimensions of perceived risk in CBEC context can be classified as the following: customer duties risk, confiscation risk, delivery risk, financial risk, and privacy risk. The contributions of the study are addressed lastly.

KEYWORDS

B-Buyers, CBEC, Cross-Border E-Commerce, Perceived Risk, Repurchase Intention, Trust

INTRODUCTION

With the flourish of internet technology, information technology, logistic services and globalization of world trade, e-consumers tend to look beyond their borders. Global e-commerce sales reached 6.3 trillion yuan (about 914 billion U.S. dollars) in 2016 alone, based on the data from the Ministry of Commerce (Ministry of Commerce, 2017). Research reports from iResearch (2017), a professional consultancy company concentrating on online media and e-commerce, also predict that this total turnover will nearly double to 12 trillion yuan (about 1.74 trillion U.S. dollars) by 2020. By that time, 39% of the world's entire e-commerce market will be controlled by traditional marketplaces, and 53% of cross-border sellers in the US will use online marketplaces. Such rapid development indicates the immense potential and opportunity of cross-border e-commerce (CBEC) for global economics to grow in the near future. Therefore, CBEC research plays an important role for economic development-globally. Given the importance of CBEC, understanding and dedicating special attention to the factors that influence buyers' behavior is essential for any company who wishes to survive and thrive among the exponential trends of globalization.

Many studies have shown trust is priority in the setting of any e-commerce. However, in CBEC, trust becomes even more crucial due to the "distance" between buyers and sellers, where "distance"

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has been recognized as language barriers, legal systems barrier, time barrier, delivery services, as well as customs regulations (Kim, Dekker, & Heij, 2017). Although multi-dimensional trust has been investigated in the e-commerce setting, there is a lack of evidence in the effect of multi-dimensional trust in the CBEC context. CBEC is different from domestic e-commerce. These differences mainly reveal additional trade costs and risks from cross-border transport, import tariffs, differences in technical standards, poor institutional quality and weak contract enforcement (Gomez-Herrera, Martens, & Turlea, 2014).

Given the complex nature of CBEC, its buyers are more likely to perceive risks. Multiple factor risks have been considered in the domestic e-commerce setting (e.g., Tandon, Kiran, & Sah, 2018; Marriott & Williams, 2018), albeit risks such as customer duties risk, confiscation risk, delivery risk have yet to be deeply investigated in CBEC. Therefore, understanding perceived risk in studying CBEC is necessary. Furthermore, most existing research focuses on C-buyers, while B-buyers are more important for CBEC platform. This is because B-buyers can contribute more margin for a firm (Kraemer, Gibbs, & Dedrick, 2005). In this research, B-buyers refer to customers who buy products or services for the company or workplace with which they belong. In fact, B2C transactions have developed rapidly in recent years due to the convenience of high discounts. Meanwhile, B2B transactions are growing four times faster than their B2C counterpart (Vakeel, Das, Udo, & Bagchi, 2017). However, and perhaps most importantly, it has been proven that B-buyers contribute more Gross Merchandise Volume (GMV) in CBEC platforms. Compared to B2C e-commerce, B2B e-commerce is a less researched area with significant difference about transaction volume, average transaction amount, logistics, customer segments, fulfilment issues, and advertisement objectives (Vakeel et al., 2017). Another convenient characteristic of B-buyers is that they are more likely to transact with their previous sellers, with the same items, in large volumes. Meanwhile, Kraemer et al. (2005) emphasized that for B2B e-commerce, highly global companies utilize the Internet more than their less global counterparts, whereas for B2C e-commerce the opposite is true. This is because global companies focus more on wholesale brokerage activity in different countries across various stages of an industry's value chain, while less global companies focusing on the retail brokerage industry are less affected by globalization, and thus remain local.

Since B-buyers are more likely to purchase products in a wholesale setting, alternative quality such as service quality and system quality are more important for B-buyers. Furthermore, they normally query several CBEC platforms among multiple sellers, seeking out the lowest price for dozens of products. For any type of consumer, alternative website quality can make all the difference in switching behavior and trust in that website (Sørum, 2015; Kalia, Arora, & Kumalo, 2016). CBEC platforms constantly need to improve their quality of products-while keeping prices low--and attract more international buyers with the opportunity of promotional days (such as Christmas or Black Friday). Indeed, the perceptions rising from alternative platforms is to be among the top priorities regarding CBEC research.

In general, this paper aims to integrate perceived risk and alternative website quality to understand the crucial trust-building mechanism for promoting repurchase behavior as well as enhancing CBEC platform loyalty. Moreover, this paper strives to bridge the gap between trust and CBEC with the antecedents of trust, and to uncover why some CBEC platforms succeed, while others do not (as with Metao.com, which will see later). These findings may help researchers to extend their studies and, of course, practitioners to make their website more attractive to buyers. These points are summed up with the following research question:

RQ: Will alternative website quality, perceived risk and trust jointly affect the consumer's repurchase intention in CBEC?

The structure of this study is organized as follows: the first section reviews existing CBEC literature and the current theoretical background; section two demonstrates the development of the research model and hypothesis; this is followed by the design of this study; then the research results; last, the paper concludes with discussions, contributions and limitations.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Cross-Border E-commerce

CBEC generally refers to transactions among different countries or customs areas through an e-commerce platform and cross-border logistics (Tmogroup, 2015). It is a common trend in modern e-commerce business, especially for small and medium enterprises (SMEs), because it can reduce trade barriers and promote trade growth in an otherwise limited marketplace (Terzi, 2011). Sellers, manufacturers, and all participants of CBEC can profit from CBEC due to the large product assortment with low costs; this includes, perhaps especially, buyers (Kim et al., 2017). There are several studies focusing on the factors of CBEC success. For example, cross-border payments (Ai, Yang, & Wang, 2016), logistic infrastructure and development (Cho & Lee, 2017), and cultural adaption (Sinkovics, Mo, & Hossinger, 2007) have each been investigated as imperative factors of CBEC success. Huang and Chang (2017) also illustrated the factors that affect consumers' intention to purchase items behind the perspective of perceived trust and value aspects. In addition, Guo et al. (2018) demonstrated that sellers' trust in buyers and perceived risk of chargeback fraud are also crucial to the success of CBEC. Meanwhile, it is important to note there are known risks posed to buyers, such as information asymmetry, private information misuse, and other uncertainty related to transactions and products (Mou, Cohen, Dou, & Zhang, 2017).

CBEC in China has become the major way of foreign trade with growth rate of sixteen times that comparing to general trade. The main mode is B2B e-commerce, which accounts for 88% of all CBEC (Xue, Li, & Pei, 2016). Moreover, the Chinese CBEC retail exports account for 37% of the global market share, which may be caused by two major manufacturing capacity advantages. First is China's advantage of being a "world factory"¹ and second, the transformation in recent years to "create in China" rather than "made in China." These achievements attribute to the supportive policy of China such as "internet +" (Wang, Zhang, & Sun, 2017) and "the Belt and Road Initiative project"² (Li & Chan, 2016). Despite this general success, many cross-border e-marketplaces have failed in recent years due to poor performance (Thitimajshima, Esichaikul, & Krairit, 2018). For example, Metao.com, founded in 2013, quickly went bankrupt by 2016. It can be argued that Metao.com did not understand its own marketplace, hence its demise. Therefore, it is important to study CBEC to understand why it succeeds and why it might not, in order to drive more directly toward success.

The Relationship Between Trust and Repurchase Intention

Trust is formed by indicators from various formations, including trust feature signals, symbols, or cues provided by trustees (Mou & Shin, 2018). It can also be referred to as the willingness of one to be vulnerable to the actions of another (Mayer, Davis, & Schoorman, 1995). In a physical store, trust is generally built by the salesperson and the appearance of the store (Doney & Cannon, 1997). Circumstances change when the store is online. Without the physical entity of the store itself, uncertainty increases. Customers cannot feel the "store" by senses directly, and the antecedents of trust are replaced by both perceived website quality and trust-related statements provided by e-vendors or platforms (Kraemer et al., 2005). Because trust can help to reduce fears and worries (Lu, Yang, Chau, & Cao, 2011), it is crucial in the uncertain setting of CBEC (Kim et al., 2017). Naturally, the best trust is high and steady. Thus, CBEC platforms must assert their website quality is maximized, e-vendor and platform statements clean, and both consistently monitored for anything that could be perceived as negative or risky from the buyer perspective.

Empirical evidence suggests that trust directly influences the purchase intention of online customers (Kraemer et al., 2005; Mou, Shin, & Cohen, 2017). For B-buyers, the transactions are always more frequent and in large scale, which facilitates the formation of long-term relationships with vendors. Thus, in this relationship between B-buyer and vendor, trust and commitment together will maintain cooperation and encourage an organic and loyal relationship (Li, Browne, & Wetherbe, 2006). Moreover, the theory of reasoned action, which suggests that individual's beliefs influence

behavior intention, naturally provides a foundation for the relationship between trust beliefs and intention behavior (Fishbein & Ajzen, 1975). In this study, the authors classify trust as both that in the provider and in the website. Trust in the provider can enhance the relationship between B-buyers with a specific vendor, whereas CBEC website may be reliable and own the functionality that the buyers needed, and therefore promote repurchase intention. Thus, the authors hypothesize that:

H1: Trust in provider positively affects repurchase intention.

H2: Trust in website positively affects repurchase intention.

The Relationship Between Perceived Risk and Repurchase Intention

Perceived risk describes the customers' behavioral tendency of reducing and minimizing any expected negative effects associated with purchase activity (Peter & Tarpey, 1975). It has been considered a major barrier for online consumers to make an online transaction. Various types of risk in market research have been identified, including, but not limited to financial, time, performance, physical, social, and psychological, (Tandon, Kiran, & Sah, 2018; Marriott & Williams, 2018). Financial risk refers to any monetary loss through technical or marketing channels, such as system error caused multiple purchase, sellers' fraud behavior, or return barriers. This monetary loss may include opportunity cost, time, or both. (Bhatnagar, Misra, & Rao, 2000). When a customer decides to purchase online, a high perceived risk may influence him or her to cease the transaction, or even to be reluctant to shop in the first place (Antony, Lin, & Xu, 2006). This risk does not exist in a traditional brick-and-mortar retail store (e.g. Tesco, Walmart), where customers can easily access the product they want, and touch, feel, even try the product before they make their decision. Indeed, as the distance between buyers and products decreases, so does the perceived risk (Kraemer et al., 2005).

Despite the varying distance between domestic and international e-commerce, product risk is generally the same in both situations. However, CBEC faces more challenges in the process of transactions. First, customs duties and taxes are one of the most distinct and major barriers in CBEC (Turban et al., 2017). Because B-buyers commonly order products in a large volume and more frequently, these barriers are more relevant for B2B customers. These costs may also include taxes coming from the buyer's own country. Meanwhile, it is important to note that products in large quantity are often subject to specific customs checks (Sinkovics et al., 2007), which leads to the second point: confiscation risk may occur due to either the vulnerability of cross-border transactions or problems related to potential shipping and customs, namely for products in large quantity. Further, the greater the distance, the more delivery time is implied the probability of loss or damage increases. Therefore, delivery risk is more serious in CBEC than domestic e-commerce. In addition, large-scale B2B transactions in CBEC must be aware of exchange rate fluctuations (apart from the financial risks which appear in domestic e-commerce). In fact, exchange rate fluctuation is the main potential risk.

Prior studies of e-commerce already show that perceived risk negatively affects a consumer's intention to purchase (Kraemer et al., 2005; Kuan & Bock, 2007), but the authors believe this relationship will be amplified in CBEC, especially for B2B, and there is more to be said on the subject. Thus, the following hypothesis has been proposed:

H3: Perceived risk negatively affects a consumer's intention to repurchase online.

The Relationship Between Perceived Risk and Trust

According to the extended valence framework (Kraemer et al., 2005), the net valence generated by perceived benefit and perceived risk is crucial during the process of making a purchase decision. As described above, perceived risk is the main barrier in CBEC. Therefore, when the uncertainty or risk appears, there must be a complement to neutralize the risk: trust is that complement (Kim, Ferrin, & Rao, 2009). New research supplements that which has shown the negative effects of trust

on perceived risk in e-commerce. This research suggests trust could be an antecedent of risk, the same as risk, or a by-product of risk—but all in all, they are different concepts (Kraemer et al., 2005). As described by Mayer et al. (1995), trust is constituted by three characteristics: ability, benevolence, and integrity. Ability is defined as the competence or beliefs that someone is capable of doing what is expected (Hallikainen & Laukkanen, 2018). Benevolence refers to the belief that a trustee wants to do good to the trustor, aside from an egocentric profit motive (Mayer et al., 1995; Hong, 2018). Integrity refers to the belief that a company will act in a consistent, reliable, and honest manner when fulfilling its promises (Hong, 2018). Collectively, Hallikainen, Laukkanen, and Hong assert that if a trustor perceives a trustee with enough of these key characteristics, trust will be developed. Therefore, consumers would like to engage in a risky relationship with a vender if and only if the trust exceeds the threshold of perceived risk. In other words, trust has an inverse relationship with perceived risk. However, this studies show that the function of trust in affecting behavior intention (e.g. repurchase) is the same as risk, and their effect mechanisms are, to some degree, a reciprocal. In mobile commerce context (Lin, Wang, Wang, & Lu, 2014), perceived risk can be reduced by pre-trust, and have a function of decreasing post-trust. Further, in an online environment, empirical evidence shows that risk perceptions can negatively influence multi-dimensional trust (Treiblmaier & Chong, 2011). Therefore, if B-buyers in CBEC perceived lower risk either from vendors or the CBEC platform website, they will reduce their worry and fears, and become more risk tolerant. This makes sense, considering they trust their suppliers. Thus, the authors hypothesis that:

H4: Perceived risk negatively affects buyers' trust in providers.

H5: Perceived risk negatively affects buyers' trust in CBEC websites.

The Relationship Between Alternative Website Quality and Trust

Among numerous CBEC platforms, buyers can easily switch their choice through a single click. According to the information system success model (DeLone & McLean, 2003), the quality of an information system is constituted by system quality, information quality, and service quality. In the context of this study, the authors refer to alternative website quality as the product quality and price buyers perceive of other CBEC platforms. Alternative quality is identified as a key factor to form and stabilize cooperative relationships (McKnight, Choudhury, & Kacmar, 2002). If consumer needs can be better satisfied by another CBEC platform, the commitment of the current relationship will be reduced and easily replaced. Conversely, if consumers face poor, unstable, unsuitable alternatives or even just not as good as the current, they are more likely to stay firmly within the present relationship. Empirical evidence has shown that the quality of outcome available from the best alternative relationship partner can help to maintain a buyer-seller relationship in the context of B2B (Anderson & Narus, 1990). In practice, if buyers find another, better CBEC platform website, they tend to devalue the old one and become reluctant to maintain the relationship (Johnson & Rusbult, 1989). Therefore, it may reduce the trust of the current website along with their provider. Thus, the authors hypothesis the following:

H6: Alternative website quality negatively affects buyers' trust in providers.

H7: Alternative website quality negatively affects buyers' trust in CBEC websites.

The Relationship Between Alternative Website Quality and Risk

There are many aspects associated with alternative website quality. Other than the IS qualities discussed earlier, other factors also revolve around alternative quality, including payment protection mechanism, security and privacy protection, and positive reputation. Kim et al. (2008) has demonstrated that these elements of an e-commerce website can decrease (or increase) perceived risks from buyers and increase (or decrease) their trust. In the context of CBEC, consumers feel more uncertainty and risk due to the “long distance” (Kim et al., 2017) across borders and around the globe. Therefore, a high

quality of a CBEC platform can reduce risk perception for consumers and make them less sensitive to uncertainty. Thus, the authors hypothesis that:

H8: Alternative website quality positively affects perceived risks from buyers.

Trust Transfer Theory

Trust transfer theory refers to the phenomenon that a trustor bases his or her original trust in a source, on the trust already embedded in another related target, or the same target in another context (Stewart, 2003). Generally, there are two types of relationships between source and target: similarity and business tie, respectively. A similarity relationship is regarded as an internal connection, and such a connection refers to the same features or attributes of trusted source and target. If two objects (i.e. source and target) have several traits in common, they will be perceived as belonging to the same category, and the trust transfer occurs. A business tie relationship represents external connection, which is displayed as a cue from outside sources. For example, if two products are from the same company, the two websites share interlinks. Trust transfer theory is important in understanding the mechanism of trust building, especially for related targets (Mou & Cohen, 2017). If a customer trusts a salesman, then the customer likely trusts the products he or she sells, as well as the company he or she belongs to (Doney & Cannon, 1997). Trust can also be transferred from brick and mortar retailers to their online shop (Kuan & Bock, 2007). This is also a business tie relationship. To demonstrate similarity examples, the trust from internet payments can be transferred to mobile payments (Lu et al., 2011), and from internet and administration to public e-service (Belanche, Casaló, Flavián, & Schepers, 2014).

In this study, the relationship between CBEC platform websites and its providers (sellers) is similar to the relationship between a company and its salesmen. As discussed above, this relationship belongs to business ties, because the CBEC platform does not have the similar features as website providers, albeit they are all bundled together. Therefore, the authors hypothesis the following:

H9: Trust in the CBEC platform website positively affect buyers' trust in providers.

Control Variables

National culture refers to the similar pattern of mental mode within a group of people (Hofstede, 1998). It has been shown to influence consumer behaviors (Thitimajshima et al., 2018). Culture differs from country to country, as well as among different locations within a single country. Researchers have applied culture to study different aspects of global information management, such as IT development, operations, management and use (Gallupe & Tan, 1999). Consequently, CBEC is culture-bound. Because of this, culture is a control variable in this study.

In addition to culture, this study also includes age, gender, and income as control variables. Psychologists believe that demographics play an important role in an individual perceptual and judgment formation process. For example, researchers argue that gender differences are instrumental in consumer decision making process for online shopping context (Stafford, Turan, & Raisinghani, 2004). Previously, researchers have found that males are more likely to use the Internet than females. Specifically, men are more likely than women to participate in online auctions and pay to download digital content (Sebastianelli, Tamimi, & Rajan, 2008). In an online shopping context, younger and female consumers are more likely to impulsively purchase online, while older and male consumers are not (Leong, Jaafar, & Ainin, 2018). Further, previous literatures also suggest that online consumer's age, gender and income may affect the intention to repurchase online (Aladwani, 2018; Farivar, Turel, & Yuan, 2018). On the other hand, buyers may be more sensitive to online transactions, or overly careful to when purchasing on CBEC due to uncertainties such as fraud. Therefore, the authors use fraud as another control variable.

The research model is illustrated in Figure 1 below.

RESEARCH METHODOLOGY

Research Setting

To obtain a set of high-quality data, the authors collaborated with one of the biggest CBEC platforms in China, Dhgate.com. This firm is a wholesale market which delegates to help SMEs engage in global marketplaces through CBEC channels. It covers 1.2 million Chinese vendors with more than 30 million products, including, but not limited to the following: apparel & accessories, computers & networking, consumer electronics, toys & hobbies, health & beauty, bags & jewelry. On the buyer side, there are approximately 10 million enterprises and individual buyers from 220 countries and regions. In addition, to facilitate the consumers’ purchase in this cross-border firm more easily, it runs both a PC-based website platform and a mobile/tablet-based application. To better collect target data, the authors distributed the survey through an online survey system.

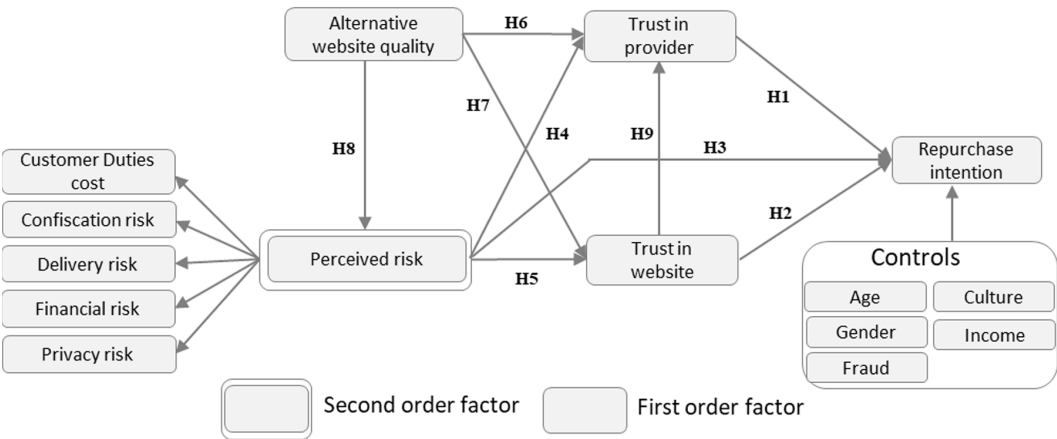
Measures

In this paper, most items in surveys such as privacy risk, trust in vendor, trust in website and repeat purchase intention were adopted from previous literature, with small changes appropriate to the CBEC context. Some measures for confiscation risk, customs duties cost, and financial risk had to be developed based on input from industry experts and the conceptual definitions of those constructs. This was because existing measurement scales were not considered appropriate for the complex nature of CBEC compared to a domestic e-commerce setting. For example, confiscation risk was measured through four items reflecting the consumer’s concern that customs authorities may intercept and confiscate their product without compensation. The authors measured customs duties cost refracting the uncertainty surrounding payment in additional import duties. The authors adopted five items from (Li et al., 2006) to measure alternative website quality, which reflect that an alternative website is attractive and appealing. The measurement items are present in Appendix B. The authors adopted the five-point Likert-scale, with anchors ranging from “strongly disagree,” to “strongly agree.”

Data Collection

The authors first conducted a pilot test to determine whether the survey instruments were understandable for participants and whether there are any ambiguous or confusing measurement items

Figure 1. Research model



in the questionnaires, as well as to ensure that the survey items are appropriate in the CBEC context. To prevent poor response due to over-sampling, the random selection was limited to three out of every 100 site visitors (3%) who had not participated in the provider's satisfaction survey within the previous three-month period. Based on the site's rules and to minimize disruption to their customers' shopping experience, the pop-up rate was decreased with approximately 12 respondents per day over a one-and-a-half-month period. Participating in the survey was totally voluntary, and anonymity was ensured by configuring the survey application to disregard any respondent identification information. When invited to consider participating, buyers could select to "participate now", "maybe next time", or "don't ask again". There was no loss of benefit whether or not a respondent chose to participate. The survey of this study was originally compiled in English.

Given the active visitors/users are different every day, the firm did not let us to know how many times in total the pop ups occurred during the sample period. The authors do know that during the weekdays, more samples were collected, while during weekend, less samples were available. Due to the voluntary trait of all participants, the authors believe that the individuals who took part in the activity were sufficiently random, and the sample was therefore not exhibited bias.

RESULTS

Characteristics of Demographics

After 6 weeks, the authors had obtained both C-buyer and B-buyer samples. To focus on B-buyers repurchase intention, the authors dropped responses from C-buyers. The authors ultimately adopted 243 B-buyer samples in total to test the research model. Demographic statistics are shown in Table 1, below. All participants in this study indicated that they had purchased products from an alternative Chinese cross-border website during last several months. As shown, most B-buyers were males (76.5%). Furthermore, most of the respondents were of the age range between 21-50, regardless of gender. Among the respondents, a desirable majority of 88.5% had previous purchase experience in this cross-border website. In addition, the authors found that 37% were from the US, 7.4% from Canada, 7.4% from the UK, 4.1% from Australia, and 3.7% from Brazil; others were mainly from other European countries such as Netherlands, Germany, Italy, Spain and other South America countries such as Chile. This greater proportion of responses from North America was not unexpected and is consistent with this firm's marketing strategies, which is largely focused on North America, Europe and English-speaking counties. Last, the test of common method bias, reliability, and validity can be found in Appendix C and D.

Hypothesis Testing

The structural model of this study was tested by using SmartPLS software. The authors used the bootstrap method (5,000 re-samples) to determine the significance of the paths in the research model. The PLS-SEM has been employed in this study due to the following reasons: first, it can estimate the items loadings of constructs and simultaneously test the relationship among the variables in which the authors are interested; second, it is appropriate for the small sample size. According to Chin and Newsted (1999), the sample size should be ten times the largest number of independent variables. This study has 13 independent variables (including control variables), and the sample size of 243 exceeds ten times that amount, therefore it is adequate for PLS-SEM analysis.

The constructs of alternative website quality, trust in provider, trust in website and repurchase intention were modeled as first order constructs. The authors model perceived risk as a second order construct. For the assessment of psychological constructs, researchers normally adopted either reflective measurement or formative measurement (Christophersen & Konradt, 2012). In other words, many construct allow both reflective and formative measurement if the approach can be explained by an underlying theory (Chin, 1998). In this study, the authors considered perceived

Table 1. Descriptive statistics of respondents' characteristics

Demographics	Category	N (n=243)	Percentage (%)
Gender	Male	186	76.5%
	Female	54	22.2%
	Missing	3	1.3%
Age	Under 21	16	6.6%
	21-30	56	23.0%
	31-40	65	26.8%
	41-50	51	21.0%
	51-60	36	14.8%
	Over 60	17	7.0%
	Missing	2	0.8%
Country	USA	90	37.0%
	Canada	18	7.4%
	UK	18	7.4%
	Australia	10	4.1%
	Brazil	9	3.7%
	Italy	8	3.3%
	Mexico	6	2.5%
	New Zealand	5	2.1%
	South Africa	5	2.1%
	Others	69	28.4%
	Missing	5	2.0%
This cross-border website purchase experience	Yes	215	88.5%
	No	27	11.2%
	Missing	1	0.4%

risk as a high-order reflective construct. This is because based on the approach of Featherman and Pavlou (2003), risk perceptions could be modeled as a reflective measurement construct. Secondly, reflective measurements are expected high correlation among first order construct e.g., customer duties cost, confiscation risk, delivery risk, financial risk and privacy risk. Further, the first order constructs can be interpreted as a criterion for high internal consistency (Christophersen & Konradt, 2012). Therefore, all the constructs in this study are modeled as reflective factors. Further, the inter-associations are considered to better understand the repurchase intention of CBEC.

As shown in Table 2, alternative website quality did not significantly influence trust in provider, nor trust in website. However, the authors found that alternative website quality can mediate perceived risk and thus indirectly influence trust in website. In addition, the authors found that perceived risk did not significantly influence trust in provider. Therefore, the path coefficients of H4, H6, and H7 were not significant. Further, the authors found that B-buyer repurchase intention is determined by trust in provider, trust in website and risk perceptions. Moreover, the authors found trust in website significantly influences trust in provider. Last, the authors found trust in website was significantly influenced by perceived risk. The authors therefore confirmed other hypothesis. No control variables

were significant in this study. The research model explained 53.3 percent of the variance in repurchase intention of B-buyers to use this CBEC platform. In addition, according to Henseler et al. (2014), the authors applied the standardized root mean square residual (SRMR) as an index to evaluate the overall model fit. The value of SRMR is 0.054, which is below the criteria value of 0.080, indicating a good model fit. The results of the hypothesis test are depicted in Figure 2.

Post-hoc Analysis of Mediating Effects

The mediating effect of perceived risk on the path between alternative website quality and perceived risk, the mediating effect of trust in website on the link between perceived risk and trust in provider have also been carried out via a Sobel test. The Sobel test allows us to test the mediating effects suggested by the research model. The authors found that perceived risk plays a full mediation effect on the path between alternative website quality and perceived risk (-2.075, $p < 0.05$). In addition, support for trust in website as a fully explanatory variable for the effects of perceived risk on trust in provider is confirmed by a significant Sobel statistic (-2.908, $p < 0.01$).

Figure 2. PLS test of research model (dash line represents non-significant results)

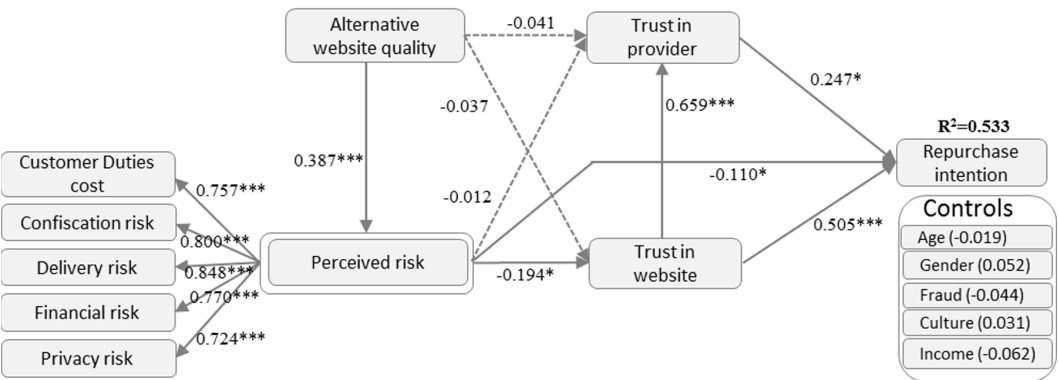


Table 2. Summary of results (* $p < 0.05$; *** $p < 0.001$).

Hypothesis (path)	Path coefficient	t-Value	Support
H1	0.247	2.546*	Yes
H2	0.505	5.111***	Yes
H3	-0.110	2.328*	Yes
H4	-0.012	0.190	No
H5	-0.194	2.103*	Yes
H6	-0.041	0.648	No
H7	-0.037	0.398	No
H8	0.387	6.021***	Yes
H9	0.659	10.778***	Yes

Discussion

In this day and age, CBEC and global trade go hand in hand. While B-buyers can contribute more margin for the firm, they also contribute more GMV in a CBEC platforms. There are some studies that focus on B-buyer behaviors in domestic online shopping, which can help scholars to gain more insight in studding e-commerce. However, through reviewing the CBEC literature, there still remains a lack of studies to investigate B-buyer behavior under CBEC context. Therefore, the authors apply trust transfer theory, perceived risk, and alternative website quality to study repurchase intention focusing on B-buyers.

The authors found that perceived risk can negatively affect the trust in website, whereas it cannot significantly affect trust in the provider. This is because providers in the CBEC website were generally SMEs, which were not influential in the website. As a result, consumer's perception, trust, and behavior intention were more relied on the website rather than the provider. This could also explain why trust in website could influence trust in provider, and why the path coefficient between trust in website and repurchase intention was larger than that of the trust in provider.

Further, trust in provider, trust in website and perceived risk can explain 53.3% variance. This is slightly higher than the study of (Thatcher et al., 2013), whom found that trust in merchant, trust in website, and trust propensity can explain 51.1% of the variance for familiar shopping buyers, however such factors only explain 34.1% variance for new buyers. In an CBEC environment, the whole transaction processes such as surfing, querying, ordering, and payment are achieved via website. A trusted website is more likely to form consumer's positive purchase behaviors, while in a virtual environment, sellers and buyers only can interactive through website, as they normally do not know each other well. Indeed, only based on the perceptions of seller's website can the consumers make an initial decision for their purchase. Therefore, trust in website becomes more important than trust in provider in the context of CBEC.

The authors found that trust in website can significantly influence trust in provider ($\beta=0.659$). This finding can answer the second question of this study. The effect between the link is higher than the study of (Vakeel et al., 2017), who only found the effect as 0.364 in consumer post purchase stage in a domestic setting. This is constant with trust transfer theory, which states that trust may transfer from different kinds of sources. Trust transfer theory has been studied under the context of e-commerce, mobile commerce, as well as social commerce. As an extension, this study found that trust in website can also influence trust in provider in CBEC environment.

Interestingly, alternative website quality did not affect the trust in either the provider or the website. When a consumer perceives an alternative CBEC website as a high quality, she/he is more likely to form positive perceptions for alternatives. Consumers are more easily to compare both websites. Since the consumers consider the alternatives are much better, the risk perceptions of this website may arise. Obviously, alternative website quality could indirectly influence repurchase intention. Thus, from the result of this study the authors could deduce that alternative website quality affects repurchase intention through mechanisms other than trust. In the current study, the authors confirmed that perceived risk mediated the link between alternative website quality and behavior intention. The authors believe there are also other mediators which may play an important role between alternative website quality and trust. This easily is one further research topic.

Thus far, we identified the dimensions of risk in CBEC environment to namely include customer duties cost risk, confiscation risk, delivery risk, financial risk and privacy risk. Multi-dimensional risk is also seen relevant, and given the complex transaction nature of CBEC, the authors found customer duties cost risk and confiscation risk are important as well.

THEORETICAL CONTRIBUTIONS

Theoretically, the authors have first classified the perceived risks as customer duties cost, confiscation risk, deliver risk, financial risk, and privacy risk. This is different with prior studies, which classified

the dimensions of risk perceptions as financial risk, performance risk, delivery risk, psychological risk, social risk, time risk, and privacy risk (Featherman & Pavlou, 2003). This can help researchers to better understand the dimensions of risk perception in CBEC context. Second, the authors found that the trust in website can positively affect the trust in provider, as well as affect the repurchase intention. This helps to solidify the trust transfer theory in CBEC context. Third, we found that alternative website quality indirectly influences consumer trust. Prior studies have confirmed the direct effect of website quality on trust. Meanwhile, alternative website quality is not a function of both trust in provider and trust in website in the context of CBEC.

PRACTICAL CONTRIBUTIONS

Practically speaking, this study first contributed to understanding perceived risk for B-buyers in CBEC environments. It can help any CBEC website to attract more consumers by developing their own security guarantee and compensation mechanism due to logistic issues, since these are the most influential perceived risks. For example, a buyer suggests that “the sellers should try their best to reduce the risk of custom duties, to improve buyer’s purchase intention on a CBEC platform”. Another buyer leaved a comment, “... often overpriced duty charges”. One buyer complained about “a custom duty of \$345 on my recent order”. Another notable comment by a buyer suggested to “reduce shipping cost a bit because customs duty this side is costly”. The CBEC platform may satisfy the consumers by indicating the information about duty costs. Given that all the transactions are international, studying the term of custom duty cost is important to help CBEC platforms and logistic service firms build their appropriate service strategy. Confiscation risk has also been a concern for buyers. For instance, a buyer mentioned, “Sellers should announce the buyer if the item is lost or hold by China custom as soon as they know about it.”

Secondly, increasing trust in website can promote significant repurchase intention, thereby increasing the quality of website. Thus, increasing website trust is imperative. This can guide CBEC firms to build an appropriate marketing strategy. For example, by mitigating risk perceptions, CBEC firms may strongly improve consumer trust and as a result, improve B-buyers’ repurchase behavior. The degree of trust in provider can also drive consumers’ behavior. Sellers should provide a good product description in their online shop.

In CBEC context, products with description related issues are frequently reported. For example, a buyer posted, “the product descriptions are often poorly written. When I come across a product description with poor grammar, typos, etc. I tend to skip over it because it makes me afraid that the product may be flawed as well”. In addition, another buyer complained of receiving products that did not meet expectations, on multiple occasions. This buyer followed the complaint with the suggestion that “sellers should ensure that their description is accurate.” CBEC sellers should translate appropriate language to overcome the language barriers. This can help buyers to better understand the products, and therefore help the buyers form positive repurchase behaviors. CBEC platforms should build rules to regulate seller’s behavior, lead seller providing high quality products, and therefore gain more trust from buyers. For instance, the platform can set up more parameters when the seller is uploading a product. If and only if the product meets its criterion, it may be published online.

Last, the authors found risk perceptions are negatively associated with repurchase intentions. The firms should disclose the duty cost, deliver only the products under regulations, deliver the products in a timely manner, and do not disclose consumer’s private information to any third parties. This will potentially decrease the buyers’ risk perceptions, and therefore lead more sales.

LIMITATIONS AND FUTURE RESEARCH

This study has some limitations. First, the authors chose a single CBEC platform to collect the sample, which may potentially threaten generalizability. Future research may collect data from several CBEC platforms. Second, the data was cross-sectional, and therefore, causal inferences could only be made with reference to theory. Future studies may adopt longitudinal designs and consider the temporal changes in human beliefs toward CBEC context. Finally, unexplored factors may be also important for CBEC; this is another further research point.

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ENDNOTES

- ¹ Due to the industrial revolution and the data on China's manufacturing values added, China can produce a huge quantity of products, this leads a huge amount of merchandise exports. The authors therefore call it a “world factory.”
- ² The Belt and Road Initiative project is a development strategy adopted by the Chinese government. The ‘belt’ refers to the overland interconnecting infrastructure corridors. The ‘road’ refers to the sea route corridors. The initiative focuses on connectivity and cooperation between Eurasian countries and China (Wikipedia).

APPENDIX A: CROSS-LOADING

Table 3. Cross-loading

	AWQ	CD	CR	DR	FR	PC	RPI	TV	TW
AWQ1	0.687	0.122	0.132	0.121	0.144	0.142	-0.066	-0.006	0.026
AWQ2	0.896	0.273	0.232	0.289	0.255	0.283	-0.287	-0.145	-0.187
AWQ3	0.842	0.310	0.282	0.368	0.311	0.338	-0.171	-0.075	-0.084
AWQ4	0.854	0.249	0.230	0.246	0.228	0.230	-0.175	-0.010	-0.018
AWQ5	0.859	0.228	0.196	0.224	0.241	0.268	-0.266	-0.200	-0.120
CD1	0.271	0.973	0.590	0.480	0.540	0.343	-0.159	-0.098	-0.163
CD2	0.301	0.933	0.569	0.457	0.532	0.367	-0.102	-0.091	-0.099
CR1	0.180	0.580	0.895	0.529	0.468	0.427	-0.044	-0.069	-0.026
CR2	0.200	0.568	0.904	0.554	0.486	0.424	-0.037	-0.047	-0.010
CR3	0.253	0.510	0.913	0.534	0.453	0.451	-0.071	-0.046	-0.032
CR4	0.268	0.592	0.966	0.589	0.489	0.472	-0.177	-0.152	-0.132
DR1	0.259	0.409	0.516	0.857	0.458	0.443	-0.273	-0.125	-0.239
DR2	0.280	0.364	0.495	0.890	0.395	0.476	-0.276	-0.168	-0.222
DR3	0.256	0.413	0.455	0.877	0.453	0.408	-0.332	-0.232	-0.281
DR4	0.265	0.450	0.583	0.792	0.535	0.469	-0.165	-0.073	-0.154
DR5	0.257	0.468	0.549	0.780	0.475	0.516	-0.239	-0.210	-0.121
FR1	0.282	0.526	0.478	0.515	0.995	0.407	-0.166	-0.118	-0.159
FR2	0.255	0.620	0.562	0.530	0.716	0.408	-0.024	0.007	-0.120
PC1	0.323	0.377	0.481	0.506	0.440	0.931	-0.199	-0.117	-0.144
PC2	0.281	0.311	0.443	0.478	0.381	0.952	-0.159	-0.075	-0.121
PC3	0.290	0.329	0.438	0.484	0.375	0.955	-0.172	-0.105	-0.140
PC4	0.291	0.351	0.425	0.484	0.399	0.812	-0.069	-0.061	-0.060
PC5	0.227	0.301	0.398	0.520	0.313	0.823	-0.107	-0.039	-0.062
RPI1	-0.235	-0.130	-0.095	-0.276	-0.137	-0.194	0.912	0.526	0.622
RPI2	-0.250	-0.139	-0.151	-0.368	-0.138	-0.184	0.876	0.545	0.618
RPI3	-0.230	-0.177	-0.174	-0.331	-0.181	-0.169	0.938	0.574	0.620
RPI4	-0.243	-0.123	-0.107	-0.259	-0.134	-0.133	0.929	0.588	0.646
RPI5	-0.271	-0.131	-0.107	-0.250	-0.139	-0.134	0.942	0.583	0.628
RPI6	-0.228	-0.093	-0.077	-0.271	-0.127	-0.138	0.932	0.550	0.672
TV1	-0.147	-0.074	-0.062	-0.197	-0.128	-0.069	0.550	0.886	0.616
TV2	-0.121	-0.140	-0.131	-0.223	-0.145	-0.079	0.536	0.909	0.630
TV3	-0.105	-0.045	-0.063	-0.192	-0.072	-0.111	0.564	0.928	0.578
TV4	-0.106	-0.148	-0.157	-0.194	-0.140	-0.128	0.550	0.903	0.605
TV5	-0.136	-0.101	-0.079	-0.174	-0.076	-0.060	0.563	0.915	0.583
TV6	-0.139	-0.080	-0.116	-0.182	-0.103	-0.112	0.605	0.961	0.632
TV7	-0.131	-0.093	-0.127	-0.165	-0.097	-0.083	0.590	0.954	0.633
TV8	-0.095	-0.055	-0.103	-0.165	-0.023	-0.060	0.528	0.917	0.628
TW1	-0.103	-0.084	-0.064	-0.170	-0.091	-0.086	0.621	0.680	0.917
TW2	-0.083	-0.114	-0.073	-0.212	-0.128	-0.098	0.609	0.633	0.931
TW3	-0.056	-0.079	-0.035	-0.228	-0.115	-0.051	0.592	0.584	0.897
TW4	-0.141	-0.198	-0.107	-0.288	-0.202	-0.211	0.667	0.605	0.925
TW5	-0.141	-0.180	-0.119	-0.264	-0.180	-0.126	0.664	0.586	0.930
TW6	-0.150	-0.135	-0.083	-0.229	-0.168	-0.129	0.662	0.604	0.949

APPENDIX B: MEASUREMENT ITEMS

Alternative website quality (Li et al., 2006)

An alternative website is appealing.

An alternative website is better than this website.

To my knowledge, another website is closed to ideal.

An alternative website is attractive to me.

My needs could easily be fulfilled by an alternative website.

Customs duties cost [self-development]

If I bought a product from ___, I worry that I will have to pay much money in additional import duties (customs tariffs) in my country.

If I bought a product from ___, I am uncertain about how much I will have to pay in additional import duties (customs tariffs) in my country.

Confiscation risk [self-development]

If I bought a product from ___, I worry that the product would be intercepted by authorities in my country before they reach me.

If I bought a product from ___, I worry that the product would be confiscated by authorities in my country without compensation.

The risk that products purchased from ___ will be confiscated is high.

If I bought a product from ___, I worry that the product will not clear customs.

Delivery risk (Hong & Cha, 2013)

If I bought a product from ___, I would be concerned as to whether the product would be delivered to the wrong address.

If I bought a product from ___, I would be concerned as to whether the product would be lost during delivery.

If I bought a product from ___, I would be concerned as to whether a wrong product would be delivered.

If I bought a product from ___, I worry that the product will not be delivered due to aircraft refusal (e.g. the product has magnetism) [self-development]

If I bought a product from ___, I worry that the product would be damaged after shipping. [self-development]

Financial risk [self-development]

If I bought a product from ___, I may suffer monetary loss due to fluctuations in exchange rates.

If I bought a product from ___, I worry that I will face extra costs to ship to my city.

Privacy risk (Kim et al., 2009)

I am concerned that ___ is collecting too much personal information from me.

I am concerned that ___ will use my personal information for other purposes without my authorization.

I am concerned that ___ will share my personal information with others without my permission.

I am concerned that unauthorized persons (i.e. hackers) have access to my personal information.

I am concerned about the privacy of my personal information during a transaction.

Trust in vendor (adapted from Fang et al., 2014)

I believe that the vendor on ___ is consistent in quality and service.

I believe that the vendor on ___ is keen on fulfilling my needs and wants.

I believe that the vendor on ___ is honest.

I believe that the vendor on ___ wants to be known as one that keeps promises and commitments.

I believe that the vendor on ___ has my best interests in mind.

I believe that the vendor on ___ is trustworthy.

I believe that the vendor on ___ has high integrity.

I believe that the vendor on ___ is dependable.

Trust in website (Thatcher et al., 2013)

I think ___ is very reliable.

To me, ____ is dependable.
____ performs in a predictable way.
I think ____ has the functionality I need.
____ has the ability to do what I want it to do.
Overall, ____ has the capabilities I need.
Repeat purchase intention (Chiu et al., 2014; Gefen, 2002)
I plan to continue using ____ for cross-border purchase.
I consider ____ to be my first choice for cross-border transactions in the future.
It is likely that I will continue purchasing products from ____ in the future.
I would recommend ____ to others.
I would encourage others to use ____.
I am inclined to do more business with ____.

APPENDIX C: COMMON METHOD BIAS

Harman's one-factor test is one of the widely employed techniques to test common method bias. The authors first checked for common method bias by performing this test (Podsakoff & Organ, 2006). An exploratory factor analysis of all the scale items revealed factors explaining 77.8% of the variance in this study's constructs, with the first factor explaining 29.7%, and the last explaining 3.0% of the total variance. These results suggest that no single factor explained a majority of the variance, thus supporting the idea that common method bias was not a threat to this study. Secondly, the authors followed the recommendations proposed by Rönkkö and Ylitalo (2011) using the PLS marker variable approach. The authors calculated the mean correlation between the marker items and the study items and found that the mean correlation is 0.06, which is slightly higher than the recommended value of 0.05. Then, a method factor was also created using the marker indicators as an exogenous variable predicting endogenous construct in the model. The authors compared the method factor model with the baseline model and found that the significant paths in the baseline model remain significant in the method factor model. Hence, the PLS marker variable approach reveals that common method bias might not be a threat in the data of this study. In addition, the authors found the highest correlation is 0.689, which is lower than the threshold value of 0.9 (Pavlou, Liang, & Xue, 2007). In sum, all these evaluations indicate that the CMV is not a threat of this study.

APPENDIX D: RELIABILITY AND VALIDITY

The authors appropriately tested for the reliability and validity of the measurement model. The results, including mean, standard deviation (SD), average variance extracted (AVE), composite reliability (CR), and Cronbach's alpha value, are shown in Table 4. All items were loaded in their expected constructs with the value above 0.7 with the exception of AWQ1 (0.687) (see Appendix A). The AVE value for each construct was above the recommended threshold value of 0.5. All construct reliabilities fit between 0.855–0.978, exceeding the criterion of 0.7. Therefore, composite reliability of the measurement model was confirmed. The Cronbach's alpha value was tested to verify the reliability. All Cronbach's alpha values were above the recommended value of 0.7. Using these benchmarks, the measurement model is suitable for subsequent analysis.

Table 5 shows the correlations between each construct. To prove discriminant validity of the model, the square root of AVE was compared with inter correlations of each construct. All the square roots of AVE exceeded the respective correlation; discriminant validity was confirmed.

Table 4. Results of reliability, validity and means of the construct

Variable	Items	Mean	S.D.	AVE	CR	Alpha value
Alternative website quality (AWQ)	AWQ1	3.051	0.853	0.690	0.917	0.893
	AWQ2					
	AWQ3					
	AWQ4					
	AWQ5					
Customer duties cost (CD)	CD1	2.938	1.345	0.908	0.952	0.904
	CD2					
Confiscation risk (CR)	CR1	2.694	1.301	0.846	0.956	0.951
	CR2					
	CR3					
	CR4					
Delivery risk (DR)	DR1	2.626	1.094	0.706	0.923	0.897
	DR2					
	DR3					
	DR4					
	DR5					
Financial risk (FR)	FR4	2.656	1.203	0.751	0.855	0.781
	FR5					
Privacy risk (PC)	PC1	2.711	1.165	0.804	0.953	0.941
	PC2					
	PC3					
	PC4					
	PC5					
Repurchase intention (RPI)	RPI1	3.957	1.060	0.850	0.971	0.964
	RPI2					
	RPI3					
	RPI4					
	RPI5					
	RPI6					
Trust in provider (TP)	TV1	3.500	1.056	0.850	0.978	0.975
	TV2					
	TV3					
	TV4					
	TV5					
	TV6					
	TV7					
	TV8					
Trust in website (TW)	TW1	3.770	0.989	0.855	0.973	0.966
	TW2					
	TW3					
	TW4					
	TW5					
	TW6					

Table 5. Construct correlations (Diagonal bold values are square root of AVE)

	AWQ	CD	CR	DR	FR	PC	RPI	TV	TW
AWQ	0.831								
CD	0.295	0.953							
CR	0.262	0.608	0.920						
DR	0.311	0.492	0.603	0.840					
FR	0.291	0.561	0.510	0.539	0.867				
PC	0.315	0.368	0.486	0.541	0.425	0.897			
RPI	-0.263	-0.143	-0.128	-0.317	-0.155	-0.172	0.922		
TV	-0.133	-0.099	-0.113	-0.202	-0.106	-0.096	0.609	0.922	
TW	-0.123	-0.144	-0.088	-0.252	-0.161	-0.128	0.689	0.665	0.925

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