Understanding buyers' loyalty to a C2C platform: the roles of social capital, satisfaction and perceived effectiveness of e-commerce institutional mechanisms

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Abstract. *Drawing upon social capital theory, this study aims to investigate how different dimensions of social capital affect online buyers' satisfaction and ultimately boost their loyalty to a Consumer-to-Consumer (C2C) platform. Specifically, we propose that three dimensions of social capital (i.e., cognitive, structural and relational capital) contribute positively to the two types of online buyers' satisfaction (i.e., economic and social satisfaction). In addition, we posit that perceived effectiveness of e-commerce institutional mechanisms (PEEIM) moderates the relationships between economic and social satisfaction and buyers' loyalty to the platform. Three hundred buyers on the Consumer-to-Consumer platform, TaoBao, were surveyed to test the proposed model. The results suggest that buyers' evaluation of social capital with the community of sellers can enhance their satisfaction with the sellers, which subsequently affect their loyalty to the platform. Furthermore, perceived effectiveness of e-commerce institutional mechanisms negatively moderates the effect of economic satisfaction and positively moderates the effect of social satisfaction on buyers' loyalty to the platform. The theoretical contributions and practical implications are discussed.*

Keywords: social capital, satisfaction, loyalty, institutional mechanisms

INTRODUCTION

With the increasing popularity of e-commerce, Consumer-to-Consumer (C2C) markets are facing stiff competition because the design of websites is easily imitated and the switching costs are trivial (Chen *et al.,* 2009; Kwahk *et al.,* 2012). According to a recent report of internet shopping in China (iResearch.cn,[1]2014), the proportion of C2C markets in the whole Chinese online shopping market in terms of the scale of transactions declined from 65.4% in 2012 to 59.6% in 2013, and then 54.2% in 2014. It is also estimated that the proportion of Business-to-Consumer (B2C) markets will exceed C2C markets in terms of the scale of transactions in 2015 in China. Thus, building and maintaining buyers' loyalty to a C2C platform is critical for the survival and sustainability of C2C platforms in China (Chen *et al.,* 2007; Martinsons, 2008). However, few studies pay attention to buyers' loyalty to a C2C platform, with most prior research focused on the B2C market (Campbell *et al.,* 2013; Chiu *et al.,* 2014). It has been noted that loyalty to a C2C platform is different from the loyalty to a B2C vendor because a C2C platform relies primarily on the aggregation of individual buyer–seller relationships, while the B2C vendor depends on its own brand (Chen *et al.,* 2009).

According to previous research (Anderson & Srinivasan, 2003), satisfaction has been found to be a key predictor of loyalty because a dissatisfied buyer is more likely to search for alternative information and turn to a competitor than is a satisfied buyer. However, satisfaction has been mostly treated as a unitary concept in C2C online shopping contexts in previous research, limiting our understanding of buyer satisfaction. In particular, Chinese buyers on a C2C platform value not only transactions as a functional service but also their social relationships with sellers because they believe that a good relationship can enhance the efficiency of the transaction (Ou *et al.,* 2014). Accordingly, classifying satisfaction into 'economic satisfaction' and 'social satisfaction' is necessary for research in the Chinese C2C context, because of the following reasons. Firstly, sellers may provide economic satisfaction to their buyers, while undermining the buyers' social satisfaction, or vice versa (Geyskens & Steenkamp, 2000). Secondly, it has been suggested that these two different types of satisfaction may have different consequential and interactive effects (Geyskens & Steenkamp, 2000). Thirdly, Geyskens *et al.* (1999) conducted a meta-analysis of satisfaction and discovered that the economic aspects of satisfaction are different from the social aspects of satisfaction. Moreover, unlike Western C2C platforms, Chinese C2C platforms facilitate and encourage personal communication between buyers and sellers. For example, the instant messaging tool, namely WangWang, is popularly used by buyers and sellers of TaoBao, the leading C2C platform in China (Ou *et al.,* 2014; Ou & Davison, 2009). Consequently, distinguishing these two types of satisfaction in the C2C online shopping context can increase our understanding of the role of satisfaction in managing effective long-term relationships between buyers and sellers.

Meanwhile, the relationship between satisfaction and loyalty can vary significantly depending on the boundary conditions (Anderson & Srinivasan, 2003), which has recently led researchers to focus on the moderating roles of perceived effectiveness of e-commerce

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[1]http://report.iresearch.cn/html/20150201/245909.shtml

institutional mechanisms (PEEIM) on the relationships between satisfaction, trust and repurchase intention (Fang *et al.,* 2014). PEEIM refers to online buyers' perceptions that third-party safeguarding mechanisms protect them from potential risks in their online transactions (Fang *et al.,* 2014). Fang *et al.* (2014) call for future research to further explore the effect of PEEIM in e-commerce environments. Following this call, the objective of our study is to explore this moderating effect on the relationships between economic and social satisfaction and loyalty to the platform because of the potential theoretical significance. Theoretically, it opens up an interesting research opportunity to explore how economic and social satisfaction operate under various boundary conditions. Moreover, the research results could help provide potential conceptual explanations for the somewhat confounding results in the extant literature where the effects of economic and social satisfaction are positively significant in some studies (e.g., Dabholkar *et al.,* 2009) yet negatively significant in other studies (e.g., Geyskens & Steenkamp, 2000).

In addition, we also attempt to investigate how satisfaction can be developed through online social capital building between buyers and sellers. Social capital, as a set of actual and potential resources rooted in ongoing social relationships among people within a social network (Nahapiet & Ghoshal, 1998), however, has seldom been measured or studied in the context of C2C platforms. This perhaps was because of the fact that most online platforms, especially Western ones, were characterized by single-shot transactions (Rietjens, 2006; Ba & Pavlou, 2002) with 89% of transactions on eBay being one-time dealings (Resnick & Zeckhauser, 2002), implying the lack of social capital in online C2C platforms. However, in China, TaoBao has exerted considerable effort in trying to establish social capital between buyers and sellers in order to facilitate successful business transactions by leveraging communication technologies such as instant messaging tools and online forums. Empirically, social capital can be converted to economic or other kinds of advantages (Adler & Kwon, 2002), thereby reducing transaction costs (Adler & Kwon, 2002) and increasing the enjoyment associated with social interactions (Wang & Chiang, 2009). Social capital emphasizes the importance of relationship-based resources (Coleman, 1988; Nahapiet & Ghoshal, 1998), while the C2C platform typically assembles strangers for one-time transactions (Hou, 2007). Consequently, a study that investigates whether the concept of social capital can be extended to the C2C context and bring about valuable consequences is warranted. Unfortunately, prior research has paid little attention to the effect of social capital on buyers' economic and social satisfaction.

In this research, we aim to bridge the gaps identified earlier by undertaking an empirical test of the existing social capital theory (SCT), with particular emphasis on the relationship-based resources of online buyers and sellers (Sun *et al.,* 2012; Nahapiet & Ghoshal, 1998). We focus on the individual buyer's perception of the online social capital that exists in the relationship between the buyer and the community of sellers. Building upon SCT, we examine the roles of different dimensions of social capital in increasing buyers' economic and social satisfaction with the community of sellers, which in turn influence their loyalty to the C2C platform. Specifically, we address the following questions: (1) How and to what extent does social capital affect buyers' economic and social satisfaction towards sellers in a C2C platform? (2) How does economic and social satisfaction affect buyers' loyalty to the C2C platform? (3) How and to what extent does PEEIM moderate the effects of economic and social satisfaction on loyalty to the C2C platform?

THEORETICAL FOUNDATION

Social capital theory (SCT)

Social capital refers to 'the sum of the actual and potential resources embedded within, and derived from, the network of relationships possessed by an individual or social unit' (Nahapiet & Ghoshal, 1998, p. 243). Unlike other kinds of capital (e.g., human capital and physical capital) that are based on individuals or assets, social capital is embedded in the fabric of social relationships among people and in people's connections with their communities (Putnam, 1995; Wasko & Faraj, 2005). The basic tenet of SCT is that social relationships can be productive resources (Coleman, 1988; Chiu *et al.,* 2006).

Some researchers deem that social capital is difficult to develop in online contexts because social capital is more likely to be established in collectives characterized by closed structures, frequent interaction, high interdependence and a shared history (e.g., Wasko & Faraj, 2005). However, accumulated evidence consistently demonstrates that social capital can be developed in the online context because computer-mediated interactions may replace or supplement face-to-face interactions (Ellison *et al.,* 2007). On a C2C platform, social interactions between buyers and sellers can be divided into two types: information interaction and emotional interaction (Chen *et al.,* 2009). Information interaction incorporates the exchange of information and knowledge about products and transaction-related problems (Srinivasan *et al.,* 2002). Emotional interaction helps buyers to feel that sellers are supportive, thus enabling online buyers to establish a stronger emotional bond with sellers.

Research on SCT broadly focuses on the benefits that accrue in a social network because of the interactions among people (Lawson *et al.,* 2008; Sun *et al.,* 2012). The benefits have been suggested to accrue at both an individual level (Coleman, 1988) and a community level (Putnam, 1993). It is possible to investigate social capital at the individual level, given that interactions between a buyer and a seller occur at the individual level. However, the collective value of social capital can be nurtured and also captured at the community level (Coleman, 1988), in which one buyer can contact multiple sellers (and vice versa). In this study, we investigate the impact of social capital by focusing on accumulated interactions at the community level, where social capital is built within the whole community (Wang & Chiang, 2009). We believe that buyers' appraisal of satisfaction can be stimulated with buyers' perceptions of the community-level social capital.

Social capital involves three distinct dimensions: cognitive, structural and relational (Nahapiet & Ghoshal, 1998). Cognitive capital is defined as those resources that make shared interpretations and representations possible among people (Robert *et al.,* 2008; Sun *et al.,* 2012; Wasko & Faraj, 2005). Shared language, a major instantiation of cognitive capital, emphasizes the common terms, communication pattern and narrative forms used in the communication process (Sun *et al.,* 2012; Nahapiet & Ghoshal, 1998). Structural capital refers to the overall pattern of connections among people (Wasko & Faraj, 2005; Nahapiet & Ghoshal, 1998), and it reflects social interaction ties between people and units (Hsu & Chang, 2014; Nahapiet & Ghoshal, 1998). Relational capital is defined as resources rooted in the social relationships that are developed through a history of interactions among people (Sun *et al.,* 2012; Nahapiet & Ghoshal, 1998). In summary, following Sun *et al.* (2012), cognitive capital is manifested as a shared language, structural capital is manifested as social network ties and relational capital is manifested as mutual trust, reciprocity and respect.

Satisfaction

The concept of satisfaction has been widely considered in the literature as a result of relationships between buyers and sellers (Rodríguez del Bosque *et al.,* 2006). Buyers' satisfaction can be divided into economic and social satisfaction (Dabholkar *et al.,* 2009; Geyskens & Steenkamp, 2000). The reasons for recognizing the presence of 'economic satisfaction' and 'social satisfaction' are as follows. Firstly, a buyer may be economically satisfied with a seller, yet this may reduce the social satisfaction with the seller, and vice versa (Geyskens & Steenkamp, 2000). Secondly, economic and social satisfaction may have different antecedents and consequences (Geyskens & Steenkamp, 2000). Thirdly, meta-analysis of satisfaction indicates that the economic aspects of satisfaction differ from the social aspects of satisfaction (Geyskens *et al.,* 1999). More importantly, buyers pay attention not only to efficiency during their transactions but also to their psychological enjoyment. Failure to distinguish between economic and social satisfaction may lead to contradictory research results (Rodríguez del Bosque *et al.,* 2006; Geyskens & Steenkamp, 2000). Consequently, in this research, we follow prior research (Dabholkar *et al.,* 2009) and classify satisfaction into these two types – economic and social – in specific transaction situations.

Economic satisfaction refers to the 'evaluation of the economic outcomes that flow from the relationships' with a partner, such as margins and discounts (Geyskens & Steenkamp, 2000, p. 13). Geyskens *et al.* (1999) indicate that the relationship is considered a success by economically satisfied partners with respect to goal attainment. Economic satisfaction stresses effectiveness, financial outcomes and productivity of the relationship (Rodríguez del Bosque *et al.,* 2006; Geyskens & Steenkamp, 2000). Unlike economic satisfaction, social satisfaction is derived from the interpersonal level and evaluated through the enjoyment of the social interaction with the partner (Gassenheimer & Ramsey, 1994), which is defined as 'evaluation of the psychosocial aspects of its relationships, in that interactions with the exchange partner are fulfilling, gratifying, and facile' (Geyskens & Steenkamp, 2000, p. 13).

Economic and social satisfaction is mainly investigated in the context of channel member relationships. Dabholkar *et al.* (2009) extend economic and social satisfaction to the B2C context and propose that these concepts can influence buying intentions through trust and commitment. Chen *et al.* (2009) indicate that social relationships among members facilitate C2C online buyers getting both economic value and social support, which shows that economic and social satisfaction could also be valid in the C2C context.

Perceived effectiveness of e-commerce institutional mechanisms

E-commerce institution-based mechanisms have been established in many online transaction marketplaces, such as Amazon and eBay, to ensure the success of online transaction by building trust and reducing risk (Pavlou & Gefen, 2004). PEEIM is an online buyer's perception of the safeguarding mechanisms, such as privacy protection, escrow services and credit card guarantees, implemented or created by third parties to protect online buyers through reducing risk in the e-commerce environment (Fang *et al.,* 2014). PEEIM is defined at a general level, which not only includes the relationship-specific risks but also includes the risks

'outside of considerations that involve the relationship with the particular trustee' (Mayer *et al.,* 1995, p.726). The purpose of e-commerce institutional mechanisms is to help buyers avoid potential risks or negative experiences in online transactions, and therefore is appreciated by buyers.

For example, perceived effectiveness of escrow services refers to 'the extent to which buyers believe that escrows are able to guarantee that their transactions with the sellers in a marketplace will be fulfilled in accordance with their expectations' (Pavlou & Gefen, 2005, p. 380). Escrow services, representing a legally binding mechanism, such as Alipay in China, act as a third-party service in which buyers' benefits are protected by facilitating sellers to behave appropriately (Hu *et al.,* 2004; Pavlou & Gefen, 2004). In addition, another common legal mechanism is credit card guarantees. The perceived effectiveness of credit card guarantees refers to the degree to which buyers believe that the guarantees from a credit card company can protect them from sellers' illegal behaviours (Pavlou & Gefen, 2004; Pavlou & Gefen, 2005).

The effect of institutional mechanisms largely lies in individuals' perceptions (Fang *et al.,* 2014). Transactions on a C2C platform involve buyers, and different buyers may perceive the effectiveness of these e-commerce institutional mechanisms differently. Fang *et al.* (2014) indicate that PEEIM positively moderates the relationship between satisfaction and trust, yet negatively moderates the relationship between trust and repurchase intention. Building on previous literature (e.g., Fang *et al.,* 2014), we investigate the extent to which PEEIM affects how buyers' loyalty to the C2C platform is influenced by buyers' economic and social satisfaction, which can enhance our understanding of satisfaction and the boundary conditions under which these two types of satisfaction directly influence loyalty to the platform.

HYPOTHESIS DEVELOPMENT

In this section, we propose to model buyers' satisfaction from the perspective of ongoing online social interactions between buyers and sellers. Using this perspective, social capital, the relational resources that are embedded in the ongoing social relationships among people within a social network, will influence the value perception of buyers (Sun *et al.,* 2012). Actually, Adler & Kwon (2002) argue that social capital can generate both economic and other kinds of advantages. On the one hand, social capital can reduce transaction costs and thus can improve the efficiency of economic advantages (Adler & Kwon, 2002). On the other hand, social capital can lead to positive social outcomes of a relationship, such as improving friendship and facilitating an exchange (Nahapiet & Ghoshal, 1998). Moreover, buyers' satisfaction about sellers affects their loyalty to use the C2C platform because buyer–seller relationships are major components of a C2C platform (Chen *et al.,* 2009). In this view, we explore how social capital influences online buyers' satisfaction, which in turn enhances buyers' loyalty to the C2C platform. We further examine the moderating effect of PEEIM on the relationship between satisfaction and loyalty to the platform. Figure 1 shows these hypotheses, which are explained in the following.
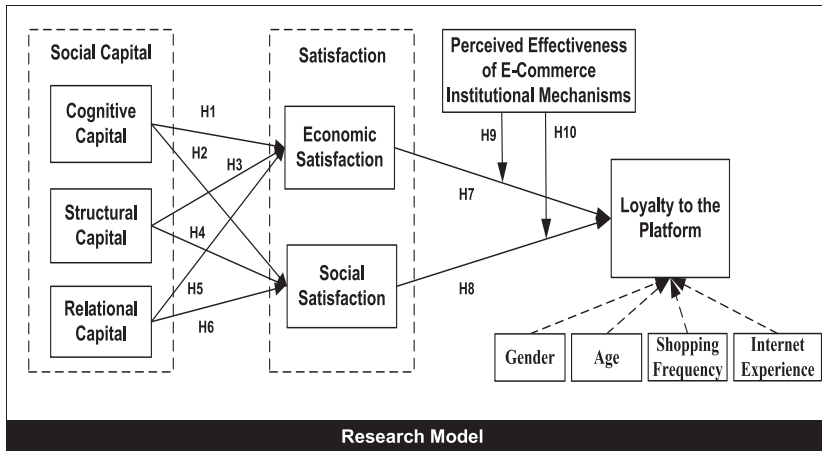
Figure 1. Research model.

Cognitive capital and buyers' satisfaction

Cognitive capital reflects those resources that enable people to share common interpretations and meanings within a social network (Wasko & Faraj, 2005). With shared cognitions, people's appraisal of each other can be greatly strengthened. This can then improve satisfaction, given that such cognitions reduce the amount of cognitive effort that people require to understand each other (Sun *et al.,* 2012). Engaging in meaningful exchange activities requires some degree of shared understanding between people, such as a shared language (Nahapiet & Ghoshal, 1998). Shared language, an important dimension of cognitive capital, represents the extent to which one uses the common terms, communication pattern and narratives in the communication process (Chiu *et al.,* 2006; Sun *et al.,* 2012). Shared language emphasizes the means by which people ask questions, discuss and exchange information (Sun *et al.,* 2012; Nahapiet & Ghoshal, 1998).

Shared language between buyers and sellers enables them to more effectively combine shared product-related information because shared language can help avoid possible misunderstandings during the communication process and will facilitate people to share their resources without hindrance (Sun *et al.,* 2012). This implies that a common cognition helps sellers understand which product is more suitable for buyers and so make better recommendations to buyers. However, without this mutual understanding in buyer–seller relationships, consensus with respect to price, quality, delivery or other aspects will not be reached (Ou *et al.,* 2014). More importantly, cognitive capital not only promotes mutual understanding but also enhances communication efficiency between people (Chiu *et al.,* 2006). As such, it will require buyers to invest less effort to communicate with sellers. Given that economic satisfaction emphasizes an individual's satisfaction with the general effectiveness of the relationship with the partner (Geyskens *et al.,* 1999; Geyskens & Steenkamp, 2000), so enhanced cognitive capital between buyers and sellers can contribute to the development of buyers' economic satisfaction by reducing the time and efforts in communication.

Moreover, cognitive capital between online buyers and sellers can also lead to buyers' greater social satisfaction by shortening their psychological distance. Shared language can increase the likelihood of buyers being gratified with sellers because it helps buyers easily get the information they need. Meanwhile, a shared language also has an impact on persons' perceptions by providing a common conceptual apparatus (Nahapiet & Ghoshal, 1998). Therefore, similar values or ideas are more readily anticipated in the communication process (Chiu *et al.,* 2006). This means that a shared common cognition will facilitate buyers to appreciate the contacts with sellers because they believe partners are willing to share ideas (Geyskens *et al.,* 1999). Thus, buyers are more likely to be satisfied with their interaction experiences with sellers with whom they share a common cognition. Hence, we propose that:

H1: Cognitive capital between buyers and sellers will have a positive effect on buyers' economic satisfaction.

H2: Cognitive capital between buyers and sellers will have a positive effect on buyers' social satisfaction.

Structural capital and buyers' satisfaction

Structural capital reflects the overall pattern of connections among people (Nahapiet & Ghoshal, 1998; Lu & Yang, 2011). The impact of structural capital on satisfaction is derived from the access to resources and people's joint combination and application of the exchanged knowledge (Sun *et al.,* 2012). SCT suggests that social interaction ties, a key dimension of structural capital, not only bind people together but also provide potential channels for information and resources to flow (Robert *et al.,* 2008; Nahapiet & Ghoshal, 1998). The strength of ties can be described in terms of properties like the amount of time, the emotional intensity and intimacy (Chiu *et al.,* 2006). We argue that social interaction ties are operationalized as relationship intensity, the amount of time spent and communication frequency between online buyers and sellers.

The structural dimension of social capital can reduce the effort and time required to gather information through providing information channels (Chang & Chuang, 2011). Thus, social interaction ties are crucial for enhancing information exchange and provide a cost-effective way for an online buyer to gain the information needed, avoiding unrealistic expectations in transactions. Economic satisfaction with sellers may emerge when the discrepancy between expectations and outcomes is very low (Geyskens & Steenkamp, 2000). Meanwhile, more social interaction ties allow the transacting parties to respond to each other and help achieve mutual favors, with sellers offering a favourable discount or small gift to buyers and buyers providing positive feedback to sellers (Ou *et al.,* 2014). Buyers' economic satisfaction subsequently emerges because it stresses the economic outcomes, such as discounts, that flow from the relationships (Geyskens & Steenkamp, 2000).

In addition, social interaction ties between people can facilitate the basis of a transaction shifting from an economic relationship to a social relationship (Montazemi *et al.,* 2008). By embedding transactions in a social relationship, Montazemi *et al.* (2008) indicate that social interaction ties promote exchange partners to maintain fair and trusting interpersonal relationships and cause them to behave in a generous manner. Furthermore, frequent and close social interactions motivate people to generate a sense of common point of view and share important information, which helps them better know each other (Tsai & Ghoshal, 1998). Chiu *et al.* (2006) note that 'the more social interactions undertaken by exchange partners, the greater the intensity, frequency, and breadth of information exchanged' (p. 1877). This implies that the more people interact with others regularly, the more they are likely to share more information with each other (Hsu & Chang, 2014). Thus, on TaoBao, buyers and sellers not only exchange information about products but also talk about personal feelings. Because social satisfaction focuses on the evaluation of interaction experiences (Geyskens & Steenkamp, 2000), we believe that social interaction ties between buyers and sellers can lead to buyers' increasing sense of social satisfaction. Therefore, we propose that:

H3: Structural capital between buyers and sellers will have a positive effect on buyers' economic satisfaction.

H4: Structural capital between buyers and sellers will have a positive effect on buyers' social satisfaction.

Relational capital and buyers' satisfaction

Although structural capital provides a pattern of connections to access resources, those resources are embedded in interpersonal relationships (Burt, 2000). Relational capital describes the interpersonal relationships people have developed with each other (Nahapiet & Ghoshal, 1998). Relational capital exists when mutual trust and norms of reciprocity and respect are involved. We investigate these dimensions of relational capital, which may be relevant to buyers' satisfaction (Sun *et al.,* 2012).[2]

Mutual trust reflects one's expectation that others will not behave opportunistically (Gefen *et al.,* 2003). Examples of opportunistic behaviours include unfair pricing and inaccurate information provision (Gefen *et al.,* 2003). Moreover, trust can generate productivity and profitability (Kim *et al.,* 2009), thus contributing to buyers' economic satisfaction. When there is mutual trust between buyers and sellers, buyers do not need to spend effort to get to know the sellers and products before undertaking online transactions, which can result in economic satisfaction. Besides, the norms of reciprocity involve a mutual indebtedness where people can reciprocate the benefits they gain from others, which guarantees ongoing exchanges (Hsu & Chang, 2014;

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[2]It is noteworthy that satisfaction has also been argued to affect trust (Mayer *et al.,* 1995; Fang *et al.,* 2014). Consistent with Sun *et al.*'s (2012) relational capital-based satisfaction building, we choose the causal link from relational capital (which is manifested as trust, reciprocity and respect) to satisfaction. The rationale for the effect of trust on satisfaction is that 'trust implies the beliefs in the positive outcomes of the trustee's actions which could lead to satisfaction with the relationship with the trustee' (Fang *et al.,* 2014, p. 415).

Wasko & Faraj, 2005). Considering the context of C2C platforms, online buyers are more satisfied with sellers when there is a high level of reciprocity because the payout could bring them equivalent returns in the future. In addition, the Chinese prefer to conduct transactions or engage in collaboration with those people they know and like, while the long-term relationship is often based on mutual respect that evolves over time (Ou *et al.,* 2014). Online sellers' respect can be exhibited by addressing buyers' questions and being willing to renegotiate contractual terms in the transactions (Ou *et al.,* 2014), which can potentially lead to a beneficial transaction for buyers and so lead to buyers' economic satisfaction.

At the same time, relational capital between buyers and sellers can also lead to buyers' greater social satisfaction. Because mutual trust both enhances smoothness in communication and increases buyers' confidence in online shopping, buyers are more willing to enjoy their transaction experience with sellers. Similarly, a reciprocal buyer–seller relationship is the level to which buyers believe mutual relationships can be improved through exchange (Chai *et al.,* 2011). Buyers may perceive kindness when transacting with sellers with whom they have highly reciprocal relationships. Consequently, it is reasonable to expect that reciprocity leads to buyers' social satisfaction. In addition, if there is a high level of respect between online buyers and sellers, a smooth relationship can be realized because buyers know that the sellers respect their concerns and try to address the potential conflicts (Ou *et al.,* 2014). Buyers will be satisfied with the social aspects of the transactional relationship when the sellers are more 'concerned and respectful' (Geyskens *et al.,* 1999, p. 224). Therefore, we propose that:

> H5: Relational capital between buyers and sellers will have a positive effect on buyers' economic satisfaction.

> H6: Relational capital between buyers and sellers will have a positive effect on buyers' social satisfaction.

Satisfaction and loyalty to the platform

A buyer's loyalty to a C2C platform refers to a buyer's intention to do more shopping on this platform and recommend this platform to their friends. In C2C markets, the platform serves as an intermediary for transactions (Chen *et al.,* 2009). Chen *et al.* (2009) found that the core competitive resource of a C2C platform comes from members composed of online buyers and sellers. The most significant form of activity is that buyers and sellers can interact with each other, and the active interactions and relationships are vital to the success of C2C markets (Chen *et al.,* 2009). Thus, the buyer–seller relationships are integral parts of a C2C platform (Ou *et al.,* 2014). Pizzutti & Fernandes (2010) assert that positive experiences with a specific company can ultimately inspire e-commerce loyalty. Oldenburger *et al.* (2008) found that 86% of online buyers who had satisfactory experiences with a specific company were more likely to use e-commerce again. Therefore, the accumulation of buyers' satisfaction over time in buyer–seller relationships may affect their loyalty to use the whole shopping platform.

Specifically, Dabholkar *et al.* (2009) identified that the online shopping goal, which is manifested as economic satisfaction, can guide buyers' behaviour. For experienced/repeat buyers, the achievement of their consumption goals is facilitated (or blocked) through satisfaction judgement derived from prior shopping experiences. Then, according to how buyers' final goals are achieved with the help of satisfaction evaluation, a loyalty decision will be formed. Because economic satisfaction includes evaluations of financial and goal achievement in the transaction relationship (Geyskens *et al.,* 1999), it is an important outcome facilitating the success of buyer–seller relationships. Accordingly, economically satisfied buyers should exhibit greater loyalty towards the platform. Therefore, we propose that:

H7: Buyers' economic satisfaction will have a positive effect on their loyalty to the platform.

In addition, previous research indicates that interpersonal concern and care are crucial for the development of loyalty (Srinivasan *et al.,* 2002). As an important integral aspect of social satisfaction is based on the evaluation of interpersonal interactions, loyalty to the platform is likely to be directly affected by social satisfaction. Chen *et al.* (2009) also suggest that enjoyable and social aspects of interactions help enhance the development of genuine interpersonal relationships between buyers and sellers. Because of the benefits accrued in a platform, buyers become loyal to the platform. Accordingly, social satisfaction accrued with sellers has a positive impact on buyers' attitude and hence loyalty to the platform. Hence, we propose that:

H8: Buyers' social satisfaction will have a positive effect on their loyalty to the platform.

Moderating influence of PEEIM

E-commerce institutional mechanisms offer appropriate conditions for the success of online transactions (Pavlou & Gefen, 2005), which can protect a buyer from fraud, opportunistic behaviour or other unlawful activities of sellers in a transaction platform. When there are effective institutional mechanisms for protecting buyers, the risk associated with a buyer's repurchase decision is mitigated (Corritore *et al.,* 2003). Buyers can worry less about economic losses when institutional mechanisms function effectively. Therefore, if the level of PEEIM is high, clear guidance and useful cues can help buyers both to judge sellers' behaviour and to feel less vulnerable to potential economic loss; thus, economic satisfaction exerts a weak influence in such a stable environment.

On the other hand, when the transaction environment cannot be protected by institutional mechanisms, buyers adopt economic satisfaction as an additional assurance for reducing their perceived risk. This implies that buyers can be more sensitive to risk and calculative under such a situation. Under a weak legal environment, buyers need to calculate the potential risks and possible financial loss for each transaction. As a result, they

may rely more heavily on economic satisfaction to form loyalty to a C2C platform. Thus, we hypothesize:

H9: Perceived effectiveness of e-commerce institutional mechanisms negatively moderates the relationships between economic satisfaction and loyalty to the platform.

Social satisfaction, considered as the evaluation of the history of interaction with the transaction partner (Geyskens & Steenkamp, 2000), has an impact on buyers' behavioural intention. Loyalty is a behavioural choice, which is predominantly dependent on prior experience, and buyers' loyalty is likely to change with the purchasing experience (Devaraj *et al.,* 2002). C2C markets are relatively more risky than B2C markets because of the 'physical separation and anonymity of traders' (Xu *et al.,* 2010, p. 511). As a consequence, online buyers' loyalty to a C2C platform is dependent on the specific encounter experience, and the level of reliance depends on the implementation and effectiveness of the e-commerce institutional context.

High PEEIM suggests buyers perceive that the institutional environment is stable and that their transaction environment is protected (Fang *et al.,* 2014), therefore, the buyers on this platform can have higher confidence in transacting on this platform (Hu *et al.,* 2004). In such a stable transaction environment, buyers' purchase intentions depend on the past experience on this platform and do not require evaluation of the same platform every time. In addition, when the legal environment is strong, online sellers can make use of the interactive service (i.e., interpersonal interactions) to differentiate themselves from others. This enhances the role of social capital under a strong, legal, institutional environment, suggesting the influence of social satisfaction on loyalty to the platform can be higher.

On the contrary, when PEEIM is low, buyers perceive that the institutional environment is unstable, and the dependence on past experience can be interrupted by situational uncertainty (Fang *et al.,* 2014). In such an environment, buyers may fear risks from online sellers' potential opportunistic behaviour, for example, not delivering the right product within the promised time (Pavlou & Gefen, 2004). Thus, buyers tend to look for new transaction-specific information and reappraise this platform each time, instead of depending on their past experience on this platform. Therefore, the influence of social satisfaction on loyalty to the platform is diluted in this case. Accordingly, the aforementioned arguments lead to the following hypothesis:

H10: Perceived effectiveness of e-commerce institutional mechanisms positively moderates the relationships between social satisfaction and loyalty to the platform.

Control variables

Following Chiu *et al.* (2014), we also included four control variables in our research model: gender, age, online shopping frequency and internet experience.

RESEARCH METHODOLOGY

Measurement development

A survey method was designed to collect data in order to test our hypotheses. Measures were adapted from prior studies where possible. Some items were slightly revised in order to better fit with our research context. We measure all the constructs in the level of transaction platform or tailor the questions about the relationship between the survey respondents and the sellers in an online transaction platform as a whole. All of the items and the questionnaire used in this study are shown in Appendix A.

Specifically, we measured social capital with three dimensions: cognitive, structural and relational capital. Cognitive capital was measured using a three-item scale adapted from Sun *et al.* (2012). Structural capital was measured with a four-item scale based on Sun *et al.* (2012). Relational capital was assessed with a three-item scale adapted from Sun *et al.* (2012). Satisfaction was measured as economic and social satisfaction. Specifically, economic satisfaction was assessed with items adapted from Dabholkar *et al.* (2009) and Ivens & Pardo (2007). Social satisfaction was measured with items adapted from Dabholkar *et al.* (2009). We measured the dependent variable, loyalty to the platform, with a five-item scale adapted from Kim *et al.* (2009). Finally, the measures of PEEIM were adapted from a three-item scale of Fang *et al.* (2014).

For all the measures, we used five-point Likert scales anchored from 1 ('strongly disagree') to 5 ('strongly agree') in the survey. Because the survey was conducted in China, all instrument items were translated from English into Chinese, following the translation committee approach (Van de Vijver & Leung, 1997). Moreover, a professional translator, who knew nothing about our survey, was hired to translate the Chinese questionnaire back to English. We found no semantic discrepancies when the retranslated questionnaire was compared with that of the original English version. In addition, three IS PhD students who had online shopping experience at TaoBao were invited to review and critique the measurement items in order to ensure content validity.

Survey administration

In order to test our research model, TaoBao was chosen as the research context. We argue that this is an appropriate research context for two reasons. Firstly, TaoBao is the largest C2C platform in China (Wang *et al.,* 2013; Ye *et al.,* 2013a). By the end of 2011, the registered members of TaoBao had reached 500 million (Ye *et al.,* 2013b), accounting for three-quarters of online sales in China (Avgerou & Li, 2013), with a daily transaction amount of 4.38 billion RMB.[3] Secondly, TaoBao provides platform-embedded communication tools, notably WangWang, to facilitate interpersonal interactions (Ou & Davison, 2009; Avgerou & Li, 2013). This signifies that the existence of social capital between buyers and sellers cannot be overlooked on TaoBao.

We collected data from TaoBao's website by following data collection procedures. Fifteen tangible product categories (i.e., women; sports; lovers; men; mother and child; household; health and beauty; middle-aged; food; insurance software; vehicles; decorations; digital

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[3]http://www.taobao.com/about/intro.php, 2011.

products; daily life and games) were selected. These categories are explicitly listed in the homepage of TaoBao. We identified the first 10 sellers' storefronts within each of the fifteen categories. These sellers were randomly offered by TaoBao's website without any sorting criteria. In order to obtain the user names of buyers who had bought products from these sellers, the sellers' feedback profiles were accessed. We then used WangWang to invite the first five buyers from each seller to complete an online questionnaire based on their contact information. To increase the response rate, we provided an incentive of RMB 30 (approximately US$ 4.82) for 50 randomly selected respondents. Following the approach introduced by Pavlou & Gefen (2004), the buyers were asked to reflect on their accumulative evaluation with sellers in the transaction platform (TaoBao in this study), and respond to the questionnaire based on the transaction experience with those sellers as a whole. Altogether, 322 questionnaires were returned. Among them, 22 were incomplete or invalid, resulting in a total of 300 valid questionnaires for data analysis (a response rate of approximately 40%). Table 1 presents the demographic information of the respondents.

Table 1. Demographics of respondents

	Items	Percentage (%)
Gender	Male	52.7
	Female	47.3
Age	18–20	5.3
	21–30	85.3
	31–40	9.0
	41 and above	0.3
Educational level	High school or below	2.3
	College	3.7
	University	46.0
	Graduate school or above	48.0
Monthly individual income in RMB (US$1 = RMB6.22)	Below 1000	48.7
	1001–3000	20.3
	3001–5000	13.3
	5001–10 000	12.7
	10 001 or above	5.0
Online shopping frequency (times in a month)	1–3	63.3
	4–6	26.3
	7 or above	10.3
Internet experience (in years)	1–3	45.3
	4–6	45.7
	7 or above	9.0
The expenditure on a recently purchased product (RMB)	Below 10	3.0
	10–50	12.3
	51–100	25.3
	101–300	37.7
	301–500	7.7
	501–1000	7.7
	1001 or above	6.3

Number of subjects = 300.

We also estimated non-response bias, following the suggestions by Armstrong and Overton (Armstrong & Overton, 1977). The late respondents were compared with the early respondents in terms of all the constructs. For different means of the constructs, none of the t-statistics were statistically significant, suggesting that non-response bias is not an issue.

DATA ANALYSIS

We used partial least squares (PLS) for the data analysis in the current study. PLS was the preferred technique for several reasons. Firstly, PLS can assess the loadings on constructs and estimate the causal relationships among those constructs (Sun *et al.,* 2012). Secondly, PLS relies on a component-based strategy instead of having multivariate normal distributions or interval scales (Teo *et al.,* 2003). Thirdly, the variance explained can be maximized when using PLS (Teo *et al.,* 2003). Lastly, but not the least, PLS is easy to use for testing the moderating effects. We therefore chose PLS for the data analysis in this study. Following the two-stage analytical procedures for structural equation modelling (Anderson & Gerbing, 1988), we first examined the measurement model, including the reliability and validity of the constructs. The structural model was then assessed in the second step.

Measurement model

In the first stage, confirmatory factor analysis was used to assess the construct validity and reliability.

As shown in Table 2, the loadings of all items were above the recommended value of 0.7 except for two items in cognitive capital (CC1) and economic satisfaction (ES4) (Carmines & Zeller, 1979). However, the value of these two items' loading was still higher than the cut-off value of 0.6 (Bagozzi & Yi, 1988) and also above the values of cross-factor loading. In addition, the average variance extracted (AVE) values ranged from 0.571 to 0.795, all higher than the threshold of 0.5 (Fornell & Larcker, 1981). In order to test construct reliability, we used composite reliability and Cronbach's alpha as suggested by Fornell & Larcker (1981). The results indicated that Cronbach's alpha ranged from 0.708 to 0.880, and composite reliability scores ranged from 0.841 to 0.921. Both were higher than the benchmark value of 0.7. These results implied that the convergent validity of our measurement model was also confirmed.

Furthermore, the discriminant validity was validated by comparing the relationship between correlations among constructs and the square root of AVE for each construct (Chiu *et al.,* 2006). As shown in Table 3, the largest correlation between constructs was 0.596, less than the recommended value of 0.710 (MacKenzie *et al.,* 2011). Also, the square roots of the AVEs for all constructs on the diagonal were greater than the inter-construct correlations (Fornell & Larcker, 1981). Thus, the discriminant validity of the measurement model was demonstrated.

Common method bias

Given that we collected data from a single source at the same time, common method bias may threaten the validity of the study. We thus conducted the following tests to examine this

Table 2. Results of confirmatory factor analysis

Construct	Loading	Cronbach's alpha	Composite reliability	Average variance extracted
Cognitive capital	0.668	0.751	0.870	0.695
	0.910			
	0.900			
Structural capital	0.796	0.846	0.896	0.683
	0.832			
	0.847			
	0.829			
Relational capital	0.811	0.708	0.841	0.639
	0.843			
	0.741			
Economic satisfaction	0.790	0.751	0.841	0.571
	0.736			
	0.811			
	0.678			
Social satisfaction	0.908	0.871	0.921	0.795
	0.867			
	0.901			
Loyalty to the platform	0.835	0.880	0.913	0.679
	0.841			
	0.826			
	0.844			
	0.772			
Perceived effectiveness of e-commerce institutional mechanisms	0.865	0.765	0.861	0.675
	0.809			
	0.788			

Table 3. Means, SD and correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. CC	3.956	0.731	0.834										
2. SC	2.396	0.858	−0.005	0.826									
3. RC	3.568	0.719	0.373	0.279	0.799								
4. ES	3.603	0.645	0.407	0.308	0.552	0.756							
5. SS	3.346	0.767	0.314	0.445	0.573	0.596	0.892						
6. LP	3.837	0.694	0.309	0.243	0.474	0.553	0.468	0.824					
7. PEEIM	3.227	0.758	0.216	0.350	0.338	0.370	0.444	0.348	0.822				
8. Gender	NA	NA	−0.003	−0.058	0.037	−0.141	−0.044	0.089	−0.181	NA			
9. Age	NA	NA	−0.103	−0.050	−0.082	−0.027	−0.060	−0.104	−0.105	−0.036	NA		
10. Online Shopping Frequency in a Month	NA	NA	−0.045	−0.036	0.079	0.081	−0.007	0.183	−0.021	0.173	0.110	NA	
11. Internet Experience	NA	NA	−0.066	−0.057	−0.026	0.070	−0.042	0.077	−0.081	0.037	0.261	0.384	NA
Note: The shaded numbers in the diagonal row are square roots of the average variance extracted.													

SD, standard deviation; NA, not applicable.
The shaded numbers in the diagonal row are square roots of the average variance extracted.

issue. First, a Harman's single-factor test (Podsakoff & Organ, 1986) was used to assess the seven conceptual variables in the model. Our data showed that six constructs had eigenvalues above 1.0, accounting for 66.1% of the total variance. Meanwhile, the first factor explained 15.03% of the variance. This suggests that common method bias is not a serious issue in this study.

Second, we examined common method variance by following Liang *et al.* (2007). A common method factor including all the principal constructs' indicators was included in the PLS model, and then we calculated how the principal construct and the method factor substantively explained each indicator's variances. As shown in Appendix B, the results indicated that the average substantively explained variance was 0.681, whereas the average method-based variance of the indicators was 0.011. The ratio of the average substantively explained variance of the indicators to that of the average method-based variance of the indicators was very large. Furthermore, most of the method factor loadings were insignificant, suggesting that common method variance is unlikely to be a serious problem.

Structural model

Test of direct effects

We use PLS to examine the structural model. Figure 2 shows the PLS results for the main effects. The model explained 38.8% of the variance in economic satisfaction, 43.8% of the variance in social satisfaction and 45.6% of the variance in loyalty to the platform.

Firstly, we examined the relationship among three dimensions of social capital and satisfaction. The results indicated that cognitive capital ($\beta = 0.259$, $p < 0.001$), structural capital ($\beta = 0.198$, $p < 0.001$) and relational capital ($\beta = 0.401$, $p < 0.001$) had positive and significant effects on economic satisfaction, supporting hypotheses 1, 3 and 5. We could also see that
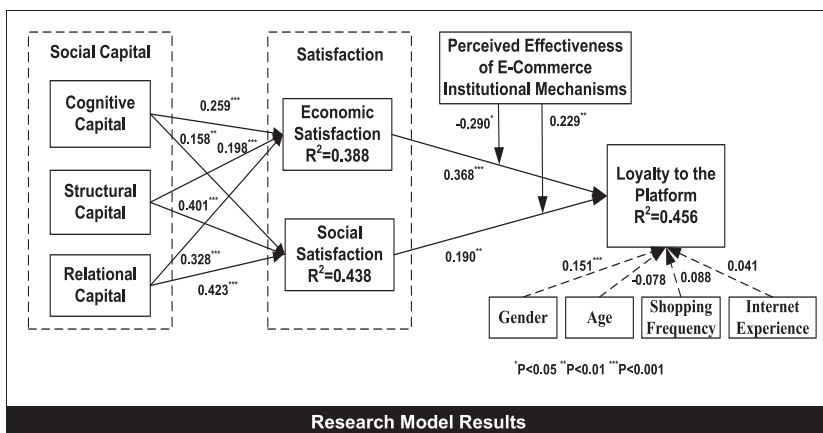

Figure 2. Research model results.

cognitive capital (β = 0.158, *p* < 0.01), structural capital (β = 0.328, *p* < 0.001) and relational capital (β = 0.423, *p* < 0.001) had positive and significant effects on social satisfaction. Consequently, hypotheses 2, 4 and 6 were supported. In addition, following the method used by Pavlou & Dimoka (2006), we compared the PLS path coefficients between different dimensions of social capital and two types of satisfaction. Our data indicated that cognitive capital had a stronger impact on economic satisfaction than on social satisfaction (t = 20.897, *p* < 0.001). Structural capital (*t* = 29.601, *p* < 0.001) and relational capital (t = 4.247, *p* < 0.001) exerted a stronger impact on social satisfaction than on economic satisfaction.

Secondly, we examined how each kind of satisfaction affected loyalty to the platform. The path from economic satisfaction (β = 0.368, *p* < 0.001) to loyalty to the platform was positive and significant, supporting Hypothesis 7. Hypothesis 8, which demonstrated the relationship between social satisfaction and loyalty to the platform (β = 0.190, *p* < 0.01), was also supported. Moreover, economic satisfaction had a stronger influence on loyalty to the platform compared with that of social satisfaction (*t* = 28.444, *p* < 0.001).

Thirdly, the results also confirmed the moderating effects of PEEIM. Our data showed that PEEIM negatively moderated the relationship between economic satisfaction and loyalty to the platform (β = −0.290, *p* < 0.05). Therefore, Hypothesis 9 was supported. Hypothesis 10 was also supported (β = 0.229, *p* < 0.01), stating that PEEIM positively moderated the relationship between social satisfaction and loyalty to the platform.

To further illustrate the moderating effects, we plotted Figures 3 and 4 by following Aiken & West's (1991) graphical procedure. We assigned to PEEIM the value of one standard deviation above or below the mean in order to draw the moderating effects. Figure 3 shows that the sloped regression line for the effect of economic satisfaction on loyalty to the platform was both positive and significant for high PEEIM (β = 0.359. *p* < 0.001) and low PEEIM (β = 0.422. *p* < 0.001). However, at the low levels of PEEIM, loyalty to the platform increased more rapidly than at the high levels of PEEIM when economic satisfaction increased. Figure 4 shows that the sloped regression line for the effect of social satisfaction on loyalty to the platform was positive
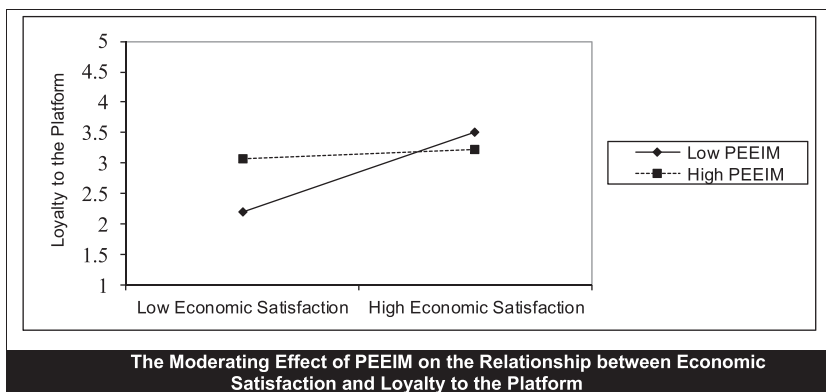

The Moderating Effect of PEEIM on the Relationship between Economic Satisfaction and Loyalty to the Platform

Figure 3. The moderating effect of PEEIM on the relationship between economic satisfaction and loyalty to the platform.

The Moderating Effect of PEEIM on the Relationship between Social Satisfaction and Loyalty to the Platform
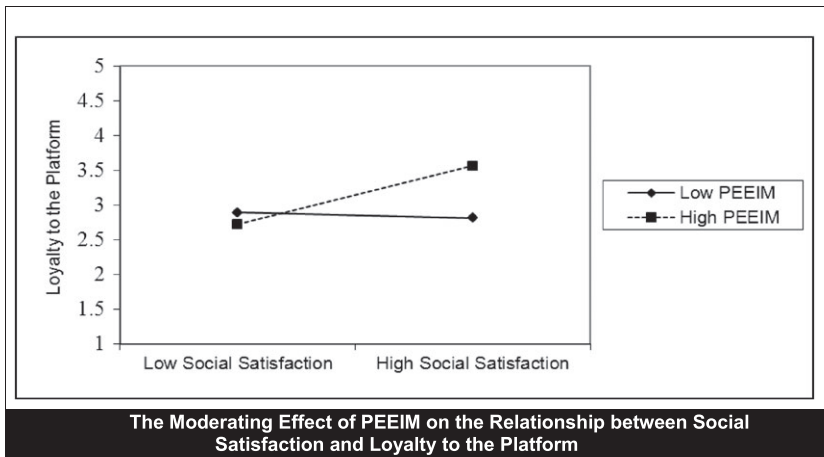
Figure 4. The moderating effect of PEEIM on the relationship between social satisfaction and loyalty to the platform.

and significant for high PEEIM ($\beta = 0.267$. $p < 0.05$), but it was negative and non-significant for low PEEIM.

Test of mediating effects

To confirm our model's validity, the mediation tests for possible paths were performed. To test whether economic and social satisfaction mediated the relationship between three social capital dimensions (i.e., cognitive, structural and relational capital) and loyalty to the platform, we conducted the Sobel tests (Hayes, 2009). As shown in Appendix C, the results indeed confirmed that economic and social satisfaction mediated the effects of the three dimensions of social capital on loyalty to the platform.

DISCUSSION

This study contains several key findings. Firstly, our results clearly show that social capital can be regarded as a new lens to examine buyers' satisfaction in online platforms. Besides, the results further show that cognitive capital exerts a stronger effect on economic satisfaction than on social satisfaction. A possible explanation is that time-saving is an important consideration for people shopping online. As a result, online buyers pay more attention to the time cost when transacting with sellers. Shared language can enhance the efficiency of communication (Chiu *et al.,* 2006), thus contributing to economic satisfaction. Both structural and relational capital were found to have a stronger impact on social satisfaction than on economic satisfaction. This is because frequent social interaction ties, a manifestation of structural capital, help people better know each other (Tsai & Ghoshal, 1998). As a direct consequence, buyers evaluate the psychosocial aspects of their social relationship with sellers, instead of merely looking at the evaluation of the economic aspects. Similarly, relational capital reflects

the interpersonal relationships that develop between people (Nahapiet & Ghoshal, 1998), enabling buyers to pay more attention to the social outcomes of the relationship relative to economic outcomes.

Secondly, this study shows that both economic and social satisfaction exert a significant impact on loyalty to the platform. The findings are similar to the results shown in Chen *et al.* (2009), whereby information and emotional interactions are key antecedents of loyalty to the C2C platform provider through a trust transfer process. In addition, our study indicates that economic satisfaction exerts a stronger effect on loyalty to the platform than social satisfaction does, which is contrary to previous research. This could be induced because we treat satisfaction at the general community level instead of towards a single seller based on a single experience. As such, if a buyer conducted repeated transactions with a particular seller, social satisfaction could be a stronger indicator of loyalty in the transaction platform. However, when it comes to general satisfaction to the whole TaoBao community, economic satisfaction is still the basic antecedent to loyalty to the platform.

Thirdly, the present study reveals that PEEIM has different moderating effects on the relationships between economic and social satisfaction and loyalty to the platform. Specifically, we find that PEEIM negatively moderates the relationship between economic satisfaction and loyalty to the platform, yet positively moderates the relationship between social satisfaction and loyalty to the platform. One possible explanation is that if there is a positive perception of effective e-commerce institutional mechanisms in place, buyers may feel less vulnerable to potential economic loss; meanwhile, buyers may not hesitate to apply their past evaluations of the history of interactions with sellers when they form their future purchase decisions.

Limitations and future research

Although our research findings should be interpreted with several limitations in mind, this study opens up several research opportunities. Firstly, the model was tested with cross-sectional data. Given that a C2C platform is often dynamic and evolving, the relationship between social capital and satisfaction is an ongoing phenomenon. We measured social capital factors at a single point in time. A longitudinal design could further verify the model and enable exploration of the evolution of social capital in a C2C platform over time.

Secondly, different kinds of products might exert different effects on buyers' perceptions of online social capital between buyers and sellers. In fact, when buying small and inexpensive products online, buyers seldom interact with sellers, and so less social capital may exist between buyers and sellers. Future research could make a clearer categorization of products and explore whether buyers' satisfaction and loyalty to the platform varies according to the product category or price.

Thirdly, we measure buyers' PEEIM as a whole. Future research can focus on how platform-specific factors can influence buyers' PEEIM. Data from different platforms can be also used to further validate the findings identified in this study.

Finally, this study collected data in China. Whether the findings could be generalized to other cultural contexts remains to be tested in future research.

IMPLICATIONS FOR THEORY AND PRACTICE

Theoretical implications

This study offers several implications for theory. Firstly, the present research provides a more fine-grained insight into the nature of social capital in terms of its specific impact on buyers' satisfaction in the C2C online shopping context. In prior literature, social capital has been widely used to examine interpersonal behaviour in terms of information exchange, knowledge sharing and social interaction (Kankanhalli *et al.,* 2005; Wang & Chiang, 2009; Lu & Yang, 2011). However, little research has focused on social capital between buyers and sellers in C2C platforms, despite recent researchers proposing that social relationships between buyers and sellers are crucial for the long-term development of C2C platforms (Chen *et al.,* 2009). Consistent with previous research applying the SCT into the e-commerce context (Wang *et al.,* 2013; Wang & Chiang, 2009), we shed light upon the relationships between different dimensions of social capital and two types of satisfaction in the C2C context in this study. This research serves as an initial step to investigate the social capital as an antecedent of satisfaction and empirically corroborates their relationships.

Secondly, the results of the study enrich our understanding of how the three dimensions of social capital have different effects on each type of satisfaction. Although the impacts of these three dimensions of social capital on economic and social satisfaction are all positive, these impacts are distinct in terms of effect size in influencing the two types of satisfaction. Specifically, cognitive capital has a stronger influence on economic satisfaction than on social satisfaction, while both structural and relational capital exert a stronger effect on social satisfaction than on economic satisfaction. Moreover, although both types of satisfaction are significant predictors of loyalty to the platform, a key finding of this study is the stronger influence of economic satisfaction on loyalty to the platform. Szymanski & Henard (2001) conducted a meta-analysis and found some mixed findings on customer satisfaction. For instance, some studies indicate that the effect of satisfaction on loyalty is positively significant (Kim *et al.,* 2009), while insignificant in other studies (Janita & Miranda, 2013). Therefore, differentiating satisfaction as economic and social aspects in C2C platforms can provide a possible explanation for the discrepancy in the existing literature. Thus, the aforementioned findings of this study demonstrate that both economic and social satisfaction behave differently with respect to the links with their antecedents and outcomes, offering support for the nomological validity of classifying satisfaction into two types in C2C context.

Thirdly, our findings reveal an interesting paradoxical effect of PEEIM on the relationships between economic and social satisfactions and loyalty to the platform. On the one hand, a high-level (positive) perception of e-commerce institutional mechanisms can increase the total effect of social satisfaction on loyalty to the platform, while on the other hand, it decreases the total importance of economic satisfaction in loyalty to the platform. These paradoxical results help reveal the boundary conditions under which both economic and social satisfaction can be

treated as sources of maintaining buyers' loyalty to a C2C platform. Although prior research has indicated that economic and social satisfaction can influence buyers' behaviour, the contextual conditions in which both economic and social satisfaction exerted varying effects on buyers' behaviour have been overlooked. This has thus lead to an oversimplification of our understanding of the context in which economic and social satisfactions operate. For example, Geyskens & Steenkamp (2000) showed that economic satisfaction had a positive effect on loyalty, but the effect of social satisfaction was unexpectedly negative. Dabholkar *et al.* (2009) found that both economic and social satisfaction were positively related to the important relationship consequences (e.g., commitment). Our findings confirm that the relative significance of economic and social satisfaction in determining loyalty to the platform is context specific. These findings also add to previous research on PEEIM, which shows that it can strengthen the effect of satisfaction on trust and diminish the impact of trust on repurchase intention situations (Fang *et al.,* 2014); our results further demonstrate that it is necessary to conceptually distinguish economic satisfaction from social satisfaction because these two types of satisfaction function differently with the moderation of PEEIM.

Finally, extending the previous research showing a direct effect of social capital on an individual's continuance behaviour (Wang & Chiang, 2009), our study demonstrates that the effect of different dimensions of social capital on buyers' loyalty to the platform is mediated through economic and social satisfaction (Appendix C). This suggests that, in the C2C online shopping context, social capital alone is insufficient to facilitate buyers' loyalty to the platform; instead, economic and social satisfaction are the means through which social capital is more likely to contribute to buyers' loyalty to the platform.

Practical implications

In terms of practicality, this study has several important implications. First and foremost, the findings of the present study indicate that building social capital between buyers and sellers in the transaction platform is significant to cultivate buyers' satisfaction and retain their loyalty to the platform. Therefore, social capital between buyers and sellers in a C2C platform can be leveraged by the platform owners in order to achieve economic advantages. A key to this social capital building and maintaining is technology supported by the platform, such as instant messaging tools and online forums. For example, platform owners could build online product forums for Q&A sections to improve interactions between buyers and sellers. Although most C2C platforms have built online forums, these online forums are basically self-sustaining: buyer–seller communication is not explicitly encouraged. Hence, in order to better accommodate the concept of social capital, platform owners, especially those who operate in China, can make use of technology to create a mechanism for both buyers and sellers who wish to develop and reinforce social capital with each other. The design of the C2C platform should be tailored to buyers and sellers' social capital behaviour.

Secondly, the social capital metrics developed in our study can help platform owners to retain buyers' loyalty via sellers. This study indicates that social capital is the key to retaining buyers' loyalty to the platform. The platform owner can achieve this goal by encouraging online sellers to establish good relationships with their buyers. For those sellers with a large customer base

who also maintain considerable social capital with their buyers, the platform owner can consider providing rewards for their efforts. By doing so, the whole marketplace (i.e., the platform) can function in a virtuous cycle.

Furthermore, to assist sellers to effectively increase their social capital with buyers, sellers should be informed by the platform owners about how to strategically develop different dimensions of social capital with buyers in accordance with each type of satisfaction. If buyers focus more on economic satisfaction, sellers can be encouraged to enhance cognitive capital with buyers through a shared language. For example, sellers can use TaoBao style (a unique jargon) when communicating with buyers on WangWang. Moreover, for those buyers who focus more on social satisfaction, sellers should pay more attention to develop both structural and relational capital with buyers. The sellers can build structural capital with buyers by increasing the frequency and effectiveness of communication. In addition, given the importance of relational capital, sellers should build and maintain mutual trust and a norm of respect and reciprocity with buyers to increase relational capital.

Fourth, considering the important role of PEEIM in e-commerce, platform owners should also have different foci on buyers according to buyers' perceptions of the existing e-commerce institutional mechanisms. They could first survey buyers to evaluate their PEEIM. For those buyers who perceive the institutional mechanisms to be relatively effective, the platform can deliver more information about how to interact with sellers so as to build close relationships with them. However, for those buyers who perceive the institutional mechanisms to be relatively less effective, the platform can deliver two other kinds of information to buyers. On the one hand, the platform can deliver information about how to protect buyers' interest. For example, the platform can deliver various guarantees (e.g., privacy and security) to inspire those buyers' confidence. On the other hand, buyers can be taught how to select a credible seller in the platform. For instance, the platform should recommend more sellers with high price–quality–ratio of products to those buyers.

Finally, C2C platform owners should realize that sellers' inappropriate behaviour not only harms the buyers but also the reputation of the whole platform. Chen *et al.* (2009) indicate that the competitive strategy exercised by B2C vendors and C2C platforms is different: in B2C e-commerce, an online vendor has its own brand, while in a C2C platform, members composed of online buyers and sellers constitute its core competitive resource. Thus, it is critical to build and maintain social relationships between buyers and sellers for the long-term development of a C2C platform (Chen *et al.,* 2009). As such, in order to retain the buyers on the platform, platform owners should consider both sides' interest instead of protecting the interest of only one party.

CONCLUSION

This study contributes to the current research on understanding of C2C platforms by introducing the construct of social capital and testing its effect on a buyer's economic and social satisfaction. We also include loyalty to the C2C platform in our research model. We further examine a key moderator, PEEIM, on the relationships between economic and social satisfaction and

loyalty to the platform. The findings address a range of issues for C2C platform owners to leverage buyer–seller social capital effectively in order to sustain buyers' loyalty to the platform. In particular, PEEIM is shown to play an interesting paradoxical role in C2C platforms. Specifically, PEEIM negatively moderates the relationship between economic satisfaction and loyalty to the platform, yet positively moderates the relationship between social satisfaction and loyalty to the platform. Collectively, the findings of this study provide guidance for academics and managers on how to retain buyers' loyalty to a C2C platform. Future research and practice should also further explore the roles of social capital and institutional mechanisms in e-commerce environments.

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APPENDIX A. MEASUREMENT SCALES

Constructs and Measurement	Sources
Cognitive Capital	
1. When interacting with sellers at TaoBao, sellers and I use common terms or jargon (such as TaoBao style).	(Sun *et al.,* 2012)
2. During discussion with sellers at TaoBao, sellers and I use mutually-understandable communication patterns.	
3. When communicating with sellers at TaoBao, sellers and I use mutually-understandable narrative forms.	
Structural Capital	
1. Sellers and I maintain close social relationships at TaoBao.	(Sun *et al.,* 2012)
2. Sellers and I spend a lot of time interacting with each other at TaoBao.	
3. Sellers and I know me at TaoBao at a personal level.	

Continues

Appendix A. (Continued)

Constructs and Measurement	Sources
4. Sellers and I have frequent communication at TaoBao.	
Relational Capital	
1. The relationship between sellers and me at TaoBao is characterized by mutual respect.	(Sun *et al.,* 2012)
2. The relationship between sellers and me at TaoBao is characterized by mutual trust.	
3. The relationship between sellers and me at TaoBao is characterized by high reciprocity.	
Economic Satisfaction	
1. I was satisfied with online interactive service because of all the relevant product information the sellers at TaoBao gave me.	(Dabholkar *et al.,* 2009; Ivens & Pardo, 2007)
2. I was pleased that online purchase service from the sellers at TaoBao will save me time.	
3. I am satisfied that advisory service from the sellers at TaoBao will help me purchase my product more efficiently.	
4. I am satisfied with the price–quality–ratio of the sellers' products at TaoBao.	
Social Satisfaction	
1. Chatting online with the sellers at TaoBao was an enjoyable experience for me.	(Dabholkar *et al.,* 2009)
2. The social aspect of the online interactions between the sellers at TaoBao and me were very pleasant for me.	
3. This interaction between the sellers at TaoBao and me were a pleasant way to exchange information.	
Loyalty to the Platform	
1. If I were to buy the same product again, I would likely buy it from TaoBao.	(Kim *et al.,* 2009)
2. I am likely to return to TaoBao for my next purchase.	
3. I am likely to make another purchase from TaoBao in the next year.	
4. I intend to continue using TaoBao rather than discontinue using it.	
5. I will recommend TaoBao to friends.	
Perceived Effectiveness of E-Commerce Institutional Mechanisms (PEEIM)	
1. When buying online, I am confident that there are mechanisms in place to protect me against any potential risks (e.g., leaking of personal information, credit card fraud, goods not received, etc.) of online shopping if something goes wrong with my online purchase.	(Fang *et al.,* 2014)
2. I am sure that I cannot be taken advantage of (e.g., leaking of personal information, credit card fraud, goods not received, etc.) as a result of conducting purchases online.	
3. I believe that there are other parties (e.g., my credit card company) who have an obligation to protect me against any potential risks (leaking of personal information, credit card fraud, goods not received, etc.) of online shopping if something goes wrong with my online purchase.	

APPENDIX B. COMMON METHOD BIAS ANALYSIS

Construct	Indicator	Substantive factor loading (R_1)	R_1^2	Method factor loading (R_2)	R_2^2
Cognitive capital	CC1	0.694***	0.482	−0.020	0.000
	CC2	0.906***	0.821	−0.001	0.000
	CC3	0.885***	0.783	0.016	0.000
Structural capital	SC1	0.809***	0.654	−0.022	0.000
	SC2	0.772***	0.596	0.068	0.005
	SC3	0.872***	0.760	−0.026	0.001
	SC4	0.853***	0.728	−0.017	0.000
Relational capital	RC1	0.930***	0.865	−0.132*	0.017
	RC2	0.794***	0.630	0.058	0.003
	RC3	0.663***	0.440	0.058	0.003
Economic satisfaction	ES1	0.860***	0.740	−0.057	0.003
	ES2	0.934***	0.872	−0.190**	0.036
	ES3	0.824***	0.679	−0.004	0.000
	ES4	0.328**	0.108	0.335***	0.112
Social satisfaction	SS1	0.843***	0.711	0.072	0.005
	SS2	0.975***	0.951	−0.118*	0.014
	SS3	0.860***	0.740	0.044	0.002
PEEIM	PEEIM1	0.743***	0.552	0.104*	0.011
	PEEIM2	0.858***	0.736	−0.030	0.001
	PEEIM3	0.872***	0.760	−0.070	0.005
Loyalty to the platform	LP1	0.803***	0.645	0.043	0.002
	LP2	0.876***	0.767	−0.038	0.001
	LP3	0.939***	0.882	−0.139**	0.019
	LP4	0.850***	0.723	−0.010	0.000
	LP5	0.638***	0.407	0.157**	0.025
Average		0.815	0.681	0.003	0.011

*$p < 0.05$,
**$p < 0.01$,
***$p < 0.001$

APPENDIX C. SOBEL TEST RESULTS

Loyalty to the platform			
		Sobel Z	Mediation
Cognitive capital	Economic satisfaction	3.810***	Yes
	Social satisfaction	2.185*	Yes
Structural capital	Economic satisfaction	3.495***	Yes
	Social satisfaction	2.878**	Yes
Relational capital	Economic satisfaction	4.334***	Yes
	Social satisfaction	2.824**	Yes

*$p < 0.05$;
**$p < 0.01$;
***$p < 0.001$.