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Exploring the continuance intentions of consumers for B2C online shopping

Perspectives of fairness and trust

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Abstract

Purpose – Like any product purchases, the success of online shopping depends largely on user satisfaction and other factors that further affect customers' intentions to continue shopping online (continuance intentions). This study seeks to integrate fairness theory with the trust concept to construct a model for investigating consumers' continuance intentions toward online shopping.

Design/methodology/approach – An online survey collected data from 226 users with online shopping experience to empirically validate the hypothesised model.

Findings – The results indicate that distributive fairness and interactional fairness exert significant positive effects on customers' satisfaction and trust in vendors. Satisfaction is a strong predictor of the continuance intentions of consumers. However the fact that the relationship between trust in vendors and consumers' continuance intentions is insignificant offers insight into trust: consumers continue shopping online with certain levels of misgiving.

Originality/value – – The findings suggest that a user's trust in an online vendor can be enhanced by increasing fairness, particularly distributive fairness and interactional fairness. This also implies that an online user's satisfaction and trust are not just related to products: therefore vendors should put effort into the pre- and post-sale experiences.

Keywords B2C, Fairness, Trust, Satisfaction, Continuance intentions, Online operations, Shopping, Modelling, Customer satisfaction

Paper type Research paper

Introduction

Flourishing internet use has made all industries engage in this medium. The digital economy is spreading like wildfire across international boundaries; in particular the volume of business-to-customer (B2C) purchases has increased with surprising speed. According to Forrester Research online shopping or B2C electronic commerce (e-commerce) sales in the United States reached $141 billion in 2008 and is projected to grow to $248.7 billion by 2013 (Evans *et al.*, 2009). Concurrent with the commercial interest in online shopping, a large number of academic papers have been published related to online shopping (Gefen *et al.*, 2003b; Pavlou, 2003). These developments illustrate that e-commerce draws a great deal of attention from scholars and practitioners.

The goal of this study is to explore customers' intentions to continue online shopping (continuance intentions). As with any other product purchase, the success of online shopping depends largely on user satisfaction and other factors that increase customers' continuance intentions. Koufaris (2002) indicated that emotional and cognitive responses to a consumer's first visit to a web-based store can influence their intentions to return and their likelihood to make as yet unplanned purchases. In view of this, electronic shops (e-vendors) should look for ways to increase customers' satisfaction levels and continuous shopping intentions. A promising approach involves the reduction of uncertainty (Pavlou, 2003), and the development and maintenance of customer-vendor relationships (Gefen *et al.*, 2003b).

Online shopping inherently involves higher levels of uncertainty than visiting a physical shop because online transactions lack the physical assurances of traditional shopping experiences (Grabner-Kraeuter, 2002). Information asymmetry is a problem in online shopping in which the customers often have incomplete or distorted information about the product (Ba and Pavlou, 2002), the process, the outcome, and the e-vendor (Grabner-Kraeuter, 2002). Previous studies found that trust is vital to online settings (Collier and Bienstock, 2006; Gefen and Straub, 2003) and trust has been identified as a key factor in online shopping (Gefen *et al.*, 2003b; Gefen and Straub, 2003; Grabner-Kraeuter, 2002; Pavlou, 2003). More specifically trust is a key enabler in relations between geographically dispersed people in the virtual community (Gefen *et al.*, 2003b; McKnight and Chervany, 2001; Swan and Nolan, 1985). Fairness and trust are especially critical when uncertainty and information asymmetry are present (Ba and Pavlou, 2002; Diekmann *et al.*, 2004; Kumar *et al.*, 1995; Pavlou, 2003) and are at the heart of relationships of all kinds (Lind *et al.*, 1993; Morgan and Hunt, 1994). While trust focuses on the undesirable opportunistic behaviour of e-vendors, fairness is concerned with an individual's perceptions of the output/input ratio, the process, and interpersonal treatment. Research on marketing and organisational justice has shown that fairness has a direct effect on trust and satisfaction (Aryee *et al.*, 2002; Folger and Konovsky, 1989; Ramaswami and Singh, 2003). However the importance of fairness, especially the direct relationship between fairness and satisfaction, is still unclear in the online shopping context.

As with any consumption behaviour, electronic commerce involves a trade-off between total benefits received (e.g. receiving products or services) and total sacrifice (e.g. valuable time, effort, or money). According to Zeithaml (1988) the overall assessment of what is received and what is given shapes individuals' satisfaction with online shopping. Adams' equity theory (1965) theorises that individuals seek a fair balance between input (what is given) and output (what is received) and become satisfied and motivated whenever they feel their inputs are being fairly rewarded. Marketing and organisational justice researchers (Tax *et al.*, 1998; Ramaswami and Singh, 2003) have identified three important dimensions of fairness: fairness of outcomes (distributive fairness), fairness of decision-making procedures (procedural fairness), and fairness of interpersonal treatment (interactional fairness). Thus a more complete study of the motivations underlying customers' continuance intentions toward online shopping should address issues related to fairness.

By exploring the unique role of fairness, this paper aims to contribute to the continued development and success of online shopping. A research model for this purpose is developed by integrating the concept of trust with the three dimensions of

fairness, which are essential given the uncertainty and information asymmetry of the technology-driven environment of online shopping. The hypotheses are validated empirically using data collected from 226 customers at a shopping website.

The rest of this paper is organised as follows. The next section presents the theoretical foundation for this study. The research model is described and the hypotheses are presented in the subsequent section. Then the research methodology is outlined, and the results of the analyses are presented. After that the findings are discussed. The paper concludes with a discussion of the theoretical and practical implications of the findings, and the study's limitations.

Literature review
Trust
Trust has been the focus of a great deal of attention and study within many contexts, such as in social psychology (Deutsch, 1960), sociology (Strub and Priest, 1976), and economics (Dasgupta, 1988). More recently trust has been applied in marketing contexts (Moorman *et al.*, 1992, 1993) to explain exchange relationships between parties and how they affect decision making (Doney and Cannon, 1997). All the studies suggest that trust is central to interpersonal and commerce relationships and is also widely applied in organisations. The previous literature on electronic shopping has contributed greatly to our understanding of how trust in a shopping website can affect attitude toward, and willingness to engage in, online shopping (Jarvenpaa *et al.*, 2000; Lee and Turban, 2001).

Trust assumes the existence of some kind of relationship between two parties and the expectation of one about the other's behaviour in this relationship. In other words people trust others based on their expectations of the other person. Worchel (1979) has classified trust into three categories based on the perspectives of personality theorists, sociologists and economists, and social psychologists. The differences between these three perspectives on trust are summarised in Table I, along with equivalent concepts of individual, societal and relationship trust from Kini and Choobineh (1998). They further defined trust as the confidence and dependence on the reliability, integrity, and truth of another party.

Trust has been recognised as a critical antecedent for electronic commerce due to its tendency for insufficient information (information asymmetry) and the impersonal nature of the online environment (uncertainty) (Ba, 2001). Many studies have indicated that trust should be built before individuals engage in transactions. Nowadays the electronic commerce marketplace is a popular trading environment. However it comes with risks. Transactions can only be made based on a certain level of trust on the part of the consumer (Tan and Thoen, 2000; Corbitt *et al.*, 2003; Chong *et al.*, 2003). Trusting intention means that a potential online shopper is willing to expose themselves to the possibility of loss and transact with the shopping website, that is, willing to purchase from it (McKnight and Chervany, 2001). These insights are extended by Chaudhuri and Holbrook (2001) who found strong evidence of a significant relationship between brand trust and both purchase and attitudinal loyalty. Many studies have incorporated the trust construct into the interpretation of electronic commerce models, as summarised in Table II.

Fairness theory
Equity theory draws from exchange, dissonance and social comparison theories to make predictions about how individuals manage their relationships with others

Worchel (1979)	Kini and Choobineh (1998)	Trust conceptualisation
Personality theorists	Individual trust	Trust is a belief, an expectancy of feeling that is deeply rooted in the personality Trust is developed on the basis of past experience
Sociologists and economists	Societal trust	Considers the trust between individuals and institutions Trust is developed wherein individuals have to trust an institution, an organisation, or societal structures, such as a judicial system or an educational system
Social psychologists	Relationship trust	Trust is an expectation of the occurrence of an event or a relationship (Deutsch, 1960) Trust is the willingness of one person to increase his or her vulnerability to the actions of another person whose behaviour he or she cannot control. The decision to trust is a personal decision dependent on the individual's expectation of the outcome (Zand, 1972) Trust is characterised in terms of the expectations and willingness of the trusting party in a transaction, the risks associated with acting on such expectations, and the contextual factors that either enhance or inhibit the development and maintenance of trust (Lee and Turban, 2001)

Table I.
Three categories of trust

(Huseman *et al.*, 1987). Although the concepts of equity, fairness, and distributive justice were recognised as long ago as Aristotle, they were not formulated until Adams did so in 1963. Equity theory identifies the individual's basic needs for fairness in social exchanges and views changes in human attitudes and behaviour as attempts to restore fairness or equity (Joshi, 1989). Equity theory serves as one of the major paradigms in explaining consumer satisfaction or dissatisfaction because it addresses the issue of a human being's eternal quest for fairness and equity in social exchanges (Huppertz *et al.*, 1978; Liechty and Churchill, 1979; Swan and Mercer, 1981).

Extensive research on organisational and social fairness has identified three distinct dimensions of fairness: distributive fairness, procedural fairness, and interactional fairness (Tax *et al.*, 1998; Smith *et al.*, 1999; McColl-Kennedy and Sparks, 2003). Distributive fairness reflects a more outcome oriented and instrumental evaluation, while procedural and interactional fairness are more relationship oriented (Martinez-tur *et al.*, 2006).

Distributive fairness involves resource allocation and the perceived outcome of exchange (Adams, 1965). Distributive justice is based on equity theory. Adams' equity theory (1965) is described as a classical social exchange theory, which posits that an individual's perception of fairness is determined by comparing the outcome/input ratio for oneself with that of referent others. When the ratios are equal, people are satisfied. People become unmotivated, reduce input, and/or seek change whenever they feel their

Authors	Trust construct	Predicted variable
Chong *et al.* (2003)	Seller trust; Intermediary trust	Online purchase intentions
Lee and Turban (2001)	Trustworthiness of internet merchant; Trustworthiness of internet shopping medium; Contextual factors	Consumer trust in internet shopping
Ba (2001)	Trust through community responsibility system	Shopping intentions
Tan and Thoen (2000)	Trust in other parties; Trust in control mechanisms	Electronic payment and cross-border electronic trade
Pavlou (2003)	Technology Acceptance Model construct	Transaction intentions
Gefen and Straub (2003)	Technology Acceptance Model construct; User trust	Purchase intentions
Gefen and Straub (2004)	E-trust (integrity, predictability, ability, benevolence)	Purchase intentions

Table II.
Electronic commerce
models that include trust

inputs are not being fairly rewarded (Adams, 1965). The general view in the social sciences, particularly in economics, suggests that people tend to evaluate the exchange relationship primarily on the basis of outcomes (Yilmaz *et al.*, 2004).

Thibaut and Walker's (1975) studies of reactions to the dispute resolution process led to the development of their theory of procedural fairness. Procedural fairness is concerned with the processes by which outcomes are allocated or distributed among parties in an exchange. Thibaut and Walker (1975) identified two types of control as essential determinants of procedural fairness: control over the presentation of evidence (process control) and control over the final decision (decision control). Leventhal (1980) suggested six procedural fairness rules, including consistency, bias suppression, accuracy, correctability (a mechanism to appeal decisions), representativeness, and ethicality. Thibaut and Walker's (1975) instrumental model of procedural justice posits that individuals care about procedures because fair procedures are thought to lead to fair outcomes.

Bies and Moag (1986) highlighted the interpersonal aspect of procedural justice (referred to as interactional fairness), which emphasises the perceived fairness of interpersonal treatment and communication. Moreover they identified truthfulness (honesty and lack of deception), courtesy, respect for individual rights, propriety of behaviour (without prejudice), and justified decisions as typical fair treatment (Bies and Moag, 1986). Interactional fairness is linked directly to contemporary social exchange theories (Cropanzano *et al.*, 2001). Theorists argue that in social exchanges, subjects not only consider the economic importance of outcomes, but also the quality of the relationships among individuals.

Moreover equity theory postulates that the lack of procedural fairness or distributive fairness leads to distress and dissatisfaction with the agents responsible

for the distribution of the resources (Leventhal, 1980). Oliver and Swan (1989a) examined interpersonal equity and satisfaction in relation to transactions. They found that fairness has a significant mediating role in satisfaction with the outcome and input, suggesting that satisfaction is sensitive to both equity and the components of equity. They also pointed out that fairness is positively related to satisfaction, especially influencing merchant and product satisfaction (Oliver and Swan, 1989b).

Prior studies of fairness and justice predominantly applied the concept to work environments and conflict resolution, covering topics such as job satisfaction (Lind and Tyler, 1988; Moorman, 1991), work outcomes (Aryee *et al.*, 2002; Ramaswami and Singh, 2003), service recovery (Smith *et al.*, 1999; McColl-Kennedy and Sparks, 2003), and complaint handling (Tax *et al.*, 1998). The perception of justice is also involved in overall customer satisfaction (Clemmer and Schneider, 1996). Despite the fact that considering the three dimensions of fairness provides a richer portrait of the relationships between fairness and customer satisfaction, there has been little empirical study on the topic. Some exceptions are the studies carried out by Clemmer and Schneider (1996), Teo and Lim (2001), and Martínez-tur *et al.* (2006). Considering distributive, procedural, and interactional justice, Teo and Lim (2001) observed significant relationships between these different dimensions of fairness and customer satisfaction with computer retailers. However the possible impact of these three dimensions of fairness in regard to customer satisfaction has rarely been discussed in the context of online shopping.

The relationship between fairness and trust in the online context
Trust is indeed a crucial component of online contexts that has been investigated in prior research (Hoffman *et al.*, 1999a; Ratnasingham, 1998; Gefen and Straub, 2004, 2003), both in terms of the antecedents (Jarvenpaa *et al.*, 1998) and consequences, such as knowledge-sharing, the desire to exchange information, knowledge generation (Ridings *et al.*, 2002) and its significant effect on consumer behaviour (Schurr and Ozanne, 1985).

The presence of trust in others' abilities, benevolence, and integrity (Kini and Choobineh, 1998) affects information exchange in a variety of online settings. In this sense the importance of trust in electronic contexts has also been consistently argued (Pavlou, 2003; Gefen and Straub, 2004; Eastlick *et al.*, 2006; Bauer *et al.*, 2006; Tsai *et al.*, 2006). In particular strong evidence has emerged that consumers are especially concerned about payment security and potential fraud (Hoffman *et al.*, 1999a; Ratnasingham, 1998).

Justice (fairness) is considered to be a key facilitator of trust (Colquitt *et al.*, 2001). Justice, regarded as the fundamental basis for relationship maintenance in a social exchange (Lind *et al.*, 1993), is an effective and readily available mechanism for dealing with diverse uncertain circumstances (Van den Bos and Lind, 2002) such as the virtual context. The relationship between justice and trust includes the idea that fair outcomes, procedural, and interpersonal treatment involve the trustworthiness of the engaged parties (Brockner *et al.*, 1997).

Research model and hypotheses
The proposed theoretical model is shown in Figure 1. The role of satisfaction as a predictor of intentions is critical and has been well-established in information systems, marketing, and the reference disciplines (DeLone, 2003; Oliver, 1980; Bhattacherjee, 2001; Oliver and Swan, 1989a). There is both theoretical and empirical support for the strong association between intentions to engage in behaviour and the actual

Figure 1.
Research model
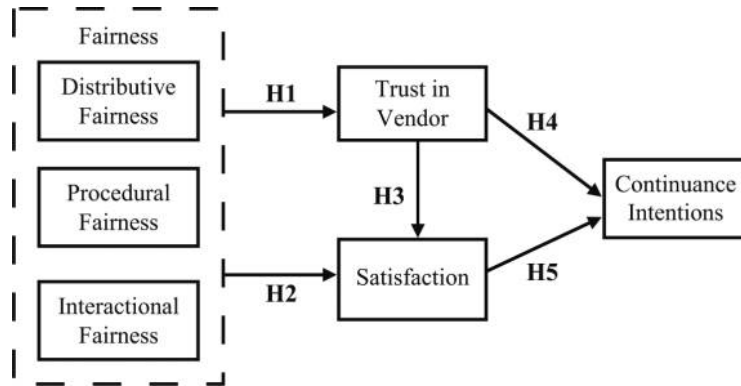
behaviours (Eastlick *et al.*, 2006; Mathieson, 1991; Vijayasarathy, 2004). Here we use continuance intention as a surrogate for actual behaviour, and define it as "the subjective probability that a customer will continue shopping online". Among the hypothesised relationships, it is predicted that consumers' perceived trust in a vendor and satisfaction regarding past transaction experiences will affect their continuance intentions toward online shopping. Trust in a vendor and satisfaction, in turn, are determined by distributive fairness, procedural fairness, and interactional fairness. Table III lists the operational definitions of the constructs in this theoretical model.

Distributive fairness
Distributive fairness refers to the extent to which consumers feel that their invested efforts are fair when compared to the final online shopping outcomes. Equity theory

Construct	Operational definition	No. of items	Reference sources
Distributive fairness	Consumers' perceptions of the outcome correspond to their expectation	3	McColl-Kennedy and Sparks (2003)
Procedural fairness	Consumers' perceptions of the process that dealt with their transactions	3	Folger and Greenberg (1985)
Interactional fairness	Consumers' perceptions of the interaction with the online vendor during their transactions	5	Folger and Greenberg (1985)
Trust in vendor	Consumers' perceptions of the trustworthiness of the online vendor	4	Chong *et al.* (2003) Gefen *et al.* (2003a, b)
Satisfaction	Consumers' feelings about the online transaction	4	Oliver *et al.* (1989a,b)
Continuance intentions	Consumers' intentions to buy from the same website	3	Bhattacherjee (2001) Mathieson (1991)

Table III.
Construct definition and
instrument development

postulates that individuals who are fairly rewarded experience satisfaction and will be motivated to engage in a certain behaviour (Adams, 1965). According to Kumar *et al.* (1995) distributive fairness is helpful in building good relationships between customers and vendors, which in turn will lead to customer satisfaction. While the influence of distributive fairness on customer satisfaction has not been explicitly examined in the study of online shopping, support for the relationships can be found in other settings. For example Yilmaz *et al.* (2004) found that distributive fairness exerted a significant influence on reseller satisfaction with suppliers. Teo and Lim (2001) found that distributive fairness was the most important predictor of consumers' satisfaction with computer retailers. Accordingly the following hypotheses are proposed:

H1a. Consumers' perceptions of distributive fairness are positively related to their trust in online vendors.

H2a. Consumers' perceptions of distributive fairness are positively related to their satisfaction with shopping online.

Procedural fairness
Procedural fairness refers to the perceived fairness of policies and procedures involved in online transactions. According to Seiders and Berry (1998) the transaction process is an integral part of online shopping, thus e-vendors can enhance customers' satisfaction with online shopping by carrying out activities that enhance customers' perceptions of procedural justice. Folger and Greenberg (1985) argued that the way outcomes are determined may be more important than the actual outcomes. Previous studies have indicated that if consumers believe that the procedures used to produce the outcomes are fair, they are likely to be satisfied with the outcomes – even if the outcomes are considered unfair (Lind and Tyler, 1988). Folger and Konovsky (1989) have suggested that the perception of procedural justice enhances the probability of maintaining long-term overall satisfaction between exchange parties. Studies have found that procedural fairness is significantly and positively related to customer satisfaction with the purchase of products and services (Teo and Lim, 2001; Martinez-tur *et al.*, 2006; Clemmer and Schneider, 1996). Accordingly the following hypotheses are proposed:

H1b. Consumers' perceptions of procedural fairness are positively related to their trust in online vendors.

H2b. Consumers' perceptions of procedural fairness are positively related to their satisfaction with shopping online.

Interactional fairness
Interactional fairness refers to the extent to which consumers feel that they have been treated fairly by service agents throughout the online shopping process. This study explores a shopping website's responsiveness, focusing on the issue of consumers' rights. Cox and Dale (2002) found that online consumers often need to contact a customer service representative over the telephone and by other conventional communication means. Furthermore Cho *et al.* (2003) argued that online consumers might experience interactional fairness through customer service representatives' efforts via telephone calls and email responses. Therefore interactional fairness could

also be sustained even in an online shopping context. Since poor customer relations and service related issues are the major complaints of online consumers (Nasir, 2004), interactional fairness plays an important role in the success of the online transaction process. Teo and Lim (2001) found that interactional fairness was positively and significantly related to consumers' satisfaction with computer retailers. Moreover recent studies have reported that shopping websites' responsiveness (Bauer *et al.*, 2006), empathy (Devaraj *et al.*, 2003), and attentiveness – caring and individualised attention from the e-vendor (Jun *et al.*, 2004) – were significantly and positively associated with customer satisfaction with online shopping. Accordingly the following hypotheses are proposed:

H1c. Consumers' perceptions of interactional fairness are positively related to their trust in online vendors.

H2c. Consumers' perceptions of interactional fairness are positively related to their satisfaction with shopping online.

Trust in vendors
Many empirical studies have emphasised the construct of trust while discussing consumer intentions or behaviours in online shopping. Previous studies have shown that trust has a positive influence on online consumers' willingness to adopt the technology (internet) or intentions to make a purchase from a website (Corbitt *et al.*, 2003). Lim (2003) indicated that there are three sources of risk in B2C electronic commerce: technology, vendor, and product. In other words the antecedents of trust can be the knowledge about the intermediary (internet, electronic payment, third party, etc.), the internet vendor, and the consumer's preconception about the product. Jarvenpaa *et al.* (2000) showed that vendor reputation and size are strong predictors of consumer trust in the vendor. Similarly word of mouth and brand image also contribute to the formation of consumers' perceptions of trust in vendors. The greater the consumers' trust, the less risk they perceive, the greater the satisfaction with their transaction and the greater the intentions to buy online.

Trust is usually gained through the exchange of quality information, especially through direct contact. However the major difference between conventional shopping and e-commerce is the lack of face-to-face contact. Consumers complete the interaction process through computer and technical interfaces. Consequently trust in e-commerce can be identified using the Technology Acceptance Model (Gefen *et al.*, 2003a, b; Pavlou, 2003, 2001). Gefen *et al.* (2003a) found that repeat customers had greater trust in the e-vendor, perceived the website to be more useful and easier to use, and were more inclined to purchase from it. Their findings suggest that customers' repurchase intentions are influenced by both their trust in the e-vendor and their perception that the website is useful; new customers are not influenced by perceived usefulness, but rather by trust in e-vendors.

H3. Consumers' trust in the vendor is positively related to their satisfaction with online transactions.

H4. Consumers' trust in the vendor is positively related to their intentions to continue shopping online.

Satisfaction
Satisfaction refers to customers' evaluation of and affective response to the overall experience of online shopping. Affective response is known to be associated with intense states of arousal that lead to focused attention on specific targets and may therefore affect ongoing behaviour (Patterson and Spreng, 1997). Oliver and Swan theorise that satisfaction is positively associated with intentions, both directly and indirectly, via its impact on attitude (Oliver, 1980; Oliver and Swan, 1989a). In the final step of the satisfaction formation process, satisfaction determines intention to patronise or not to patronise the shop in the future (Swan and Trawick, 1981). Previous studies have provided empirical support for the relationship between customer satisfaction and intentions in the context of B2C e-commerce (Devaraj *et al.*, 2003; Tsai *et al.*, 2006; Bhattacherjee, 2001).

> *H5*. Customer satisfaction is positively related to intentions to continue shopping online.

Research methodology
Instrument development
All measurement items were adapted from those used in previous studies (see Table III). A pretest of the questionnaire was performed using six experts in the information systems field to assess its logical consistency, ease of understanding, sequence of items, and contextual relevance. The comments collected from these experts led to several minor modifications of the wording and the item sequence. Furthermore a pilot study was conducted involving 20 students who had online shopping experience. The purpose of the pilot study was to make sure that the survey was easy for respondents to understand. Comments and suggestions on the item contents and structure of the instrument were also solicited, and as a result the questionnaire was further modified. Moreover a preliminary reliability analysis showed that the Cronbach's alpha values of all constructs exceeded 0.7 (fairness = 0.776; procedural fairness = 0.701; interactional fairness = 0.828; trust in vendor = 0.770; satisfaction = 0.804; continuous intentions = 0.911), and standard deviation of all constructs varied from 0.7 to 1.2. These results supported proceeding to data collection. For all the measures a seven-point Likert type scale was adopted with scores ranging from strongly disagree (1) to strongly agree (7).

Participants and procedures
The data were gathered from customers of the most popular online shopping website in Taiwan, PChome, through a web survey. A notice about the survey was published on a number of bulletin board systems and chat rooms. There were 268 initial respondents, but 42 responses with missing values were deleted, so 226 eligible respondents finished the survey within one month. Information provided by respondents on their internet usage behaviour revealed that they were experienced internet consumers. Table IV summarises the demographic profile of the respondents.

Concerns of common method variance
Our data were collected by using a single survey instrument, which may cause concern about common method bias. Common method variance, variance that is attributed to the measurement method rather than the constructs of interest, may cause systematic

measurement error and further bias the estimates of the true relationships among theoretical constructs (Podsakoff and Organ, 1986; Podsakoff *et al.*, 2003; Malhotra *et al.*, 2006). The most widely used technique to address the issue is Harman's one-factor test. If a substantial amount of common method bias presents in variables, a single or general factor that accounts for most of the variance will emerge when all the variables are loaded together into an exploratory factor analysis (Podsakoff *et al.*, 2003).

Accordingly all the 22 variables of this study were entered into an exploratory factor analysis and the unrotated principal component factor analysis revealed the existence of five distinct factors with Eigenvalues greater than 1, rather than a single factor. The five factors collectively accounted for 66.7 percent of the total variance; the largest factor did not account for a majority of the variance (39 percent). The results of this analysis do not preclude the possibility of common method variance, but suggest that common method bias is not of great concern.

Data analysis
Using LISREL confirmatory factor analysis was applied to assess the construct reliability and validity of the six scales (distributive fairness, procedural fairness, interactional fairness, trust in vendor, satisfaction, and continuance intentions). Reliability was examined using the Cronbach's alpha values. As shown in Table V all the values were above 0.7, which is the commonly acceptable level for explanatory research.

The convergent validity of the scales was verified using two criteria suggested by Fornell and Larcker (1981):

(1) all indicator loadings should be significant and exceed 0.7; and

(2) average variance extracted (AVE) for each construct should exceed the variance due to measurement error for that construct (i.e. AVE should exceed 0.50).

For the current confirmatory factor analysis model, only four of the 22 loadings were slightly below the 0.7 threshold (see Table V). AVE ranged from 0.51 to 0.78 (see Table VI): greater than variance due to measurement error. Hence both the conditions for convergent validity were met.

The discriminant validity of the scales was assessed using the guideline suggested by Fornell and Larcker (1981): the square root of the AVE from the construct should be greater than the correlation shared between the construct and other constructs in the model. Table VI lists the correlations among the constructs, with the square root of the AVE on the diagonal. All the diagonal values exceeded the inter-construct correlations; hence the test of discriminant validity is acceptable. Therefore we conclude that the scales have sufficient construct validity.

Descriptive statistics	Average	Standard deviation
Age (years)	28.6	5.69
Gender		
Female	116 (51%)	–
Male	110 (49%)	–
Experience with internet (years)	7	2.47
Experience with online vendor (PChome) (years)	2.1	1.18
Shopping frequency with PChome up to survey (times)	5.4	7.82

Table IV.
Demographic details of respondents

Measures		Mean	SD	Loading	Cronbach's alpha
Distributive fairness					0.72
DF1	I think the order handling by PChome is acceptable	5.12	1.29	0.70	
DF2	I think the product quality of PChome is sufficient	4.89	1.27	0.70	
DF3	I think it is worthwhile to shop on website PChome	4.99	1.11	0.74	
Procedural fairness					0.81
PF1	Online vendor PChome provides explicit transaction regulations	5.53	0.97	0.85	
PF2	Online vendor PChome provides an explicit transaction process	5.66	0.85	0.83	
PF3	Online vendor PChome provides an opportunity for aggrieved customers to have their say	5.32	0.94	0.63	
Interactional fairness					0.83
IF1	Online vendor PChome provides explicit explanations for online transaction events/ problems	4.91	0.95	0.70	
IF2	I think online vendor PChome acts sincerely in dealing with consumers	4.92	0.98	0.71	
IF3	I think online vendor PChome never ignores a mail request or a phone call	4.90	1.05	0.84	
IF4	I think online vendor PChome is concerned about customers	4.65	1.01	0.85	
IF5	I think online vendor PChome respects customers.	4.84	0.98	0.46	
Trust in vendor					0.75
TV1	I think online vendor PChome is honest with customers	5.10	0.96	0.71	
TV2	I believe online vendor PChome will not divulge consumers' personal data to other parties	5.07	1.00	0.65	
TV3	I feel secure about the electronic payment system of online vendor PChome	5.26	0.92	0.68	
TV4	I know online vendor PChome provides good service	5.15	0.98	0.81	
Satisfaction					0.87
SA1	I think it is pleasant to shop on the PChome website	5.11	1.02	0.81	
SA2	I think it is interesting to shop on the PChome website	5.02	0.98	0.77	
SA3	I like to shop on the PChome website	4.81	1.04	0.76	
SA4	I am satisfied with my shopping on the PChome website	5.23	1.05	0.82	
Continuance intentions					0.91
CI1	In the future I intend to continue shopping on the PChome website	5.35	0.94	0.91	
CI2	In the future I will probably shop on the PChome website	5.37	0.93	0.87	
CI3	In the future I will shop on the PChome website as much as I can	5.31	0.93	0.87	

Table V.
Summary of
measurement scales

Results
The structural model was tested with the data collected from the validated measures.
Five overall model-fit indexes were used: chi-square normalised by degree of freedom
(X^2/df), root mean square error of approximation (RMSEA), non-normed fit index
(NNFI), adjusted goodness-of-fit index (AGFI), and goodness-of-fit index (GFI).

Table VII presents the goodness-of-fit measures and acceptable references based on the work by Hair *et al.* (1998); the fit indices are within accepted thresholds.

The significance of individual paths is shown in Figure 2. The results of this study support the majority of the proposed hypotheses, which are summarised in Table VIII. Five out of the nine paths exhibit a p-value less than 0.001 and one exhibits a p-value less than 0.05, while the remaining three are not significant at the 0.05 level of significance. The R-square values show that distributive fairness, procedural fairness, and interactional fairness account for 41 percent of the variance of trust in the vendor and 58 percent of consumer satisfaction. Trust in the vendor and consumer satisfaction

	AVE	DF	PF	IF	TV	SA	CI
DF	0.51	0.71					
PF	0.60	0.47	0.78				
IF	0.53	0.47	0.53	0.73			
TV	0.51	0.51	0.50	0.55	0.72		
SA	0.62	0.63	0.53	0.58	0.65	0.79	
CI	0.78	0.54	0.49	0.48	0.60	0.74	0.88

Table VI.
Inter-construct correlations

Goodness measures	Measured values	Recommended values
X^2/df	1.78	< 2
RMSEA	0.048	< 0.05
NNFI	0.94	> 0.9
AGFI	0.85	> 0.8
GFI	0.9	> 0.9

Table VII.
Goodness-of-fit measures

Notes: Fit statistics: $x^2 = 351.85$, $d.f. = 197$; All measures are significant at $p < 0.01$
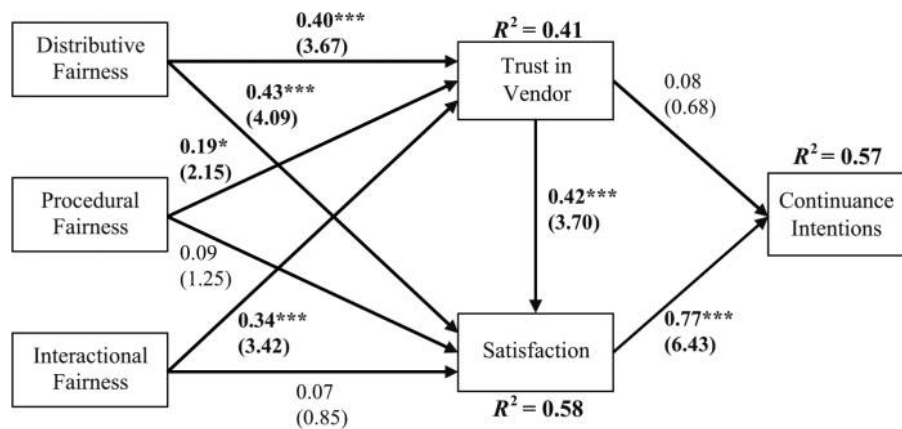

Figure 2.
Results of the research model

Notes: $*p < 0.05$, $**p < 0.01$, $***p < 0.001$ (two-tailed t-tests); figures in parentheses are t-values

	Independent variable	Dependent variable	Path coefficient	t-value	R^2	Test results
H1a	Distributive fairness	Trust in vendor	0.4**	3.67	0.41	Supported
H1b	Procedural fairness		0.19*	2.15		Supported
H1c	Interactional fairness		0.34**	3.42		Supported
H2a	Distributive fairness	Satisfaction	0.43**	4.09	0.58	Supported
H2b	Procedural fairness		0.09	1.25		Not supported
H2c	Interactional fairness		0.07	0.85		Not supported
H3	Trust in vendor		0.42**	3.70		Supported
H4	Trust in vendor	Continuance intentions	0.08	0.68	0.57	Not supported
H5	Satisfaction		0.77**	6.43		Supported

Notes: ** $p < 0.01$; * $p < 0.05$

Table VIII.
Results of hypothesis
testing

account for 57 percent of the variance of consumers' continuance intentions toward online shopping.

Discussion

The study outlines the complex process in which trust, the three dimensions of fairness, and satisfaction influence customers' intentions to continue shopping online. Distributive fairness is defined as what the customer receives as output in an exchange, as judged in comparison with others. It is not easy for a consumer to obtain the transaction results of others; however most customers refer to discussions, suggestions, or complaints posted by others on discussion boards/forums before engaging in an exchange with online vendors. These two significant positive relationships (i.e. the effects of distributive fairness on trust in vendors and satisfaction) echo prior studies (Adams, 1965; Kumar *et al.*, 1995; Teo and Lim, 2001; Yilmaz *et al.*, 2004) which state that distributive fairness is helpful in maintaining good relationships between consumers and e-vendors, and increasing consumers' trust in vendors and satisfaction. The more information consumers can get, the more faith they will have in the vendor and the more satisfied they will be with online transactions. With the advancement of communication and information technologies, it is becoming easier for consumers to compare prices and general information online and exchange information regarding their shopping experiences at electronic marketplaces. Consumers will not trade with a vendor if they find other vendors offering cheaper and better deals.

The positive effect of procedural fairness on trust in vendors is significant. However it is not significant in relation to satisfaction. This can be explained by a two factor model of motivation proposed by Herzberg *et al.* (1959). Levels of employee job satisfaction are a function of intrinsic and extrinsic factors. The presence of intrinsic factors or motivators, such as achievement and recognition, contributes to job satisfaction. The absence of extrinsic or hygiene factors, such as pay and job security, produces job dissatisfaction. Herzberg *et al.* (1959) found that the presence of extrinsic factors did not necessarily create satisfaction, but the absence of these factors did create dissatisfaction. Accordingly the positive association may show that procedural fairness acts as a hygiene factor. The items used to measure procedural fairness are related to the process and procedures used to carry out online transactions. In particular most shopping procedures are similar and inclined to be standard for online shops. All e-vendors demonstrate their processes, procedures, and related regulations

in statements on webpages. Those statements are quite common and there is not much difference among e-vendors. A minimal level of procedural fairness needs to be offered, and an increase in procedural performance does not lead to higher satisfaction. For consumers these statements are important and necessary but are not the key issue affecting their intentions. This is why procedural fairness can be considered a hygiene factor for online shops. Customers take these for granted; therefore procedural fairness does not have a vital impact on increasing customers' satisfaction.

These findings reveal that interactional fairness had a significant positive impact on trust in vendors. Similarly there was an insignificant but positive impact on satisfaction. This is in agreement with prior findings that interactional fairness is the strongest predictor of trust (Tax *et al.*, 1998), and complies with previous works stating that interactional fairness is positively related to consumer satisfaction (Cho *et al.*, 2003; Teo and Lim, 2001). However internet consumers have no chance to observe vendors face to face. They feel satisfied whenever they contact e-vendors via telephone, internet, or any communication channel if a response is received in a timely and acceptable manner. Both effects suggest the necessity for e-vendors to establish channels through which consumers can have their say, and pay attention to all useful opinions, suggestions and complaints. More importantly e-vendors should convey clearly to consumers that their participation is valued and could make a difference.

Our results show that consumer satisfaction has a strong positive effect on the intention to continue shopping online. This finding echoes those of previous studies (Oliver and Swan, 1989a, b). Consumer satisfaction is mainly based on consumers' past transaction experiences with the vendor. The more satisfactory experiences the consumer has, the greater the likelihood they will return to keep trading with the same vendor. Due to the diverse interests of consumers, their satisfaction should be assessed based on multiple dimensions. Therefore e-vendors need to do more to increase the level of consumer satisfaction, such as post-service, specific promotions for frequent buyers, and showing deep concern for all customers, etc.

Earlier studies have indicated that the effect of trust on repurchase intentions tends to be significantly positive. Our results differ slightly from previous studies. The relationship between trust and further shopping intentions remains positive but is not significant in this study. This implies that consumers shop with misgivings. This might be explained by looking at the items used to measure trust in the questionnaire. Two of four items measuring consumers' trust in vendors deal with privacy concerns, i.e. TV2 and TV3. Privacy concerns are always a key factor that deters consumers from making transactions on the internet. Several studies have raised this issue and validated the perceptions of consumers (Milne and Boza, 1999; Eastlick *et al.*, 2006). In many respects consumers' privacy concerns not only involve using credit cards online, but also e-vendors' use of data, for example profiling and transferring user data to third parties. Milne and Boza (1999) further highlighted that improving consumers' trust would not reduce consumers' privacy concerns. This was also empirically demonstrated by Eastlick *et al.* (2006) who showed the negative influence of privacy concerns on internet purchasing. Moreover the consumers' strong continuance intentions indicated subjective willingness to shop online, showing that the overall benefits customers received outweigh the cost they pay when adopting an online channel. For example convenience, price advantage, time-saving, ease of use, etc, are possible factors that influence consumers' continuance intentions. These benefits are

not addressed in this study but still increase satisfaction and continuance intentions. Therefore the insignificant positive relationship between trust in the vendor and continuance intentions is meaningful. It reveals that consumers like shopping online even though they do have security/privacy concerns.

Conclusions and future research

This study makes two major contributions to e-commerce research. We conclude this paper by considering two points of view: the theoretical and the practical.

From a theoretical point of view, this study provides researchers with a comprehensive theoretical framework of the antecedents that drive customer motivation to continue shopping with a particular online vendor. The model we propose not only extends the concept of fairness into the domain of e-commerce, but also provides insight into what respondents consider antecedents to trust and satisfaction, and which factors further affect consumers' shopping behaviours. Fairness is a good point of view from which to investigate any exchange relationship and rarely discussed in previous B2C models. We have demonstrated that online trust and satisfaction can be explained by the prerequisite factor of fairness. The result complies with previous studies investigating trust: all suggest that online trust positively influences consumers to continue shopping online (Stewart, 2003; Heijden *et al.*, 2003). However we focus on consumers' trust in vendors and investigate from the perspective of fairness. The results with insignificant affects show that consumers may not entirely trust vendors and once again align with previous studies. For example online shoppers distrust not only the e-vendors (Fukuyama, 1995; Urban *et al.*, 2000) and their payment systems (Baker, 1999; Hoffman *et al.*, 1999a), but also the nature of the internet and online shopping (Hoffman *et al.*, 1999b; Schoder and Yin, 2000). Consumers continue shopping online, for the most part, because they are satisfied. This affirms that satisfaction is the strongest predictor in assessing consumers' behaviours in the electronic marketplace (Eastlick *et al.*, 2006; Martinez-tur *et al.*, 2006; Tsai *et al.*, 2006); satisfaction is multidimensional and it is more complicated than trust as defined and used in a traditional marketplace.

From a practical point of view, this study suggests that two dimensions of fairness – distributive fairness and interactional fairness – are important to consumers in the process of building trust in vendors and developing transaction satisfaction. The implication is that efforts should be made to provide consumers with better communication channels, and to provide better quality products that will increase consumers' satisfaction and willingness to continue shopping online. Comparing trust to satisfaction, the later is a necessary factor in affecting continuance intentions; the former is a sufficient condition. It gives us an insight into consumers' privacy concerns regarding online shopping. E-vendors might need to bear in mind that consumers never lose their privacy concerns no matter how much experience they have or how satisfied they are on the internet. Generally speaking technical trustworthiness is treated as the most essential factor in gaining consumers' trust in vendors. The results of this study strongly suggest that e-vendors should make systematic attempts to gather customers' feedback on web design to ensure websites are used the way they were designed to be. In addition to performance considerations, it is vital to ensure that customers' privacy and data security are well protected when adopting e-commerce technology. Every possible effort needs to be made in order to increase customers' trust toward online vendors; indirectly this might reduce customers' risk perceptions of

online purchases. For example e-vendors may provide diverse payment modes, particularly the application of delivery against acceptance. This practice is fairly common in the business world and can be carried out either by credit card or cash. This provides buyers with the assurance and protection that they will ultimately receive what they initially purchased. It also eliminates a lot of risk that the buyer might encounter if they had to pay upfront for the items or services that were obtained. In the long run satisfaction is the main factor that e-vendors should pay the most attention to; it can be attained via building consumers' trust and fairness to strengthen the customer relationship in the virtual marketplace.

One potential limitation of this study is the applicability of the results to diverse online contexts. Future research using this model in other online shopping settings should consider the generalisation of these results. Other variables, such as product type and price, may also have moderating effects on the relationships between drivers and continuous intentions. Our results reveal that most consumers intend to shop online for products with low unit prices rather than luxury items. A consumer's level of trust or willingness could vary according to product price or type. Identifying present consumers' online intentions can help businesses make considerable profits. This important issue is challenging and merits further investigation with other variables to enhance the generalisation.

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