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## An Empirical Exploration Of Trust And Risk Associated With Purchasing At Electronic Marketplaces

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### Abstract

*In this paper we report on a study into the relationships between consumer perceptions of risk and trust and the intention to purchase at a C2C electronic marketplace. Distinguishing for electronic marketplace settings is that consumer behavior is subject to perceptions of both selling party and the institutional structures of the intermediary operating the system. Building upon the well-established literature of trust we consider the concepts of institutional trust and party trust. We extend this categorization by introducing the concepts of institutional risk and party risk. Next, we adopt the process of measurement instrument development as put forward by Churchill (1979). We develop measurement instruments for institutional trust (3 items), institutional risk (4 items) and party risk (4 items). All measurement scales contain acceptable alphas and are unidimensional. An empirical study is applied to explore the relationships between the risk and trust types and consumer purchase intention. The results reveal significant, direct effects of party trust, institutional trust and party risk. The paper concludes with general observations and recommendations for further research.*

### 1 Introduction

The research objective of this paper is to explore the relationships between perceptions of risk and trust associated with purchasing from sellers at an electronic marketplace (EM) and consumer purchase intentions. Lowering the perceived risks associated with online transaction as well as maintaining transaction trust are vital keys to attract consumers and retain customers (Tan and Thoen, 2000). Due to the lack of physical presence visitors of EMs cannot experience the products by, for example, touching, feeling or smelling them. Furthermore, consumers are not able to visit the EM to reassure appropriate settlement should they be dissatisfied for any reason (e.g. payment problems, product failure). This implies consumers depend on perceptions of the EM to assess the trustworthiness and perceived risks associated with the purchase before completing an online transaction.

As opposed to ‘traditional’ consumer- seller relationships, however, in a mediated environment consumers not only trust in perceptions of the seller when engaging in purchase behavior but also rely on characteristics of the intermediary. In the trust literature (e.g. Pavlou, 2002) this has been acknowledged by separating *institutional trust* from *party trust*. Institutional trust refers to the trustworthiness of the intermediary operating the system. It reflects perceptions of security due to the presence of guarantees, regulations or other structures that are introduced by these institutions. Party trust concerns perceptions of trust in the counterpart of a transaction. With respect to purchasing at EMs, the direct object of party trust is the party selling the products. The relationships between institutional trust and party trust and purchase behavior at EMs have received substantial attention and are explored empirically (e.g. Pavlou and Gefen, 2002). When focusing on the closely related concept of perceived risk, however, the differences between risks associated with the intermediary operating the system versus risks associated with the selling party have been relatively unexplored. Most research today has considered risk as one construct (e.g. Jarvenpaa, Tractinsky and Vitale, 2000; Pavlou and Gefen 2002) or has explicitly been paying attention to perceived risk components (e.g. Featherman and Pavlou, 2002). We argue that, similar to the two trust types identified in the literature, purchasing at EMs is subject to two types of risk: *institutional risk* and *party risk*. Institutional risk refers to the potential failure of institutional mechanisms employed by the intermediary. The target of institutional risk is the intermediary. Party risk reflects the uncertainties that arise since one is unsure about the offers of the counterpart of the transaction and its ability and willingness to perform. The target of party risk is the selling party.

In this paper we explore the relationships between institutional trust, party trust, institutional risk and party risk and consumer intentions to purchase at an EM. We consider the theoretical background of institutional trust and party trust and introduce the concepts of institutional risk and party risk. Next, we report on first empirical exploration. We conclude with overall observations and recommendations for further research.

## **2 Theoretical Foundations: Perceived Risk And Trust Associated With Purchasing At Ems**

The vast majority of empirical works in the field of trust, perceived risk and online purchase behavior has focused on purchasing at online stores. In general, the empirical results emphasize the importance of trust and risk in explaining and predicting online purchase behavior (e.g. Jarvenpaa et al., 2000; Van der Heijden, Verhagen and Creemers, 2003). Purchasing at online stores is dyadic in nature, which implies that two parties are involved in the transaction: the buyer and the seller. When studying purchase behavior at an EM, however, three parties have to be taken into account: the buyer, the seller and the intermediary operating the system. In this context, consumer purchase behavior is not only affected by risk and trust perceptions of the selling party but is also subject to perceptions of risk and trust associated with the intermediary. In this study, we focus on consumer purchase behavior at EMs. An EM is defined here as a website as well as the underlying organization and its information systems that matches buyers and sellers, facilitates the exchange of information, goods, services and payments associated with transaction, and provides an institutional infrastructure (Bakos, 1998). In particular, we focus on EMs in consumer products (C2C).

In the literature, the relationships between trust and intermediaries have widely been discussed. Next to aggregating buyer demand and supplier products, facilitating the market by lowering costs and matching buyers and sellers, an important role of

intermediaries is to protect buyers and sellers from opportunistic behavior of other participants by acting as agent of trust (Bailey and Bakos, 1997). In this context, the term *institutional trust* is used. Institutional trust, also referred to as impersonal trust (Zucker, 1986) or control trust (Tan and Thoen, 2000), refers to the security one feels about a situation because of guarantees, regulations, safety nets or other structures (Shapiro, 1987; McKnight, Cummings and Chervany, 1998; Gefen, Karahanna and Straub, 2003). Institutional trust is defined as the consumer's subjective belief that favorable conditions are in place to facilitate transaction success (Pavlou and Gefen, 2002, p.669). Although many third-party intermediaries contributing to institutional trust may be present in consumer-seller relationships, this research focuses on the formal authority that manages the exchange network (cf. Pavlou and Gefen, 2002). To generate trust in the online purchase situation intermediaries verify and monitor the parties engaged, reassure enforcements in case of opportunistic behavior and take care of privacy and security of both data and transaction. Widely applied instruments include monitoring, accreditation, safeguards (e.g. contracts), regulations and security measures like SSL. The favorable conditions and structures offered by the intermediary allow consumers to believe that purchasing at the marketplace is trustworthy.

Whereas institutional trust concerns the intermediary as mediating 'care-taker', *party trust* reflects perceptions of trust in the counterpart of a transaction. The direct object of party trust, in the literature also known as interpersonal trust, is the specific other individual one trusts (McKnight and Chervany, 2002, p. 42). Following the work of Pavlou (2002), party trust is defined as the subjective belief with which consumers assess that sellers will perform potential transactions according to their confident expectations, irrespective of their ability to fully monitor them (p.218). Following the studies of Pavlou (2002) and Pavlou and Gefen (2002) the target of party trust in this study is the population of sellers at the EM.

While the trust types described above have received substantial attention in the literature, the relationships between perceived risk and consumer purchasing at EMs have been relatively unexplored. Similar to the closely related concept of trust, however, two types of risk can be identified: institutional risk and party risk.

*Institutional risk* refers to risks that are caused by the failure of an institution to reduce opportunistic behavior between trading parties. In many cases institutions use specific mechanisms to reduce opportunistic behavior such as, for example, contracts or certification. Consider, for example, a contract in which a due date for payment is stipulated, but there is no penalty for overdue payment. The lack of this penalty is an example of careless contracting and as such an institutional risk. Another typical case of institutional risk is weak monitoring. A good contract can be made ineffective by weak monitoring. For example, if the financial auditing of a company is very sloppy, overdue payments could go unrecorded, and hence even if penalty clauses are included in the contract these rights are not exercised, because there is no adequate record to prove it. To some extent institutional risk is related to environmental risk (Ring and van de Ven, 1994; Bensaou and Venkatraman, 1996), system-dependent uncertainty (Grabner-Kraeuter, 2002) or exogenous risk (Hirshleifer and Riley, 1979). However, by institutional risk we mean obvious omissions in institutional mechanisms that should have been noticed by the average expert in the field. Institutional risks are not restricted to weak contracts, but they can also relate to the lack of adequate security measure and technological mistakes (Grabner-Kraeuter, 2002). Hence, even though intermediaries have an important control on the security and privacy of transactions, there is a possibility for sellers or unknown parties to compromise the transaction process (Pavlou, 2003). Some typical consequences of institutional risk are theft of money, improper use of private information or credit card information by a third party. In this study we focus on the institutional risks that are

caused by the intermediary between buyer and seller, in particular the facilitator of the electronic marketplace.

*Party risk* concerns the relational risks resulting from the trading partner. Party risk, also referred to as behavioral risk (Ring and van de Ven, 1994; Bensaou and Venkataman, 1996) or endogenous risk (Hirshleifer and Riley, 1979), refers to the uncertainties that arise because online sellers can behave opportunistically by taking advantage of the distant and impersonal nature of online transactions and the intermediaries inability to carefully monitor all transactions (Pavlou, 2003, p.77). Party risk addresses the uncertainties that arise since one is unsure about the offers of the selling party (Hirshleifer and Riley, 1979) and the seller's ability and willingness to perform (Grabner-Kraeuter, 2002). For example, sellers can include misleading product information, use false identities or ignore warranties. The types of risks included in party risk are financial risk because of the possibility to lose money, privacy risk because of the opportunity to disclose private information, physical risk due to potentially unsafe products and performance risk because of imperfect monitoring (Pavlou, 2003, p.77). To reduce party risk various kinds of information are offered including information about regulations and procedures, the reputation of the seller (i.e. rating systems) and privacy statements. By offering the information and services that consumer gather/demand for, consumers are able to cope with perceptions of risk (Murray, 1991).

Given the above, we arrive at the observation that consumer purchasing at EMs is subject to two types of trust (institutional trust and party trust) and two types of risk (institutional risk and party risk). Institutional trust reflects trust perceptions of the intermediary operating the system, whereas party trust refers to the trustworthiness of the sellers at an EM. Similarly, institutional risk concerns the risks associated with the intermediary operating the system, whereas party risk reflects impressions of the risks associated with the sellers at an EM. The constructs differ according to the trust or perceived risk perspective they belong to, as well as the target they refer to.

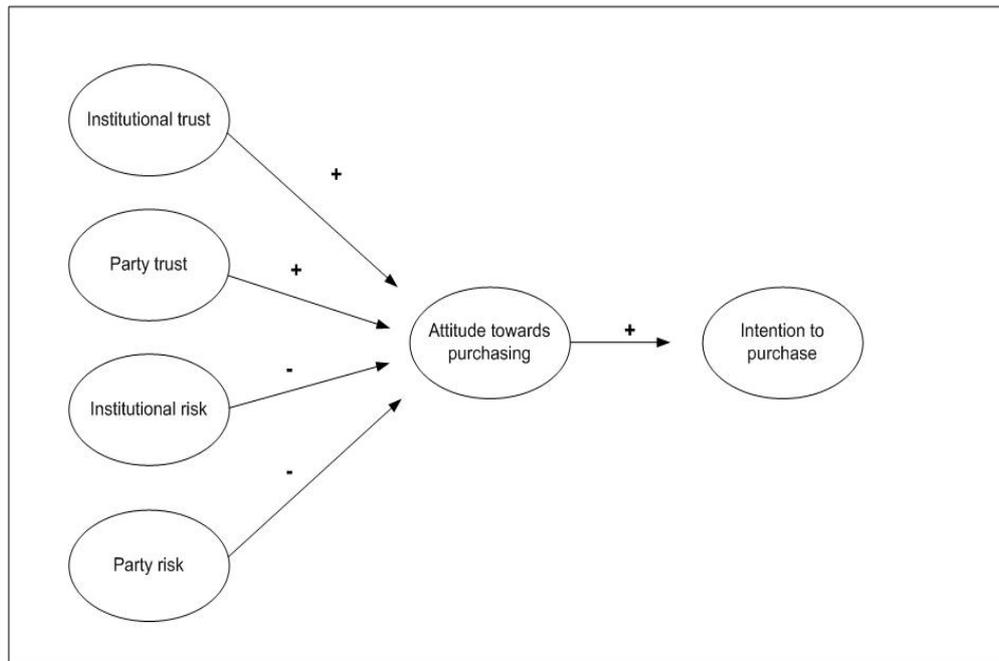
### **3 Research Methodology**

To explore the impact of institutional trust, party trust, institutional risk and party risk on consumer purchasing, we conducted an empirical study. We addressed how and to what extent perceptions of the trust and risk types affect consumers' intentions to purchase at an EM. This section introduces the research model and deliberates on measurement instruments and research method.

#### ***Conceptual Model***

The model to be tested is depicted in figure 1. The backbone of the model is the relationships between the attitude towards purchasing from sellers at an EM and the intention to purchase from sellers at an EM. This structure conforms to the Theory of Reasoned Action (TRA) of Ajzen and Fishbein (1980) that has extensively been applied in online consumer behavior research (e.g. Moon and Kim, 2001; Shim, Eastlick, Lotz and Warrington, 2001). According to the TRA, variables that are not part of the theory do not add to the predictions of intentions over and above the attitude (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980). Research in the field of online purchasing confirms that the impact of these so-called external variables is likely to be mediated by an attitudinal component (Jarvenpaa et al., 2000; Van der Heijden et al., 2003; O'Cass and Fenech,

2003). The external variables to be tested comprise the trust and risk types associated with purchasing from EMs as discussed in the previous section. This implies institutional trust, party trust, institutional risk and party risk are included. Since perceptions of trust are likely to have a positive effect on consumer attitudes towards online purchasing (Jarvenpaa et al., 2000), we expect the effects of institutional trust and party trust to be positive. Following research focusing on the relationships between perceived risk and online consumer purchasing (e.g. Jarvenpaa et al., Van der Heijden et al., 2003.), the effects of institutional risk and party risk on the attitude is expected to be negative. This results in the following combination:



**Figure 1:** Research Model (adapted from Ajzen and Fishbein, 1980; Tan and Thoen, 2000; Pavlou, 2002)

### **Measurement Instruments**

In order to increase reliability we operationalized each construct with multiple items. The operationalization for the party trust construct was taken from Pavlou and Gefen (2002). The operationalization for the attitude towards purchasing at an EM and the intention to purchase at an EM were taken from Van der Heijden et al. (2003) who slightly modified the scales from Jarvenpaa et al. (2000). We did make some minor modifications, including the wording of the items to make them applicable for an EM context. Measurement instruments for institutional trust, institutional risk and party risk were, to the best of our knowledge, lacking. Following calls from Straub (1989) and Boudreau, Gefen and Straub (2001) to increase efforts on the reliability and validation of the instruments used in IS research, we built upon the guidelines for measurement instrument development as put forward by Churchill (1979).

A literature study was applied to gather a sample of items with potential validity concerning the three constructs. These items were derived from the trust and risk literature (e.g. Stone and Grønhaug, 1993; Agarwal and Teas, 2001; Grabner-Kraeuter, 2002; McKnight, Choudhury and Kacmar, 2002; Pavlou and Gefen, 2002; Pavlou, 2003) and were part of several trust and risk measurement instruments. We then undertook a

series of focus group sessions with a sample of 10 people. Two of the participants were electronic commerce practitioners working for a well-known electronic marketplace. The remaining seven included IS faculty (six) and marketing faculty (two) from an academic institution. In the focus groups, the participants were asked to comment on the applicability of the items for each of the constructs, and to propose new items. This resulted in a draft questionnaire containing 11 items for institutional trust, 10 items for institutional risk and 10 items for party risk. Next, all items were translated into Dutch, resulting in a final questionnaire. Finally, we purified the measures and addressed reliability and validity of the measurement scales by conducting an online pilot survey with a student sample (n= 167). We dropped a number of items to keep the measurement scales unidimensional and to improve reliability. The remaining measurement scales (institutional trust: 4 items, institutional risk: 5 items and party risk: 4 items) met all validity and reliability thresholds as suggested by Hair, Anderson, Tatham and Black (1998).

### **Sample**

To test for predictive validity we conducted an online survey. The sample consisted of 457 consumers visiting the Dutch version of the European auction site QXL.com: Ricardo.nl ([www.ricardo.nl](http://www.ricardo.nl)). A pop-up screen was used to invite website visitors leaving the site to fill in a survey. Acceptance resulted in redirection to a web-based survey. The survey was conducted from the 12<sup>th</sup> up to and including the 19<sup>th</sup> of December 2003.

## **4 Results**

### **Sample Demographics**

70.2% of the respondents were men. 29.8% were women. The vast majority of the sample consisted of experienced Internet users, having experience with online shopping as well. 355 respondents (77.7%) reported to have purchased a product at the Ricardo.nl website. 221 respondents (48.4%) reported to have purchased a product at the Ricardo.nl website four times or more. This implies that the study is biased towards experienced Internet users, most of them having experience with purchasing at Ricardo.nl as well. Consequently, the results of the study are biased towards repeat purchase intention as opposed to initial purchase intention.

### **Reliability And Validity**

Exploratory factor analysis was used to explore whether the items measured one and only one construct. For the institutional trust and party trust risk constructs, we dropped one item to keep the measurement scales unidimensional. The sample met the thresholds for sampling adequacy (overall MSA 0.74, Bartlett's test of sphericity = 8257,  $p < .001$ ). The data suggested convergent and discriminant validity since all factor loadings loaded higher on their own factor than on the others.

**Table 1:** Factor Loadings Below .40 Are Not Shown. Note: see Appendix A for the exact wording of the items.

|         | Factor loading |      |      |      |
|---------|----------------|------|------|------|
|         | 1              | 2    | 3    | 4    |
| Itrust1 | .832           |      |      |      |
| Itrust2 | .847           |      |      |      |
| Itrust3 | .845           |      |      |      |
| Ptrust1 |                | .875 |      |      |
| Ptrust2 |                | .877 |      |      |
| Ptrust3 |                | .858 |      |      |
| Ptrust4 |                | .880 |      |      |
| Irisk1  |                |      | .802 |      |
| Irisk2  |                |      | .922 |      |
| Irisk3  |                |      | .899 |      |
| Irisk4  |                |      | .885 |      |
| Prisk1  |                |      |      | .863 |
| Prisk2  |                |      |      | .974 |
| Prisk3  |                |      |      | .922 |
| Prisk4  |                |      |      | .927 |

Table 2 displays the Cronbach's alphas for the constructs, all exceeding the 0.60 threshold for exploratory research (Nunally, 1967) as well as the 0.70 standard for more established research (Hair et al., 1998).

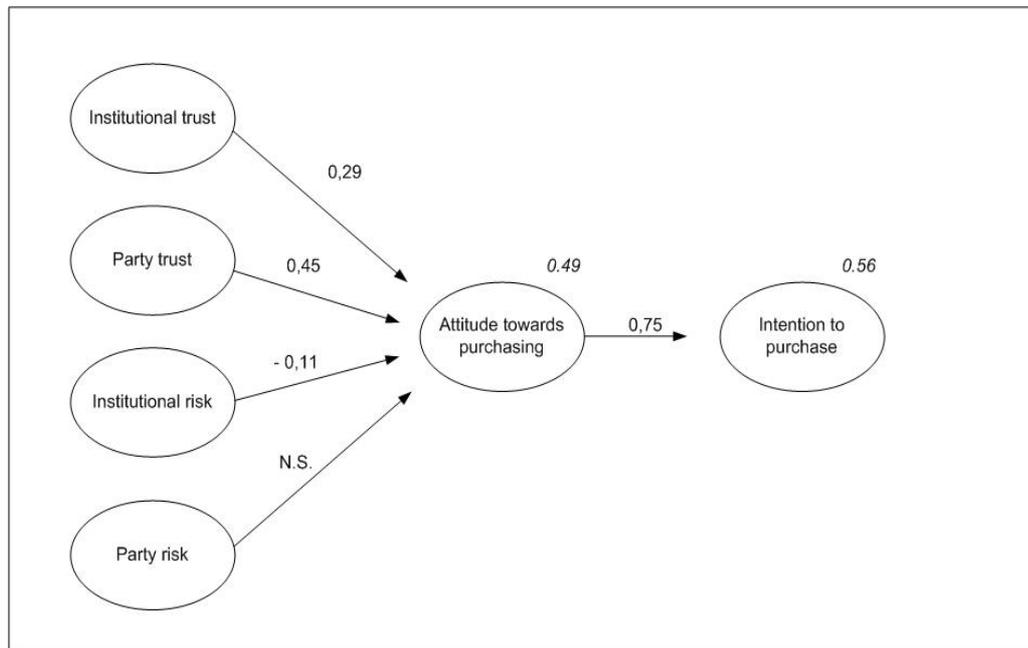
**Table 2:** Reliability Of Measurement Scales. Note: see appendix A for an overview of the items

| Construct           | Number of items | Cronbach's alpha (n= 457) |
|---------------------|-----------------|---------------------------|
| Institutional trust | 3 (1 dropped)   | .92                       |
| Party trust         | 4 (1 dropped)   | .94                       |
| Institutional risk  | 4               | .91                       |
| Party risk          | 4               | .95                       |
| Attitude            | 3               | .93                       |
| Intention           | 4               | .89                       |

We estimated the model's parameters by using structural equation modeling (SEM). The goodness-of fit measures suggested good fit with the data (e.g. GFI: .88 ; RMSEA: .071 ; NFI .94; TLI; .95).

Three out of four components contributed to attitude towards purchasing (see figure 2). These are in order of relative importance party trust, institutional trust and institutional risk. With respect to the impact of the individual trust and risk perceptions the following is observed. The impact of party trust and institutional trust on the attitude can be labeled 'very strong' and 'strong' respectively. The impact of institutional risk on the attitude can

be described as rather ‘weak’. The overall impact of trust and risk perceptions on the attitude is ‘very strong’.



**Figure 2:** Standardized Path Coefficients And Explained Variance For The Tested Research Model. Path coefficients are significant at  $p < .01$  level. *Italic parameters refer to the amount of variance explained. N.S. refers to non significance*

Due to the strong relationship between attitude and intention, a substantial amount of the impact of the trust and risk variables is carried over to behavioral intention.

## 5 Discussion

Our research has made a number of contributions to the existing body of research.

First, we introduced the concepts of institutional risk and party risk. We believe the concepts will add to the discussion how and to what extent perceptions of EMs affect consumer purchase behavior.

Second, we developed reliable and valid measurement instruments for the concepts of institutional risk, party risk as well as for institutional trust. We encourage researchers to apply these instruments in their own research.

Third, we empirically explored the relationships between institutional trust, party trust, institutional risk, party risk and consumer intentions to purchase at an EM. Our research results underline the importance of party trust, institutional trust and, to some extent, institutional risk.

The trust and risk components explained 49 percent of the variance of the attitude towards purchasing at an EM. Compared to other empirical findings in the field of trust, risk and online consumer purchasing (e.g. Van der Heijden et al, 2003), this is a comparable outcome. The vast majority of the explained variance is accounted for by

party trust and institutional trust, hereby providing strong support for trust theorists. However, we believe one should realize that our findings have to be interpreted with care for two reasons.

First, it is conceivable that characteristics of the sample have had an upward biasing effect on party trust and institutional trust. The vast majority of the respondents included experienced purchasers at Ricardo.nl. These shoppers have build relationships with both the intermediary and seller(s) at the marketplace. Since trust is expected to be a very important behavior determinant in settings where relationships have been established, this is likely to have had an upwards-biasing effect on our findings. Future research will have to demonstrate that our findings apply in other contexts, with less-experienced samples.

Second, the level of target specificity of the constructs is likely to have had an impact on the impact of institutional risk and party risk. We tested the research model for purchasing at a particular EM. We did not test the model for purchasing a particular product at an EM (higher level of target specificity). It is believable that replications of our work for particular products lead to different results. Of particular interest would be a study focusing on 'risky' products like laptops or digital cameras. We suppose these products will change the relative impact of the trust and risk variables, possibly in favor of institutional risk and party risk.

## **6 Conclusions and Recommendations**

This research has focused on the relationships between perceptions of trust and risk in intermediaries and sellers at an EM and consumer purchase intentions. We examined the literature on institutional trust and party trust and introduced the concepts of institutional risk and party risk. We then developed measurement instruments for institutional trust, institutional risk and party risk. A sample of consumers visiting an online marketplace was used to explore the relationships between the trust and risk types and consumer purchase intentions. The results showed statistical significance for party trust, institutional trust and institutional risk.

At least two conclusions can be derived from our research. First, perceptions of trust and risk account for a 49% proportion of the attitude towards purchasing at an EM. Second, when considering purchasing at an EM, party trust and institutional trust can be labeled as very important determinants of consumer purchase intention. These findings have implications for both research and practice. For practice, it suggests that investing money in trust issues is likely to be very useful. To positively affect perceptions of party trust and institutional trust, intermediaries might offer features like safeguards, references, communication options, security measures (e.g. SSL, trust seals) and privacy statements. For research, the results underline the need for additional theoretical and empirical exploration. Replications of our work in different settings are likely to result in additional insights concerning the relative impact of institutional trust, party trust, institutional risk and party risk. Moreover, stimulated by our findings, we encourage researchers to extend our study to different EM perceptions. Next to perceptions of trust and risk, purchasing at EMs is subject to different perceptions like, for example, usefulness, ease of use and website style. We believe a study focusing on the impact of these perceptions, differentiated according to the actor they refer to, will add to our understanding of online purchasing.

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## **Appendix A: Measurement Instruments**

### **Institutional trust (Itrust)**

<name intermediary> ensures sellers are reliable

<name intermediary> ensures sellers are honest

<name intermediary> ensures sellers are trustworthy

### **Party trust (Ptrust)**

Sellers in this online market are in general dependable

Sellers in this online market are in general reliable

Sellers in this online market are in general honest

Sellers in this online market are in general trustworthy

### **Institutional risk (Irisk)**

If I were to purchase through this online marketplace, I become concerned about whether <name intermediary>

will take care of transaction security

will protect me against fraudulent sellers.

will prevent fraudulent sellers from participating in its marketplace

will trace sellers in case of disputes

### **Party risk (Prisk)**

As I consider to purchase through this online marketplace, I become concerned about whether sellers:

will commit fraud

will swindle

offer products that will not perform as expected

will behave opportunistic

### **Attitude**

I am positive towards buying a product on the <name> website.

The thought of buying a product at the website of <name> is appealing to me.

I think it is a good idea to buy a product at the website of <name>.

### **Intention**

How likely is it that you would return to the <name> website?

How likely is it that you would consider a purchase at the <name> website in the short term?

How likely is it that you would consider a purchase at the <name> website in the long term?

How likely is it that you would purchase a product at the <name> website if you need one?