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A Theoretical Framework**

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THE NEED FOR CONSUMER TRUST IN INTERMEDIARIES IN ELECTRONIC MARKETS: A THEORETICAL FRAMEWORK

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ABSTRACT

The rise of E-commerce came with the promise of disintermediation. Yet, from aggregators to authenticators, the online landscape today is scattered with intermediaries such as EBay and Verisign, aiming to streamline ecommerce transactions and building consumer trust in Electronic Markets. The central theme of this paper is to understand the contextual factors that lead to consumers' need to trust intermediaries. In developing our arguments, the paper synthesizes perspectives from information economics, transaction cost economics, and literature on institution-based trust. Drawing on information economics, the paper contends that Electronic Markets embody certain inefficiencies, which in turn contribute towards heightening consumer uncertainty, especially under conditions of high information specificity. Heightened consumer uncertainty subsequently reduces consumer trust in Electronic Markets. It is only in the face of uncertainty and a loss of trust in Electronic Markets that consumers transfer their need to trust in intermediaries. However, the transference of trust is complete only agency costs from intermediation lie within consumer thresholds. A mini-case is used to illustrate our theoretical arguments, thus creating threads for more insightful investigations in the future.

INTRODUCTION

Why do consumers need to trust intermediaries in Electronic Markets? While consumer trust in intermediaries has often been cited as a precursor to institutional effectiveness and successful transactions (Pavlou and Gefen, 2004), there is little known about the contributing conditions behind consumer trust in intermediaries. For example, Pavlou and Gefen's (2004: 37) study on online marketplaces examines consumer trust in intermediaries as a precondition for institution-based trust in intermediaries. Yet, what leads consumers to need to trust intermediaries in Electronic (online) Markets in the first place remains unanswered.

Electronic Markets are defined as a virtual gathering of buyers and sellers in an electronic environment that coordinates transactions between different individuals and firms (Malone et al., 1987). Early work by Malone et al (1987) and Wigand and Benjamin (1995) argued for efficiency gains in Electronic Markets. It was expected that electronic communication would rapidly reduce transaction costs in Electronic Markets and make them disintermediated and frictionless (Wigand and Benjamin, 1995; Chircu and Kauffman, 1999). This contention became basis for the Electronic Market Hypothesis (EMH) that promised disintermediation owing to reduced costs of search (Bakos, 1997), coordination (Malone et al, 1987), and communication (Clemons, et al. 1993). In fact, as Bakos (2001) pointed out, the commonplace view that was held was that as Electronic Markets "lower the cost of market transactions, it will become easy to match the original producer and the ultimate buyer directly, and as a result the role of intermediaries may be reduced, or even eliminated, leading to "disintermediation"" (p. 75).

Interestingly though, a closer look spells a departure from EMH's prescient claims. Rather, Electronic Markets have grown to mirror rather than redefine the value chain in the physical world. In the physical world, intermediation is commonplace. Intermediaries such as shippers, wholesalers, distributors, financial brokers, and travel agents abound. Mirroring the physical world, Electronic

Markets, too, have instead seen a preponderance of intermediaries engaged in assisting consumers in Electronic Market transactions. In the context of Electronic Markets, an intermediary is an electronic agent performing a variety of Electronic Market-mediating functions. Research (e.g. Sarkar et al., 1995; Zwass, 2003; Son et al., 2006) has often referred to how intermediaries in Electronic Markets serve a variety of roles and functions: from search and directory services, to aggregation, to authentication and assurance. Consequently, it does not come as a surprise to note how Electronic Market intermediaries such as EBay, Verisign, and Thawte have made their presence felt as providers of *trusted* information (e.g. Google News, CNet), price discovery (e.g. Pricegrabber), advice (e.g. Amazon.com's recommender systems), security (e.g. certification authorities such as Thawte), and transaction (e.g. aggregation and non-repudiation (EBay, Paypal)).

Evidently, the popularity of intermediaries questions EMH's assertions of disintermediated efficiency (Bailey and Bakos, 1997), implicating "the possibility of inherent inefficiencies in Electronic Markets" (Grover et al., 2006: 317). The Nobel laureate, Ronald Coase (1937) remarked that intermediaries exist in physical markets because the costs of market exchange to manage and allocate resources in conventional (physical) markets are higher than the costs of coordination through organized intermediaries- thus making markets inefficient. Existing literature has noted that Electronic Markets may be "at best as efficient as their conventional [physical] counterparts" (Oorni, 2003: 30). Thus, mirroring Coase's (1937) arguments supporting the presence of intermediaries in conventional markets, we argue that intermediaries in Electronic Markets arise because of certain inherent Electronic Market inefficiencies that force consumers to trust intermediaries as providers of better market mechanisms.

Existing research has consistently referred to intermediaries as sources of trust (e.g. Bakos, 2001; Giaglis et al., 2002; Son et al., 2006). According to Bakos (2001), intermediaries provide trust relationships to ensure the integrity of Electronic Markets. Indeed, as Kim et al (2004) point out, lack

of trust is one of the “greatest barriers inhibiting Internet transactions” (p. 392). Given that intermediaries are an integral part of the e-commerce landscape and can play a role as trust providers, trust becomes a particularly useful concept to explain the rise of intermediaries¹. As Zwass (2003: 16) resonates, “the greater complexity of information, the greater number of transacting entities, and the *trust deficit* [emphasis added] present in the virtual world, all call for expanded and modified intermediation,” ushering in a spectrum of “web-based intermediation to replace the roles and structures of traditional intermediation” (Zwass, 2003: 16). Yet, there is a distinct hiatus in our knowledge of why consumers need to trust electronic intermediaries.

Addressing tensions in research surrounding the evolving Electronic Market landscape, *this paper seeks to identify factors and conditions that obviate consumer need for trust in intermediaries in Electronic Markets*². Logically, a need to trust intermediaries arises only in the presence of failing alternatives. It is therefore important that we step back and investigate why customers perceive a need to trust intermediaries in the first place. Central to this investigation is the contention that Electronic Markets may indeed be inefficient (Grover et al., 2006), thus prompting re-intermediation- an outcome of consumer lack of trust of Electronic Markets. In a recent study of consumer search for travel products in Electronic Markets, Oorni (2003: 37) found that the notion of efficiency of Electronic Markets is disillusioning, thus questioning “the expected high efficiency of Electronic Markets.” Similarly, Brynjolsson and Smith (2000) remarked that the seller heterogeneity with respect to awareness, branding and trust created friction (inefficiencies) that is “amplified on the Internet as compared to conventional channels” (p. 580). Such findings draw our attention to the fact that there are

¹ While there are obvious windows (e.g. economies of scale and scope, price discovery, buyer seller matchmaking) for explaining the rise of intermediaries in Electronic Markets, it has been unequivocally ascribed that intermediaries are essentially providers of trust (e.g. Bakos, 2001; Giaglis et al., 2002; Zwass, 2003). We therefore use the lens of trust to explain the rise of intermediaries in Electronic Markets.

² At this point, it is important to note that the arguments posed by this paper generally concern Business-to-Consumer (B2C) and Consumer-to-Consumer (C2C) transactions in Electronic Markets. Because Business-to-Business (B2B) linkages are often pre-verified and better controlled (e.g. use of dedicated connections, value-added-networks, proprietary

inherent inefficiencies in Electronic Markets. Because “[Electronic Market] imperfections determine intermediation activities” (Spulber, 1999: 3), “understanding the presence or absence of exploitable imperfections in Electronic Markets is critical for the long-term viability [of ecommerce]” (Clemons et al., 2002: 535). In light of the acuteness of the issue, the paper offers a systematic understanding of Electronic Market inefficiencies and their consequential effects on intermediation.

The paper specifically develops and proposes a theoretical framework to unravel consumer need for trust in intermediaries³ in Electronic Markets. The scope of our investigation surrounds an understanding of how inherent imperfections in Electronic Markets raise consumer uncertainty; how uncertainty begets a loss of trust in Electronic Markets; how diminished trust in Electronic Markets necessitates a trust in Electronic Market intermediaries; and how this need to trust intermediaries could reduce future perceptions of uncertainty. Despite acknowledging that trust in Electronic Markets is central to consumer decision-making (McKnight et al., 2002; McKnight and Chervany, 2001-2002; Gefen et al. 2003; Wang and Benbasat, 2005), there have been few attempts to tie consumer trust in Electronic Markets to underlying market inefficiencies.

The scope of arguments posed in the paper is limited only to transactions in Electronic Markets, without any potential carryovers from transactions in the physical world. We assume that the sellers have a purely digital presence and tracing them physically may be infeasible. By containing the scope, we feel that we can better understand consumer behavior in Electronic Markets by limiting potential confounds stemming from transactions with hybrid sellers, i.e. sellers that consumers can easily transact with both online and offline. Hybrid sellers confound a systematic understanding on consumer behavior by overlapping their digital attributes in Electronic Markets with their attributes in

interchange formats such as EDIFACT), one could argue that B2B markets are less prone to inefficiencies plaguing B2C and C2C Electronic Markets.

³ While we recognize that trust grows as consumers interact more and more with an environment, it is not always the case with Electronic Markets. With millions of nodes (sites) from around the globe being added daily, newer and faster connections being introduced, ingenious ploys abound. Buffer overflows, phishing, spoofing, repudiation, adware, and

physical markets. A seller's attributes in a physical market may more likely dominate the seller's attributes in a digital world, especially if consumers are aware of the seller's physical presence. By containing our arguments to transactions with sellers present only in Electronic Markets, we reduce the risk of spurious theorizing.

The paper is organized as follows. The next section briefly reviews the theoretical underpinnings and presents a theory-guided rationalization of consumer choice and decision-making. Next, the paper introduces the proposed theoretical model, drawing on essential concepts of Electronic Market inefficiencies, uncertainty, the corresponding substitution of trust from Electronic Markets to intermediaries, and the future effects of this trust in intermediaries on consumer uncertainty. Underpinned by the theoretical model, propositions are developed to forward our arguments. The theorization is further illustrated with the help of a mini-case related to online mortgage marketplaces. Finally, the paper discusses the contribution and relevance of the proposed model, noting limitations and identifying areas for future research.

THEORETICAL BACKGROUND

The theoretical background in this paper rests on the assumption that consumer behavior in Electronic Markets is captive to information asymmetries characterized by market inefficiencies. As a result, our arguments seek to understand consumer need for trust in intermediaries from a primarily economic standpoint, underpinned by concepts of economic rationalism and consumer psychology. Of special importance are the economic underpinnings of Electronic Markets, particularly those Electronic Market inefficiencies that ultimately force the need for consumer trust in intermediaries. Our theoretical lens draws from different fields of inquiry, specifically, information economics,

spyware are just a small sample of the ingenious ploys that consumers often succumb to in Electronic markets. The unprecedented dynamism of Electronic Markets makes consumers evermore wary and uncertain.

transaction cost economics, and institution-based trust in Electronic Markets and intermediaries, leading to a framework driven by economic rationality.

Intermediaries in Electronic Markets

In the context of our investigation, intermediaries are independent third party structures that provide an institutional aegis for consumers in an uncertain market environment by controlling and processing market exchanges (Sarkar et al., 1995; Bailey and Bakos, 1997; Bhargava et al., 2000; Grewal et al., 2001; Grover and Teng, 2001; Dai and Kauffman, 2002; Pavlou and Gefen, 2004). In examining different markets, Bailey and Bakos (1997) found that intermediaries in Electronic Markets serve as aggregators, trust providers, facilitators, and matchmakers in markets, thus “outweighing any trend towards disintermediation” (ibid: 1). In the process, Spulber (1996; 1999) notes, intermediaries add value to inefficient markets by seeking out sellers, finding and encouraging buyers, defining mutually acceptable terms of transaction, managing payments and record-keeping, and performing escrow services on behalf of transacting parties. Third party intermediaries in Electronic Markets offer a variety of services including liquidity (e.g. credit card services), aggregation (e.g. EBay), search (e.g. Google), matchmaking (e.g. Priceline), escrow (e.g. Paypal), authentication (e.g. root certification authorities, credit card companies), assurance (e.g. Thawte), and security (e.g. Verisign).

Intermediaries are different from infomediaries. Hagel and Armstrong (1997) coined the term infomediaries to describe intermediaries specialized in information brokerage, particularly specializing in customer information and narrowly focused on customer relationships. In an interview with Business Week, Hagel (1999) noted that infomediaries were essential for “identifying a set of customers, developing relationships with them, becoming more knowledgeable about who they are and more helpful as a result in connecting them to the right kinds of products and services they're looking for.” Intermediaries subsume infomediaries to include other forms of Electronic Market brokering

activities, namely independent portals (e.g. Yahoo!), metamediaries (e.g. Kayak, EBay, and Yahoo! Stores), e-tailers (e.g. Overstock), authentication and assurance services (e.g. Verisign, Visa, Carfax), among others. As Hagel (1999) further remarks, “in most cases the value that's being created today is being created by intermediaries, new kinds of intermediaries coming between customers and vendors, often in markets where they didn't even have an intermediary before.”

Electronic Market intermediaries add value in myriad ways. In addition to their search, matchmaking, aggregation, and market-making abilities, intermediaries also provide other institutional mechanisms for monitoring, control, and assurance (Zwass, 2003; Son et al., 2006). Intermediaries make sure that buyer and seller expectations are continuously met by mechanisms ranging from feedback (Pavlou and Dimoka, 2006) and rating systems to non-repudiation guarantees. Also intermediaries such as Verisign and Thawte offer pre-transactional assurances. Again, institutional mechanisms offered by intermediaries such as Safeharbor and dispute resolution setups embody essential controls to alleviate consumer concerns and disputes surrounding market transactions.

Spulber (1999: 3) effectively summarizes the role of intermediaries in Electronic Markets in his remarks:

“When there is demand and supply randomness, intermediaries provide liquidity or immediacy by standing ready to buy and sell. Given uncertainty about the willingness to pay or opportunity costs of trading partners, intermediaries coordinate transactions by matchmaking and brokering activities. When the characteristics of buyers and sellers are unobservable, intermediaries generate market information and provide guaranties for product quality to address adverse selection. When the actions of buyers and sellers are costly to observe, intermediaries provide monitoring and contracting activities.”

Together, intermediaries offer reliance for consumers by creating *institutional mechanisms* as a basis of trust building and uncertainty reduction when transacting with unknown parties in an uncertain

environment (Pavlou and Gefen, 2004). Moreover, under conditions of uncertainty, intermediaries can provide guidelines for what constitutes acceptable transaction behavior and institute regulations to dampen consumer wariness about transacting in Electronic Markets.

Economics of Information Theory, Transaction Cost Theory, and Intermediation

The elemental role of intermediaries has been examined by economics of information theory (Stigler, 1961) and transaction cost economics (Coase 1937; Williamson, 1975; 1985). Both offer some theoretical respite by bridging consumer uncertainty and trust with consumer propensity to seek intermediation. The presence of intermediaries implies a break in “prosumerism,” i.e. the direct flow of goods and services between consumers and producers in a “frictionless’ market. A fundamental assertion has been that if the flow of goods and services without intermediaries were efficient, there would be no intermediaries (Stigler, 1961; Williamson, 1975). However, as markets signal inefficiencies, consumers seek intermediation.

Buyers in inefficient markets always incur rising transaction costs, mainly because seeking complete information for transacting is more difficult in Electronic Markets than assumed by the EMH (Spulber, 1999). EMH posits that negligible transaction costs lie at the heart of Electronic Market efficiencies. However, that contention has become suspect as the scale and scope of Electronic Markets have grown in leaps and bounds. Low barriers to entry have contributed to a preponderance of entities posing as credible sellers, therefore raising costs of search and transaction and refuting EMH’s proposition of negligible search costs. Even though marginal costs of search in Electronic Markets are considerably lower than that of traditional markets, total search costs have not dampened, owing to the ever-increasing number of “allegedly legitimate” participants across the globe and the corresponding costs to confirm their veracity. Stigler’s (1961) concept of search costs is subsumed by Williamson’s

(1975) transaction costs, defined as the costs involved in seeking requisite information that can assist rational decision-making. As Electronic Markets grow, so do search and transaction costs.

It is interesting to note that, even without considering the compounding global effect of electronic commerce (particularly the world-wide-web), Stigler (1961) observed that markets experience positive network externalities⁴ - with growing number of sellers offering myriad price options. When consumers are not perfectly informed about these prices, they will search to discover favorable choices. However, every search incurs cost, and increasing search costs lead to decreased perception of benefits (Williamson, 1975; 1985; Spulber, 1999). Coase (1937) and Williamson's (1975) notion of transaction costs goes beyond search costs to encompass (a) costs of seeking "complete" information on sellers (b) costs of seeking "complete" information on products and services; and, (c) costs of negotiating, monitoring, and enforcing a sale/contract. High transaction costs have constantly been a concern- even in physical markets where products are tangible, processes are well defined, and sellers have a physical presence. In sharp contrast, in Electronic Markets, product transparency is lacking due to intangibility and information asymmetry, sellers are anonymous, and processes are masked by interfaces. Limited by these attributes, it may be remarked that Electronic Markets, too, are inefficient.

In summary, building on information economics and transaction cost economics, we argue that consumer need for trust in intermediaries is triggered by perceptions of market inefficiencies.⁵ The arguments behind our proposed framework are thus: Inherent inefficiencies in Electronic Markets heighten consumer uncertainty. Perceptions of uncertainty lead to a consumer's reduction of trust in Electronic Markets. As a result, consumers need to trust intermediaries as a prelude to reducing their overall future uncertainty (Figure 1).

⁴ Positive network externalities refer to the fact there is a positive marginal effect of an additional user of a network upon existing users of the network (Asvanund et al., 2004)

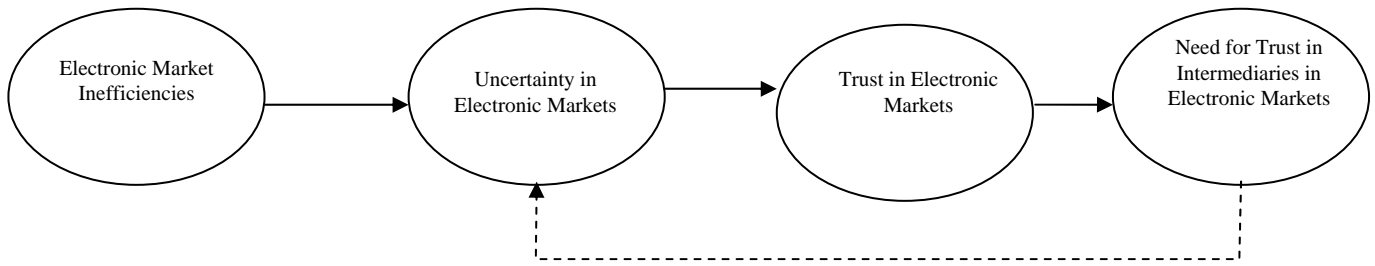


Figure 1. Preliminary framework of consumer need to trust intermediaries in Electronic Markets

FRAMEWORK DEVELOPMENT

Consumer Uncertainty in Electronic Markets

This paper defines uncertainty as the quandary of the principally unknowable, unpredictable, and uncontrollable future (Lascaux, 2003) owing to “neither ignorance nor complete and perfect information but partial knowledge” (Knight, 1985: 199). Uncertainty refers to the inability of consumers to make predictions due to the availability of imperfect information (Bauer, 1960; Pfeffer and Salancik, 1978; Pavlou et al., 2007). At the heart of consumer uncertainty is the “problem of intuitive estimation” in the absence of a priori probabilities - leading to extreme precariousness of expectations and confidence among consumers (Knight, 1985). The conditions of intuitive estimation and imperfect (asymmetric) knowledge that define uncertainty are essentially tied to the concept of *bounded rationality* (Williamson 1985) where information asymmetry dampens utility maximization among consumers, leading them to make economic choices based on imperfect (partial) information and knowledge.

⁵ While we do agree that these inefficiencies are largely objective, our focus in this paper is more on what consumers feel about such inefficiencies (since we are theorizing about their need to trust intermediaries). Hence our framework refers to

Within our scope, uncertainty essentially revolves around the transactions that consumers undertake in Electronic Markets. Such uncertainty is also influenced by the market type. According to Williamson (1985), transactions in “spot markets” have relatively little consumer uncertainty. Consumer transactions in physical markets, vis-à-vis Electronic Markets, are similar to spot markets with lower information asymmetry and nearly instantaneous feedback. In contrast, inefficient markets raise consumer uncertainty (Williamson, 1985). Williamson’s characterization of market inefficiencies deals with the consumer’s incomplete information on three distinct parts of a transaction contract: identity of sellers (i.e. anonymity), characteristics of the product (i.e. product transparency), and the process of monitoring, negotiating, and exercising the transaction (i.e. process transparency). These three exhibitions of market inefficiencies therefore remain prime candidates for increased consumer perceptions of uncertainty surrounding transactions in Electronic Markets (Williamson, 1985; Hodgson, 1997; Tan and Thoen, 2001; Van der Heijden et al., 2003).

Inefficiencies in Electronic Markets

Coase (1937) refers to inefficient markets strictly as markets with high transaction costs. In his seminal work, Coase (1937) postulates that high transaction costs are at the very heart of market inefficiencies: negligible transaction costs imply efficient markets while high transactions costs imply inefficient markets. In short, following Coase (1937) and Williamson (1985), market inefficiencies constitute compounding transaction costs.

Transaction costs draw attention to two behavioral assumptions that lie at the core of any economic organization (Williamson, 1985; Rindfleisch and Heide, 1997; van Oosterhout, 2006): opportunism and bounded rationality. Opportunism refers to the fact that markets are subject to exploitation of the free space for unilateral gain; Bounded rationality refers to the fact that we are cognitively limited in our ability to rationally devise ways to seek an optimal goal. In the context of

perceptions of such inefficiencies.

Electronic Markets, bounded rationality thus forces consumers to make sub-optimal decisions and opportunism leverages on information asymmetry (e.g. price dispersion) for unilateral gain. Bounded rationality prevents consumers to consider all possible contingencies and incorporate them in transaction contracts with sellers in Electronic Markets, even when threatened with looming perceptions of opportunism. Under these assumptions, marginal costs of gaining complete information for Electronic Market transactions is naturally high. Thus, high transaction costs become an inherent economic hazard in inefficient markets.

Electronic Market inefficiencies are instantiated by their growing share of problems: price dispersion, identity theft, repudiation, spoofing, hacking, network and system vulnerabilities, among many others. These sampled instances of Electronic Market inefficiencies leave consumers wary of transacting in Electronic Markets, leading them to lose trust. As consumer trust in Electronic Markets decreases, so does the probability of their undertaking Electronic Market transactions, *regardless of vendor credibility* (Patton and Josang, 2004). Simply put, for transactions to occur in Electronic Markets, it must be, *per se*, deemed trustworthy as an institutional structure (McKnight et al., 2002).

Inefficient markets are, by default, less transparent, i.e. available market information is inaccurate and incomplete (Finel and Lord, 1999; Granados et al., 2006). Williamson's (1975) seminal work on transaction costs note that market inefficiencies (i.e. reduced transparency) arise from three major factors: (a) a lack of knowledge of the seller's (or buyer's) identity (i.e. anonymity); (b) a lack of knowledge of the product being offered (i.e. lack of product transparency); and (c) a lack of understanding of the underlying transaction process so as to easily monitor and enforce contracts (i.e. lack of process transparency). The more transparent the market, the easier it is to verify the true identity of a seller, true characteristics of a product, and true characteristics of a process. Simply put, transparent markets decrease the number of unknowables.

Recasting Williamson's concerns in the domain of Electronic Markets, inefficient markets are markets with high transactions costs: costs of searching for and contracting with legitimate sources, costs of acquiring accurate product information, and costs of monitoring and enforcing the transaction process. We address each of these inefficiencies below as we develop our propositions.

Anonymity

Anonymity is defined as the inability of consumers to determine the true identity of sellers in Electronic Markets. Given low barriers to entry in Electronic Markets, there is a constant proliferation of sellers from around the world, their "faceless" presence warranted merely by an URL. Domain names, uniform resource locators (URLs), and even hyperlinks can be conveniently used to mask the true identity of a particular site. Pseudonyms increase anonymity by masking both buyers and sellers, leading to problems such as spoofing, phishing, repudiation, and identity theft (Grazioli and Jarvenpaa, 2003).

Anonymity, as a characteristic inefficiency of Electronic Markets, is well established in literature (Malone et al., 1989; Kalakota and Whinston, 1996). There is no way for any consumer to actually know if sellers are what they purport to be, especially because it is very easy for an entity to mimic an authentic seller in Electronic Markets. In the absence of any physical interaction, buyers are only privy to the information afforded by the "faceless" seller. A domain name neither certifies the seller nor the site.

In markets that thrive on anonymity, buyers remain uncertain about the security offered by such a transaction environment. In investigating limit orders in markets, Foucault et al (2003) found that concealing traders' identities in markets increases information asymmetry where uninformed bidders were deterred from improving on posted quotes because of perceptions of market uncertainty. Lacking complete information about sellers, buyers may feel a sense of ambiguity about Electronic Markets. Because the seller's presence is known only by virtue of an URL or an IP (Internet Protocol) address,

the buyer is immediately distanced from recognizing who the seller might truly be. In physical markets, a rundown strip mall purporting itself to be the worlds' best mall can easily be differentiated and avoided by a consumer. In Electronic Markets, consumers would merely be privy to their domain names, with little information about any other attributes that could define the seller. As Pavlou et al (2007) notes, consumer uncertainty is generally higher in Electronic Markets. Because Electronic Markets offer possibilities to mask seller identity, consumers transacting in such an environment can rarely ensure the true identity of sellers, thus increasing their uncertainty related to transacting in such markets.

Proposition 1a: Perceived increase in anonymity in Electronic Markets is likely to increase consumer uncertainty about Electronic Markets.

Lack of Product Transparency

Building on Granados et al (2005b), product transparency is defined as the consumers' ability to completely understand all necessary product attributes required to make an informed decision.

Electronic Markets are limited in their ability to represent a product in all its completeness (Granados et al., 2006). This is why Electronic Markets are characterized by a lack of product transparency.

There is tremendous information asymmetry in Electronic Markets. In Electronic Markets, sellers can represent a product in myriad ways. Lacking a reference frame such as product tangibility in the real world, consumers' understanding of a product is captive to the seller's representation. If a seller from Azerbaijan claims that their rugs have the highest quality Persian wool, the consumer is captive to only that information that the seller provides. Even if the one is an expert in judging wool quality, the lack of tangibility and complete information will force one to accept the sellers' claims at face value. Likewise, concerns about the lack of product transparency arise when the true product characteristics are not easily captured or discernible by the environment (Strader and Shaw, 1999), an issue germane to Electronic Markets.

Electronic Markets lack attributes afforded by physical markets: the tangibility of products allowing for immediate feedback and clarification of product attributes. A consumer interacting in physical markets can attempt to examine various attributes of the product (e.g., texture, shape, function) and can also obtain first hand knowledge from a sales representative. However, in the case of Electronic Markets, the utmost a consumer can do is look at the graphical rendition of the product and read about its description and characteristics provided by the seller. Consumers remain privy to only the information provided by sellers: a subset of all possible information required to transact. Further, feedback is slow and incomplete, even when synchronous communications channels (e.g. chat) are available. This represents an acute loss of objectivity of product characteristics and consumers may feel that they are likely to fall prey to sellers' inaccurate representations (deliberate or inadvertent) of products to suit the sale. For instance, Venkatesan et al (2006) note how Internet retailers capitalize on the lack of consumers' knowledge of service quality and transparency. On a similar note, Oorni (2003) noted how poor availability of credible product information in Electronic Markets limited Electronic Market efficiencies.

Williamson (1985) remarks that imperfect markets are characterized by the consumers' lack of knowledge about products, inevitably arousing their sense of uncertainty about markets. Similarly, Electronic Markets fail to capture the true attributes of a product, leading to uncertainty among consumers (Liang and Huang, 1998). To summarize, because consumers in Electronic Markets are unsure of specific product attributes required for transacting, it is likely that consumers will remain wary about Electronic Market transactions.

Proposition 1b: Perceived increase in lack of product transparency in Electronic Markets is likely to increase consumer uncertainty about Electronic Markets.

Lack of Process Transparency

Process transparency is defined as consumer visibility and verifiability of the true underlying operation and execution process in Electronic Market transactions (Hsu and Soo, 2002). An Electronic Market transaction, like any other market transaction, implies a contract in progress. As Williamson (1975) notes, a successful market mechanism allows for transparency in monitoring the process by which the contract (i.e. the sale) is drawn up and enforced. If consumers lack information and visibility of the transaction process, it creates a degree of uncertainty (ibid).

Process transparency is essentially different from the notion of product transparency. While product transparency concerns the accurate and complete representation of the characteristics or attributes of the product, process transparency refers to an accurate and complete representation of the transaction process. Thus, while product transparency refers to product attributes such as look and feel, texture, etc, process transparency concerns issues such as payment processing, information assurance, payment receipt, and product delivery.

Process transparency in Electronic Market transactions is essentially different from physical market transactions. Consider the case where a consumer physically goes to the store and makes a purchase. The consumer picks up the goods, walks up to the cashier and pays for it, either by cash, check, or credit card, and then walks away with the purchase. The control seldom shifts from the consumer to the seller. Here, process transparency is high: characterized by a high degree of immediacy, i.e. the ability of a consumer to enable and control the transaction process (Granados et al., 2005a). Part of the problem lies in the fact that integrating complex systems in Electronic Markets are difficult (Oorni, 2003), thus reducing the consumer transparency of the entire process.

In Electronic Markets, a lack of immediacy or process transparency is evident as control shifts from consumers to sellers. A consumer has little know-how of the process that is initiated upon submitting an online order. Process details for Electronic Market transactions remain a black box with

little consumer control over how the order and payment information is received, handled, and forwarded to a shipper. The consumer remains unaware and hence uncertain of who picked the payment, how it was processed, and even if the payment information was duly received by the intended party or was intercepted by malicious entities (e.g. packet sniffers) in between. Such problems epitomize privacy concerns regarding handling of personal and sensitive information (e.g. who picks up the payment and how the credit card number is handled) and are considerably higher for consumers purchasing in Electronic Markets (Dinev and Hart, 2006). Without distinct knowledge of the transaction process, consumers are not likely to be able to monitor their contracts in markets (Williamson, 1985). A lack of process transparency inherently reduces a consumers' ability to muster credible knowledge about how Electronic Market transactions are handled, leading to an increased sense of uncertainty (Williamson, 1985; Liang and Huang, 1998). Because Electronic Markets cloak consumer visibility and verifiability of the underlying transaction process, it is likely that consumers will remain wary about transacting in Electronic Markets.

Proposition 1c: Perceived increase in lack of process transparency in Electronic Markets is likely to increase consumer uncertainty about Electronic Markets.

Information Specificity

Building on Choudhury and Sampler (1997), we define information specificity as the demand and reliance placed by a consumer on information that is specific and timely to assist them in their transactional decision-making. Information specificity refers to the importance place by consumers on the requisite knowledge suitable for transacting and explains how critical consumers perceive the specific information is for them.

Information specificity is rooted in Williamson's (1975; 1981) idea of asset specificity, acknowledging the fact that information is a key asset in any exchange. The criticality of the

information as an asset duly influences our perceptions of the environment that serves it. Higher information specificity implies a greater degree of vulnerability, particularly under the pretext of existing inefficiencies.

Recalling our definition, information specificity is a consumer's demand for and reliance on specific information. Given that Electronic Market inefficiencies signify a lack of information about varied aspects of the market (i.e. anonymity, lack of product and process transparencies), they create a condition where consumer demands for specific information are likely to remain unmet, leading to increased uncertainty. Simply put, if the information that consumers seek is critical to their subsequent decisional behavior yet incomplete owing to Electronic Market inefficiencies, uncertainty is likely to be high.

Coupled with existing market inefficiencies, information specificity can influence perceptions of uncertainty in consumers in a variety of contexts. Choosing financial instruments offers an appropriate exemplar. Given information specificities of different financial instruments, consumers may be less uncertain about purchasing US T-Bills than purchasing stocks and mutual funds from anonymous sellers. Again, it is more likely that consumers would require more complete information on financial products such as mutual funds and stocks (e.g. ratios, analyst opinions and estimates) than for commercial paper. Similarly, consumers may require much more process transparency with stocks (e.g. placing limit orders) and bonds than with CDs that have maturities and yields associated with them.

To summarize, information specificity reflects the demand placed by consumers on seeking specific information needed for transacting in Electronic Markets. What we see is that different products having different levels of information specificity may require different levels of market efficiencies. In other words, existing market inefficiencies will produce different levels of uncertainty depending upon particular levels of information specificity. In the face of information asymmetry and

reduced transparencies inherent to Electronic Markets, information specificity increases the probability of “unknowables”- thus compounding uncertainty.

Proposition 2: Information specificity positively moderates the direct effects of perceived inefficiencies of Electronic Markets on consumer uncertainty about Electronic Markets.

Institution-based Trust in Electronic Markets

Institution-based trust has been well established in the E-Commerce literature (Morgan and Hunt, 1994; Ba et al., 1999; Hoffman et al., 1999; McKnight and Chervany, 2001-2002; McKnight et al., 2002; Pavlou and Gefen, 2004; Dinev et al., 2006), especially under conditions of uncertainty (Mayer et al., 1995; Mishra, 1996). Institution-based trust in Electronic Markets is derived from a consumers’ belief that necessary impersonal structures are in proper order to enable consumers to act in anticipation of a successful outcome of an endeavor (McKnight et al., 1998). According to Pavlou and Gefen (2004), consumer behavior in markets characterized by little or no previous interaction between socially and culturally different buyers are credibly understood in light of institution-based trust.

Based on McKnight et al (2002), institution-based trust in Electronic Markets is defined as the willingness of individuals to be vulnerable to transactions conducted in Electronic Markets based on the rules and regulations offered therein. The concept of institution-based trust transcends Mayer et al’s (1995) interpersonal trust, a notion “too restrictive” for e-commerce (Tan and Thoen, 2000).

Rather, institution-based trust draws upon impersonal structures that serve as overarching institutions.

It is important to note that institution-based trust is different from vendor-based trust. While vendor based trust involves dyadic trust between two parties (buyers and sellers), institution-based trust is the trust that consumers place in Electronic Markets serving as an institution with necessary safeguards in place. Electronic Markets host vendors to promote transactions but are not vendors

themselves. Instead, as catalysts, Electronic Markets leverage their distinction as an institution to offer safeguards and efficiencies as differential advantages to induce consumer transactions. Unless Electronic Markets adopt mechanisms that engender institution-based trust in consumers to make consumers feel that Electronic Markets are a proper and safe haven for transactions, consumers would be unwilling to undertake vendor-specific transactions in Electronic Markets. Dasgupta (1988) aptly suggests that consumer trust in markets depends on the power of markets to enforce contracts. If consumer trust in the greater market falters, consumers will have difficulty in trusting vendors in the market. Such is the fragility of trust (ibid). Institution-based trust in Electronic Markets thus becomes a prerequisite to vendor-specific transactions, especially when customers are exposed to new and unknown vendors (Pavlou and Gefen, 2004). The McKnight et al (2002) trust model for E-commerce similarly contends that institution-based trust antecedes trust in a particular web vendor.

According to Akerlof (1970), the importance of trust surfaces only when consumers face uncertainty. This view is echoed by Pavlou et al (2007) who argue, based on Rousseau et al (1998) that the notion of trust becomes important under conditions of uncertainty. Institution-based trust rests on the belief that impersonal structures such as regulations and guarantees are effectively in place to reduce existing uncertainties by providing foundations for secure and favorable transaction outcomes in the future (McKnight et al., 1998). However, if Electronic Markets, as institutions, are inefficient enough as to not warrant that such impersonal structures are in place, it will reduce consumers' institution-based trust in Electronic Markets. As Kee and Knox (1970) propose, only when consumer uncertainty reaches ad-hoc thresholds, consumers begin to withhold full manifest trust in order to protect themselves from expected vulnerability. Information asymmetry increases the variance in consumer perceptions of successful transactional outcomes, making it impossible for consumers to deduce transaction outcomes a priori. Uncertainty is, at the best, speculative- arising only when expectations are not calculative, i.e. cannot be mapped from ex-ante probabilities. Were consumers

certain of the outcome (i.e. have complete, rather than partial knowledge), be it positive or negative, there would be no uncertainty. Thereby, a consumer who is not sure of what to expect from transacting in a market environment is likely to reduce their trust in the market. It is the prospect of uncertainty, particularly random chances of negative consequences that lays the groundwork for negative effects on institution-based consumer trust in Electronic Markets (Luhmann, 1979; Mishra, 1996). We thus argue:

Proposition 3: Increased consumer uncertainty about Electronic Markets is likely to reduce institution-based trust in Electronic Markets.

Institution-based Trust in Intermediaries in Electronic Markets

Trust, particularly institution-based trust, has been cited as key to Electronic Market transactions (Lee and Turban, 2001), especially for understanding intermediation (Lee and Turban, 2001; Ba and Pavlou, 2002; Pavlou and Gefen, 2004). Pavlou and Gefen (2004: 45) define institution-based trust in intermediaries as the belief of a buyer that intermediaries in a market will “institute and enforce fair rules, procedures, and outcomes in its marketplace competently, reliably, and with integrity” The definitional fairness and equity can be traced in many different forms: providing unbiased results from a query, unbiased search discovery, equitable aggregation of transactors, transactional safeguards, among others. Intermediaries structurally assure consumers of an equitable and safe haven for transacting in Electronic Markets.

Taken together, intermediaries provide structural assurances and safeguards (e.g., governance, standards) by making sure the contextual conditions such as services, promises, contracts, regulations, and guarantees are in place (Sitkin, 1995; McKnight et al., 1998). For example, intermediaries create third-party institutional mechanisms consisting of services (Expedia’s aggregation services), promises (Amazon), contracts (EBay), regulations (Paypal), and guarantees (Verisign) without any objective

loyalty to either the buyer or the seller. In a five-month study of consumer transactions on eBay, Resnick and Zeckhauser (2002) found that buyer-seller transactions on eBay hinged completely on eBay's reputation system, where buyer and seller ratings offered the requisite degree of institutional trust needed for Electronic Market transactions. Similarly, Gengatharen and Standing (2005) remark on how the success of government mediated regional e-marketplaces depends upon the ability of the government, as an intermediary, to offer institutional structures that engender trust. To summarize, "[electronic] market intermediaries continue to play essential roles, however, in matching buyers and sellers, demand and supply aggregation, trust agency, and facilitation of exchange" (Zwass, 2003: 16). Even Verisign, one of the largest security and authentication intermediaries promotes itself as "An Internet Trust Company."

Intermediaries offer a variety of institutional mechanisms comprising of different types of trust: namely vendor trust, product trust, and process trust. Vendor trust assures consumers that a particular vendor in an Electronic Market, although anonymous, is a legitimate entity. For example, intermediaries such as certification authorities (CA) contribute to vendor trust by assuring consumers of vendor legitimacy. Product trust assures consumers that they have complete and accurate product information. For example, consumers often use Carfax.com as an intermediary to verify product information as stated by the seller before transaction. Similarly, various search engines, aggregators, and review forums provide consumers unbiased product information and opinions. Finally, process trust assures consumers that their Electronic Market transactions are transparent. For example, third-party services such as eBay's SafeHarbor assure consumers by enforcing contracts to reduce issues such as repudiation. In a study of e-business application adoption among consumers in small and medium enterprises (SME), Brown and Lockett (2004) remark on how SME consumers rely on intermediaries as trusted third parties, especially under conditions of uncertainty and complexity. Similarly, in investigating E-procurement options, Kauffman and Mohtadi (2004) find that stochastic

shocks in Electronic Markets make volume buyers reluctant to trust the market in general and instead place their trust in intermediaries. In short, a consumer's failing trust in Electronic Markets may propel the consumer to need to trust institutional mechanisms offered by intermediaries.

Tan and Thoen (2001; 2002) further elaborate on this issue of duality of trust by using concepts of party trust (e.g. dyadic or interpersonal/interparty trust) and control trust (e.g., reliance on control as a substitute for party trust). According to Tan and Thoen, reduction in one form of trust necessitates an increase in another. In the scope of our discussion, party trust is the trust that consumers place on the trustee, i.e. Electronic Markets, based on the assumption that the trustee is likely to be efficient in helping the trustor reach a favorable transactional outcome. A lack of party trust requires an increase in control trust to ensure consumer transaction.

Control trust is the trust that consumers place in external third-party institutional control mechanisms to assist them in feeling more confident about achieving favorable transaction outcomes. Tan and Thoen (2001; 2002) note that if there is not enough party trust in a certain situation, then some control mechanism is prescribed. The note explicates a substitution of trust. According to Tan and Thoen (2002), if a firm does not trust that another firm can actually pay for goods, it requires a third-party "Letter of Credit" that it holds as a vouchsafe. By doing so, the firm substitutes its lack of trust in the other firm by instating its trust in third-party institutional mechanisms. This is common practice. Consumers in Electronic Markets seeking a fabrication shop for fabricating a CAD design may lack trust in the open vendor-market over the Internet. Consequently, consumers may find a need to pin their trust on intermediaries ranging from GlobalSpec (an engineering search engine and aggregator) to International Standards Organization (ISO) certification agencies and assurance services such as Verisign to partly assure the consumer. Consumers tend to substitute trust from one institution with another, especially if their trust in the former institution is failing (Sitkin and Roth, 1993). Correspondingly, the lowering of trust in Electronic Markets necessitates an increase in trust in the

control mechanism offered by intermediaries as a prerequisite to transacting in Electronic Markets. In other words, a lowering of trust in Electronic Markets leads to a greater need for trust in intermediaries.

Proposition 4: The lowering of consumer institution-based trust in Electronic Markets will likely increase the need for consumer institution-based trust in intermediaries.

Agency Cost

Building on the work of Jensen and Meckling (1976) and Sappington (1991), agency costs can be understood as transaction costs borne due to obligations in a principal-agent (i.e. consumer-intermediary) relationship. It has been contended that it is impossible to understand the working of any transaction-based economic system without taking into account transaction costs (Coase, 1937). According to Coase (1937: 24), "...in order to carry out a market transaction it is necessary to discover who it is that one wishes to deal with, to conduct negotiations leading up to a bargain, to draw up the contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on." As aforementioned, transaction costs in Electronic Markets therefore include all costs of exchanges that occur in a network of buyers and sellers (e.g. cost of obtaining information (search costs) (Stigler, 1961), cost of coordinating exchange (Alchian and Demsetz, 1972), costs of drawing, negotiating, and enforcing contracts (Williamson, 1975), and cost of measuring the success of the transaction outcome (Barzel, 1982). Interestingly, these transaction costs are not always captive to markets. In Electronic Market transactions, consumers have to understand that substituting trust from markets to intermediaries comes with its own set of costs- now related to the intermediary as an agent (Jensen and Meckling, 1976).

Intermediation in Electronic Markets transfers transactional control to intermediaries as hierarchies, in stark opposition to the notion of disintermediation supported by EMH. If intermediaries

partially control the transactions, there is an inherent agency cost (Berle and Means, 1932; Jensen and Meckling, 1976). As consumers feel the need to trust intermediaries in an absence of trust in Electronic Markets, agency costs of contracting with intermediaries surface. According to Sappington (1991), the central dilemma revolves around the agency costs that consumers have to incur to get intermediaries to act in their best interests when intermediaries actually have an information advantage over consumers. Much like sellers, this informational advantage that intermediaries wield over consumers can prompt intermediaries to unilaterally benefit from information asymmetry. For example, Ross (1973) points out how intermediaries in the insurance industry use incomplete information to draw up and enforce disparate contracts. As a result, agency costs involved in trusting an intermediary remain an important consideration for consumers.

An intermediary may not act in the best interests of the consumer. It may be biased in its search, its aggregation, or its promise of security, assurance, and authentication. For example, a consumer using an intermediary to search Electronic Markets for the best loan offers may place their trust in an intermediary to search for optimal results. However, if contracting with the intermediary requires ongoing costs from various avenues, e.g. signing up for ancillary offers, opting-in for 3rd party communications, spam, or shirking (culpable cheating, negligence, incapacity, and inadvertent mistakes), agency costs become acute. As a result, agency costs are assumed as the sum of costs stemming from bonding, monitoring, and residual loss, i.e., the reduction in consumer welfare due to sub-optimal decisions by the agent (Jensen and Meckling, 1976). Simply put, if, at any point, consumers perceive that agency costs are high, it is likely that consumers would lose the need to trust intermediaries as agents purporting to act on their behalf, even in the face of failing trust in Electronic Markets⁶.

⁶ We contend that, in conditions where consumers lack trust in both Electronic Markets and the intermediaries therein, consumers may simply refrain from transacting online.

Proposition 5: Agency costs from intermediation will negatively moderate the relationship between consumer trust in Electronic Markets and consumer need for trust in intermediaries; High agency costs will likely reduce consumer need for trust in intermediaries while low agency costs will likely promote consumer need for trust in intermediaries.

Future Effects of the Need to Trust in Intermediaries

The dynamics of consumer behavior in Electronic Markets evolve over time (Parasuraman and Zinkham, 2002). For consumers in Electronic markets, the need for institution-based trust in intermediaries relies on the ability of intermediaries to provide institutional mechanisms ranging from search, aggregation, matchmaking, and logistics to transactional safeguards and regulatory infrastructures (Giaglis et al, 2002). Assuming that consumer trust in intermediaries is not misplaced (i.e. agency costs are not too high), in the long run, consumer trust in intermediaries could potentially reduce their existing sense of uncertainty surrounding Electronic Markets. If intermediaries provide better mechanisms for transacting in Electronic Markets, then they should reduce the uncertainty that consumers feel about transacting in Electronic Markets.

In agreement with prior literature (Dyer, 1997; Hart and Saunders, 1997; Nooteboom et al., 1997; Gefen, 2000; Pavlou et al., 2007), we forward that consumers' need to trust in intermediaries reduces perceptions of uncertainty in the future. By offering unbiased institutional mechanisms that can provide better information or provide recourses if vendors act against the interests of consumers, intermediaries, as trust providers, can reduce consumer wariness related to electronic market transactions. For example, Resnick and Zeckhauser (2002) noted that buyers on EBay need to trust Ebay's reputation system as an essential safeguard. If consumers feel that Ebay's reputation system offers an unbiased rating of vendors, consumers would be less uncertain about transacting on EBay by simply avoiding vendors with low ratings (Resnick and Zeckhauser, 2002). Over time, as consumer interactions in Electronic Markets mature, the relative effects of the need for institution-based trust in

intermediaries should be traceable by an overall lowering of consumer uncertainty about transacting in Electronic Markets. In fact, Klein and Tuebner (2000) list the reduction of uncertainty as one of the essential roles played by intermediaries. After all, why do consumers need to trust intermediaries unless they feel that placing their trust will subsequently reduce their uncertainty? We thus propose that the need for institution-based trust in intermediaries can reduce consumer uncertainty surrounding Electronic Market transactions in the future, exemplifying a feedback effect.

Proposition 6: An increase in the need for institution-based trust in intermediaries is likely to decrease future perceptions of uncertainty about Electronic Markets.

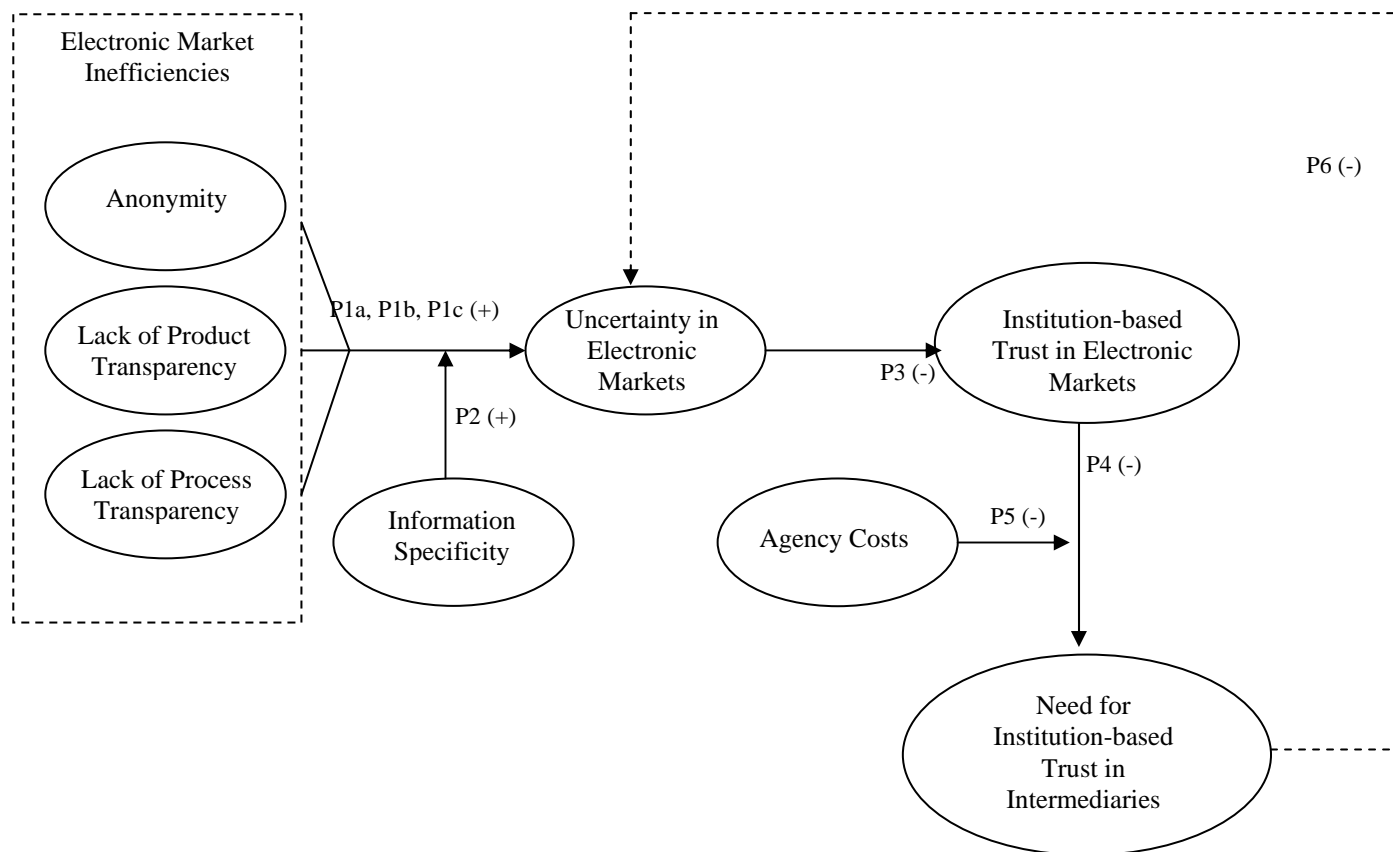


Figure 2. Elaborated framework of consumer need to trust intermediaries in Electronic Markets

ILLUSTRATION USING A MINI-CASE

The case of online mortgage marketplaces in Electronic Markets

We illustrate our conceptual framework using a mini-case of online mortgage marketplaces. Mortgage loans are a multi-billion dollar industry. According to MBAA (2006) (Mortgage Bankers Association of America), mortgage loans in the United States alone were worth \$11,942.2 billion. As a result, the online mortgage market has become extremely competitive- consisting of a variety of financial institutions serving as loan originators- from traditional major lenders such as Wells Fargo and Citibank to Internet specialists such as Quicken Loan and E-Loan (Applegate, 2000). With strong growth projected for loan origination and refinancing, retail sophistication has increased and lenders can enter new markets on the fly (Kersnar, 2004). In fact, publicly traded firms in the residential mortgage industry, even with the exception of banks and other mortgage institutions, have a market capitalization of \$23.6 billion and \$13 billion in early revenue, poised to grow at a rate of 16% over the next five years (Forrester Research, 2004).

With the Internet as a potential loan origination channel, customers searching for best rates have to encounter new and unknown lenders. Because a mortgage application typically concerns a high-value purchase and requires disclosure of multiple pieces of information, information specificity is quite high. Moreover, given the critical nature of the transaction, consumers are likely to bear significant transaction costs to monitor the loan process. Little knowledge about the lenders coupled with concerns of privacy and identity theft automatically increases consumer uncertainty about the online loan market in general. Given that mortgage instruments have high information specificity, existing market inefficiencies increase uncertainty.

A heightened sense of uncertainty can in fact impede a consumer from placing institution-based trust in the Internet mortgage loan market. Under such circumstances, consumers may find a need to trust products and services from online mortgage marketplaces such as Lending Tree. Lending Tree, being an online mortgage marketplace, represents an intermediary. Online mortgage marketplaces

utilize a streamlined cost model by not controlling any loan products. Instead, online mortgage marketplaces use customer input to link onto different lender databases to arrive at multiple competing offers. By offering a single point of presence and assuring equitable search, discovery, and transactional safeguards, mortgage marketplaces subsequently lower consumer wariness about transacting mortgage loans online. With commissions acquired from the lenders themselves for providing customer leads yet offering a single sign-on service for customers shopping for a loan, customers lacking trust in online markets can often substitute their lack of trust in online mortgage markets with their trust in intermediary marketplaces. Evidence of this lies in the fact that Lending Tree, as an instance of a mortgage marketplace intermediary, claims to have facilitated over \$106 billion in closed loans from 16 million customers, receiving more than 7000 qualified applications a month (LendingTree.com, 2006).

However, there is a caveat. If customers feel that Internet mortgage marketplaces, as intermediaries, are likely to fail in delivering competitive rates for mortgages, lead to biased search results, or are likely to charge customers with unexpected fees, agency costs increase, diminishing consumer need to trust online mortgage marketplaces.

The “online mortgage marketplace” uses an intermediated business model capitalizing consumers’ lack of confidence in Electronic Markets consisting of independent mortgage agencies, mainly because of inherent Electronic Market inefficiencies. As long as consumers feel that the cost of delegating mortgage-related transactions to mortgage marketplaces are low (i.e. agency costs are low), online mortgage agencies seem well primed for sustaining consumer need to trust intermediaries. A reduction of agency costs comes with greater perceptions of benefits provided by online mortgage agencies. This is reflected by the fact that online mortgage intermediaries are often diversified (to increase benefits), offering one-stop-shopping for auto loans, credit cards, and even personal loans. A sustained need to trust online mortgage marketplaces is likely to contribute to a subsequent reduction

in consumer uncertainty about online loan transactions, well evidenced by the success of companies such as LendingTree.com and Eloan.com.

CONTRIBUTIONS AND FUTURE IMPLICATIONS

Consumer trust in intermediaries has recently been suggested as an antecedent to successful transactional outcomes (Pavlou and Gefen, 2004). But why do consumers end up needing to trust intermediaries in Electronic Markets that grew out of a promise of remaining disintermediated and frictionless? This paper proposes a preliminary framework to understand how consumer need to trust intermediaries surfaces in the presence of market inefficiencies, uncertainty, and the resultant lowering of institution-based trust in Electronic Markets. Synthesizing concepts from economics, psychology, and ecommerce, we develop and use situational factors to rationalize consumer need for trust in Electronic Market intermediaries. In doing so, the paper also attempts to answer Bailey and Bakos' (1997) call for a theoretical development of consumer trust in Electronic Markets by building on the economics and psychology of intermediation. To the best of our knowledge, a similar integrative theoretical treatment has rarely been attempted in previous information systems research.

The proposed framework specifically examines the conditions and contingencies in the development of consumer need for trust in intermediaries. While it seems apparent that disintermediated markets may be preferred over intermediaries, a framework developed on rational choice portrays a contrasting perspective. Efficient markets do not need intermediation; only inefficient markets require intermediation. Electronic Market inefficiencies trigger uncertainty, leading consumers to lose trust in markets, particularly if it is perceived that much is at stake. Failing trust in markets prompts consumers to need to trust intermediaries, only if perceived agency costs are tolerable. Such need to trust intermediaries should reduce future perceptions of uncertainty. Indeed, as Williamson (1971) argues, except in cases where there are significant market imperfections, market mediation is generally preferred over intermediation. In the face of high information specificity,

hierarchical coordination using intermediaries is much more preferable compared to market clearance of transactions (Williamson, 1991).

Contributions to Research

The paper contributes to research in five major ways: First, this paper is one of the few attempts to theoretically map the development of consumer need to trust intermediaries in Electronic Markets. Literature has commonly used consumer trust in intermediaries as an antecedent to successful ecommerce transactions (McKnight and Chervany, 2001-2002; Pavlou and Gefen, 2004; Wang and Benbasat, 2005) without investigating how this trust evolves in the first place. This paper serves as a prequel to existing research by focusing on identifying the development of consumer need for institution-based trust in intermediaries. In this paper, trust in intermediaries (more specifically, the need for such trust) serves as an outcome, an approach hitherto missing in prior literature.

Second, there is little evidence of studies that have looked at intermediation as primarily resulting from market inefficiencies and how failing trust in a particular institutional structure (e.g. Electronic Markets) propels consumers to shift their trust to a different institutional structure (e.g. Electronic Market intermediaries). Indeed, such a notion has often been alluded to, yet escaped the required scrutiny to understand its importance in defining transactional behavior. This paper attempts to understand Electronic Markets as the overarching institution that hosts both consumers and vendors. Further, we review institutional inefficiencies of Electronic Markets and relate it to consumer trust therein, thus addressing a key, yet unexplored, avenue of research in this area.

The third important contribution arises from this paper's attempt at understanding key inefficiencies in Electronic Markets. In the process, the paper delineates the three core inefficiencies germane to Electronic Markets- anonymity, lack of product transparency, and lack of process transparency. Extending Williamson's (1975) work, this paper systematically instantiates institutional inefficiencies of Electronic Markets. By focusing on these key inefficiencies, the paper judiciously

demarcates the factors that trigger consumer uncertainty, a relationship that has previously escaped theoretical scrutiny.

Fourth, the paper contributes to our understanding of the economic rationale behind the consumer trust in Electronic Markets. The paper theoretically affirms that consumer uncertainty is the reason behind consumer's lack of trust in Electronic Markets. Moreover, tracing inefficiencies allows us to investigate their consequential effects on trust formation- a notion alluded to by Williams (2005). In the process, we introduce a rich set of concepts and juxtapose them to derive our framework. We look at how information specificity influences consumer uncertainty in Electronic Markets, leading to a lowering of institution-based trust therein. We also look at how consumers tend to reconcile their lack of trust in Electronic Markets by seeking intermediation, provided the agency costs are not too high. Existing information systems literature has generally addressed trust as a psychological condition derived from beliefs rather than rational choice. By adding rational components to the development of trust, this paper takes a fresh look at consumer decision making as a combination of rational yet psychological choices, thus furthering existing treatments of trust in Electronic Markets.

Finally, the paper contributes to our existing knowledge by identifying how one form of institution-based trust affects another. While relations between aspects of institution-based trust have been examined in sociology (e.g. Luhmann 1979), it has received little attention in the context of Electronic Markets. Specifically, there has been no clear explication of how the lack of trust in a particular institution may lead to consumer trust in another institution. Here, we assert that a lack of consumer trust in the Electronic Markets as an institution will necessitate them to seek refuge in another institution- the intermediaries. By doing so, we are able to understand how newer institutional structures emerge to supplement the existing order, something that has rarely been attempted in the context of institution-based trust in Electronic Markets.

Contributions to Practice

This paper contributes to practice in three major ways. First, arguing against the early apostles' predicted notion of disintermediated and frictionless Electronic Markets, the paper explains the presence and preponderance of intermediaries in Electronic Markets today. Nowadays, innovative intermediary business models are strewn across the Electronic Market landscape. Today, EBay has grown to be a Mecca for auctions, Amazon for retailing, Google for searches, Verisign for authentication, along with many others. Ironically, intermediaries have reinvented themselves by offering value added services in vertical markets. This is an important consideration for practice, especially for firms planning to enter or reposition themselves as players in the competitive and emergent Electronic Market landscape, where the new business model is that of a reinvented agent.

Second, our investigation of consumer trust in decision making is of strategic importance for companies participating in Electronic Markets. Most businesses today have an online presence and are interested in knowing the origin of consumer concerns about Electronic Markets and subsequent consumer trust formation. Understanding consumer perceptions allow businesses to preemptively seek remedial mechanisms such as promoting their use of intermediary-based institutional safeguards to vouchsafe transaction safety. Especially, in the light of emerging information security legislation such as the Sarbanes-Oxley law, vouchsafing transactions in an inherently volatile environment has become imperative.

Third, our explication of Electronic Market inefficiencies and consumer trust therein contributes to understanding the industry-wide need for encompassing legislation to reduce uncertainty. Interestingly, one of the recommendations has been the use of federal regulations to safeguard transactions in an inherently unsafe environment (Pavlou and Gefen, 2004). Our description of Electronic Market inefficiencies could provide cues for developing requisite policies, regulations, and governance structures. Federal safeguards such as FDIC insured banking services could perhaps be

extended to the Electronic Markets as an assurance mechanism. For practice, this could imply a request for governments to assume a stronger legislative stance to counter inherent Electronic Market inefficiencies and consumer uncertainty.

Future Research Directions

The paper is limited in its scope for the sake of parsimony and limitations are in order. However, these limitations offer numerous avenues for future research. First and foremost, this paper is limited by its overly rational stance towards explaining the need to trust in intermediaries, supported only by an anecdotal mini-case illustration that has its limitations, especially with the moderating effects that we proposed. Empirically, a key opportunity exists for future research to validate the model. Testing of the propositions will provide a rich understanding of the degree to which the proposed relationships exist in reality, thus adding to our preliminary treatment of how and why consumers need to trust intermediaries. As an offshoot of a general empirical validation of the model, future research might also try to understand, both theoretically and empirically, as to which of the three Electronic Markets inefficiencies assume importance in shifting contexts. For example, for certain products, lack of product transparency might not be a major factor. Again, it could be the case that men view the priority of these inefficiencies in a different way from women. Apart from purely research implications, an empirical validation will provide recommendations (for online businesses) on what market inefficiencies should be addressed most for selling a specific product to a specific segment under specific conditions.

Second, our paper is limited by its generic treatment of consumer decision-making in Electronic Markets without much consideration of contingencies, especially countries and cultures. Future research could further investigate this model across different countries and cultures. For example, country-specific policies could have a significant effect on consumer uncertainty. In Europe, strict privacy laws and opt-in policies could perhaps mitigate consumer uncertainty vis-à-vis the

United States. Often having recourse to law can raise consumer confidence. Again, level of technology diffusion across countries may offer an interesting perspective on consumer perceptions of uncertainty. Further, because institution-based trust is different across cultures (Dinev et al., 2006), a cultural contingency could add an important and rich texture to the existing framework. On a related note, this same study found that propensity to trust was different across cultures. Existing research has argued that propensity to trust is an important influencer of trust (e.g. Lee and Turban, 2001). Thus, the role of propensity to trust in the formation of institution-based trust (in Electronic Markets) across different cultures and countries could also be investigated as part of future research.

Third, a potential limitation of this paper is due to its immediate scope of investigation. This paper uses constructs felt to be of immediate significance to the scope of our theoretical framework. However, we do understand that the inclusion of other extraneous factors may add to the comprehensiveness of the model. For example, newer forms of web applications such as Shockwave or Flash may reduce product complexity by offering a richer representation. Rich representation may alleviate consumer uncertainty by providing a rich medium of interaction. For instance, Wells et al (2005) found that the richness of interface design positively lends towards reducing complexity, specifically when consumers are unfamiliar with business domains. It would thus be interesting to gain further insights on how interface richness moderates consumer perceptions of uncertainty.

Beyond interface considerations, it would also be helpful to understand how certain technologies influence consumer uncertainty and trust. For example, recent years have seen dramatic advancements of mobile technologies and research on mobile users have been gaining ground (e.g. Ranganathan et al., 2006). It would be interesting to revisit the model in light of such advancements, particularly m-commerce technologies. For instance, mobile devices such as WAP (Wireless Application Protocol) enabled cellular phones may be limited in representing the product or may not offer the same level of security. Cellular transmissions are vulnerable to network hacks; WAP may not

support Quicktime or Shockwave that could otherwise increase product transparency. As technology evolves, the model may exhibit certain singularities for specific technologies, requiring further investigation.

Fourth, a limitation of this paper is its assumption that trust is a necessary condition dictating the preponderance of intermediaries in Electronic Markets. However, it would be useful to consider other factors as well. The situational centrality of intermediaries as “a weak tie” (Granovetter, 1973) between buyers and sellers may very well contribute to emerging economies of scale (by virtue of handling and communicating across a large number of buyers and sellers at marginal cost) or economies of scope (by virtue of handling and communicating across many different buyers and sellers at marginal cost). Similarly, other factors such as consumer prior experience could further explain transaction costs incurred by consumers in Electronic Markets, thus complementing our rationale of trust.

Fifth, our research is limited by its consideration of B2C transactions only, even though B2B transactions constitute a significant fraction of Electronic Market transactions. Future research could try to adapt and apply the model by shifting the unit of analysis from consumers to businesses. On the one hand, research could look at sellers’ (in Electronic Markets) need to trust intermediaries to protect them from unscrupulous buyers, e.g. from Nigerian net scams where counterfeit checks are used to buy high-ticket items (Wired News, 2002). On the other hand, research could pay particular attention to purely B2B transactions. B2B transactions have seen a proliferation of intermediaries: from MRO procurement to project bidding to exchanges while providing general support of security, privacy, authentication, and non-repudiation. In the light of interfirm relationships, this model could potentially unravel business perceptions of Electronic Markets and intermediation. Business perceptions of inefficiencies in Electronic Markets could be different from consumer perceptions. Consumer purchases are an indefinite set, while business procurement is usually well defined. This immediately

reduces product complexity because of repeated procurement of similar goods. Furthermore, business concerns generally have a fixed set of suppliers and partners whom they deal with. A fixed set of suppliers (or business partners) reduces anonymity even in evolving Electronic Markets. Again, business concerns operating in Electronic Markets have arguably better knowledge of the procurement and delivery processes that occur, especially in comparison to a consumer who has lesser business knowledge. Thus, we can argue that process transparencies are higher in B2B scenarios. In short, we could argue that the perceived Electronic Markets inefficiencies might hold lesser concern in B2B transactions vis-à-vis B2C transactions. It would be interesting to apply and test the proposed model in a B2B scenario.

Apart from the future research directions emanating from the aforementioned limitations, there are other avenues for future research. Future research could granularize this model to surface two specific constructs of transaction costs and opportunism. Opportunism is defined as “the incomplete or distorted disclosure of information, especially to calculated efforts to mislead, distort, disguise, or confuse.... responsible for contrived conditions of information asymmetry” (Williamson, 1985: 47-48). A granular view could explicitly treat transaction costs and opportunism within the given framework. Instead of tying Electronic Market inefficiencies directly to consumer uncertainty, future research can extend the current model by a more detailed investigation of how perceived Electronic Market inefficiencies could raise transaction costs, thus increasing possibilities of opportunism, ultimately elevating uncertainty. In line with established research (e.g. Malone et al., 1987; Williamson, 1991; Grover et al., 2006), the threat of opportunism is germane to understanding inefficient markets and the effect they have on consumers. In Electronic Markets, sellers contrive for information asymmetry to mislead buyers from making optimal choices and creating market inefficiencies that raise transaction costs and could lead to opportunistic behavior. For example, in

investigating price dispersion on the Internet, Grover et al (2006) find that sellers deliberately raise search (transaction) costs thus paving way for opportunistic behavior (e.g. price dispersion).

Such a granular model could also be particularly useful in investigating the downstream effects of trust in intermediaries. For example, could trust in intermediaries reduce transactions costs and subsequently dampen possibilities of opportunistic behavior and consumer uncertainty? While there is support that trust in intermediaries reduce uncertainty (e.g. Pavlou et al., 2007), the aforementioned granular view could offer an interesting lens to review the reduction mechanism. This lens could also try to unravel how specific intermediary roles mediate the effects of consumer trust in intermediaries on transaction costs. For example, do safeguards reduce transaction costs more than that of governance? Does aggregation reduce transaction cost more that safeguards? Do security infrastructures reduce transaction costs more than that of governance? Further, do such mechanisms shift in the context of different product and industries? Indeed, a granular view could well build on the Pavlou et al (2007) study that understands how trust mitigates uncertainty by adding the notions of transaction costs and opportunism, together with the explicit roles played by intermediaries. This is a fertile ground of future research, especially in light of Venkatesan et al's (2006) claim that there has been limited research on the impact of intermediaries.

To summarize, although the Electronic Market landscape is far from mature and constantly evolving, we feel that this paper takes an important step towards capturing present intricacies surrounding consumer decision making in Electronic Markets. The theoretical framework used to forward Electronic Market inefficiencies and subsequent consumer behavior is an antithesis of the notion of disintermediation. Instead, we find that there is a dark side of information (Grover et al., 2006) - a logic where espoused transparencies, instead of democratizing information, may sometimes lead to a sense of crisis (Finel and Lord, 1999). Given this dark side of information, the paper conceptualizes how intermediaries can offer necessary institutional structures and mechanisms for

consumer respite in Electronic Markets. While the evolutionary dynamics of Electronic Markets wait to be seen, the paper takes a step forward at explicating the reasons behind the growing consumer optimism towards a new breed of intermediaries in Electronic Markets.

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