

Factors Influencing Initial Trust Formation in Adopting Internet Banking in Indonesia

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Abstract—Consumer reluctance to accept and to use electronic commerce has been attributed to lack of trust, uncertainty, information infringement, and security as well as privacy in e-commerce systems. This study develops a framework for incorporating the formation of initial trust of Indonesia's Internet banking consumers and its services usage intention in order to properly understand factors influencing technology acceptance. A research model and hypotheses will be proposed to illustrate the relationships between the measured variables. The study will draw some related conclusions including a discussion of findings and deserving implications.

I. INTRODUCTION

Electronic banking or e-banking as a part of electronic commerce [32], is a term used to describe the application of information and communication technology by banking firms to offer a range of banking services [29] and to facilitate the delivery of financial services such as balance checking, transaction histories, payment, fund transfers, document printing [5], to their customers. E-banking may be divided into several forms; one of which is Internet banking or online banking and the others include automatic teller machine (ATM) banking, phone banking, and mobile banking [8].

Many previous studies designated the critical importance of trust in e-commerce context, which has caused the penetration rate of online commerce to remain low [7] which can inevitably give a crucial impact on the Internet banking acceptance [33]. After all, there is still only a few of studies that has deeply

investigated the relationships between security and privacy separately, including trust in the internet banking context [6], [8].

Furthermore, trust is also the most important element in either offline or online banking and commercial transactions, and consumer reluctance to accept and to use e-commerce are strongly associated with the lack of trust [7], and security and privacy [32] in e-commerce systems, and particularly trust shortage [29], uncertainty, security, and privacy concern [8], [6] in the context of Internet banking. Moreover, Internet banking users have not grown expectedly in many countries [40] and customers still prefer using non-Internet banking service such as Automatic Teller Machines (ATMs)[31] to transact.

This paper is to develop a framework for incorporating the formation of consumer's initial trust in Internet banking, which in turn, intention to use e-banking services in Indonesia to gauge factors influencing technology use and acceptance. Because previous studies in e-banking may not fully capture the real phenomenon and situation occurring with regards to such factors in a developing country like Indonesia as those studies have been limited to the western context and has drawn more on Northern American and European case studies [29].

Therefore, this paper attempts to derive an understanding of antecedent variables; which involve elements needed to measure the usage intention within the context of Internet banking in Indonesia by focusing primarily on initial trust development from Internet users in Indonesia, who previously have never used Internet banking.

II. THEORETICAL BACKGROUND

A. Internet banking in Indonesia

The concept of Internet banking has been concurrently developing with the growth of electronic devices and Internet, particularly the World Wide Web. The processes of development of Internet banking were probably triggered off after many banking service users started considering the importance of such services to mediate related transactions electronically and online such as e-commerce, online shopping, online auctions, etc.

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Those services enabled the wide use of Automatic Teller Machines (ATMs), followed by credit cards usage through the Internet.

Nowadays, Asian countries in particular is predicted to become the most important regional market of mobile banking [3] and where the trend of mobile banking use is likely to get more attractive. Nevertheless, there is a lack of proper evidence from Indonesia with very few previous studies on the condition of Internet banking and the general status of Internet banking research in Indonesia still inconclusive.

With population around 245 million people [17], the penetration of Internet within five years in Indonesia is dramatically increasing and people using Internet services in Indonesia predictably will be manifold [17]-[18].

Implementation of e-banking in Indonesia is relatively new and in still in its infant phase; having started in 1987 with the first ATM services and in 1991 for Internet banking by Bank Niaga [2], [38] and Bank International Indonesia (BII) in 1998 [39]. Furthermore, Bank Central Asia (BCA) became a pioneer in e-banking products and services by massively offering online banking services [39] which are regarded as remarkable standard by the industry and consumers alike, following ATM services booming in 1990s. Currently, BCA is the biggest private-owned banking company and also has the largest and widest network of automated teller machines (ATMs) across the country with more than approximately 7,200 units in 2011 [4]. These days, there are at least twenty banks utilizing e-banking services in Indonesia.

B. The Concept of Trust

The concept of trust is not yet well defined and accurately interpreted due to its complexity [25]. Many different perspectives on trust and its definitions also still exhibit the confused arguments, including its antecedents and outcomes, and the construct of trust itself [24].

However, Mayer et al.'s definition of trust [24] has become widely admitted as an acceptable delineation in the context of e-business domain [30]. After all, conceptual definitions of trust constructs were also defined as "disposition to trust, institution-based trust, trusting beliefs, trusting intentions [27]."

- *Disposition to trust*: refers to a persistent propensity to be willing to rely on others in general across a wide scope of conditions.
- *Institution-based trust*: refers to favorable conditions are believed in accommodating place to situational success in facet of one's life.
- *Trusting beliefs*: refers to one's beliefs that the other party's characteristics are beneficial to oneself.

- *Trusting intentions*: refers to one's willingness to rely on the other party even though not well-controllable.

The range of trust may diverge, relying on the relationship's past experience, development phases, and indications in the existing setting [30], this study attempts to utilize previous framework based on three basic modes, which the degree of initial trust in a service-based environment can be categorized as: characteristic-based trust [25], institution-based trust [22], and process-based trust [42].

Three dimensions of trust which serve as building factors of trustworthiness involve: trustee's ability, benevolence, and integrity [24]. Ability refers to a set of skills and competencies, which are owned by the trustees to perform their objectives; benevolence refers to the degree to which the trustees are perceived to have good intention toward others sincerely; and integrity refers to the fixed norms that can be used to trust others.

Moreover, trust was theorized as a combined form consisting of calculative-based trust based on comprehendingly concluded costs and benefits and knowledge-based trust from an accumulative trust-relevant knowledge through experience [25]. Therefore, initial trust begins when a person does not have firsthand knowledge and rely on his/her propensity to trust others or institutional cues, especially in an uncertain situation where he/she is trying to find assurance for his/her trust through experiential findings.

Some previous studies also mentioned the importance of web vendors' honesty and benevolence in order to enhance consumers' trust whose integrity to consumers' beliefs is more preferred than vendor competence [25].

C. The Antecedents of Trust

TABLE I
TRUST ANTECEDENTS FACTORS

| Antecedent | Mediating Variable | Relationship | Sources |
|--------------------|--------------------|----------------------|-----------|
| Relative Benefits | Initial Trust | Significant | [19] |
| Trust Propensity | Initial Trust | Significant | [7];[19] |
| | | <i>Insignificant</i> | [21];[16] |
| | Trust | Significant | [35] |
| | | <i>Insignificant</i> | [9] |
| Financial Resource | Trust | Significant | [23] |
| Security | Initial Trust | Significant | [21];[7] |
| | Trust | Significant | [9] |
| | | <i>Insignificant</i> | [20] |
| Privacy | Initial Trust | Significant | [7] |
| | Trust | Significant | [6] |
| | | <i>Insignificant</i> | [9];[20] |
| Website Usability | Initial Trust | <i>Insignificant</i> | [16] |
| | | Significant | [21] |
| | Trust | Significant | [6] |
| Company Reputation | Initial Trust | Significant | [21];[7] |
| | | <i>Insignificant</i> | [19] |
| | Trust | Significant | [35];[20] |
| Government Support | Trust | Positive | [16];[37] |

In order to recognize crucial drivers of trust in the Internet banking context, it is necessary to recognize what the antecedents that potentially influence initial trust formation. Table I describes empirically preceding studies of trust antecedents either in e-business or e-commerce.

Trust antecedents are developed based on [25] cognition-based: e.g., perceived security, perceived privacy, website usability; affect-based: e.g., reputation, word of mouth; personality-oriented: e.g., propensity to trust; and experience-based: e.g., familiarity. Trust antecedents also might be classified into several forms [13] such as knowledge-based trust: e.g., familiarity; institution-based trust (third party support); calculative-based trust (cost and benefit); e.g., perceived benefits; cognition-based trust; and personality-based trust.

The antecedents of trust to be investigated here include the following constructs:

- 1) *Relative benefits*. The context of relative benefits is derived from a similar context on perceived benefit that both presume a kind of perceived comfort and capability advancement of using a new service over extant ones [19]. Consumers will prefer to use available services offered even without prior experience, which can reveal more advantages and convenience of using new system such as Internet banking.
- 2) *Trust propensity*. It is a constant and steady perception among people, which can be considered as the general willingness to trust other people. It is also important in the initial phase of building relationships, which may also leaven an individual's beliefs and intentions toward trustee [26]. Propensity to trust has an impact on initial trust in online vendor [35] and becomes a key determinant, not only for interpersonal relationship but also for trust on his/her trust in technical systems, though few research mentioned about the major influence of trust propensity [25], [27].
- 3) *Financial resource*. Perceived financial resource refers to one's ability to fulfill his/her needs in performing financial things or using a service in a system such as subscription and service fee [36]. A person with high financial resources might have higher behavioral intention to use a service than one who has lower financial resources. Furthermore, income was positively tied and related to trust [1]. In other words, economic condition significantly influences trust [23].
- 4) *Perceived security and perceived privacy*. The important role of security and privacy in commerce systems and Internet banking study has already been examined empirically [8]. Security and privacy are included in the form of structural assurance [19] and are necessary to separately develop the construct: security and privacy [8] in order to know more accurately their influential distinctiveness on initial trust, due to the concept of security and privacy basically have different definition and perspective, albeit they may be inter-related to each other in terms of concept [41]. With regards to such considerations, there is still a lack of studies investigating the links between security, privacy, and trust in the Internet banking context [6].
- 5) *Website usability*. The concept of usability refers to the effort needed to utilize a computer system and generally is associated to the extent of difficulty to manage that functionality [11]. Simply, the concept of website usability designates the influential factors on the simplicity and the ease of understandable system structure including the contents, displays, functions, interface which can be utilized by costumers; particularly when visiting for the first time.
- 6) *Company reputation*. It means that one designates attributes to other party or a person based on second-hand information about them including word of mouth from third party [26], since consumers do not have personal experience with a company. Reputation can be a determinant driver on trust building for an Internet banking company [12], particularly in the initial trust phase. Hearing from someone else can help engender and raise users' beliefs about company's competence, benevolence, and integrity.
- 7) *Government support*. Government has customarily carried on a role in assisting to institute trust in economic transaction. Such supporting conditions as legal policies, regulations, and involvements are needed to derive Internet banking customers feel more comfortable in performing online transactions. In this study, supporting conditions refer to government support which is involved in building initial trust formation. Several previous studies cited implicitly about the importance of government involvement in enhancing trust [16], [37], and decreasing behavioral uncertainty [28], especially in the banking context.

III. RESEARCH MODEL AND HYPOTHESES

A. Proposed Model

This model extends a previous model framework [19] described below as a proposed model for this research. The previous model assigned the dynamics of initial trust formation in m-banking context, which quantifies perceived reputation, trust propensity, structural assurances, and relative benefits as the antecedents of trust.

The proposed model draws on some additional variables as the antecedents of trust: e.g., financial resource, perceived security, perceived privacy, website usability, and government support to enhance intensity of the concept of initial trust formation in the context of Internet banking acceptance as shown on Figure 1.

B. Research Hypotheses

This study deliberately develops hypotheses without the involvement of perceived risk [9], though risk is considered as a prerequisite condition for trust to emerge [24]. Moreover, due to the fact that the relationship between trust and risk is rather intricate and mutually reciprocal which still derives a confounding and confusing issue in the context of e-commerce [9], we therefore do not include perceived risk here because our main consideration is on the trust formation.

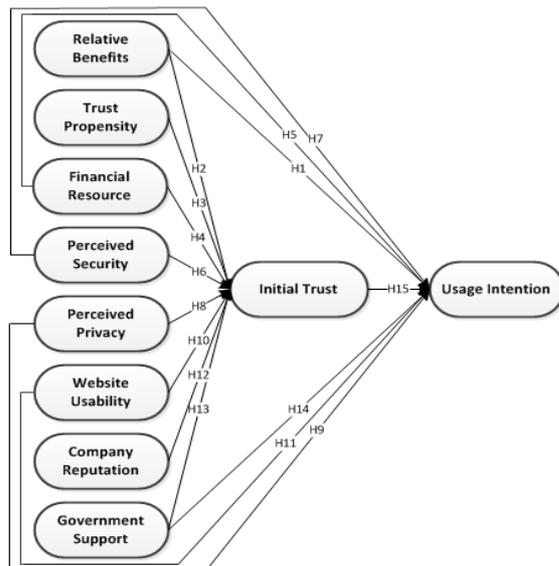


Fig. 1. Proposed model

Moreover, due to the fact that the relationship between trust and risk is rather intricate and mutually reciprocal which still derives a confounding and confusing issue in the context of e-commerce [9], we therefore do not include perceived risk here because our main consideration is on the trust formation.

Based on previous studies which already measured the significance of relative benefits as an antecedent of trust [19] and subsequent intention to use Internet banking service, we have hypothesis that:

H1: Relative benefits of Internet banking significantly influence one's initial trust.

H2: Relative benefits of Internet banking significantly influence one's usage intention.

Because implications of trust propensity on Internet banking customers' behavior have not yet been examined deeply and several previous studies empirically found both of its significant influence [7], [19], [26], [35] and its insignificant effect on trust [16], [21], [9], we hypothesize:

H3: One's trust propensity positively affects his/her initial trust formation in Internet banking.

Extending the results of previous studies, which revealed that trust inclines toward one's ability in term of financial and economic perspectives [23] including its role on intention to use a service [36], we suggest the hypothesis that:

H4: Perceived financial resource will positively

contribute on one's initial trust in Internet banking.

H5: Perceived financial resource will positively contribute on one's intention to use Internet banking.

Security and privacy concerns play an important role in e-commerce and Internet banking success [32]. Hence, previous study also considered should be separated in order to recognize more influential surrogate on initial trust [41]. However, though many studies have already found security and privacy are important constructs, such factor as privacy concerns may derive insignificant on trust as well [9]. Other cited both of security and privacy found to have an insignificant affect to trust (as structural assurance) [20] and a relatively weak relationship with online banking acceptance [29]. Therefore, we posit that:

H6: Perceived security on Internet banking services positively affects one's initial trust.

H7: Perceived security of Internet banking services positively influence one's intention to use it.

H8: Perceived privacy on Internet banking services positively affects one's initial trust.

H9: Perceived privacy of Internet banking positively influences one's intention to use it.

The concept of website usability designates the necessity for an institution to attract the consumers and creates early impression through website functionalities implying the quality of system and information within the contents, which finally influences consumers' trust [12] to keep their intentions in using a service offered online. Usability has traditionally been considered as a key factor for predicting usage intention on a system [34], whereas other noted usability (as perceived ease of use) with insignificant impact on usage [29].

H10: The context of perceived website usability of Internet banking positively affects one's initial trust.

H11: The context of perceived website usability of Internet banking positively affects one's intention to use it.

Many prior researches had already mentioned the importance and the significance of reputation as an initial trust building factor [12], [21], [7], particularly in the initial stage where consumers do not have adequate knowledge about a company. Though, other cited that reputation affected initial trust insignificantly [19]. This condition leads us to a hypothesis that:

H12: Perceived reputation on banking company positively relates to one's initial trust.

Government involvement, particularly related to policy and regulation in e-commerce use is important [14]. It is also considered as an important factor of increasing trust [16], [37]. Thus, we suggest the hypothesis that:

H13: Perceived government support on Internet banking implementation positively influences one's initial trust in it.

H14: The greater degree of perceived government support on Internet banking, the more likely it will be used.

Previous studies have figured out that relationship between the extent of trust in a company and usage intention which such degree eventually influences customers' intention to use a firm's offered services or products [33]. Accordingly, we posit that:

H15: The degree of one's initial trust in internet banking is positively correlated with his/her usage intention.

IV. DATA ANALYSIS AND RESULTS

The data was gathered on personal banking customers with Internet experience but have never used Internet banking services before in August 2011. Participation in the study was voluntary and was directed to customers who already have bank account.

Due to time constraints, only 40 usable and complete responses were analyzed out of 52 that were collected. The gender classification of responses collected was 35 percent male and 65 percent female and their ages ranged from 20 to 50 years. Most of them had 5-10 years-experience with Internet but never used Internet banking services at all.

Based on minimum standard determination on reliability and convergent validity of estimated factors [15], Cronbach's alpha composite reliability (CR), and average variance extracted (AVE) for all the investigated factors in our model were above the required level (Cronbach's alpha and $CR > 0.70$, $AVE > 0.50$). All factor loadings were significant with greater than 0.70 in all cases. Therefore, our results conveyed that all the measured factors in our model had adequate reliability and convergent validity. Construct correlation table and the square root of AVE were also checked and each construct satisfied the criteria for discriminant validity [10].

Through the generalized path coefficients, the explanatory power of antecedent constructs can be likened. The stipulation of the variables which had the highest influence on the initial trust formation revealed that relative benefits and financial resource had positive impact both on the formation of initial trust and usage intention of Internet banking services, whereas perceived privacy, website usability, and perceived reputation positively affected the initial trust respectively. Perceived security only derived positive impact on the usage intention.

Accordingly, government support impact was negatively proven both on the formation of initial trust and usage intention of Internet banking, followed by trust propensity and perceived security which also negatively influenced the initial trust formation. Moreover, perceived privacy and website usability did not posit their impact on the initial trust formation of Internet banking.

The proposed antecedents explained 75% of the variance in the formation of initial trust which subsequently explained 55% of variations in usage intention.

V. CONCLUSION

Based on the findings, this study conveys that the mechanisms incorporated especially with the initial formation of bank customers' trust still engenders complex and debatable position on the construct of trust, the antecedents, and outcomes [24] due to the dimensionality of trust in mediating the use of technological system.

This study affirms the results of previous studies and renders an extension of measured variables, and the results revealed some findings that need to be further investigated in future studies.

VI. LIMITATIONS

Some limitations are basically identified in this study. First, this study only conducted a pilot study with a limited sample. Hence it still requires further investigation with a larger sample in order to support and to better prove the extant research hypotheses.

Second, the design of this research was limited to investigating the views of bank customers with respect to Internet banking; even though they might have used other e-banking services such as ATM, phone banking, and mobile banking to fulfill their financial transaction needs. Therefore, the setting of this study could not be concluded to explain such conditions.

Third, this study was limited in assessing the usage of Internet banking services focusing on which factors described the initial trust building in Indonesia only that might not accurately reveal every viewpoint of the trust development process in the field of electronic banking, particularly in developing countries.

Consequently, these limitations were considered necessarily for developing a better initial trust model in the future study. However, additional studies are required to further observe and to extend the existing model, with more supporting research theories, bigger sample size, and the use of longitudinal study to provide broader validity and reliability.

Nevertheless, with the anticipated convergence of services across banking industries, it may hopefully become a significant insight for financial services. This study expectedly contributes especially to the Information Systems (IS) field by revealing the proposed theoretical and empirical research with more representative validation contingent on the growing Internet banking industries.

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