CHAPTER III

RESEARCH MODEL FRAMEWORK

This chapter presents an overview of the relevant theories related to the adoption of new information technology and includes a briefing of online trust, followed by the conceptual framework and theoretical justification of the variables identified for the study, and the hypotheses.

3.1 Theoretical Background

Information systems investigators have suggested intention models from social psychology as a potential theoretical foundation for research on the determinants of user behavior. Generally, studies of adoption of information technology takes one of three possible approaches, a diffusion approach, an adoption approach or a domestication approach (Vijayan et al., 2005). Diffusion researchers typically describe the aggregate acceptance process as a function of time that may be used to categorize adopters of different kinds (Mahajan, Muller and Srivastava (1990). Others like, Rogers (2003) describe the diffusion process as consisting of four elements: an innovation or new technology, a social system, the communication channels of the social system and time. Adoption researchers, on the other hand, typically describe and explain the acceptance decision of individual users applying different social theories of decision-making. Broadly speaking these theories are commonly used to explain technology acceptance. A major focus of these theories has been on how potential users’ perception of an IT innovation influences its adoption.
3.2 Technology Adoption Theories

Several competing theoretical approaches have been used to investigate the determinants of acceptance and use of information technology (Venkatesh et al, 2003). Important lines of study in this area focus on the determinants of individual acceptance of new technologies by using actual behavior itself (Davis, 1989; Taylor and Todd, 1995). These various theories explain technology acceptance and adoption. In acceptance studies, researchers focus on the attitudinal explanations of the use of a specific technology or service.

The following are some of the important theories found in literature related to technology acceptance:

- Theory of Reasoned Action (TRA), Fishbein and Ajzen (1975)
- Theory of Planned Behavior (TPB), Ajzen (1985)
- Technology Acceptance Model (TAM), Davis (1989)

These studies rely largely on five concepts namely, Perceived user friendliness, Perceived Usefulness, Attitudes towards use, Intention to use and Actual use. Adoption research is grounded in these models drawn from social psychology. In the following section a brief description of the above mentioned theories is presented.
3.2.1 The Theory of Reasoned Action (TRA)

Fishbein, a social psychologist at University of Illinois at Urbana, originated the idea of the relationship between Beliefs and Attitudes. The Theory of Reasoned Action originated from several other health models. The theoretical framework of the model was based on the Cognitive Consistency Theory (CCT). The Health Belief Model (HBM) which was developed earlier and is one of the most widely used frameworks in health behaviors, also served as the foundation for the TRA. The HBM explains and predicts a given health behavior from patterns of belief about the recommended health behavior and the health problems that the behavior was intended to prevent or control. Fishbein used this concept to help explain his theory.

In developing the TRA, Fishbein distinguished between Attitude toward an object and Attitude toward behavior with respect to that object. He also proved that attitude toward a behavior is better for predicting a behavior than attitude towards object is. The TRA constructs were formed from a history of attitude measurement theory rooted in the idea that an attitude is determined by expectations or beliefs regarding the attributes of the object or action, and by evaluation of those attributes. This expectancy-value conceptualization has been applied in many areas of psychology.

The Theory of Reasoned Action (TRA) which was formulated in 1975 by Fishbein and Ajzen has been used extensively in marketing research. The TRA assumes a causal chain that links behavioral beliefs and normative beliefs to behavioral intention and behavior, via attitude and subjective norm (Glanz, Rimer, & Lewis 2002). Figure 3.1 presents a diagrammatic model of the theory.
TRA has been applied to explain the behavior beyond the acceptance of technology and includes four general concepts: behavioral attitudes, subjective norms, intention to use and actual use. It argues that individuals evaluate the consequences of a particular behavior and create intentions to act that are consistent with their evaluations. A particularly helpful aspect of TRA from a technology perspective is its assertion that any other factor that influences behavior does so only indirectly by influencing attitude and subjective norms. Such variables would include, amongst others things, the system design characteristics, user characteristics (including cognitive styles and other personality variables) and task characteristics. TRA is a very general theory and as such does not specify what specific beliefs would be pertinent in particular situations.

More specifically the TRA explains that individual behavior is driven by behavioral intentions where behavioral intentions are determinants of an individual’s attitude toward the behavior, and subjective norms associated with the behavior. Following the chain of prediction further back, Attitude is determined through an
assessment of one's beliefs regarding the outcomes or attributes arising from behavior; this is also referred as behavioral beliefs and an evaluation, or value, of the desirability of these outcomes or attributes. Attitude toward the behavior is defined as the individual's positive or negative feelings about performing behavior. A person who strongly believes that positive outcomes will result will have a positive attitude about the behavior and a person who strongly believes in negative outcomes will have a negative attitude about the behavior.

Subjective norm is defined as an individual's perception of whether people important to the individual think the behavior should be performed; this is also referred to as normative belief. A person who believes that certain referents think he or she should act on certain behavior and is motivated to meet the expectations of the referents will have a positive subjective norm. A person who believes that certain referents think he or she should not act on a certain behavior and is less motivated to meet the expectations of the referents will have a neutral positive subjective norm (Glanz et al., 2002).

Intention is a good predictor of behavior. Intentions are made up of attitudes and subjective norms. Intentions are the probability that a person will perform certain behavior. Fishbein proposed that variables not included in the model can affect intention and, consequently, behavior. However, these variables must significantly affect the attitude or normative belief factors and their weights. These factors include demographic variables and personality traits. In the TRA, intention of behavior can be predicted if three conditions are met. First, the intention and behavior measures correspond in specificity of action, target, context, and time frame. Second, intention and behavior do not change in the interval between assessment of intention and assessment of behavior. Finally, the behavior is under
the individual's volitional control where the person can decide at will to perform or not perform the behavior (Glanz et al., 2002).

There are also several limitations of the TRA. One limitation of the theory comes from the nature of the self reporting used to determine subject attitudes. No direct observation was used in the application of the theory, only self reported information was used. Self reported data is very subjective and is not necessarily always accurate. The greatest limitation of the theory stems from the assumption that behavior is under volitional control where people have control over their behavior. The theory only applies to behavior that is consciously thought out before hand. Irrational decisions, habitual actions or any behavior that is not consciously considered cannot be explained by this theory. People who usually vary their behavior depending on what situation they are in are not explained by the TRA. These people are seen to have high volitional control and do not always act on the intentions he has. The TRA components are not very successful for predicting behaviors where the volitional control is low.

### 3.2.2 The Theory of Planned Behavior (TPB)

The theory of planned behavior (TPB) was proposed by Icek Ajzen (1985) as an extension of TRA (Fishbein and Ajzen, 1975) for situations where people do not have complete control over their behavior. The limitations of the TRA led to the development of the TPB by Ajzen (1991) to predict behaviors where people have incomplete or low volitional control. The TPB accounts for factors outside individual control that may affect the development of intention and behavior.
Both the TRA and the TPB focus on theoretical constructs that deal with individual motivational factors as determinants of the likelihood of performing a specific behavior. Both theories also assume that all other factors including demographics and environment operate through the model constructs and do not independently contribute to explaining the likelihood of performing behavior. In addition to attitudes and subjective norms which make up TRA, the TPB also added the concept of Perceived Behavioural Control (PBC). PBC was added to account for factors outside the individual’s control that may affect his or her behavior.

The concept of PBC originated from Self Efficacy Theory (SET) in that Ajzen borrowed it from self-efficacy. Self efficacy was proposed by Bandura in 1977, which came from Social Cognitive theory. Bandura (1986) divided expectations into two types: self-efficacy and outcome expectancy. Outcome expectancy is a variable linking belief, attitude and expectation. The TPB’s positive evaluation of self-performance of the particular behavior is similar to the concept to perceived benefits, which refers to beliefs regarding the effectiveness of the proposed preventive behavior in reducing the vulnerability to the negative outcomes, whereas their negative evaluation of self-performance is similar to perceived barriers, which refers to evaluation of potential negative consequences that might result from the enactment of the espoused health behavior. Perceived control is also similar to Triandis’s (1980) conceptualization of facilitating conditions, which deals with a person’s characteristics or the environment which make it easier or more difficult to perform the , independent of a person’s behavioral intention (Glanz et al., 2002).

The extension was based on the idea that behavioral performance is determined by motivation and behavioral control. When perception of behavioral control is high, more effort to perform
is expended. Perception of control over behavioral performance, along with intention, is expected to have a direct effect on behavior, especially when perceived control is an accurate assessment of actual control over behavior and when volitional control is low. Perceived control lowers and intention is a sufficient behavioral predictor where volitional control over the behavior is low (Glanz et al., 2002). The TPB is diagrammatically presented in Figure 3.2 for greater clarity.

**Figure 3.2 The Theory of Planned Behavior**

![Diagram of Theory of Planned Behavior](Image)

Source: Vijayan et al., (2005)

When applied to the acceptance of information technology systems or services, the model contains five concepts. As in TRA, it includes behavioral attitudes, subjective norms, intention to use and actual use. However, this theory interprets behavioral control as a perceived construct. Perceived behavioral control covers both the intention to use and the actual usage. Actual usage is in turn a weighted function of intention to use and perceived behavioral control.
Under this arrangement control aspects of the observation is introduced into the model. This makes the TPB more functional in its application.

Researchers have used the TPB widely to model the acceptance of a variety of new information technologies in businesses as well as to predict levels of usage. For example, Mathieson (1991) used the TPB as well as the Technology Acceptance Model to predict user's intentions, specifically with respect to the usage of spreadsheets. In another related work, the theory of planned behaviour (TPB) was decomposed by Taylor and Todd (1995) and posits that intention to adopt and use a technology is affected by attitude, subjective norms and perceived behavioural control.

There are strengths as well as limitations to the TPB. The main strength of the TPB is that it can cover people's volitional behavior which cannot be explained by the TRA. An individual's behavioral intention cannot be the exclusive determinant of behavior where an individual's control over the behavior is incomplete. By adding "perceived behavioral control," theory of planned behavior can explain relationship between behavioral intention and actual behavior. Also, studies have found that the TPB would better predict health-related behavioral intention than the TRA (Glanz et al., 2002).
3.2.3 Decomposed Theory of Planned Behavior (DTPB)

In the context of information technology adoption in an organizational environment, Taylor and Todd (1995) proposed a model known as Decomposed Theory of Planned Behavior (DTPB), bringing together concepts from two distinct lines of research: Innovation Diffusion Theory and Theory of Planned Behavior.

According to Taylor and Todd (1995), Decomposed Theory of Planned Behavior offers a number of advantages: it is more transparent and is easier to grasp the relations among beliefs, attitudes and intentions, it enables application of the model to a variety of situations and in managerial terms it is more relevant because it helps to determine specific factors that lead to adoption and use of new technology.

In DTPB, attitudinal beliefs are broken down into three constructs extracted from the literature on the perceived characteristics of innovations (Rogers, 2003) namely, Perceived Usefulness, Ease of use and Compatibility

Normative beliefs are related to disagreement among the opinions of key reference groups in an organizational environment (peers, superiors and subordinates). Control beliefs break down into two groups: Self Efficacy and facilitating conditions. Self Efficacy is related to the perceived ability of using a new technology and facilitating conditions refers to the available physical time and money and technological resources for adoption. The hypothesis of the theory is that clearer the perceptions of both Self Efficacy in the use of new technology and the existence of facilitating conditions, the stronger the intention to adopt the innovation.
3.2.4 The Technology Acceptance Model (TAM)

The TAM is a further adaptation of TRA specifically tailored for modeling user acceptance of new information technology (software information systems within organizations) (Davis, 1989). The goal of TAM was to provide an explanation of the determinants of computer acceptance that is in general capable of explaining user across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified. A key purpose of TAM, therefore, was to provide a basis for tracing the impact of external factors on internal beliefs, attitudes and intentions. TAM was formulated in an attempt to achieve these goals by identifying a small number of fundamental variables suggested by previous research dealing with the cognitive and affective determinants of computer acceptance, and using TRA as a theoretical backdrop for modeling the theoretical relationships among these variables. A diagram of the Technology Acceptance Model is presented in Figure 3.3.

Figure 3.3 The Technology Acceptance Model (TAM)

Source: Vijayan et al., (2005)
While TRA suggests that social behavior is motivated by an individual's attitude towards carrying out that behavior, it does not specify what specific beliefs would be important in a particular situation. On the other hand TAM posits that the actual usage of technology can be predicted by user's behavioral intention and his/her attitude towards use, which in turn are influenced by the technology's perceived ease of use and perceived usefulness. TAM follows the well-established causal chain of 'Beliefs – Attitude – Intentions – Behavior'.

In summary, Davis (1989) used the theory of reasoned Action (TRA) and developed the technology acceptance model (TAM). Based on certain beliefs, a person forms an attitude about certain objects, on the basis of which one forms an intention as to how one should behave with respect to that object. The intention to behave is the sole determinant of actual behavior. Davis adapted the TRA by developing two key beliefs, Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) to determine individual's acceptance of a technology more specifically information system usage. The first of these beliefs perceived usefulness is defined as the 'degree to which a person believes that using a particular system would be beneficial or enhance his/her job performance' (Davis, 1989). The second, perceived ease of use is defined as 'the degree to which a person believes that using a particular system would be free of effort' (Davis, 1989).

TAM has received empirical support in information technology research by many research studies regardless of the country concerned (Guriting and Nelson, 2006; Wang et al., 2003; Ramayah and Ling, 2002; and Venkatesh and Moriss, 2000).
3.3 Trust: An Important Factor Influencing Consumer Adoption

This section brings out the importance of trust as an important factor influencing consumer adoption of internet banking. Also presented is the review of relevant studies on the subject of trust elements, which are often referred to interchangeably as antecedents, underlying dimensions, determinants, or principles of online trust. In general, all these terms refer to factors that can produce a sense of trustworthiness or even determine whether consumers will trust internet banking.

3.3.1 Definition of Trust

Trust, according to the Oxford advanced learning dictionary of current English (2005), is defined as “The belief that something or somebody is good, sincere, honest etc and will not try to harm or trick you”. Trust has existed as long as the history of human beings and the existence of human social interactions.

As one of the most attention-attracting factors in relationship literature that has been investigated widely (e.g. Sahay, 2003; Coulter & Coulter, 2002; Heikkila, 2002; Jap, 1999; Doney & Cannon, 1997; Morgan & Hunt, 1994; Moorman et al., 1992; Ring & Van de Ven, 1992; Anderson & Narus, 1990; Crosby et al., 1990; Parasuraman et al., 1988, 1985), trust has been defined in various ways reflecting the complex nature of the trust construct as revealed by the definitions shown in table 3.1.

The presence of multiple definitions of trust in the literature is likely due to two reasons. First, trust is an abstract concept and is often used interchangeably with related concepts such as credibility, reliability, or confidence. Second, trust is a multi-faceted concept that incorporates cognitive, emotional, and al dimensions (Lewis & Weigert, 1985). Trust has been widely studied in many disciplines, but each
discipline has its own understanding of the concept and different ways to operationalize it. There is, therefore, a lack of consistent principles by which to understand trust and all of its manifestations.

**Table 3.1: Definitions of trust**

<table>
<thead>
<tr>
<th>Author/s</th>
<th>Definition of trust</th>
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<tbody>
<tr>
<td>Chen &amp; Dhillon (2003)</td>
<td>The reliability and dependability of the vendor offering products or services.</td>
</tr>
<tr>
<td>Currall and Judge (1995)</td>
<td>An individual reliance on another party under conditions of dependence and risk.</td>
</tr>
<tr>
<td>Mayer, Davis and Schoorman (1995)</td>
<td>The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.</td>
</tr>
<tr>
<td>Michalos (1990)</td>
<td>A relatively informed attitude or propensity to allow one’ self and perhaps others to be vulnerable to harm in the interests of some perceived greater good.</td>
</tr>
<tr>
<td>Morgan &amp; Hunt (1994)</td>
<td>Trust exists when one party has confidence in an exchange partner’s reliability and integrity.</td>
</tr>
<tr>
<td>Nissenbaum (2001)</td>
<td>Trust is an extraordinarily rich concept, covering a variety of relationships, conjoining a variety of objects. One can trust (or distrust) persons, institutions, governments, information, deities, physical things, systems, and more.</td>
</tr>
<tr>
<td>Rousseau et al., (1998)</td>
<td>A psychological state comprising the intention to accept vulnerability based upon positive expectations or behaviour of another under conditions of risk and interdependence.</td>
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</table>
3.3.2 Multidimensional Nature of Trust

Trust is a multi-dimensional construct (Chen & Dillon, 2003; Mukherjee & Nath, 2003; McCoel, 2002; Wing & Angie, 2006; Papadopoulou, Kanellis & Martakos, 2003) with Integrity, Competence and Benevolence being the focus of several studies (Wing & Angie, 2006; Papadopoulou, Kanellis & Martakos, 2003) and has formed the basis of numerous conceptual models (Chen & Dhillon 2003, Wing & Angie, 2006).

The notion of trust has been examined in various contexts over the years—for example, as related to bargaining (Schurr and Ozanne, 1985), industrial buyer-seller relationships (Doney Canon, 1997) and alliances (Das, 1998), and the use of market research (Moorman et al., 1992). Lieberman (1981) aggregates the theoretical perspectives used in these studies into three categories:

- Personality theory, conceptualizing trust as a belief, expectancy, or feeling deeply rooted in the personality and originating in the individual’s early psychological development.
- Sociology and economics, conceptualizing trust mainly as a phenomenon within and between institutions, and as the trust individuals put in those institutions.
- Social psychology, characterizing trust in terms of the expectations and willingness of the trusting party in a transaction, the risks associated with acting on such expectations, and the contextual factors that either enhance or inhibit the development and maintenance of that trust.

Trust can take different forms in different relationships. Rousseau et al., (1998) identify three different forms of trust: calculus-based trust, relational trust, and institutional trust. Calculus-based trust is based on rational choice-characteristic of interactions in an economic
exchange. Trust emerges by calculating the perceived gains and losses in the intended relationship. Relational trust derives from repeated interactions over time between the trustor and the trustee. Information available to the trustor from within the relationship forms the basis of relational trust. Institutional trust derives from the institutional factors which can act as broad supports for the critical mass of trust that sustains further risk taking and trusting behaviour. Institution based trust can ease the way to formulating both calculus-based trust and relational trust.

Further, the fact that trust changes over time is manifest from comparative research upon trust in organisations (Miles and Creed, 1995). According to Rousseau et al., (1998), there are three phases of trust development: a) building (where trust is formed or reformed), b) Stability (where trust already exists), and c) Dissolution (where trust declines). During the building stage of trust development, calculative trust and institutional trust would be more relevant, while relational trust would be formulated during the later stage of trust development (Rousseau et al., 1998). Since this study focuses on the early stages of trust development, i.e. usage intentions of internet banking, calculative trust and institutional trust would be more relevant.

From another viewpoint, trust can be broadly categorized into two different types: competence trust and intentional trust (Nooteboom et al., 1997). Competence trust concerns a partner’s ability to perform according to the intentions and expectations of a relationship while intentional trust concerns a partner’s intentions not to defect (Nooteboom et al., 1997). In the case of trust in electronic channel, intentional trust does not manifest itself since the entity to be trusted does not have intentions by itself and thus competence trust becomes paramount. In this context, a trustable electronic
channel does what people expect it to do despite the possibility of environmental disruption, human error and attacks by hostile parties (Schneider, 1998).

In the case of trust in the bank providing internet banking service, the type of trust will be intentional trust as the trustor becomes vulnerable to the potential consequences of engaging in the trusting behaviour with the bank offering the internet banking service. Rousseau et al., (1998) argued that it is necessary to integrate the differing views of trust across disciplines and put forth that trust may be a “meso” concept which integrates both the individual and institutional level view of trust.

In this research the focus is on the transactions conducted by individuals using an electronic medium (the internet) to interact with a service (internet banking) provided by an institution (the bank).

### 3.3.3 Importance of Trust in Online Environments

Literature search reveals many studies that have provided empirical support indicating the importance of trust as a direct or indirect influencing factor in an individual’s intention to engage in online economic activities (Bhattacherjee, 2002; Gefen, 2000; Gefen, 2002; Suh and Han, 2002).

Prior research has found trust to be a primary predictor of online consumer behavior (Bhattacherjee, 2002; McKnight, Choudhury, & Kacmar, 2002). This has held true in online banking studies worldwide. Suh and Han (2002) found trust to strongly influence consumer acceptance of online banking in South Korea. The majority of non-users of online banking in Romania indicated a lack of trust in the internet (80 percent) and the banking system (61 percent) as reasons for not adopting online banking (Gurau, 2002). A study of
IT managers in banks identified customer trust as second biggest challenge facing online banking in Kuwait (Aladwani, 2001). For a consumer to trust and be willing to use an online banking service, the consumer must possess confident positive expectations regarding the conduct of the online banking service.

Most research into trust in online environments has combined trust (which is the willingness to depend) and trustworthiness (which describes the three attributes of the trustee i.e. Integrity, ability and benevolence. Gefen and Heart (2006) showed that integrity primarily affects intentions to engage in an ecommerce purchase, while ability primarily affects intentions to inquire about the product without actually purchasing it. Pavlou and Dimoka (2006) showed that benevolence has a stronger effect on price premiums than ability and integrity (credibility) in online auction marketplaces.

In internet banking trust there are two parties: the Trustor and trustee. The two parties are vital for establishing a trusting relationship in the online world. However, the trustor is typically a consumer who is browsing an internet banking web site, and the trustee is the bank’s web site, or more specifically, the bank that the web site represents. Sometimes, the technology (the internet) itself is an object of trust (Marcella, 1999). Another characteristic of online trust is that like offline trust that is associated with individual differences and situational factors, online trust is inherently a subjective matter (Grabner-Krauter, 2002). The level of trust considered sufficient to make transactions online is different for each individual. People also hold different attitudes toward machines and technology.

Trust is often conceptualized by researchers according to the features of a particular context. Trust in online environments is based on beliefs in the trustworthiness of a trustee, which is composed of
three distinct dimensions as mentioned earlier—integrity, ability, and benevolence (Gefen, 2002; McKnight et al., 2002). Gefen (2002) examined trust from the similar multi-dimensional perspective. Accordingly, the specific beliefs of integrity, ability, and benevolence are seen as antecedents to overall trust. In the case of e-commerce, integrity is the belief that the online merchant adhered to stated rules or kept promises. Ability is the belief about the skills and competence of the online merchant to provide good quality products and services. Benevolence is the belief that the online merchant, apart from wanting to make legitimate profits, wanted to do good to the customer without regard to making a sale.

While holding a similar view, Ang, Dubelaar, and Lee (2001) proposed that three dimensions of trust were important for enhancing the perception of trust on the internet. These three dimensions were the ability of the online merchant to deliver a product or service that performs as promised, the willingness of the online merchant to rectify should the purchase not meet the customer's satisfaction, and the presence of a privacy policy or statement on the web site.

Based on the literature from multi-disciplines, Kim, Song, Braynov, and Rao (2001) investigated the determinants of online trust and divided the determinants into six dimensions, namely information content, product, transaction, technology, institutional, and consumer-al dimensions. In differing from most researchers, Kim et al., (2001) proposed that the consumer could perceive trust before, during, or after the online transaction.

Consumers make many online decisions almost solely on the basis of trust (Urban, Sultan, & Qualls, 2000). Although there are differences between buying a product online and adopting internet banking, previous research in an online purchasing environment may provide insights into consumer’s propensity to adopt and use an
internet banking site. Similar to banking online, consumers experience a separation of time and space when conducting a transaction. In an online banking environment, the completion of the transaction is less salient to the customer (i.e., money does not change hands). Instead of a trustworthy teller, the consumer of the internet service must put faith in information provided by the bank, available third party information, and previous experiences with the bank. Hence, instilling trust in an online banking environment becomes more difficult for the bank but remains just as important for the consumer.

In the context of internet banking, lack of trust has been suggested to be one of the obstacles that hinder individuals from adopting the technology (Md Nor & Pearson, 2007; Teoh & Md Nor, 2007). Internet banking uses internet as its delivery platform and normally is being associated with security issues. The activities of hackers and the perceived unsafe nature of the internet have been frequently highlighted in the mass media. This indirectly has further affected consumers’ trust level of the internet banking.

Many researchers have supported the influence of trust on individuals’ intention to engage in online activities including internet banking. Some of these studies are shown in Table 3.2.

These studies provide important insights into the elements of online trust. However, because the study of trust in an online context is relatively new, there are several consistent issues that exist across most of the studies. As mentioned earlier, the terms element, antecedent, dimension, determinant, and principle are sometimes used interchangeably due to the lack of agreement among researchers in the field on a clear definition for each term.
### Table 3.2: Studies of Trust in Online Environment

<table>
<thead>
<tr>
<th>Source</th>
<th>Technology studied</th>
<th>Relevant Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gefen (2000)</td>
<td>Internet store</td>
<td>Trust was found to affect both intended inquiry and intended purchase. Trust was affected by one’s disposition to trust.</td>
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<tr>
<td></td>
<td>(buying book)</td>
<td></td>
</tr>
<tr>
<td>Jarvenpaa et al., (2000)</td>
<td>Internet store</td>
<td>Willingness to buy in an internet store was affected by attitude and perception of risk. Attitude and perception of risk were affected by trust, which in turn was affected by consumer’s perception of size and reputation of the store.</td>
</tr>
<tr>
<td>Bhattacherjee (2002)</td>
<td>Internet Banking</td>
<td>Consumers’ willingness to transact online was influenced by trust, which in turn was affected by familiarity. Familiarity was significant on consumers’ willingness to transact.</td>
</tr>
<tr>
<td>Gefen (2002)</td>
<td>Internet shopping</td>
<td>Purchase intention was influenced by trust, which in turn, was affected by integrity and benevolence.</td>
</tr>
<tr>
<td>George (2002)</td>
<td>Internet shopping</td>
<td>Privacy and Internet trustworthiness were significant determinants of attitude toward Internet purchasing. In turn, attitude had a significant effect on intent to purchase.</td>
</tr>
<tr>
<td>Suh &amp; Han (2002)</td>
<td>Internet Banking</td>
<td>Trust had a significant effect on intention to use and attitudes toward using Internet banking.</td>
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</tr>
<tr>
<td>Gefen et al., (2003)</td>
<td>Internet shopping</td>
<td>Trust was a significant predictor of purchase intention for both potential and repeat customers. Familiarity and disposition to trust were significant on trust for both customers.</td>
</tr>
<tr>
<td>Sohail &amp; Shanmugham (2003)</td>
<td>Internet Banking</td>
<td>Trust in one's bank had a significant influence on him or her to use Internet banking. Other factors were Internet accessibility, attitude towards change, computer and Internet access costs, security concerns, ease of use, and convenience.</td>
</tr>
<tr>
<td>Teoh &amp; Md Nor (2007)</td>
<td>Mobile Banking</td>
<td>Perceived security had a significant effect on the intention to use mobile banking. Other factors that affect the intention are perceived usefulness and ease of use.</td>
</tr>
<tr>
<td>Md Nor &amp; Pearson (2007)</td>
<td>Internet Banking</td>
<td>Trust, relative advantage, and trialability had a significant effect on the intention to use Internet banking.</td>
</tr>
<tr>
<td>Pavlou (2003)</td>
<td>Information systems</td>
<td>Trust was a significant predictor of intention to transact. Trust had a significant effect on perceived risk, perceived usefulness and perceived ease of use.</td>
</tr>
</tbody>
</table>
3.3.4 Trust and TAM

The Technology Acceptance Model (TAM) has formed the foundation of many studies of information systems (Bahmanziari et al., 2003; Gefen et al., 2003; Pavlou, 2003). It is not surprising that the TAM has been adopted to explain internet surfers' use of electronic commerce in relation to consumer trust (Pavlou, 2003; Gefen and Straub, 2000).

Since its introduction by Davis (1989) and Davis et al., (1989), TAM has been widely employed by researchers to explain user acceptance of technology (Ng, 2003; Gefen et al., 2003; Bahmanziari, Pearson & Crosby, 2003; Pavlou, 2003). Although TAM was designed to predict user adoption of information technology applications in the organizational workplace (Riemenschneider, Hardgrave & Davis, 2002), researchers have modified the original model to explain electronic commerce acceptance (Dahlberg, Mallat & Oorni, 2003; Featherman & Pavlou, 2002).

The connections between Trust and TAM have been widely discussed in literature, in that, the relationships between Perceived Usefulness, Perceived Ease of Use and Trust are hypothesized in many online business settings (Gefen et al., 2003; Pavlou, 2003; Saeed et al., 2003; Gefen, 2004).

In particular, a model of Trust and TAM was well defined in the online shopping context by Gefen et al., (2003). This model explicitly indicated trust as an antecedent of Perceived Usefulness, Perceived Ease of Use as an antecedent of Trust and Trust as having a direct influence on behavioural Intention to use.

Dahlberg, Mallat and Oorni (2003) had adopted Venkatesh et al’s (2003) model to explain mobile payment solutions and introduced
what they termed a “trust-enhanced” TAM model. The trust factors were perceived trust and disposition to trust. Perceived trust was defined as the degree to which a person perceives a particular technology solution as secure and trustworthy. Disposition to trust was defined as the extent to which a person is willing to trust others. Dahlberg et al’s (2003) findings indicate that the proposed trust factors play an important role in consumer adoption of mobile payment solutions.

3.4 Conceptual Model and Hypotheses Development

After extensive review of the literature and existing theory, a conceptual model was developed which includes the factors influencing consumer intention to use internet banking. Of the four theories described in the earlier section, TAM has emerged as the most powerful and parsimonious theory to represent the antecedents of technology usage through belief in two factors that is, Perceived Usefulness and Perceived Ease of Use of an information system (Davis, 1989). Bank customers willingness and motivation to adopt internet banking may be viewed using the Technology Acceptance Model (Suh and Han, 2002), which is based on the Theory of Reasoned action (Fishbein and Ajzen, 1975).

Considering the simplicity of Technology Acceptance Model (TAM), and the uniqueness of internet banking and its user groups, an extended TAM was used as a theoretical framework to examine the effects of computer self efficacy and awareness on users’ acceptance of internet banking through attitude towards internet banking, where
attitude is influenced by the three beliefs namely, perceived usefulness, perceived ease of use and perceived security

TAM was chosen in this study for two main reasons: First, the predictive power of TAM makes it applicable to different information system devices (Nysveen et al., 2005; Luarn and Lin, 2005; Pikkarainen et al., 2004; Kleijnen et al., 2004; Wang et al., 2003). Secondly TAM helps to better understand the relationship between the important constructs of the study namely Perceived Usefulness, Perceived Ease of Use, Perceived Security, consumer’s Self Efficacy, Awareness and Consumer Trust on Internet Banking and behavioral Intention.

According to TAM, adoption behavior is determined by the intention to use a particular system, which in turn is determined by the perceived usefulness and perceived ease of use of the system. Although information systems researchers have investigated and replicated the TAM, and agreed that it is valid in predicting the individual’s acceptance of various corporate IT (Adams et al.,1992; Chin and Todd,1995; Doll et al.,1998; Segars and Grover,1993), the TAM’s fundamental constructs do not fully reflect the specific influences of technological usage-context factors that may alter the user’s acceptance (Moon and Kim,2001). Factors affecting the acceptance of a new IT are likely to vary with the technology, target users, and context (Moon and Kim,2001).

Based on Fishbein and Ajzen’s (1975) distinction of attitudes, Perceived usefulness (PU), Perceived ease of use (PEOU) and Perceived Security (PS) are attitudes concerning use and would be considered attitudes toward a behaviour, and thus they are adequate factors for operationalizing the attitude construct in the research model. According to the Theory of Reasoned Action (Fishbein and Ajzen 1975), internal beliefs and attitudes are influenced by external
variables. In this study, computer Self efficacy and awareness are individual characteristics, which are viewed as external variables. The research model tested is shown in Figure 3.4.

**Figure 3.4 Conceptual Model of the Study**

![Conceptual Model of the Study](image)

Source: Computed by the researcher.
The importance of trust as a key facilitator of internet applications adoption is increasingly being recognized in academic and practitioner communities. However, in this study, trust is an attitude towards the object (i.e., internet banking technology or the bank) instead of towards the behavior (i.e., online transaction). Hence, trust factor is operationalized separately as influencing attitude as well as influencing intention directly.

The research model includes two individual difference variables ‘Self Efficacy’ (SEF) and ‘Awareness’ (AWA), and three belief variables ‘Perceived Usefulness’ (PU), ‘Perceived Ease of Use’ (PEOU) and ‘Perceived Security’ (PS), followed by Consumer Trust on Internet Banking (CTIB) as an important influence of intention to use internet banking. There are six antecedents to CTIB. They are Perceived Bank Competence (BCOM), Perceived Bank Integrity (BINT), Perceived Bank Benevolence (BBEN), Structural assurances (STAS) and Personal disposition to trust (DIS).

The following section identifies the main factors established in the technology acceptance model and other relevant studies. A brief description of each variable is given and references are made to pertinent research.

### 3.4.1 Consumer Intention to use Internet Banking

As the dependent variable, previous studies included either the intention to use internet banking (ex. Tan and Teo, 2000) or the level of internet banking utilization (ex. Pikkarainen et al., 2004), or both (Lee et al., 2005, Suh and Han, 2002). The model in this study includes only the intention to use internet banking or continue to use internet banking. By investigating current adopters it is possible to detect what drove them to adopt internet banking.
The actual usage behavior has not been incorporated in the model as there is substantial empirical support for the causal link between intention and behavior (Taylor and Todd, 1995; Venkatesh and Davis, 2000; Venkatesh and Morris, 2000). All these studies support the view that intention is the sole influencing factor of behaviour.

Given the sufficient time and knowledge about a particular behaviour activity, an individual stated preference to perform the activity is usually declared in the form of intention that resembles the way he or she behaves (Rawstorne, et al., and 2000). In a study of online banking acceptance, behavioural intention impacted actual use significantly Suh and Han (2002). Sheppard et al., (1988) in a Meta analysis of 87 studies found that intention and behaviour correlation reported on average 0.53, therefore this study uses only usage intentions as the dependent variable.

3.4.2 Attitude

Online Banking offers customers a variety of choices and as a result attitude impact becomes more important in predicting the behaviour. Attitude and adoption intention are two widely examined variables in the literature of technology acceptance. Attitude is defined as the individual’s feelings about performing behaviour. It is determined through assessing beliefs towards the consequences arising from behaviour and the desirability of these consequences. It is a common supposition that individuals’ social behaviors are motivated by their behavioural attitudes. Empirically, the literature has illustrated that attitude has a significant influence on the intention to adopt IB.

Attitude is ‘the degree of evaluative affect that an individual associates with using the target system in his / her job’ (Davis, 1993).
According to East (1997), attitude is what one feels about a concept, which may be any entity about which, one can think and to which, one can attach feeling. Attitude plays an important role in adopting computer technology (e.g. Swanson, 1988; Davis et al., 1989) and actual usage (e.g., Ives et al., 1983; Swanson 1988).

Ajzen and Fishbein (1980) suggested two types of attitude: (i) attitude toward objects – a person’s affective evaluation of a specified attitude object, and (ii) attitude toward action (behaviour) – a person’s affective evaluation of specified behaviour involving the object. Attitude toward an action exists as a unidimensional reaction toward the action as a whole (Ajzen and Fishbein, 1980). At least 500 measures of attitude have been proposed, yet all of them have one thing in common, they refer to people’s evaluations (Peter and Olson, 2005). Since attitude resides in the mind, precedes and produces behaviour, it is used to predict behaviour.

Attitude impacts intention significantly in the online banking context (e.g. Tan and Teo, 2000). There is little evidence that attitude toward objects stimulates action (Bagozzi et al., 1992), so attitude toward action is employed for this conceptual framework. Therefore the following is postulated: Attitude towards internet banking influences consumer intention to use internet banking.

3.4.3 Self Efficacy

Self-efficacy is defined as the judgment of one’s ability to use a computer (Compeau and Higgins, 1995) and has been examined by many researchers (Compeau and Higgins, 1995; Compeau et al., 1999; Hong et al., 2001; Agarwal et al., 2000; Johnson and Marakas, 2000; Chau, 2001).
Prior research has suggested a positive relationship between experience with computing technology and a variety of outcomes such as an affect towards computers and computer usage (Levin and Gordon, 1989; Harrison and Rainer, 1992; Agarwal and Prasad, 1999). This confirms the critical role that computer self-efficacy plays in understanding individual responses to information technology, in this case internet banking.

Compeau and Higgins (1995) defined Self Efficacy as the belief that one has the capability to perform a particular function. In the context of internet banking, therefore, perceived Self Efficacy can be defined as the judgment of one’s ability to use internet banking. Furthermore, there is empirical support for the causal relationship between perceived Self Efficacy and behavioral intention (Agarwal et al., 2000; Venkatesh, 2000; and Compeau and Higgins, 1995). Luarn and Lin (2005) found that perceived Self Efficacy has a significant positive influence on behavioral intention to use an Information System (IS). This is also corroborated by Wang et al., (2003) who found that computer Self Efficacy had a significant positive influence on behavioral intention.

Self Efficacy, in this study has been further extended to the use of internet and is measured as a skill level of consumers in using computers and internet. Consumers need to be familiar with computers in general, and should be, to some extent, proficient in the use of web browsers, to engage in computer-mediated communications and transactions. Having experiences in these two areas (Computers and internet) will thus increase a consumer’s likelihood of adopting internet banking.

Prior technology experience, especially prior computer experience have been found to impact consumers’ beliefs about related systems and information technology (DeLone, 1988; Igbaria et
Thus consumers’ technology skills in general facilitate appreciation of the potential added value which is inherent in the technology. Gerrard and Cunningham (2003) found that consumers who were non-adopters of electronic banking could be differentiated by their lower computer skills. Chung and Paynter (2002) found that lack of prior use of internet banking inhibited consumer adoption. Investigating consumers’ prior experiences with computer technology may provide additional explanations for varying degrees of consumer acceptance of an internet based distribution channel and expand the existing technology acceptance theories.

It can be seen clearly that an important factor that influences the adoption of internet banking is the computer and internet proficiency of the consumer termed here as ‘Self efficacy’ (SE). Therefore consumers who have more proficiency or skill in using computers and internet are more likely to adopt internet banking as they have positive perceptions with regard to the usefulness of internet banking, ease of use and security aspects of internet banking.

**3.4.4 Awareness**

Awareness is the amount of information a customer has about Internet banking and its benefits, which has a critical impact on the adoption of Internet banking.

Banks are information intensive by their nature and use various channels to inform customers about their products and services. Pikkarainen et al., (2004) conducted research in Finland to investigate the consumers’ acceptance of online banking. It was found that information on online banking was very influential factors explaining the use of online banking service in Finland.
Sathye (1999) noted that low awareness of internet banking is a critical factor inhibiting customers to adopt internet banking. Howcroft et al., (2002) found that lack of awareness of internet banking services and its benefits were the reasons for consumers’ reluctance to use internet banking services. Guiltian and Donnelly (1983) also emphasized on the importance of awareness for the adoption of any new innovation. Suganthi et al., (2001) identified ‘consumer awareness’ as one of the major factors that affected the adoption or usage of any new innovation like internet banking.

Internet banking literature supports that, individual factors like knowledge (Sathye, 1999; Polatoglu and Ekin, 2001) have an impact on consumer’s adoption of internet banking. Colgate et al., (2003) stated that when consumers made decisions for different alternatives in the market place, the awareness of the existing alternatives was a determinant for consumers to stay with their current banking provider.

Therefore consumers who are more aware of internet banking are more likely to have positive beliefs with regard to internet banking’ usefulness, ease of use and perceived security thereby influencing their adoption of internet banking.

3.4.5 Perceived Usefulness (PU)

Perceived Usefulness is associated with attitude. By definition, Perceived Usefulness is defined as the degree to which a person believes that using a particular system would enhance his or her job performance (Davis et al., 1989). Earlier studies have shown that there is a positive relationship between Perceived Usefulness and usage intention (Luarn and Lin, 2005; Cheong and Park, 2005; Chiu et al., 2005; Wang et al., 2003; and Venkatesh and Morris, 2000). Luarn and Lin (2005) indicated that Perceived Usefulness has a
significant impact on the development of initial willingness to use mobile banking. Similarly, Cheong and Park (2005) also found that there exists a positive causality between Perceived Usefulness and online purchase intentions. The result corroborates the findings by Chiu et al., (2005); Wang et al., (2003); and Venkatesh and Morris (2000). These studies confirm the important effect of Perceived Usefulness in understanding individual responses to information technology.

Davis (1989) asserts that the decision to use new technology is determined by the extent to which a person believes that it is cost effective in providing goods or services compared to the current method. Perceived Usefulness (PU) is defined as the degree to which a person believes that using a particular technology will enhance his performance. Perceived Usefulness has been confirmed as an important variable that influences user technology acceptance and therefore has received a great deal of attention from previous researchers (Araujo and Araujo, 2003; Noteberg et al., 2003; Gefen et al., 2003; Matheison, 1991; Malhotra and Galleta, 1999).

Perceived Usefulness is also similar to the ‘relative advantage’ construct (Moore and Benbasat, 1991) and has been used in technology acceptance studies (See Davis, 1989). Relative advantage was found to have significant effect on adoption (Tornatzky and Klein, 1982). Tornatzky and Klein (1982), and Tan and Teo (2000) suggest that ‘relative advantage’ is an important factor in determining adoption of innovations. This is supported by Roger’s study of innovation diffusion theory that found that the Perceived Usefulness of an innovation is positively related to its rate of adoption (Rogers, 2003). While relative advantage refers to “the degree to which an innovation is considered a better than an alternative innovation” (Rogers, 2003), Perceived Usefulness refers to “the degree to which a
person believes that using a particular system would enhance his or her job performance” (Davis, 1989).

Internet banking is a technology that allows banking customers to do the things they would normally do at their banks from the comfort of their homes with an internet connection. Internet banking thus provides two major advantages: convenience (Dabholkar, 1996; Gerrard and Cunningham, 2003; Karjaluoto et al., 2002; Meuter et al., 2000; Polatoglu and Ekin, 2001) and quick service (Karjaluoto et al., 2002; Kluglak, 1997), compared to traditional retail banking services. Convenience has increasingly been linked to online consumer choices. Time savings appears to be an important aspect of convenience of online services (Bellman et al., 1999; Dellaert and Kahn, 1999). It is considered that consumers who perceive convenience and quick service as important attributes of internet banking are more likely to adopt internet banking.

Extensive research has proved the significant effect of PU on attitude and intention (e.g. Davis et al., 1989; Venkatesh and Davis, 1996, Venkatesh, 1999; Agarwal and Prasad, 1999; Venkatesh and Morris, 2000). In fact PU has proved most of the time that it is the most significant variable in behaviour, attitude and intention. Thus a higher degree of Perceived Usefulness is likely to influence attitude towards internet banking and its usage intentions.

3.4.6 Perceived Ease of Use

Perceived Ease of use is defined as the degree to which an individual believes that using a particular system will be free of physical and mental effort (Davis, 1989). According to TAM, the Perceived Ease of Use (PEOU) is one of the main variables influencing the use of technology. Extensive research over the past decade provides evidence of the significant effect of perceived ease of use on
usage, either directly or indirectly through its effect on Perceived Usefulness (Agarwal and Prasad, 1999; Davis et al., 1989; Hu et al., 1999; Jackson et al., 1997; Venkatesh, 1999; Venkatesh and Davis, 1996, 2000; Venkatesh and Morris, 2000).

The importance of Ease of Use in determining successful IT adoption has been highlighted in much previous literature (Fred D. Davis, Bagozzi, & Warshaw, 1989; Moore & Benbasat, 1991; Taylor & Todd, 1995). Understanding Perceived Ease of Use is important because it has implications for the design of training intervention to manipulate the perception of ease of use (Rashed, 2001; Venkatesh, 1999; Venkatesh & Davis, 1996) among users of internet technology in the banking industry. The literature suggests that Ease of Use can be considered in terms of ease of navigation, ease of learning and ease of management.

Earlier studies have shown that there is a positive relationship between Perceived Ease of Use and usage intention (Guriting and Ndubisi, 2006; Luarn and Lin, 2005; Kleijnen et al., 2004; Wang et al., 2003 and Ramayah et al., 2003). Guriting and Ndubisi (2006) found that Perceived Ease of Use had a significant positive effect on behavioral intention to use online banking in Malaysia.

Similarly, in the study of Kleijnen et al., (2004) about wireless finance in Netherlands, it was concluded that Perceived Ease of Use was a significant measure in the development of people’s intention to use wireless finance. Ramayah et al., (2003) showed that Perceived Ease of Use has a significant impact on the development of initial willingness to use internet banking. The result corroborates the findings by Wang et al., (2003), Adams et al., (1992), Davis et al., (1989) and Ramayah et al., (2002). Bank customers are likely to adopt online banking when they find it easy to use the technology. In addition, Davis et al., (1989) proposed that Perceived Ease of Use is an
antecedent of Perceived Usefulness. Results from previous research revealed a significant relationship between Perceived Ease of Use and Perceived Usefulness (Kleijnen et al., 2004; Wang et al., 2003; and Davis et al., 1989).

Information technologies that are easy to use will be less threatening to the individual (Moon and Kim, 2001). This implies that Perceived Ease of Use is expected to have a positive influence on users in their interaction with internet banking systems. It was also found that ease of use, was positively correlated with use of consumer technologies, such as computer software (Davis, 1989; Venkatesh and Davis, 1996). Suganthi et al., (2001) label one of their dimensions “ease of use”, which Rogers (2003) considered to be a measure of complexity.

Therefore the more the consumer perceives internet banking as easy to use, the more he or she is likely to find internet banking useful and the more he or she is likely to adopt internet banking. While Perceived Ease of Use would influence attitudes and thereby usage intentions, it is also found that Perceived Ease of Use influences attitude through its effect on Perceived Usefulness and thereby usage intentions.

3.4.7 Perceived Security:

Besides the Perceived Usefulness and Perceived Ease of Use, the usage intention of internet banking can also be affected by the security and privacy concerns of the users. This argument is based on the work of Luarn and Lin (2005) and Wang et al., (2003). According to Wang et al., (2003), security and privacy are the two important dimensions termed in their study as perceived credibility. By definition, Perceived Security (PS) is one’s judgment on the privacy and security issues of internet banking. The importance of security
and privacy to the acceptance of banking technologies has been noted in many banking studies (Howcroft et al., 2002; Polatoglu and Ekin, 2001; and Sathye, 1999). Basically, fear of a lack of security is recognized as an important factor impacting the acceptance of internet banking. Obviously, it is the Perceived Security that people have in a system which concludes financial transactions securely and maintain the confidentiality of their personal information that will affect their voluntary acceptance of internet banking.

Perceived Security is a major reservation consumers have about internet banking. Concerns about transaction security such as potential cyber crime and errors in transactions can limit adoption of electronic technologies (Gingrade, 1998; Simms, 1999). Consumer concerns about security and privacy have been noted by many experts (Miyazaki and Fernandez, 2001; Gefen et al., 2003; Nissenbaum, 2004). One particular survey by Chung and Paynter (2002) identified consumer fears regarding transaction security as an inhibitor to the adoption of internet banking. Security has also been identified as a key consumer concern in other internet banking adoption studies (Black et al., 2002; Siu and Mou, 2005). Hain et al., (2002) observed that non-internet banking consumers were more concerned about security and privacy issues than internet banking consumers.

Security and privacy concerns of transactions are not new concepts. Consumers have always been concerned about using debit cards at not-so-reputable merchants, and have often had their privacy invaded in the form of direct marketers who somehow obtained their telephone numbers. While security is the state of being free from dangers like theft or losing money and information (Gefen et al., 2003). Privacy refers to confidentiality. Confidentiality of consumer data is an important concern in the adoption of internet banking.
(Gerrard and Cunningham, 2003). Customers fear that someone will have unlimited access to their personal financial information.

With the advent of electronic commerce, the scale, scope and immediacy of security and privacy issues have compounded many times over. It has been argued that enhancing favorable security and privacy perceptions (Shneiderman, 2000) and building trust (Hoffman & Novak, 1996) are very important for sustained activity in the electronic business frontier. Issues involving security and privacy have made many consumers hesitant to transact online.

One of the most significant challenges of internet banking has been consumers’ security and privacy concerns. Security has been identified as one of the biggest barriers for the uptake of internet banking (Sathye, 1999). Cooper (1997) and Daniel (1999) identified that an important factor affecting the acceptance and adoption of a new innovation is the level of security and risk associated with it. In the context of internet banking, threats can be made either through network and data transaction attacks or through unauthorized access to the account.

Even in countries where internet banking has long been established, one of the most important factors slowing progress of internet banking is the consumers concern for security of financial transactions over the internet. Security failure at a particular bank could not only cause large losses for that bank, but could spawn a general lack of reliability in internet banking transactions.

Awamleh and Fernandes (2005) revealed that security of internet banking transactions has a significant impact on customer satisfaction in internet banking. Security of internet banking transactions was significant for those using internet banking for more than two years. White and Nteli (2004) showed that customers have
concerns with the security and safety aspects of the internet. On the other hand, Mattila (2001) points out that Finnish internet banking customers do not pay excessive attention to security concerns.

Consumer concerns about internet security and privacy have been noted by many experts in the adoption of internet banking. (Miyazaki and Fernandez, 2001; Gefen et al., 2003; Nissenbaum, 2004) Often people are hesitant to sign up for services that involve giving financial information electronically due to their concerns about security of transactions (O'Connell, 1999; Swaminathan, Lepkowska-White and Rao, 1999).

The perceptions or concerns of security by users of electronic systems were first addressed by information systems research (Benson, 1983; White, 1987; Goodhue, 1991), specifically in the context of organizational systems (Goodhue, 1991). With regards to security concerns of online consumers research points out that consumer perceptions of unsatisfactory security on the internet continues to exist even when vendors undertake security enforcement mechanisms (Miyazaki & Fernandez, 2001). Consumers’ trust in their online transactions is vital for the sustained progress and development of internet banking.

Therefore while perceived security of internet banking influences attitude towards internet banking and thereby its usage intention, it could also affect usage intentions through its influence on consumer trust on internet banking (CTIB).
3.4.8 Consumer Trust on Internet Banking

Trust is an especially important factor under conditions of uncertainty. As a new form of commercial activity, internet banking involves more uncertainty than traditional banking. Many studies have identified the building of trust as a fundamental and yet unresolved issue in the development of internet banking. In the literature on human-computer interface and ergonomics, trust is identified as a factor affecting human choice of the use of computerized systems (Muir, 1997). Internet banking is an activity that necessarily entails primary interactions with computer systems. The extent to which consumers trust this computerized medium is likely to affect their overall intention to use internet banking.

Even perfect institutions are no guarantee of trust, if the characteristics of trustor and trustee are not conducive to it (De George, 2003). The trustor’s willingness to trust must be matched with corresponding characteristics of the trustee, which are often summarized as “trustworthiness”. Trustworthiness is a concept that needs to be understood from the trustor’s perspective. It is thus somewhat idiosyncratic. There is nevertheless much literature that attempts to pin down constituent aspects of trustworthiness.

Trust is based on the Theory of Reasoned Action (TRA), which purports to explain why individuals choose to perform certain behaviors. The initial driver of a behavior is a person’s beliefs about the trustee’s trustworthiness—i.e., the individual’s assessment that the trustee will act in a beneficial manner toward the trustor. Beliefs are modeled as affecting trust, which represent the person’s attitude, i.e., the individual’s willingness to be vulnerable to the other party (Mayer et al., 1995). In the case of internet banking, trust theory predicts that a trustor’s belief about the online bank influence the
trustee’s attitude and hence encourages the actual performance of the behavior.

Any commercial transaction involves sharing of information between the transacting parties and hence, the total trust exhibited by the consumer in conducting a transaction can be considered to be a combination of trust in the trustee and trust that the environment will guarantee the integrity of the transaction.

Despite the benefits of internet banking, the use of an electronic medium makes it harder for banks to gain consumer trust (Meuter, Ostrom, Roundtree & Bitner, 2000). In internet banking the activities are performed online and processed virtually. Personal contact is absent and can raise doubts as to whether the requested transactions were correctly processed. Personal data are transmitted online that hackers might steal. All these concerns require a high level of trust before individuals will start using internet banking. Because trust has a huge influence on a consumer’s commitment to an online provider (Floh & Trieblmaier, 2006), banks should attempt to understand the determinants of trust and use this to develop stronger, more meaningful relationships with their customers, and consequently achieve greater profits.

Lee and Turban (2001) posited that four main antecedents influenced consumer trust in the context of internet shopping. The antecedents were identifies as, the trustworthiness of the internet merchant, trustworthiness of the internet as a shopping medium, infrastructural (contextual) factors (e.g., third-party certification), and other factors (e.g., company size). Given the fact that most researchers tended to ignore the role of the computer systems or the internet through which transactions were executed and only focus on building trust between consumer and merchants, it was remarkable that Lee and Turban considered the perception of the shopping medium as a
critical factor of consumer trust in internet shopping. The researchers also pointed out that the individual’s trust propensity could influence trust.

These preceding studies provide important insights into the elements of internet based trust. However, because the study of trust in an online context is relatively new, there are several consistent issues that exist across most of the studies. As mentioned earlier, the terms element, antecedent, dimension, determinant, and principle are sometimes used interchangeably due to the lack of agreement among researchers in the field on a clear definition for each term.

Consumers make many online decisions almost solely on the basis of trust (Urban, Sultan, & Qualls, 2000). Although there are differences between buying a product online and adopting internet banking, previous research in an online purchasing environment provide insights into consumer’s propensity to adopt and use an internet banking site. Similar to purchasing online, consumers experience a separation of time and space when conducting a transaction. In the internet banking environment, the completion of the transaction is less salient to the customer (i.e., money does not change hands). Instead of a trustworthy teller, the consumer of the internet service must put faith in information provided by the bank, available third party information, and previous experiences with the bank.

Hence, instilling trust in an online banking environment becomes more difficult for the bank but remains just as important for the consumer. This study proposes that Consumer Trust on Internet Banking (CTIB) influences usage intentions both directly or indirectly through its influence on attitude.
The following section describes the six main factors or antecedent influences of Consumer Trust on Internet Banking (CTIB) identified in this study. Three attributes arguably constitute the main elements of trustworthiness: Ability, Benevolence, and Integrity (Mayer et al., 1995). The issue of Security and Privacy (explained earlier), which can be protected by Public Key Encryption (PKI) systems and the related protocols is also considered as a factor important in trust building. Also important are Structural Assurances in the context of internet banking and individual’s propensity to trust also termed as Disposition to Trust.

3.4.8.1 Bank Competence, Integrity and Benevolence

Mayer et al., (1995) suggest Ability, Benevolence, and Integrity as necessary characteristics of the trustee. Hence the factors bank Ability referred in this study as Perceived Bank Competence, Perceived Bank Integrity, Perceived Bank Benevolence, Structural Assurances and personal Disposition to Trust are identified as predictors of Consumer Trust on Internet Banking (CTIB). And Consumer Trust on Internet Banking influences Consumer intention to use internet banking both directly and indirectly through influencing consumer Attitudes towards internet banking, which influences Intention to use internet banking.

According to Mayer et al., (1995), to trust another party, a trustor must perceive that the trustee has the ability or competence to accomplish the focal task, intends to do good to the trustor in the relationship, and adheres to a set of principles that the trustor finds acceptable. Ability comprises the skills and competencies enabling a party to have influence within some specific domain. In the present context it relates to the competence of a bank in the internet banking business. Competence relates to the making and the fulfillment of a promise (Chen & Dhillon 2003). It is necessary therefore for the bank
to fulfill the promise by executing the requests of the customer with promptness and correctness (Papadopoulou, Kanellis & Martakos, 2003). Ability is domain-specific in that trustees highly proficient in one area (and trusted with behaviors in that area) may be viewed as having little aptitude or experience in other areas. For instance, one can trust doctors for health treatment and not for planning retirement or investments. Likewise, firms with demonstrated or perceived domain expertise in a certain area (such as banking) are more likely to be trusted by users in that area than those with less perceived expertise.

Perceived Bank Benevolence is the extent to which the customer believes that the bank providing internet banking service wants to do good things rather than just maximize profit. Any activity that shows the bank as placing the interests of the customer before their own will be highly regarded by customers. Benevolence is the extent to which a trustee is believed to intend doing good to the trustor, beyond its own profit motive (Mayer et al., 1995). A benevolent trustee would help the trustor, even when the trustee is not required to be helpful or is not rewarded for being helpful. Benevolence introduces faith and altruism in a relationship, which reduces uncertainty and the inclination to guard against opportunistic behaviors.

Domain ability is not adequate for building trust; trustees must also be relied on to fulfill obligations to trustor’s (Rempel et al., 1985). Integrity refers to the trustor’s perception that the trustee will adhere to a set of principles or rules of exchange acceptable to the trust or during and after the exchange (Mayer et al., 1995). Therefore Perceived Bank Integrity is the customer’s perception that the bank offering internet banking will be honest and adhere to an acceptable set of principles. An open, honest communication with customers and a demonstrated consistency in behavior will increase the perception of
online bank’s integrity. Perceived integrity instills trustor’s confidence in trustee and reduces perceptions of risk. In e-commerce contexts, rules of integrity refer to: (1) conduct of online transactions, (2) customer service policies following a transaction, and (3) firm’s use of private user information. However, the specific rules are context-dependent. For instance, online retailing rules include timely shipping of products, timely and accurate billing, and maintaining confidentiality of personal information, whereas online brokerage rules include providing accurate quotes, timely execution of client orders, and timely notification of fulfilled trades.

Online banks may build integrity perceptions by explicitly stating their rules of service and policies on their Web sites, keeping customers informed of any change in rules, and unfailingly abiding by those rules. It is important to note that adherence to any set of rules is not adequate; such rules must be perceived by the trustor as being fair and reasonable. Integrity is similar to honesty, fairness, credibility, consistency, predictability, reliability, and dependability dimensions proposed in the literature.

Hence Perceived Bank Competence, Perceived Bank Integrity and Perceived Bank Benevolence are factors that are identified as influencing Consumer Trust on Internet Banking (CTIB), thereby influencing internet banking usage intentions indirectly by influencing Consumer Trust on Internet Banking (CTIB).

### 3.4.8.2 Structural Assurances

Structural Assurances include contextual conditions that act as promises, contracts, regulations and guarantees. Structural assurance beliefs, as defined by Shapiro (Shapiro 1987) signify structural protections or governance mechanisms. Collectively, they facilitate the formation of trusting beliefs and risk-taking behavior.
Furthermore, at a societal level, these guarantees, safety nets, and other supporting structures are evident through legal measures that protect the individual’s rights and property (Fukuyama, 1995) and thus facilitate trust (Zucker, 1986).

“Structural Assurance is information that can be used to give a web services provider or requestor the confidence that measures exist that can provide safeguards and reduce the risk when something goes wrong” (Coetzee & Eloff, 2005 p.501). With a high level of Structural Assurance in a web site, one would be more likely to believe in the goodness of the e-vendors (trusting beliefs) because of the secure feeling that the structural assurance engenders (McKnight and Chervany, 2002; Gefen et al., 2003).

Hence it is proposed that Structural Assurance (STAS) positively influence Consumer Trust on Internet Banking (CTIB), thereby influencing its usage intentions.

### 3.4.8.3 Disposition to Trust

Trust propensity describes the individual trait of the person that they have developed during their early age. A person with a high trust propensity is often more inclined to trust others. In a collective culture, Chinese trust propensity is much lower than that of people in western countries (Huff and Kelley, 2005). This may influence the effect of trust propensity on initial trust. Hofstede (1980) found that this trait is dependent on cultural background, personality type, and developmental experience. The propensity to trust is a personality trait that moderates the effect of trustworthiness attributes on the formation of trust. This position is supported by Mayer, Davis, and Schoorman (1995). Propensity to trust can be thought of as an individual’s general willingness to trust others. People with different
experiences, personality types and cultural backgrounds vary in their propensity to trust (Mayer et al., 1995; Kim et al., 2001).

Dispositional trust means a person’s general tendency to trust others across situations. Disposition to trust is an assumption that general others are trustworthy (Rotter, 1971). Jarvenpaa et al., (1998) find that propensity to trust is a significant factor of trusting intention for virtual teams. Gefen (2000) finds in the context of online shopping, that disposition to trust affects subjects’ trust in the online vendor (Amazon.com), showing that disposition predicts trust well when little interaction has taken place. Kaplan and Nieschwietz (2003) find that disposition to trust is a significant factor of trusting beliefs in a Web company. Ridings et al., (2002) find that disposition to trust predicted trust in the members of the virtual communities’ ability and benevolence/ integrity. McKnight et al., (2002) find that disposition to trust predicts trusting beliefs but not trusting intentions. McKnight et al., (2004) find that disposition to trust was a significant predictor of trusting beliefs and trusting intentions in the Web vendor at two early phases.

It is therefore proposed in this study that personal Disposition to Trust (DIS) has a positive influence on Consumer Trust on Internet Banking (CTIB), thereby influencing its usage intentions.
3.5 Hypotheses of the Study

Based on the research model given in figure 3.4, a comprehensive set of hypotheses is formulated and presented in table 3.3 below.

Table 3.3: Hypotheses of the study

<table>
<thead>
<tr>
<th>No</th>
<th>Hypotheses statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 1</td>
<td>Self Efficacy(SEF) positively influences Perceived Usefulness (PU)</td>
</tr>
<tr>
<td>H 2</td>
<td>Self Efficacy(SEF) positively influences Perceived Ease of Use (PEOU)</td>
</tr>
<tr>
<td>H 3</td>
<td>Self Efficacy(SEF) positively influences Perceived Security (PS)</td>
</tr>
<tr>
<td>H 4</td>
<td>Awareness (AWA) positively influences Perceived Usefulness (PU)</td>
</tr>
<tr>
<td>H 5</td>
<td>Awareness (AWA) positively influences Perceived Ease of Use (PEOU)</td>
</tr>
<tr>
<td>H 6</td>
<td>Awareness (AWA) positively influences Perceived Security (PS)</td>
</tr>
<tr>
<td>H 7</td>
<td>Perceived Usefulness (PU) positively influences attitude (ATT)</td>
</tr>
<tr>
<td>H 8</td>
<td>Perceived Usefulness (PU) positively influences consumer Intention (INT) to use internet banking</td>
</tr>
<tr>
<td>H 9</td>
<td>Perceived Ease of use (PEOU) positively influences attitude (ATT)</td>
</tr>
<tr>
<td>H 10</td>
<td>Perceived Ease of use (PEOU) positively influences Perceived Usefulness (PU)</td>
</tr>
<tr>
<td>H 11</td>
<td>Perceived Security (PS) positively influences attitude (ATT)</td>
</tr>
<tr>
<td>H 12</td>
<td>Perceived Security (PS) positively influences Consumer Trust on Internet banking (CTIB)</td>
</tr>
<tr>
<td>H 13</td>
<td>Perceived Bank Competence (BCOM) positively influences Consumer Trust on Internet banking (CTIB)</td>
</tr>
<tr>
<td>H 14</td>
<td>Perceived Bank Integrity (BINT) positively influences Consumer Trust on Internet banking (CTIB)</td>
</tr>
<tr>
<td>H 15</td>
<td>Perceived Bank Benevolence (BBEN) positively influences Consumer Trust on Internet banking (CTIB)</td>
</tr>
</tbody>
</table>
H 16 Structural Assurances (STAS) positively influences Consumer Trust on Internet banking (CTIB)
H 17 Personal Disposition to trust (DIS) positively influences Consumer Trust on Internet banking (CTIB)
H 18 Consumer Trust on Internet banking (CTIB) positively influences attitude (ATT)
H 19 Consumer Trust on Internet banking (CTIB) positively influences consumer Intention (INT) to use internet banking
H 20 Attitude (ATT) towards internet banking influences consumer Intention (INT) to use internet banking
3.6 Demographics and Internet Banking Usage Intentions

The use of internet banking is affected by demographic characteristics of consumers, and these characteristics differ in the strength of their impact. With regard to bank customers, the most common factors that influence their use of internet banking are age, gender, income level and education.

The relationship between age and computer use appears to be strong. Age is one of the critical factors that affect the adoption of any new technology (Al-Erieni, 1999). Researchers found adopters of new communication technologies are younger than non-adopters due to the fact that younger people are more adventurous in trying new innovations (Rogers, 2003). Generally speaking, the older members of a community resist new emergences, and only a few accept the challenge to explore the internet. In the United States, for example, internet use at home declines with age, reaching only 30.5 percent participants for those between the ages of 55 and 64 and much less for older people (Newberger, 2001). The internet use studies in Canada also show low usage among older people. In fact, research conducted over a five year period shows that the highest rate in internet use in the country was seen in the youngest age group, less than 35 years old, and the second youngest group, 35 to 54 years old (Corbeil, 2005). Although older individuals are the lowest age group for using the internet, they are responsible for the biggest growth in internet access.

Lin (1998) categorized internet adopters according to user’s income level. Individuals with the highest level were the most likely to adopt the internet. Individuals with moderate income levels were likely to use the internet in the future. Individuals at a poor income level were the least likely to adopt the internet. According to Rogers (1995),
adopters of new technology are more upscale because people with a higher income can afford the financial needs of the new technology.

Jeffers and Atkin (1996) found that income and education had an inversely weak relationship with interest in adopting specific internet utilities such as sending or receiving messages and ordering goods, even when the internet was still in the early stages of diffusion. They argued that those applications might be less expensive substitutes for functions performed by traditional media.

Based on the literature review made with reference to demographic influences on usage intentions of internet banking, the following hypotheses presented in table 3.4 are formulated.

**Table 3.4: Hypotheses related to demographic influences**

<table>
<thead>
<tr>
<th>No</th>
<th>Hypotheses statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>H21</td>
<td>There is a significant difference in consumer intention to use internet banking by age, gender, education and income of the consumer</td>
</tr>
<tr>
<td>H22</td>
<td>There is a significant relationship between age, education and income of the consumers and their intention to use internet banking.</td>
</tr>
</tbody>
</table>

The presentation of hypotheses concludes this chapter. The next chapter presents the research methods for testing the hypotheses. All the methods used for analysis are presented.