UNIVERSITY OF SOUTHERN QUEENSLAND

IMPACT OF CYBER FRAUD AND TRUST OF E-COMMERCE SYSTEM ON PURCHASING INTENTIONS: ANALYSING PLANNED BEHAVIOUR IN INDONESIAN BUSINESS

A dissertation submitted by

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ABSTRACT

The number of Internet users has grown exponentially. The evidence is not only demonstrated by figures in developed countries but also in developing countries, such as Indonesia. Internet technology has been adopted for multiple applications like e-government, e-learning, and e-commerce. Many prior studies found that e-commerce provides advantages. For instance, flexibility and efficiency are advantages which can be achieved by e-commerce. However, e-commerce has disadvantages such as frauds that remain serious threats. Recent reports have found that fraud incidents on e-commerce are increasing with many victims and losses. These reports are likely to affect the trust of parties which are involved in e-commerce systems, particularly customers. Therefore, this study attempts to address this problem by investigating the presence of trust and cyber-fraud perceptions on customers' intentions to purchase using e-commerce.

This study developed a conceptual model by integrating trust and cyber-fraud perceptions using the theory of planned behaviour (TPB) made up of attitude towards behaviour, subjective norm and perceived behavioural control. Trust in this model is defined by two constructs of trust of sellers and trust of the (Internet) medium. In addition, previous studies have not investigated cyber-fraud perception as a moderator of the relationship between trust of sellers and intention to purchase using e-commerce. Accordingly, this relationship was tested to reveal the role of cyber-fraud perceptions. Furthermore, direct effects of cyber-fraud perceptions, trust of sellers, and trust of the (Internet) medium towards intentions to purchase in e-commerce were also examined.

The study was undertaken in Indonesia by investigating customers' perspectives of e-commerce transactions. A survey was conducted through an online questionnaire and received 602 valid respondents. For data analysis, structural equation modelling (SEM) was applied. Since the distribution of data was non-normal, a model fit examination employed bootstrapping. The results of this examination demonstrate that the model is robust, parsimonious, and fits the data well.

The results of the study indicate that Indonesian customers' purchase intentions using e-commerce are negatively influenced by their cyber-fraud perceptions. Consequently, the more information on or the more experience with cyber-fraud incidents customers have, the more likely they will not commit transactions in e-commerce. However, cyber-fraud perceptions do not decrease customers' trust of sellers when intending to buy in an e-commerce environment. In addition, cyber-fraud perceptions do not influence attitude towards behaviour of customers. Furthermore, trust of sellers, attitude towards behaviour, subjective norm and perceived behavioural controls are essential factors to promote customers' purchase intentions using e-commerce. In contrast, trust of the (Internet) medium is not necessarily an influence on e-commerce customers' intentions to purchase. In relation to customers' attitudes towards behaviours, tests show that trust of the (Internet) medium influences this factor, whereas cyber-fraud perceptions and trust of sellers do not.

The study highlights that cyber-fraud perceptions and trust of sellers are two salient factors of concern to e-commerce retailers. Consequently, sellers are urged to have programs to advance seller-buyer relationships. Furthermore, in order to develop and counter publicity creating negative customers' perceptions toward cyber-fraud, sellers are advised to educate customers regarding e-commerce systems security and proper behaviour while completing transactions. Finally, other parties such as governments and commerce agencies are urged to provide support in developing a safe e-commerce environment.

CERTIFICATION OF DISSERTATION

I certify that the ideas, research works, results, analyses and conclusions reported in this dissertation are entirely my own efforts, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for another award, except where otherwise acknowledged.

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Signature of Candidate Date

ENDORSEMENT

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Signature of Principal Supervisor Date

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LIST OF ABBREVIATION

AB	: Attitude towards behaviour
ADF	: Asymptotically distribution-free
AGFI	: Adjusted goodness-of-fit index
AMOS	: Analysis of moment structures
AVE	: Average variance extracted
B2B	: Business to business
B2C	: Business to consumer
B2G	: Business to government
C2C	: Consumer to consumer
CF	: Cyber-fraud perceptions
CFA	: Confirmatory factor analysis
CFI	: Comparative fit index
CR	: Composite reliability
CVV	: Card verification value
D^2	: Mahalanobis distance
df	: Degree of freedom
EDM	: Expectation disconfirmation model
EPS	: Electronic payment systems
GFI	: Goodness-of-fit index
GLS	: Generalised least square
IP	: Intention to purchase using e-commerce
IT	: Information technology
LAN	: Local area network
M-commerce	: Mobile commerce
ML	: Maximum likelihood
MSF	: Moderating of CF on TS and IP relationship
NFI	: Normed fit index
NNFI	: Non-normed fit index
P2P	: Peer to peer
PC	: Perceived behavioural control

PGFI : Parsimonious goodness-of-fit index

PNFI : Parsimonious normed fit index

RMSEA : Root mean square error of approximation

RMSR : Root mean square residual

RNI : Relative non-centrality index

SEM : Structural equation model

SMEs : Small-medium enterprises

SN : Subjective norm

SPSS : Statistical package for social sciences

SRMSR : Standardised root mean square residual

TAM : Technology acceptance model

TLI : Tucker-lewis index

TM : Trust of the (Internet) medium

TPB : Theory of planned behaviour

TR : Technology readiness

TRA : Theory of reasoned action

TS : Trust of sellers

ULS : Unweighted least squares

VPN : Virtual private network

WLS : Weighted least square

WLSMV : Weighted least squares

χ^2 : Chi-square

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER 1
INTRODUCTION

1.0. Introduction

Good research requires a clear demonstration of the necessity for the topic to be investigated. This Chapter has the important role of meeting this objective. It commences by discussing the background of the study and then elaborates the research problem, the main research question and objectives, followed by the motivation behind the research. To show that this research needs to be undertaken, the research's significance and expected contributions are stated. Scope of the research is also discussed to identify the focus of the study. As there are key terms used in this thesis, so these are defined for clarity. Finally, this Chapter outlines the structure of the dissertation.

1.1. Research Background

Electronic commerce (e-commerce) is the use of computer networks, including the Internet and the Web for buying, selling, transferring, and exchanging products, services, or information (Turban et al. 2008, p. 4). E-commerce is adopted by organisations and people to undertake business (Gibbs & Kraemer 2004). E-commerce, indeed, converts the way of business operations and transaction processes by utilising information technology (Kartiwi & MacGregor 2007; Liao et al. 2007). This business model provides advantages, such as business processes can be operated faster; reduce inventory space required; and advertising and delivery costs are minimised (Pujani et al. 2009). Therefore, by adopting e-commerce, firms could save time (Cram 2001, p. 2) and be more cost effective (Yu & Wu 2007).

Similarly, e-commerce systems have positive effects on increasing business operations' effectiveness as well as improving financial performance (Kartiwi 2006b).

E-commerce, in its wider implementation, not only uses information technology for internal operations but also for external transactions (Kim & Eom 2002). For internal operations, e-commerce is likely to utilise a local area network (LAN) or a virtual private network (VPN) as a medium of transmitting transactions. On the other hand, external transactions are commonly conducted through the Internet which is an open network. Due to its 'openness', everyone can access it which opens the medium to fraud (Hawkins et al. 2000). Hence, vendors and customers of businesses face serious fraud threats if their transactions are conducted via the Internet without appropriate security systems in place.

Fraud on the Internet is commonly carried out by organised or individual actors (Albanese 2005; Levi 2008) which can lead to large losses. Losing money due to Internet fraud is likely suffered by both businesses and customers. Moreover, some evidence reveals that online business revenue losses were estimated US$2.7 billion in the United State (US) and Canada (CyberSource 2011), £300 million in the United Kingdom (Uscollegesearch 2011) and A$220 million in Australia (Ecommercereport 2010). On the customer's side, the average number of US online frauds was 25,000 incidents per month (IC3 2011). In addition, each customer in Australia who has been a victim of Internet fraud costs on average A$608 per month (Cybershack 2010). Some, 86% of Indonesian Internet users have been victims of cyber-crime with an average cost of US$1,265 per month (Norton 2010). Therefore, fraud on the Internet results in great loses to businesses and customers.

Furthermore, a Trojan horse[1]or phishing[2]technique over the Internet is popularly employed by perpetrators to steal account holders' identities (ID-SIRTII 2011a). Identity theft incidents amounted to 21% of total fraudulent events on the Internet by 2008. Among Asian countries, it is reported that Indonesia and China have the highest fraud incidents, reaching 22% in 2008 and 23% in 2010 (KPMG 2010). A high incident of Internet fraud may reduce customers' trust so that customers are reluctant to undertake transactions using e-commerce. Hence, transactions security on the Internet is very critical in helping to increase customer trust towards e-commerce use.

1.2. Research Problem

Trust is an essential element in any transaction (Pittayachawan et al. 2008). Transactions will occur when there is willingness and trust among sellers and buyers. Virtual transactions via e-commerce are not transacted among parties physically (Flavian & Guinaliu 2006). Consequently, there is some potential for fraud to be committed by either party or a third party. Therefore, it is purported that trust plays a significant role in successfully conducting transactions in the virtual space of the Internet.

Transactions using e-commerce do not only involve sellers and buyers, but also involve the medium (Lee & Turban 2001). The media through which e-commerce transactions are processed include the Internet network for transferring data, websites as transaction interfaces and credit cards for making payments.

[1] Covert placement of instructions in a program causes the computer to perform unauthorised functions but usually still allows the program to perform its intended purpose (Kovacich, 2008 p. 99).
[2] A legitimate-looking email from a bank, a retailer, or some other industry tries to acquire personal information under false pretences stating that one's account will be suspended or closed (Westphal, 2009 p. 327).

These media have vulnerabilities since they can be used by perpetrators to undertake fraud. Thus it is postulated that transactions via e-commerce using the Internet as the medium will occur and increase if buyers have trust of the medium used for processing transactions.

As stated above, the number of fraudulent transactions in an e-commerce environment have tended to increase (Baker 1999). Perpetrators commit fraud in a number of ways including identity theft. Buyers realise that transactions in e-commerce are risky and fearful (Hofman et al. 1999). A previous study indicates that security systems around e-commerce transactions become important ways to protect privacy of information to reduce identity theft (Pittayachawan et al. 2008). Accordingly, the concern about cyber-fraud influences a buyer's trust to perform transactions via Internet based e-commerce. Thus the problem that this study addresses is how customers' trust and cyber-fraud perceptions influence their intentions to purchase using e-commerce.

1.3. Research Question and Objectives

Base on the problem statement, the main research question of this study is:

To what extent do trust and cyber-fraud perceptions impact on behavioural intentions of customers to transact purchases using Internet-based e-commerce?

In regard to the main question, this study proposes a model by including the concepts of trust and cyber-fraud perceptions. The two constructs of trust to be investigated are customers' trust of the seller and customers' trust of the (Internet) medium used for e-commerce transactions. In addition, to acquire a comprehensive figure on behavioural intentions of customers to transact purchases using e-

commerce, the research model is integrated using the theory of planned behaviour (TPB) having constructs such as attitude towards behaviour, subjective norm, and perceived behavioural control. Therefore, the research objectives are:

- to examine the impact of customers' trust of sellers on behavioural intentions to purchase using Internet-based e-commerce;
- to examine the impact of customers' trust of the (Internet) medium on behavioural intentions to purchase using Internet-based e-commerce;
- to examine the impact of customers' cyber-fraud perceptions on behavioural intentions to purchase using Internet-based e-commerce;
- to examine the impact of customers' attitudes towards behaviour on behavioural intentions to purchase using Internet-based e-commerce;
- to examine the impact of customers' subjective norm on behavioural intentions to purchase using Internet-based e-commerce;
- to examine the impact of customers' perceived behavioural controls on behavioural intentions to purchase using Internet-based e-commerce;
- to examine the impact of customers' trust of sellers on attitude towards behaviours;
- to examine the impact of customers' trust of the (Internet) medium on attitude towards behaviours;
- to examine the impact of customers' cyber-fraud perceptions on attitude towards behaviours; and
- to examine the moderating effect of customers' cyber-fraud perceptions on the relationship between trust of sellers and behavioural intentions to purchase using Internet-based e-commerce.

1.4. Motivation

This study is focused on an Indonesia context for the reason that the country is in the early stage of adopting Internet-based e-commerce (Pujani et al. 2009). According to Internet World Stats (2011) Indonesia has a large population (approximately 245 million people in 2010) dispersed across a wide area (1,904,569 sq km) and thousands of islands so that customers have little access to major retailers that are concentrated in Java (Pandin 2009). Hence, this indicates that people living in remote areas have limited access to modern stores with a wide range of goods at competitive prices.

The percentage of Internet users in Indonesia in 2010 represented around 16% of the total population (IWS 2011). Internet growth was likely impeded by poor quality of telecommunication infrastructure. Even though Indonesia has developed the Internet infrastructure using fibre optics, it has not covered all regions in the country **(Figure 1.1)**.

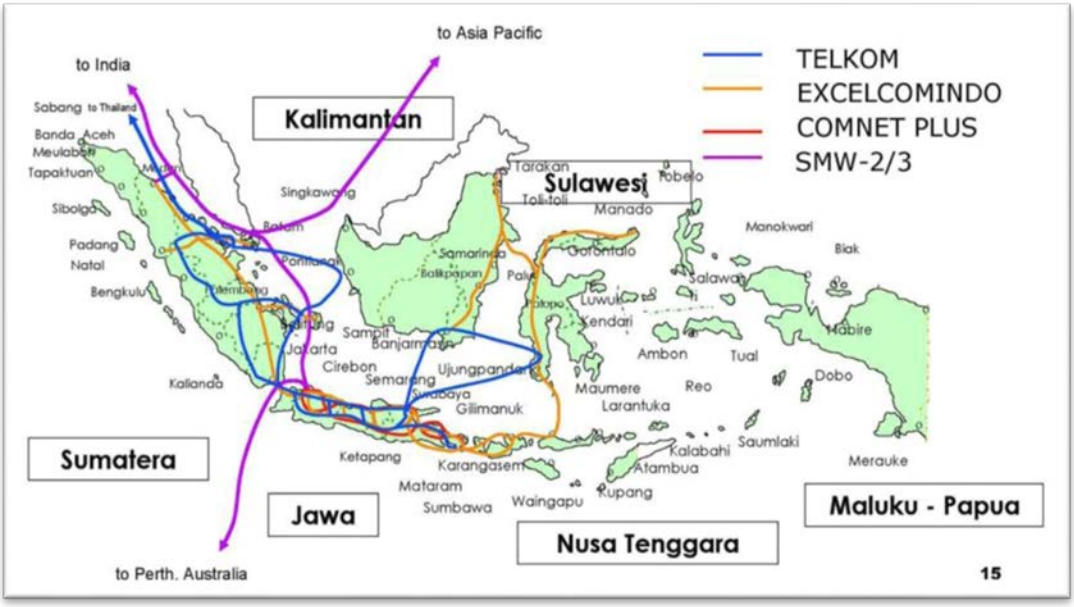


Figure 1.1 Existing Fibre Optics in Indonesia
Source**:** ID-SIRTII (2011b)

Since the network has not connected all Indonesia regions, some areas use limited and high cost satellite services. Indonesia, as an archipelago country needs to develop Internet access using satellite links. A new network development is currently under construction called the Palapa Ring Project **(Figure 1.2)**. This project is expected to be completed by 2014 (ID-SIRTII 2011b).

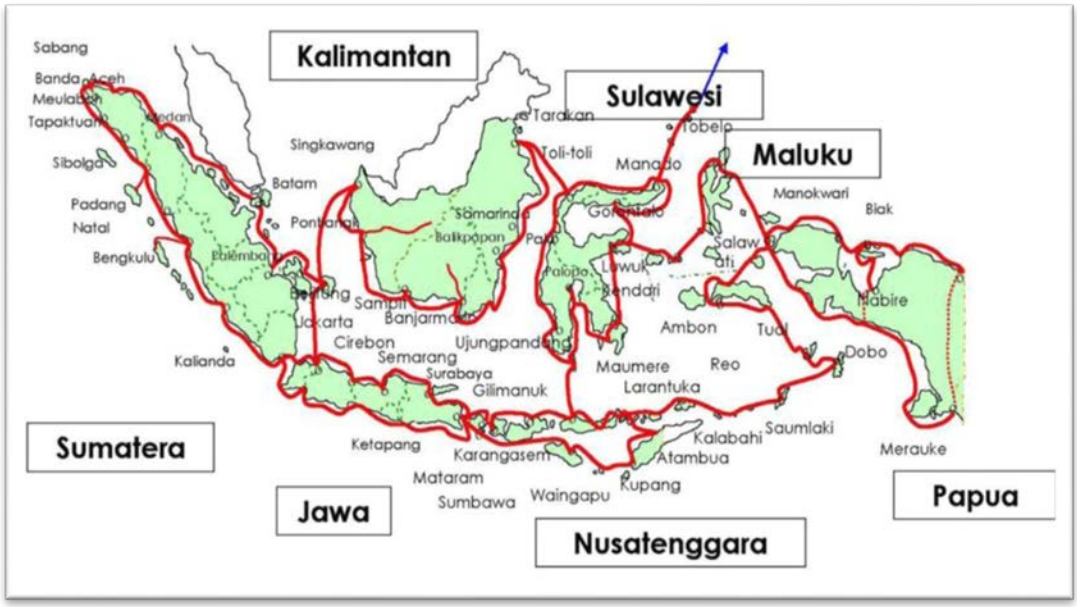


Figure 1.2 Palapa Ring 2014
Source**:** ID-SIRTII (2011b)

Indonesia is considered to have enormous potential as an online market(Christie 2011a). Nowadays online stores are spread across major cities, particularly in Java; meantime their customers come from across Indonesia. Major advertisements by those stores are placed on the Internet, in newspapers, and in magazines. Through these media, Indonesian people are encouraged and educated to purchase via online. Yet, on the negative side, fraud and corruption are still high in this country (KPMG 2010). Accordingly, such evidence challenges online stores to convince customers that they operate their businesses in a proper manner and their systems are secure for conducting transactions.

This study is motivated by the need to reveal a clear picture of customers' trust and cyber-fraud perceptions related to attitudes towards behaviour and purchase intentions using Internet-based e-commerce. Apparently, investigating these matters are challenging. Verhagen and van Dolen (2011) state that the understanding of customers' buying behaviour in e-commerce transactions is very important for e-commerce practitioners. The information is useful to maintain existing customers and to capture potential ones. However, published information concerning e-commerce customer behaviour for the Indonesia context is limited.

Personal motivation for conducting this study is that e-commerce is gaining increased popularity in Indonesia but there have been limited studies. There are few Indonesian professionals that have expertise in the e-commerce discipline. It is, therefore, a good opportunity to provide research-based evidence in the development of this emerging technology. This will help to support businesses and the government in formulating and implementing policy for a safe and usable system of e-commerce, which could increase the prospects for growth in the future.

1.5. Research Significance

The study's significance can be stated as follows.

- It provides a clearer picture of the integration between the notion of trust and cyber-fraud perception with theory of planned behaviour based on empirical evidence of e-commerce applications in a developing country such as Indonesia.
- It highlights a critical construct in terms of a contribution to foster adoption of e-commerce by customers.

- It provides an integrated model to predict customers' intentions to adopt e-commerce as a medium for transactions.

1.6. Expected Contributions

1.6.1. To the Literature

This study intends to provide at least three contributions to the literature. Firstly, it explains cyber-fraud perceptions and how it is likely to moderate the relationship between trust of sellers and behavioural intention to purchase by customers using Internet-based e-commerce. This model appears to have not been researched by previous studies. Secondly, the study promotes constructs of trust of sellers and trust of the (Internet) medium to predict customers' purchase intentions to use e-commerce. Previous studies appear to have shown that trust of sellers and trust of the (Internet) medium in influencing purchase intentions are measured using a single construct: trust. Finally, this study contributes to enriching the literature concerning customers' trust towards intentions to purchase using Internet-based e-commerce in a developing country context, specifically Indonesia.

1.6.2. To Practice

This study attempts to provide recommendations to businesses regarding consumer behaviour in connection with how customers intend to commit to Internet-based e-commerce transactions. Results from this study could be very useful to develop strategies for businesses interested in conducting Internet-based e-commerce. By implementing proper strategies, businesses could increase the number of customers thus increasing their businesses' sustainability.

For policy makers (governments), the findings of this study could be considered as a reference, to provide protection for customers' transactions from fraud on the Internet by strengthening legislation and cyber-crime task forces. Cyber-fraud, in developed countries, has become a serious issue due to its impact and losses caused, particularly to the economy and society. These experiences are expected to encourage developing countries to do what they can so that they do not commit mistakes that developed countries have.

1.7. Scope and Delimitations

The study was conducted in Indonesia by surveying Indonesian Internet users. The model of the study is developed by integrating constructs of trust and cyber-fraud perceptions with the theory of planned behaviour (TPB). In relation to trust, this study investigates trust from two contexts: trust of sellers and trust of the (Internet) medium. Many researchers have developed models using various constructs to study customers' purchase intentions using e-commerce. The model developed for this study adapts constructs of trust developed by Mayer et al. (1995) to examine customers' trust of sellers. Furthermore, constructs of trust developed by Lee and Turban (2001) were adapted to assess customers' trust of the (Internet) medium. In addition, a construct of cyber-fraud perceptions, to estimate customers' perceptions towards fraud incidents in e-commerce transactions, is adapted from researchers who studied perceived risk (Im et al. 2008; Reisig et al. 2009) and fear of crime (Warr 2000). Finally, constructs of planned behaviour that are used to explore behavioural intentions of customers to purchase using Internet-based e-commerce are adapted from TPB developed by Ajzen (1991).

In order to achieve a robust model, the following delimitations set the boundaries for this study. First, the model development is examined from individual customers' perspectives. Second, cyber-fraud perceptions are tested based on perceptions of individual customers regarding fraud incidents in e-commerce transaction practices. Third, sampling of customers is limited to existing Internet users and non-Internet customers have not been sampled. Fourth, vendors, whether with physical or virtual presence were not approached to take part in this research. Thus only customers that are known to be Internet users (but may not be e-commerce users) are sampled. Finally, the model is applied within business to consumer (B2C) transactions in Indonesia.

1.8. Key Definitions

For this study, the following terms are defined as follows.

E-commerce is the use of information technology, including the Internet, computer and other electronic devices, for buying, selling, transferring, and exchanging products, services, or information (Laudon & Laudon 2010; Laudon & Traver 2008; Turban et al. 2008).

Trust is believing that others will reliably and willingly fulfil all obligations of a contract or transaction (Fukuyama 1995; Gambetta 1990; Mayer et al. 1995).

Trust of seller is a person's subjective beliefs that a seller will fulfil his/her obligation as she/he has promised (Kim et al. 2008).

Trust of the (Internet) medium is a person's beliefs that the Internet, a website, and other involved infrastructure, used by sellers to facilitate transactions, afford protection to customers against any losses (Lee & Turban 2001).

Cyber-fraud is the action of an individual to gain a benefit from others by inappropriate ways in the Internet environment (Albrecht et al. 2009; Chuck 2002).

Cyber-fraud perception is a person's recognition and interpretation that conducting transactions on the Internet is vulnerable to loss of money (Im et al. 2008; Warr 2000).

Perceived risk is a person's subjective belief of getting a loss by conducting transactions using e-commerce (Chiu et al. 2012).

Fear of crime is a person's emotional response to his/her dread of crime, and his/her anxiety towards it; this includes any other symptoms associated with this particular fear (Banks 2005).

Attitude towards behaviour is a personal evaluation of transactions using e-commerce (Cohen et al. 2010; Midha 2008-9).

Subjective norm is a person's perceived social pressure regarding whether it is necessary to perform or not to perform transactions using e-commerce (Chen & Lu 2011; Crespo & Bosque 2008).

Perceived behavioural control is a person's perception of ease or difficulty of their control over performing transactions using e-commerce (Chen & Lu 2011).

Intention to purchase using e-commerce is a person's willingness to use e-commerce as a media for conducting transactions (Mukherjee & Nath 2007).

1.9. Structure of the Thesis

This thesis consists of six chapters. The first Chapter discusses the background of the research. It is followed by presenting the research problem, the main research question and objectives. This Chapter also elaborates the study's motivation, followed by descriptions of research significant and research contributions. Then,

scope and delimitations of the research are outlined. To conclude, key terms are defined followed by a section that provides an outline of the thesis.

Chapter Two reviews the literature regarding definitions and concepts of e-commerce, trust, fraud, and theory of planned behaviour (TPB). As the focus of the study, e-commerce practices in Indonesia are elaborated. This Chapter also discusses theories and concepts underpinning the study including concept of trust, concept of fraud, concept of risk, concept of fear of crime, and TPB. In relation to concept of trust, the discussion is focused on both trust of sellers and trust of the (Internet) medium. Furthermore, the literature review presents prior studies of trust, fraud and perceived risk, TPB, and intentions in e-commerce environments. The final part of this Chapter identifies gaps in the literature.

Chapter Three provides the research design. The Chapter describes research philosophy, research approaches, and classification of research purposes. Following the discussion, research sub-questions are outlined. Further, a conceptual model is proposed and hypotheses developed.

Chapter Four describes the research methodology. This Chapter consists of two essential parts covering data collection and data analysis. Data collection begins with discussions of population, sample frame, and sample of the research. It is followed by ethical clearance obtained, data collection methods, instruments and measures. In the data analysis part, data screening is discussed, measurement model is outlined, and structural models are reviewed. Data screening explains procedures covering missing data, normality, and outlier assessments. Measurement model reviews some evaluations including construct validity, construct reliability, and model goodness-of-fit measures.

Chapter Five reports analyses and findings. The Chapter outlines descriptive analysis of sample including demographics and e-commerce experiences. It is followed by discussing data analyses and hypotheses testing. Data analysis exhibits data screenings, confirmatory factor analysis, and structural model examinations. Then, results of hypotheses testings are presented.

Chapter Six covers a discussion and conclusions. This Chapter draws conclusions from the results of the data analyses, and identifies contributions for both literature and practice. Then it proceeds to address limitations and presents recommendations for future research.

CHAPTER 2
LITERATURE REVIEW

2.0. Introduction

E-commerce is a complex system involving technology and human beings. Technology as a product of knowledge has vulnerabilities so that its development is continuously undertaken. Researching e-commerce used by customers mostly relates to psychological aspects such as perception, trust, and convenience. This Chapter aims to review the literature to identify gaps. It starts by discussing e-commerce in general, involving its definition and concept as well as how transactions are conducted over e-commerce. Since this study uses Indonesia as its context, exhibiting a picture of e-commerce practices in Indonesia is appropriate. Other theories and constructs, which are adapted to build a conceptual model for this study, are reviewed. These constructs and theories include trust, fraud, perceived risk, fear of crime, and theory of planned behaviour. In addition, the discussion of trust focuses on trust of the seller and trust of the (Internet) medium. Meanwhile, the discussion of fraud focuses on cyber-fraud perceptions which are derived from the notion of perceived risk and fear of crime. Finally, gaps in the literature are identified.

2.1. E-Commerce

This section discusses definitions, concepts, and transactions in e-commerce. In defining e-commerce, several perspectives will be outlined. Categories of e-commerce are presented. Advantages and disadvantages of e-commerce are also

mentioned. This section ends by describing typical e-commerce transactions and methods of payment.

2.1.1. Definitions and Concepts of E-Commerce

Information systems literature has defined electronic commerce (e-commerce) from different perspectives. There are at least five perspectives that can be applied to define e-commerce including business process, service, learning, collaboration, and community (Turban et al. 2008, p. 4). E-commerce focuses on commercial transactions between and among organisations and individuals that are conducted using digital technology (Laudon & Traver 2008, p. 10). Most transactions using e-commerce are undertaken over the Internet (Laudon & Laudon 2010, p. 403). After reviewing information systems' literature, e-commerce can be defined as the use of information technology, including the Internet, computer and other electronic devices, for buying, selling, transferring, and exchanging products, services, or information.

E-commerce has been categorised based on parties involved in transactions. In this regard, there are some different views between scholars. However, after reviewing the literature the categories of e-commerce can be summarised as business-to-consumer (B2C), business-to-business (B2B), consumer-to-consumer (C2C), peer-to-peer (P2P), mobile commerce (M-commerce), and business-to-government (B2G). Among those forms of e-commerce, recent evidence shows that B2C has an emerging role in the digital economy (Hostler et al. 2011). Therefore, this research focuses on B2C transactions.

In its operations, e-commerce comprises infrastructure and other support including people, public policy, marketing and advertisement, support services as

well as business partnerships (Turban et al. 2008, pp. 7-8). Every component works together and influences each other. As a consequence, companies applying e-commerce need to create a strategy to organise their resources. Thus, e-commerce entails good management practices because it works as a sub-system within an organisation's marketing and sale's system (Rayport & Jaworski 2001, p. 15).

Some evidence demonstrates that e-commerce has evolved dramatically (Adam et al. 1999, p. 8). Laudon and Laudon (2010, p. 405) identify this evidence by representing different contexts covering business transformation, technology foundations, and new business models that have emerged. E-commerce is the fastest growing form of commerce compared to physical business processes. It also has successfully transformed the business world as well as industries. Use of rapid wireless Internet connection and powerful handheld mobile devices are among the technology foundations that have contributed to e-commerce evolving. In addition, new business models are driven by Internet technology uses of interactive marketing and online social media. E-commerce has different technology dimensions compared to traditional businesses. Laudon and Travor (2008, p. 13) argue that e-commerce technology dimensions include ubiquity, global reach, universal standards, richness, interactivity, information density, personalisation/customisation, and social technology.

E-commerce assigns both short-term and long-term benefits for businesses (Kosiur 1997, p. 20) and customers. Businesses applying e-commerce can gain advantages such as having an international marketplace, operational cost savings, mass customisation, enabling reduced inventories, lower telecommunication costs, digitations of products and processes as well as 24 hours trading (Cram 2001, p. 2; Shim et al. 2000, p. 60; Tassabehji 2003, pp. 12-13). These could increase sales,

reduce overall costs, and increase profit (Schneider 2011, p. 17). Customers may gain a wider range of product choices, unlimited time and places to transact, an easy way to customise products, and time savings particularly for products enabling digital delivery (Sharma & Gupta 2001, p. 24).

On the other hand, e-commerce also has some limitations affecting businesses and customers. Tassabehji (2003, pp. 14-15) propose that e-commerce limitations for business include lack of system security, upgrading technology, innovation, competition, and compatibility. Furthermore, some negative issues faced by customers involve technical knowledge, Internet access, computer equipment, data security and privacy, lack of physical contact as well as trust. Lee and Turban (2001) also identify that e-commerce customers cannot touch and check the quality of products before undertaking transactions. Therefore, researchers have completed wider studies of these issues to increase e-commerce value and decrease its negative effects.

Customers and sellers transacting in e-commerce have opportunities to acquire high profits and satisfaction. The reason is that digital markets provide more advantages than traditional markets. Laudon and Laudon (2010, p. 412) attempt to compare digital markets and traditional markets based on certain factors encompassing information asymmetry, search costs, transaction costs, delayed gratifications, menu costs, dynamic pricing, price discrimination, market segmentation, switching cost, network effects, and disintermediation. The comparison clarifies that digital markets enable reduction of most costs, which have to be imposed on either sellers or customers. Accordingly, business transactions in digital markets take place on efficiency grounds. It could significantly contribute to increasing sellers' profits and customers' satisfaction.

2.1.2. Transactions in E-Commerce

The mechanism for undertaking transactions using e-commerce could be different among its categories. In a B2C context, transactions begin when customers access an online store and place an order. Then, customers pay by credit card (or some other form) to complete orders. Since customers have completed payments, information regarding orders and payments are sent to customers and merchants as confirmation. Orders are also sent to warehouses for dispatch of goods or services. When goods or services are ready, shipments are organised and then goods are sent to customers (ePathChina 2010). Finally, customers receive goods they have ordered within a certain time. This mechanism is depicted in **Figure 2.1.**

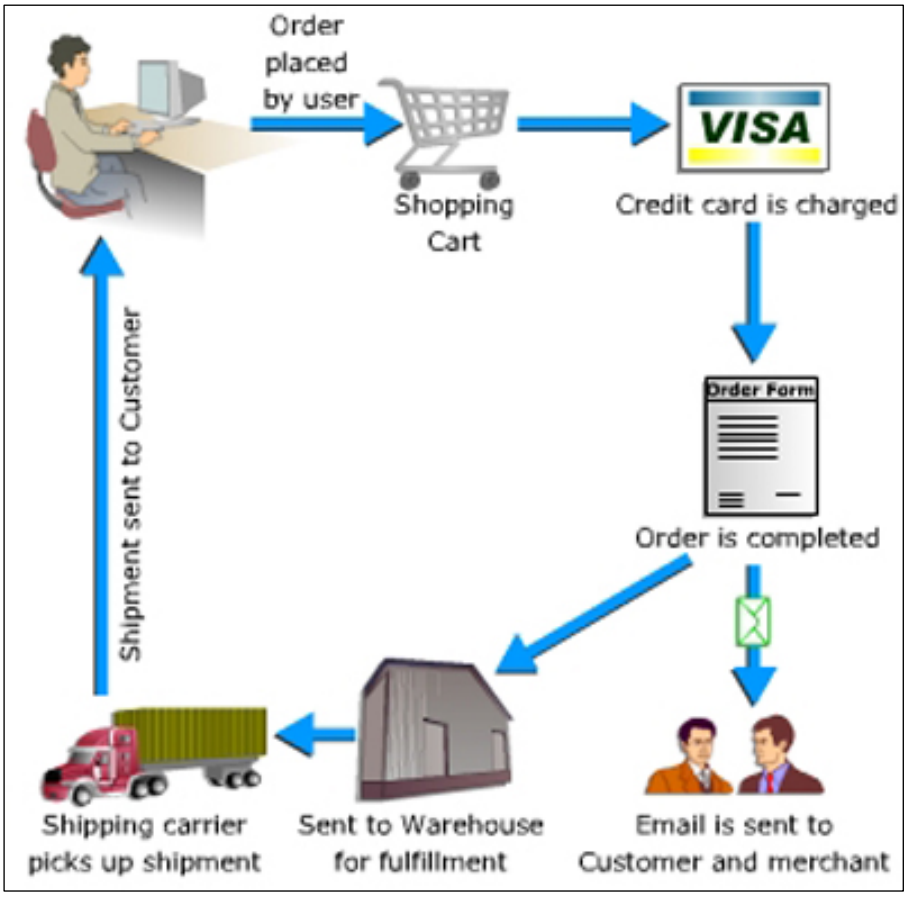


Figure 2.1 B2C Transaction Procedures
Source**:** Adopted from ePath China (2010)

On the Internet, e-commerce transactions are conducted virtually. Sellers and buyers do not interact physically. Therefore, payment systems in e-commerce are carried out electronically (Kosiur 1997, p. 41). Laudon and Laudon (2010, p. 428) state that there are, at least, six methods of payment including credit cards, digital wallet, accumulated balance, stored value, digital checking, and electronic billing. Illustrations of these methods are exhibited in **Table 2.1.**

Table 2.1 Electronic Payment Methods for E-commerce

Payment Methods	Descriptions	Commercial Examples
Credit card	Protect information transmitted among users, merchant sites, and processing banks.	Visa, MasterCard, American Express
Digital wallet	Software that stores credit card and other information to facilitate completion and payment for goods on the Web.	Google Checkout
Accumulated balance	Accumulates micropayment purchases as a debit balance that must be paid periodically on credit card or telephone bills.	Valista PaymentsPlus, Clickshare
Stored value	Enable customers to make instant payments to merchants or individuals based on value stored in a digital account.	PayPal, Valista
Digital checking	Provides electronic cheques with a secure digital signature.	PayByCheck
Electronic billing	Support electronic payments for online and physical store purchases of goods or services after purchases have taken place.	Yahoo! Bill Pay, CheckFree

Source**:** Adopted from Laudon and Laudon (2010, p. 428)

The payment method most used by customers in e-commerce transactions is credit cards (Cram 2001, p. 148). Two major activities required for credit card payments are authorisation and clearing-settlement (UniBul 2011). Authorisation is intended to recognise that a credit card is valid. In addition, clearing-settlement is a process that credits a customer's payment to a merchant's bank account. In term of

parties involved in these activities, they encompass customers, merchants, credit card issuers, and merchants' banks.

Basically, authorisations processes commence when card holders provide to merchants their account numbers (Kosiur 1997, p. 42), expiration dates, billing addresses, and Card Verification Values [CVVs] (UniBul 2011). The process is ended when merchants receive authorisation responses and complete transactions accordingly. Moreover, clearing and settlement processes are started as merchants settle transactions with merchants' banks and terminated after card holders receive their statements. A general credit card payment process is depicted in Figure 2.2.

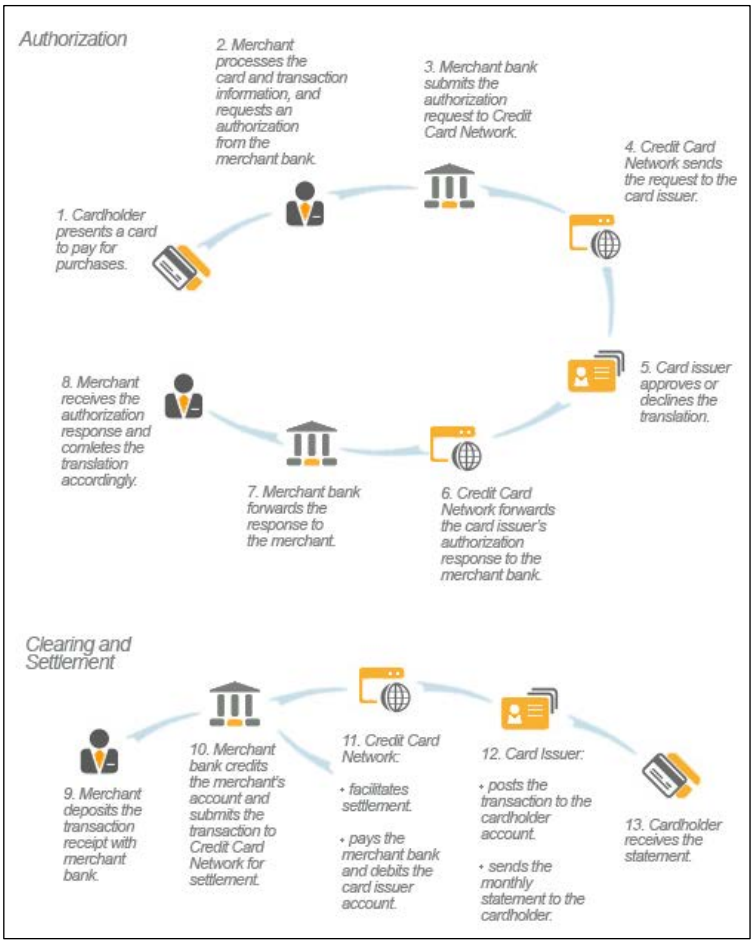


Figure 2.2 Credit Card Payment in E-commerce Transactions
Source**:** Adopted from UniBul (2011)

2.2. E-Commerce in Indonesia

The first part of this section describes e-commerce developments in Indonesia. In particular, it will depict current circumstances of e-commerce in the country. After that, the discussion proceeds outlining published studies about e-commerce in Indonesia. This part provides evidence of studies that have been undertaken to describe Indonesian e-commerce practices.

2.2.1. E-commerce Developments in Indonesia

E-commerce has been growing in Indonesia over the last couple of years (Baskoro 2011). Recently most educated Indonesians, particularly those who live in major cities, have recognised e-commerce (Mamuaya 2011). However, they are reluctant to carry out online transactions without recommendations from relatives and friends (Siregar 2011a) or receiving positive comments from other users through product reviews or discussion forums (DSResearch 2011).

E-commerce relies on Internet user developments. Increasing numbers of Internet users have led to escalating numbers of e-commerce adopters (Aguiar et al. 2010, p. 22). Previous research found that in major cities of Indonesia, one in five people has access to the Internet (Christie 2011b). Yahoo highlights that Internet users in Indonesia exceed radio and newspaper users (Siregar 2011b). In the next five to eight years, it is predicted that e-commerce will increase dramatically when the younger generation of Internet users become adults (Christie 2011c). The fact that e-commerce has a big potential market in Indonesia, business actors are considering extending their companies' uses of e-commerce (Christie 2011b).

Business actors predict that the volume of e-commerce transactions will increase around 50 percent in 2012. Data published by Synovate, a global market

research firm, estimate the value of e-commerce transactions in Indonesia at about US$70 million a year with an average of US$20 to US$30 in each transaction (Christie 2011b). Marketer Magazine reports that the majority of e-commerce transactions are dominated by fashion and apparel (Baskoro 2011). Increasing numbers of Indonesians are shopping at hypermarts, supermarkets, and malls; also a growing number of Indonesians are using social media on the Internet. These developments will boost the popularity of e-commerce as a medium for buying items and making transactions (Siregar 2011a).

Indonesian e-commerce can be categorised in several forms comprising social commerce, social media sites, and official websites. A social commerce site aggregates many sellers from different firms to sell merchandise, for example plasa.com, tokopedia.com, and tokobagus.com. These are like a mall in conventional brick-and-mortal commerce. Furthermore, a social media site, such as Facebook or Twitter, is used for promoting and selling merchandise to potential customers. Sellers place pictures of merchandise, contact addresses, and other related information on social media pages to encourage customers to buy. Sellers in this media could be a shop or an individual. Finally, an official website is an e-commerce website built by a seller for promoting and selling merchandise such as bhinneka.com and fastncheap.com.

The number of e-commerce retailers in Indonesia is growing significantly (Christie 2011b). Prominent e-commerce players are not only coming from within the nation but also from overseas. Local national players include Plasa, Tokopedia, Tokobagus, and Blibli, whilst overseas players include Rakuten from Japan and Multiply from USA (Christie 2011c). It is reported by Christie (2011b) that Multiply includes around 43,000 sellers. Multiply statistics show that seven million

of its 20 million monthly visitors are from Indonesia. Based on these data, Indonesia could be the second largest Multiply market in the world. Therefore, Indonesia has a huge potential for e-commerce with around 84 percent of the population not using the Internet (IWS 2011).

In accordance with e-commerce operations, integrated e-commerce applications require both online transactions and payment processes to occur at the same time. In order to have simultaneous online payment systems, e-commerce companies need third parties to provide payment gateways. Payment gateways serve to authorise every online payment as well as connect buyers' finance providers with sellers' bank accounts. Accordingly, the process of transaction payments should be performed in a safe environment. However, Indonesian e-commerce companies still lack a well organised online payment process (Siregar 2011b). Some transaction payments are still carried out by the bank transfer method. In the future, it is predicted that the number of e-commerce companies that adopt online payments will increase. To facilitate online payments requires payment gateways. Currently, several local payment gateways exist in Indonesia such as Pay Global One, Pay Indo, Doku and Ipaymu (Mamuaya 2011; Siregar 2011a).

As e-commerce develops in Indonesia new entrepreneurs have emerged. Most of them come from the younger generation. They create new businesses by adopting e-commerce technology to gain competitive advantage. New businesses engage in various sectors of trading and services. However, the number of new e-commerce entrepreneurs who enter the service sector is very few. Api Perdana is one of the entrepreneurs undertaking business in the service sector. He established NgaturDuit.com, a company which provides online services to advise people in

planning personal financial priorities. Four months after its launch, the company had over 13,000 clients (Petersen 2011).

Likewise, Nadiem Makarim founded go-jek.com to provide motorcycle taxi services. The business idea was inspired by traffic jams in Jakarta. Jakarta, the capital and business city of Indonesia, encounters severe traffic jams. Commuters need alternative transportation modes, which are affordable to go to workplaces on time. Makarim developed a company website to accommodate people who needed his motorcycle taxi services. The company grew rapidly and had 200 drivers in five months after its establishment. He plans to expand his company into delivery services by making arrangements with retail partners using e-commerce (Agence 2011).

There are, however, obstacles slowing the growth of e-commerce in Indonesia; Mamuaya (2011) identifies some problems. The major problems relate to customers' behaviour, payment infrastructure, mobile network, logistics infrastructure, and regulations. Consequently, Indonesian e-commerce users lack trust in online sellers, particularly their credibility (Aguiar et al. 2010, p. 22). Furthermore, Mamuaya argues that frauds committed by sellers create more fear about security of e-commerce systems. Payment infrastructures are also problematic in Indonesia. Even if there are a number of payment gateways to support e-commerce transactions, they are not good enough to make customers feel secure enough to enjoy their experience. In addition, e-commerce companies operating in Indonesia have not provided stable e-commerce systems based on mobile technologies, even though most customers are using mobile devices. The majority of e-commerce companies remain concerned about providing e-commerce systems which rely on desktop technologies. Moreover, e-commerce companies

experience difficulties in supplying goods to customers because of inefficient logistics. Finally, current regulations are not in place to support e-commerce relating to payments, deliveries, and seller-buyer disputes.

2.2.2. Research on E-commerce in Indonesia

Relating to the e-commerce definition previously discussed, it can be stated that e-commerce applications are very varied, such as e-banking, e-payment, e-retailing, and e-publishing. In addition, organisations adopting e-commerce come from small, medium, and large sized organisations. The phenomenon has spread widely, not only in developed countries but also in developing countries, such as Indonesia. E-commerce is increasingly popular across the globe. Therefore, studies relating to e-commerce have been extensively undertaken by scholars.

Indonesia, as an emerging country, encounters unique problems adopting e-commerce compared to other countries. MacGregor and Kartiwi (2009) find that organisational barriers are the most significant in influencing e-commerce adoptions by small-medium enterprises (SMEs) in Indonesia. The study also identifies five perceptions by Indonesian entrepreneurs, which have become the five top barriers inhibiting e-commerce adoption in Indonesia. They are: unsuitability products/services for e-commerce; no perceived advantages for organisations; an unsuitable way to conduct business; an unsuitable way for client interaction with businesses; and an unsecure environment.

Moreover, Muafi et al. (2012) investigate processes of adoption and the e-readiness of Indonesian SMEs to use information technology (IT). For the study, the researchers integrated the TOE (technology, organisation, and environment) model and the orientation process model. This study recruited 108 Indonesian

SMEs respondents. The results show that technology competence and government policies positively influence IT usage, and technology competence is positively influenced by government policies. Likewise, IT usage positively influences IT value and e-readiness to use. Thus, in relation to government roles this study highlights that government interventions through positive policies are generally needed to accelerate e-commerce developments.

In addition, Aguiar et al. (2010, p. 22) state that e-commerce adoption usually comes together with mobile and Internet banking adoptions. In the context of e-commerce adoptions by customers, they find that Indonesian customers remain reluctant to trust the security of e-commerce systems. To avoid the risk of transactions, buyers and sellers conduct online communications to arrange offline transactions. However, most offline transactions are ordinarily undertaken for high-value products, while online transactions are committed for low-value products using mobile or Internet banking to pay for goods.

A study of adoption of Internet banking in Indonesia was undertaken by Kusuma and Setyanti (2011). The study incorporates trust and the technology acceptance model (TAM) to explore customers' intentions to use Internet banking systems. A survey was conducted of 184 Internet banking customers. The results reveal that trust significantly affects Indonesian customers' adoption of Internet banking. Furthermore, two antecedents of TAM, which are perceived usefulness and perceived ease of use, have significant effects on both trust and intentions to use the system. Hence, trust has been proven to be a critical factor for Indonesian Internet banking customers.

Moreover, Urumsah et al. (2011) examined factors affecting intentions of Indonesian customers to use airlines' e-services. The research investigated 819

customers who had used these services. Findings from the research indicate that effort expectancy, social influence, outcome expectancy, and motivation affect customers' intentions to use airlines' e-services. In addition, trustworthiness and facilitation conditions have effects on effort expectancy and outcome expectancy. Even though this study does not investigate the direct effect of trustworthiness towards intention to use e-services, the results have demonstrated that trustworthiness indirectly influences intention to use through motivation.

In relation to commercial website utilisation, Pujani et al. (2009, p. 331) undertook a research study to identify factors relating to SMEs' website success in Indonesia. The study surveyed 550 Indonesian SMEs having commercial websites. Major findings of the study show that the quality of a website and trust significantly influence website use. Furthermore, the quality of a website and website use significantly affect satisfaction of website users. Finally, both website use and satisfaction of website users positively contribute to organisational performance.

Pujani (2011) specifically conducts further research to study the usefulness of e-commerce websites and satisfaction of its users in Indonesia. A survey was undertaken of 115 undergraduate students. The study found that system quality, information quality, and feature have significant influence on usefulness of e-commerce websites; feature and usefulness of an e-commerce website significantly influence user satisfaction. Therefore, in terms of e-commerce website presence, the evidence has demonstrated that Indonesian customers prefer to use vendors who can afford to provide an advanced e-commerce website.

An earlier study investigating Indonesian e-commerce customers' confidence levels toward websites was conducted by Kartiwi (2006a). The study specifically aimed to reveal whether gender and age factors have different

confidence levels on Indonesian and non-Indonesian websites. Some 155 Indonesian e-commerce customers participated in this study. The results confirm that gender has a significant different confidence level on Indonesian websites, but it does not on non-Indonesian websites. Furthermore, age has a significant different confidence level on both Indonesian and non-Indonesian websites. Therefore, in general, Indonesian e-commerce customers view Indonesian and non-Indonesian websites quite distinctly. The distinction could be related to security and technology aspects.

Moreover, in some applications e-commerce and e-banking in Indonesia run parallel as a number of e-commerce sites do not provide payment facilities embedded in their systems and require customers to make payments via bank transfers. In these circumstances, customers usually use Internet banking as a medium for e-commerce transaction payments (Aguiar et al. 2010, p. 22). The reason is that Internet banking provides a more efficient method in terms of time needed, rather than conventional bank transfers. In relation to Internet banking uses, a study carried out by Lii (2009) discovered that Indonesian customers' trust is determined by perceptions of website quality, corporate image, and social presence. The study also reported that web quality has the strongest effect on customers' trust.

In terms of mobile banking service adoption in Indonesia, Koo and Wati (2010) undertook a study to examine the mediating role of trust on relationships between information quality, system quality, perceived usefulness, and end-user satisfaction. Some 100 mobile banking customers were involved in this study. The results demonstrate that trust not only has a mediating role, but also has a direct

effect on perceived usefulness and end-user satisfaction. Therefore, trust has been demonstrated to play an important role in mobile banking service practices.

Furthermore, Roostika (2011) investigated relationships between service quality, trust, and loyalty in mobile Internet use contexts in Indonesia. This study surveyed 185 mobile Internet customers. The results point out that trust is a mediator of the relationship between service quality and loyalty. Furthermore, among dimensions of service quality, contextual quality and device quality respectively are the strongest and the least contributors toward service quality. Hence, this study reveals that trust is an essential factor to determine Indonesian customers' loyalty towards mobile Internet use.

There are some interesting facts relating to young Indonesian e-commerce users, particularly in the capital city of Jakarta. The study conducted by DSResearch (2011) reported that 45% of respondents who actively use the Internet have harnessed e-commerce services. Their motivation in accessing e-commerce sites can be categorised in three different groups, specifically surfing for products, referring to it for price data before undertaking offline transactions, and purchasing online. However, most of them used e-commerce for online purchases. Surprisingly, suggestions from friends and families have the most significant influence on customers' decisions to perform online shopping.

A recent study to investigate Indonesian e-commerce customers' loyalties was undertaken by Sumarto et al. (2012). The study inquired whether vendors' abilities, communications, and integrity influence a customer's trust and loyalty. Furthermore, customers' trust affecting loyalty was also assessed. A survey was carried out and obtained 122 respondents. The results showed that vendors' communications and customer trust significantly influence customer loyalty.

Accordingly, in Indonesian e-commerce customer context, trust is an important antecedent that vendors have to take into account. Table 2.2 summarises the research on e-commerce in Indonesia**.**

Table 2.2 Research on E-commerce in Indonesia

Researches	Focuses	Results
MacGregor and Kartiwi (2009)	Barriers of e-commerce adoption by SMEs	Five top barriers: (1) unsuitable products/services for e-commerce; (2) no advantages for organisations; (3) unsuitable way to conduct business; (4) unsuitable way for clients' interactions with businesses; and (5) unsecure environment
Aguiar et al. (2010)	E-commerce customers adoption	Customers are reluctant to trust the security of e-commerce systems. Buyers and sellers conduct online communications to arrange offline transactions to avoid the risk. Most offline transactions are used to pay for high-value products, online transactions are for low-value products with payment using mobile or Internet banking.
Kusuma and Setyanti (2011)	Customers' intention to use Internet banking	Trust significantly affects intention to use. Perceived usefulness and ease of use significantly affect trust and intention to use
Urumsah et al. (2011)	Customers' intention to use Airlines' e-services	Effort expectancy, social influence, outcome expectancy, and motivation affect customers' intentions to use airlines' e-services. Trustworthiness and facilitation conditions have affects on effort expectancy and outcome expectancy.
Pujani et al. (2009)	Factors of SMEs' website successes	Qualities of website and trust have effects on website use. Quality of website and website use significantly affect satisfaction of website users. Website use and satisfaction of website user significantly influence organisational performance.
Pujani (2011)	Usefulness of e-commerce website	System quality, information quality, and feature have influences on usefulness of e-commerce websites. Feature and usefulness of e-commerce websites influence users' satisfaction.
Kartiwi (2006a)	Ecommerce customers' confidence levels toward websites	Gender has a significantly different confidence level to Indonesian websites, but it does not to non-Indonesian websites. Age has a significantly different confidence level to both Indonesian and non-Indonesian websites.
Lii (2009)	Internet banking adoption	Website quality has the strongest effect on customers' trust

Continued…

Researches	Focuses	Results
Koo and Wati (2010)	Mobile banking adoption	Trust not only has an adequate role as a mediator, but also has a direct effect on perceived usefulness and end-user satisfaction.
Roostika (2011)	Mobile Internet adoption	Trust mediates the relationship between service quality and loyalty. Contextual quality and device quality are the strongest and the least contributors toward service quality respectively.
DSResearch (2011)	Behaviour of young e-commerce users	Motivation for accessing e-commerce sites: surfing for products, comparing prices before undertaking offline transactions, purchasing online. Suggestions of friends or families have the most significant influence on customers' decisions to perform online shopping.
Sumarto et al. (2012)	Ecommerce customers' loyalty	Vendors' communications and customer trust significantly influence customer loyalty.

2.3. Trust

This section consists of two parts which discuss the definition and application of trust in e-commerce. The first part describes various views of scholars in defining trust. The second part elaborates on the trust of sellers and trust of the (Internet) medium as well as their application in e-commerce research.

2.3.1. Definition of Trust

There are many definitions of trust since trust has been defined by scholars from different disciplines (Grabner-Krauter & Kaluscha 2008; Mukherjee & Nath 2003; Pennington et al. 2004). They have arrived at definitions based on what discipline they come from. In the early stage of its development, trust has been recognised in the psychology field. Nowadays, trust has been seen as an important research issue in more disciplines (Kartiwi 2006a) such as commerce, politics, technology, organisation, security (Castelfranchi & Falcone 2010, p. 7), sociology (Pennington et al. 2004; Sztompka 2003), psychology (Grabner-Krauter & Kaluscha 2008;

Mukherjee & Nath 2003), among others. Accordingly, there is no general definition of trust.

Defining trust is quite problematic. To date no single definition has been assigned by scholars. Lee and Turban (2001) acknowledge five issues causing disagreement among scholars when discussing trust. The issues are:

- The difficulty of defining trust;
- Confusing trust with its antecedent and outcome;
- Difficulty to understand the relationship between trust and risk;
- Confusing levels of analysis due to lack of specifying trust referent; and
- Failing to consider both the trusting party and the party to be trusted.

Castaldo, citing by Castelfranchi and Falcone (2010, p. 8), conducted a study using content analysis to identify definitions of trust. They found that between 1960 and 1999, there were 72 definitions of trust. They came from 818 terms in which there are 273 different terms. Definitions were extracted from different disciplines embracing management (46%), marketing (24%), psychology (18%), and sociology (12%). The results point out that researchers have applied very varying terms to express their concept of trust.

Thus trust has been defined by researchers in many ways. After reviewing prior studies, some more used definitions of trust are as follows.

- "Trust is a particular level of the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both before he can monitor such action and in a context in which it affects his own action" (Gambetta 1990).
- "Trust is 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[sic], irrespective of the ability to monitor or control that other party" (Mayer et al. 1995).

- "Trust is the expectation that arises within a community of regular, honest, and cooperative behaviour, based on commonly shared norm, on the part of other members of that community" (Fukuyama 1995, p. 26).

In sum, trust can generally be defined as belief in others that they will reliably and willingly fulfil all obligations.

After tracking down some definitions of trust promoted by scholars from different disciplines, Grabner-Krauter and Kalusca (2008) presume that the phenomenon induces contradictory and confused perspectives. However, they found that almost all definitions of trust include at least one of the perspectives that is included in the definition, such as context characteristics, truster properties, and characteristics of the trusted party. The interaction between these three perspectives is depicted in Figure 2.3.

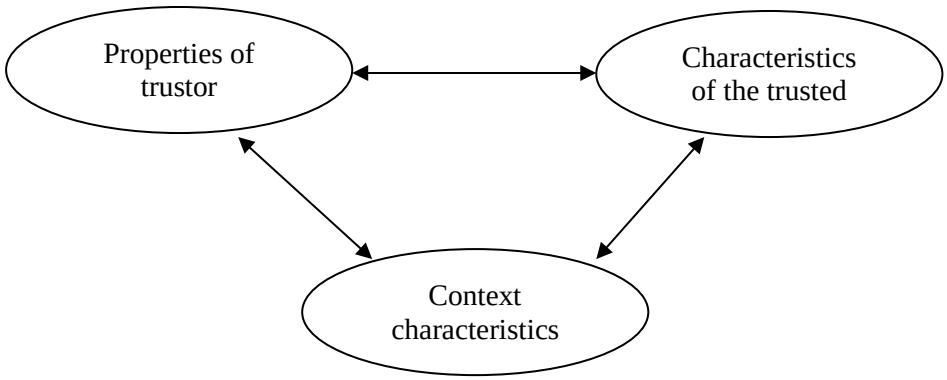


Figure 2.3 Interaction of Perspectives of Trust definitions
Source: Adopted from Grabner-Krauter and Kalusca (2008)

In defining trust based on context characteristics, for instance in the Internet environment, the definition will include online trust. In relation to properties of the

truster, the definition will embrace attitudes, beliefs, intentions, behaviours or dispositions. Finally, defining trust in terms of characteristics of the trusted party will involve at least one of the following properties specifically ability, integrity, benevolence, credibility, predictability, or dependability.

2.3.2. Trust in E-Commerce

Trust plays an important role in businesses and organisations since it relates to many strategic aspects such as firm performance, satisfaction, competitive advantage, and other economic outcomes (Kim et al. 2008). Many scholars have committed studies to explore the role of trust relating to organisations, interpersonal relationships, and technology. In terms of business relationships, prior studies indicate that a transaction is likely realised when all parties involved in a business trust each other. Trust is needed only in an uncertain and risky environment (Grabner-Krauter & Kaluscha 2008). Therefore, if trust already exists when a needed circumstance arises, then all parties involved within the business relationship can preserve trust in a proper manner; trust will be triggered to increase satisfaction (Yousafzai et al. 2003). Satisfaction, in turn, contributes to developing good relationships in the future.

Firms consider the level of trust in their relationships with stakeholders including customers, employees, regulatory bodies, suppliers, and other parties involved in the business (Bourlakis et al. 2008, p. 41). In uncertain e-commerce environments, like previously mentioned, trust plays a strategic role. The success of e-commerce operations is more likely determined by how trust among parties is built and maintained. Therefore, paying more attention to trust-building and

maintenance is essential in e-commerce to improve relationships with stakeholders, particularly customers.

In addition, trust-roles are more critical in e-commerce practices compared to conventional commerce (Kim et al. 2008). It is argued that e-commerce is less well-controlled by customers due to its transactional nature. As commonly understood, e-commerce transactions are likely to happen without sellers and customers recognising each other. The location of sellers or customers may also be in a different country or continent (Kim et al. 2008). Even if sellers and customers are in the same country, they probably will never meet. Therefore, the evidence indicates that e-commerce transactions contain uncertainty and risk (Lee & Turban 2001).

E-commerce transactions are, indeed, transferring trust from the physical world to the electronic version (Kartiwi 2006a). Customers' participations in e-commerce are likely discouraged by a lack of trust (Chen & Barnes 2007). In contrast, customers will enjoy and even increase frequencies of their online purchases if they have high degrees of trust toward e-commerce systems. A high degree of trust stimulates customers' expectations of satisfied transactions as well as eliminates uncertainty and perceived risks (McKnight et al. 2002). Accordingly, trust plays a central role in building customers' participations in e-commerce.

During the course of their theorising the concept of trust, many scholars have proposed antecedents that can generate trust. For example, Meyer et al. (1995) introduced trust in three dimensions including ability, benevolence, and integrity. Even though this theory is initiated from the psychology discipline, it is very popular and has been adopted by researchers to study trust in an e-commerce context (e.g., Lee & Turban 2001). In this regard, ability is defined as a seller's

competencies and characteristics to influence and authorise their obligations such as providing, serving, and keeping goods and services secure from being interfered with by others. Benevolence is interpreted as how well sellers fulfil their obligations to serve customers so the customers receive benefits from goods and services provided, rather than the sellers just maximising profits. Finally, integrity is implied as an attitude and habit of a seller in conducting business to an acceptable principle (Lee & Turban 2001).

Researchers undertaking studies on trust, particularly in an e-commerce environment, have different perspectives about trust such as trust of sellers (Kim et al. 2008), trust of customers, trust of technology (Lee & Turban 2001; Pennington et al. 2004), trust of organisations, trust of brand (Ellonen et al. 2008, p. 40), trust of information (Kivijarvi et al. 2008, p. 80) or trust of other aspects. For instance, Pennington et al. (2004) introduced trust mechanisms that are related to encouraging trust of systems in both Internet transactions and Internet vendors. Lee and Turban (2001) also proposed trust of Internet merchants and trust of the Internet shopping medium towards customers' trust in Internet shopping. The evidence demonstrates that studies relating to trust in an e-commerce context have been carried out from various angles.

Lee and Turban's (2001) work on trust in e-commerce transactions can be classified in two forms, trust of sellers and trust of the (Internet) medium. In accordance with the classification, further discussion will focus on exploring those kinds of trust in order to obtain, more clearly, conceptions regarding trust in e-commerce applications.

Trust of Sellers

Previous studies have presented trust of sellers by using such terms as “merchant trust” or “vendor trust”. In the context of trust in e-commerce transactions, Kim et al. (2008) defined trust of sellers as “customers’ subjective belief that the selling party or entity will fulfil its transactional obligations as the customer understands them”. The definition clarifies that sellers have a willingness to comply with what they have promised as customers conceive and agree with terms. In other words, there are two poles that must be in synergy, sellers’ promises and customers’ desires.

Building trust in e-commerce requires long periods of time, needs some effort, and requires some strategies, including cost (Bourlakis et al. 2008, p. 41). Thus trust cannot be achieved instantly. As previously discussed, e-commerce transactions are conducted under absence of direct meetings among parties involved, as well as no physical presence of stores and products. These circumstances are examples of obstacles in creating trust of sellers in an e-commerce environment. Not surprisingly, many previous studies have found that trust is one of the predominant barriers for e-commerce sellers in succeeding online (Chen & Barnes 2007). The absence of customers’ trust towards sellers is likely to cause transactions failures. Customers may perform transactions if they trust the seller (Kim et al. 2008).

Prior studies have undertaken extensive investigations to reveal trust of sellers in e-commerce contexts. Lee and Turban (2001) identified that trust of sellers consists of three dimensions namely ability, integrity, and benevolence as proposed by Mayer et al. (1995). To verify these dimensions, Lee and Turban undertook a study by surveying undergraduate students in Hong Kong. The results

demonstrate that among the dimensions of trust, integrity proves to be the most likely predictor of trust.

Moreover, Pennington et al. (2004) argue that trust of sellers is determined by a seller's reputation. The statement is based on the findings of their study in the USA, which demonstrates that sellers' reputations have an effect on trust of sellers. Similarly, a study conducted by El Said and Galal-Edeen (2009) in Egypt found that a seller's reputation is an apparent predictor of trust. This finding is consistent with Chen and Barnes' (2007) study in Taiwan that reputation is an antecedent of trust. In terms of this issue, a seller's reputation is defined as a seller's honesty with, and a seller's concern about its customers. Sellers' reputations can be identified from customers' personal experiences and seller's histories, social presence, products, and actions (Pennington et al. 2004).

Liu et al. (2005) suggested that trust of sellers obviously has a range of degree. Degree of trust can be detected by viewing the privacy aspects of customers. Privacy is represented by consent of customers to allow sellers to collect, access, use, and keep customers' personal information. To validate this construct, they conducted a laboratory experiment in the USA. The results prove that consent from customers towards privacy information strongly influences the degree of trust in a seller. In this context, a customer's privacy consent is defined as a customer's subjective beliefs that collection, access, use, and disclosure of personal information by a seller are consistent with their expectations (Pavlou 2001).

Kim et al. (2008) state that information quality, perceived privacy protection, perceived security protection, presence of a third party seal, positive reputation, and familiarity are antecedents of trust. To examine the model, a study

was conducted by recruiting students as respondents. The study revealed that the most proposed antecedents influence trust significantly, except in the presence of a third party seal. Furthermore, perceived privacy protection is shown to have the strongest influence on trust.

In relation to the antecedent, familiarity, the study of Kim et al. (2008) has proven, when familiarity is adequate, it will influence trust. Familiarity is a condition where customers recognise sellers. If customers understand that sellers operate good businesses, provide excellent assistance, or devote extraordinary services, customers tend to trust sellers. The more customers recognise the kindness of sellers, the more customers trust sellers. Similarly, El Said and Galal-Edeen's (2009) study also found that familiarity is demonstrated as a good predictor of trust.

Trust of sellers is possibly determined by religious views. Siala et al. (2004) performed a study in the UK to explore the degree of trust in sellers based on similar religious views. The results point out that Moslem customers have more trust in sellers who are of their religion than in sellers from other religions. In contrast, Christian customers have more trust in neutral sellers rather than sellers of the same religion. The different evidence on degree of trust in sellers between Moslem and Christian customers, which the authors noted, was that probably Christian participants did not participate in their religion consistently or they did not consider sellers' religion when undertaking transactions.

Customers' trust of sellers could be developed by providing good communication between sellers and customers. Selnes' (1998) study revealed that communication is a critical determinant in affecting customers' trust of sellers. This evidence indicates that if sellers regularly contact customers, during and after transactions, customers' confidence to transact future business with sellers will

increase. Likewise, if customers can easily contact sellers and receive good responses from sellers, they will believe that sellers' promises and customers' expectations can credibly be fulfilled. In addition, Selnes' study also shows that customers' satisfaction is a predictor of trust. Customers' satisfaction with goods and services provided by sellers will influence their trust of sellers. The evidence therefore demonstrates that communications and satisfaction have strategic roles in developing and maintaining customers' trust of sellers.

Chen and Barnes (2007) attempt to investigate customers' initial trust of sellers. They propose that initial trust is determined by perceived company size, perceived good reputation, perceived willingness to customise, and perceived interaction with customers. To validate the model, the study was conducted in Taiwan with undergraduate and postgraduate students. The results point out that perceived good reputation, perceived willingness to customise, and perceived interaction with customers obviously affect initial trust. However, perceived company size has no significant effect on initial trust. Thus, it is purported that initial trust of sellers has three important determinants involving perceived good reputation, perceived willingness to customise, and perceived interaction with customers

In order to increase customers' trust of sellers, sellers need to appear professional. In term of e-commerce, professional appearance could be presented on a seller's website. Unsal and Erickson (2008, p. 99) recommended some aspects that portray professionalism including website design and navigation clarity. Clearly, customers identify sellers' professionalism by investigating whether sellers' websites contain misspellings and typographical errors, provide feedback facilities as well as provide clear disclosures regarding shipping charges, insurance

policies, payment methods, and dispute settlement mechanisms. These artefacts reflect sellers' respect of customers.

Furthermore, Pennington et al. (2004) declared that trust of sellers is an antecedent to attitudes towards sellers. This statement is consistent with the results of El Said and Galal-Edeen's (2009) study. The study proves that trust is a good antecedent to attitude.

Trust of the (Internet) Medium

In e-commerce, customers are encouraged to trust not only sellers but also the medium through which transactions flow. Trust in e-commerce is much more focused on transaction processes (Kim et al. 2008) since they are conducted without the presence of face-to-face meetings between customers and sellers. Customers are expected to believe that the medium of transactions has reliability to perform well. Despite customers having trusted sellers, transactions may not occur while customers distrust the reliability of the transaction medium.

Based on previous studies, Lee and Turban (2001) assert that trust of the medium is composed of three dimensions consisting of technical competence, reliability and medium understanding. In respect to these, technical competence reflects the ability of a system to undertake tasks properly. Reliability indicates that the system can perform tasks consistently. Medium understanding is when the system is understood by users. Lee and Turban believe that these dimensions are very important to assign customers' trust of technology.

Trust of the medium can be manifested by systems trust. Pennington et al. (2004) postulated that seals, ratings, and guarantees presented on websites are predictors of systems trust. To validate the notion, they surveyed 266 Internet users

in the USA. The results show that seals and ratings do not have significant effects on systems trust. Therefore, the study fails to demonstrate that seals and ratings are good predictors of systems trust. In contrast, a study conducted by Ho and Oh (2009) in Taiwan revealed that seals increase customers' trust of sellers' websites. Hence, the evidence highlights that whether or not seals affect customers' trust of the medium may depend on other factors, such as cultures and the education levels of respondents.

In representing seals, it is very frequent to use signals, symbols, or logos. Seals are set up by third parties that have an authority to assure a credibility of systems (Ho & Oh 2009). The objective of installing seals on vendors' websites is to ensure customers that systems are safe for undertaking transactions. Furthermore, rating systems are tools that provide customers the option to give feedback to vendors. The feedback can be used by other customers as indications of a vendor's performance. Finally, guarantees are statements of vendors' policies such as policies on retuning goods, privacy, and security of transactions.

Trust of the medium could be developed through presenting assurances from company partners on their websites. In this respect, customers may trust the medium of transactions provided by sellers more if they see recognised assurance companies (e.g., WebTrust, TRUSTe) identified on sellers' websites. A study carried out by Kaplan and Nieschwietz (2003) proved that web assurances and providers' attributes are essential determinants in predicting customers' trust of the medium that sellers have provided for transactions. The study was conducted in the USA with 225 undergraduate students as participants.

Vendor's reputation, site quality and structural assurance are powerful antecedents of customers' trust of the medium. McKnight et al. (2002) found that

customers' trust in a web vendor is significantly influenced by perceived vendor reputation, perceived site quality, and structural assurance. This finding is supported by a study by Corbit et al. (2003) that site quality has a strong effect on customers' trust in web vendor's technology. Specifically, vendor reputation reflects the ability of a web vendor to handle transactions. Vendor reputation will be perceived by personal experiences of customers who have interacted with vendors. To believe in the reputation of vendors, new customers usually refer to information from experienced customers. In this respect, customers' positive experiences of the medium of transactions are very important since they will contribute to other customers' perceptions. In addition, site quality is identified by customers through attractiveness of website (e.g., completeness of information and interface design). Websites presenting good design and plain information lead to increasing customers' confidences. Moreover, structural assurance reflects that vendors provide secure environments for transactions. For instance, vendors apply encryption technology to protect transaction data from identity theft.

In general, e-commerce applications include promoting, displaying, transacting, payment processing, and delivering goods and services. In relation to payment processes in e-commerce, Kim et al. (2010) inquired about customers' perceived trust of electronic payment systems (EPS). The study proves that technical protection strongly associates with customers' perceived trust in EPS. Two other constructs, namely transaction procedures and security statements have no significant influence on perceived trust in EPS. In this context, technical protections are purported to be a guarantee that sellers provide sufficient security systems to protect personal information (e.g., credit card data) from any kind of deception.

Chen and Barnes (2007) asserted that initial trust of technology is determined by perceived usefulness, perceived ease of use and enjoyment of technology. However, their study revealed that merely perceived usefulness proves to be a strong determinant of initial trust of technology. It indicates that customers' trust of e-commerce technology relies on the extent to which technology provides advantages. In other word, if customers perceive that they are acquiring benefit from applying e-commerce technology, automatically they will trust it.

Kivijarvi et al. (2008) examined trust in term of customers' trust of e-banking transactions. The study applied trust by conducting a second-order structural model. In this context trust is represented by two constructs, namely trust in the information and trust in the medium. Trust in the information is determined by two indicators consisting of information accuracy and information completeness-relevance. Trust in the medium is determined by three indicators involving Internet privacy, Internet security, and Internet confidentiality. Among the determinant indicators, Internet security demonstrates it is the most important in reflecting trust in the medium.

This section has elaborated research on trust of sellers and trust of the (Internet) medium. To conclude this discussion, antecedents of both forms of trust are summarised in Table 2.3.

Table 2.3 Antecedents of Trust of Sellers and Trust of the (Internet) Medium

Construct of Trust	Antecedents	Authors
Trust of Sellers	Ability, integrity, benevolence Reputation	Lee and Turban (2001) Chen and Barnes (2007); Pennington et al. (2004)
	Privacy	Liu et al. (2005)
	Information quality, perceived privacy protection, perceived security protection, presence of a third party seal, positive reputation, familiarity	Kim et al. (2008)
	Reputation, familiarity	El Said and Galal-Edeen (2009)
	Communication, satisfaction	Selnes (1998)
	Perceived good reputation, perceived willingness to customise, perceived interaction with customers	Chen and Barnes (2007)
Trust of the (Internet) Medium	Technical competence, reliability, medium understanding	Lee and Turban (2001)
	Seal, rating, guarantee	Pennington et al. (2004)
	Web assurance, provider attribute	Kaplan and Nieschwietz (2003)
	Perceived vendor reputation, perceived site quality, structural assurance	McKnight et al. (2002)
	Technical protection	Kim et al. (2010)
	Perceived usefulness	Chen and Barnes (2007)
	Privacy, security, confidentiality	Kivijarvi et al. (2008)

2.4. Fraud

The discussion in this section will include concepts of fraud, fraud in cyber space, perceived risk, fear of crime, and risk perceptions of e-commerce. They lead to the identification of gaps in the literature.

2.4.1. Concept of Fraud

Fraud happens in a social setting and exerts severe effects on the economy, corporations, and individuals (Silverstone & Sheetz 2007, p. 3). Fraud incidents could occur in every type of social program (Pedneault 2009, p. 4). Scholars have provided various definitions of fraud. Like trust, the definition of fraud depends on the discipline of the author. Albrecht et al. (2009, p. 7) defines fraud as the action of an individual to gain a benefit from others by inappropriate ways. Kovacich

(2008, p. 29) clarifies that fraud is a concealment or false representation through a statement or conduct that injures another who relies on it to take action. Duffield and Grabosky (2001) imply that every action to obtain value or avoid an obligation by committing deception is fraud. Therefore, Coderre (2009, p. 3) attempts to summarise several definitions of fraud as "fraud consists of an illegal act (the intentional wrongdoing), the concealment of this act (often only hidden via simple means), and the deriving of a benefit (converting the gains to cash or other valuable commodity)".

Pedneault (2009, p. 19) asserts that fraud incidents are promoted by several motivations. In accordance with this, Albrecht et al. (2009, p. 33) identify that perpetrators committing fraud are possibly motivated by perceived pressures, perceived opportunities, and rationalisations. These three motivations are based on a model from Cressey's research. The model is called the fraud triangle **(Figure 2.4)**. Albrecht and collaborator imply pressure as something that has happened in perpetrators' lives causing stress and pushing them to steal. Opportunity is interpreted as a condition that perpetrators identify as weak controls of others and they understand how to use these weaknesses to steal successfully. Rationalisation refers to the justification by perpetrators about why they committed fraud. Why perpetrators are motivated to commit fraud is that perpetrators perceive that they have rights to gain benefits, then they justify taking something from the organisation as lawful. Another example is a perpetrator takes something because of having a difficulty and they intend to repay at a future date (Singleton & Singleton 2010, p. 46). From the previous explanation and examples, it can be stated that fraud is a product of personality and environmental or situational

triggers (Duffield & Grabosky 2001). Therefore, the motivation behind fraud incidents vary for every individual case (Pedneault 2009, p. 19).

Figure 2.4 Fraud Triangle
Source: Adopted from Singleton and Singleton (2010, p. 45)

In addition, Coderre (2009, p. 5) asserts that fraud perpetrators, when rationalising/justifying their conduct, relate to their subjective beliefs; these may be as follows:

- Their feat is legal;
- Their actions are conceded;
- They just borrow the money;
- They have fulfilled corporate goals;
- Everyone else is doing the same thing so it becomes common and appropriate.

In terms of fraudulent actors, Coderre (2009, p. 3) also identified that fraud incidents could be committed by not only individual employees, but also management, vendors and customers. Associated with fraud perpetrator-victim relationships, Duffield and Grabosky (2001) categorised victims and perpetrators into four types specifically fraud committed: against an organisation by a principle

or senior official, against an organisation by clients or employees, against one individual by another, and against a number of individuals through print or electronic media. Referring to the prior discussion about definition of trust, the goals of perpetrators committing fraud are to obtain money, assets, or other services from business/es or individual/s. Furthermore, regarding fraud incident areas in the organisation, Silverstone and Sheetz (2007, p. 6) claim that most vulnerable areas in which perpetrators conduct fraud are sales and collections, purchases and payments, payroll and personnel, inventory and warehousing, as well as capital acquisitions and repayments. Those areas relate to the accounting cycle which directly deals with transactions or money. However, fraud can also occur outside of accounting cycles. For instance, many businesses suffer from customer fraud due to inappropriate assessment and interpretation of information supplied by customers. In sum, fraud incidents come in many ways and everyone could be a victim.

2.4.2. Fraud in Cyberspace

The online channel like e-commerce is a prime target of perpetrators to increase fraudulent activities. In e-commerce, perpetrators can easy attempt fraudulent transactions because e-commerce is borderless, low costs, and there is a high availability of stolen credentials (Montague 2011, p. 66). Clough (2010, p. 5) argues that digital technology is vulnerable to crime as the nature of the technology includes scalability, accessibility, anonymity, portability-transferability, global reach, and absence of capable guardians. The evidence has shown that money lost due to fraud in e-commerce is increasing and becoming huge (Chuck 2002) with victims from both customers and vendors (Clough 2010, p. 185). Accordingly, online fraud emerges not only as an economics' problem but also a social problem.

E-commerce is one of the fields which adopt advanced technology. However, Clough (2010, p. 28) admits that every advancement is accompanied by a corresponding niche to be exploited for criminal purposes. As stated in the fraud triangle concept, a crime could be triggered by an opportunity. Although e-commerce applies advanced technologies, criminal perpetrators still view that there are wider opportunities to commit deceptions in order to obtain benefits, particularly financial gains (Chuck 2002). Perpetrators always strive to find weaknesses in e-commerce technology to take advantage of victims in various ways.

Furthermore, Clough (2010, p. 184) identified that there are five most common online frauds, namely fraudulent sales online, advance fee schemes, electronic funds transfer crime, fraudulent investments, and identity crimes. The most incidents of fraudulent sales online are auction frauds, followed by non-delivery of items. A customer, when committing to online transactions, possibly encounters some risks such as payments in advance, but items are not delivered; encounters different specifications between advertisements and facts; or items are stolen during shipment. In addition, advance payment schemes are the form of deceptions where perpetrators persuade victims to pay fees before receiving services or benefits offered. Examples of this fraud type are lottery, get rich quickly, and opportunity to work from home with high benefits. Moreover, a fraudulent investment is an offer from perpetrators to join in a high return investment. In this case, perpetrators promise victims who invest funds with perpetrators, that they will acquire high returns in a short time. Finally, identity crime is where perpetrators use a false identity to commit a crime such as money laundering, drug trafficking, and terrorism.

The other type of fraud on the Internet is a scam. Scamming is a technique to mislead a person into divulging financial or other personal details for a perpetrator to benefit improperly. Perpetrators usually send an email to victim targets. The most common scam is the Nigerian email scam. The email strongly convinces a victim that he/she will receive huge gains from a perpetrator's offers. The common incidents of email scams involve online auctions, general merchandise sales, Nigerian money offers, Internet access services, and information regarding adult services (Chuck 2002).

Identity theft is also a major incident of cyber-fraud. An incident occurs in several ways including phishing, pharming, hacking, credit card skimming, and carding (Clough 2010, p. 192). Phishing refers to a combination of technological development and social engineering through email to direct victims to visit a fake website in order to collect personal, financial, and sensitive information (Bocij 2006, p. 88). Pharming is a trick which utilises an Internet domain name to direct victims to visit a fake website. Hacking is an unauthorised user who accesses and copies documents from systems. Credit card skimming is a trick to capture or copy data from credit cards using electronic devices. The perpetrators lay fake devices in the location in which people regularly use their credit card such bank ATMs, restaurants, or airports (Montague 2011). Carding is an unauthorised use of credit/debit card account information. Perpetrators get account information of credit cards in several ways, such as hacking.

2.4.3. Perceived Risk

According to Rookes and Willson (2000, p. 1) from the literature of psychology, perception is a process which involves the recognition and interpretation of stimuli

and then both are registered through people's senses. In term of perceived risk, it is defined as a subjective belief of gaining a loss in reaching an expected outcome (Chiu et al. 2012). In this regard, perceived risk associates with subjective assessment of people pertaining to negative consequences that may emerge from their behaviour (Buttner & Goritz 2008). People who are concerned about fraud and identity thefts tend to avoid mistakes rather than minimise utility in purchasing (Lee 2009a). Perceived risk makes people reluctant to undertake online purchases (Kim et al. 2008). Compared to offline transactions, perceived risk in online business is greater (Lee, K. C. et al. 2011). Perceived risk affects people's willingness to make choices (Choi & Lee 2003) and reduces people's confidence in decision making (Im et al. 2008). Reisig et al. (2009) state that risk judgment is influenced by a variety of personal factors (e.g., socio-demographic characteristics) and neighbourhood traits (e.g., incivilities).

The notion of perceived risk was introduced for the first time by Bauer in 1960 (Kim et al. 2005). Perceived risk is considered a function of probability that an unexpected event may occur. It is also considered a function of the extent to which negative consequences are associated with the unexpected event (Mariani & Zappala 2006). Perceived risk refers to uncertainty relating to outcomes of activities (Lee & Turban 2001). Uncertainty can be caused by the possibility of a seller's opportunistic behaviour resulting in losses by customers (Dinev et al. 2008-9). Likewise, an exchange in e-commerce occurs over a public electronic network. Consequently, consumers cannot taste, touch, or even test a product (Kim et al. 2008) and the range of products available may be very large. E-commerce customers have difficulty in engaging in direct observations of sellers' behaviours (Grazioli & Jarvenpaa 2000). This allows a seller to conduct opportunistic

behaviour by providing asymmetric information (Lee et al. 2010) to obtain inappropriate benefit from customers.

In term of customer behaviour contexts, Cocosila et al. (2009) mentioned that the literature classifies perceived risks in six categories encompassing perceived financial risk, perceived performance risk, perceived social risk, perceived physical risk, perceived psychological risk, and perceived time risk. Perceived financial risk associates with the possible loss of money in a transaction (Yaghoubi & Bahmani 2011) and subsequent maintenance cost of products (Lee 2009b). Perceived performance risk relates to the product or service not matching expectations (Aldas-Manzano et al. 2009). In other words, it reflects the possibility of malfunctioning products or not performing as designed and advertised; thus, failing to deliver the customer's desired benefits (Lee 2009b). Perceived social risk reflects opinions of other people such as family or friends toward customers' transactions. Yaghoubi and Bahmani (2011) assert that perceived social risk refers to potential loss of social status in a given level caused by adopting products or services. Perceived physical risk describes the individual's fear of the product or service to be harmful for health. Perceived psychological risk expresses the mental anxiety related to a transaction (Cocosila et al. 2009). Perceived time risk measures time loss associated with a transaction, such as time for learning a new system, waiting for responses, and erroneous transactions (Aldas-Manzano et al. 2009). Latter, Harridge-March (2006) identified from literature that the classification evolved with perceived technological risk and perceived security risk. Perceived technological risk expresses negative effects caused by improper technology uses. Perceived security risk reflects potential loss of control over personal information

when used without permission (Aldas-Manzano et al. 2009; Yaghoubi & Bahmani 2011).

2.4.4. Fear of Crime

Fear is often seen as one of the primary emotions of human being (Custers 2011). This is a negative emotional reaction generated by crime or symbols associated with crime (Warr 2000). Fear is seen as an individual's response to an individual's perceptions of risk and vulnerability (Custers 2011). It tends to produce avoidance and protective behaviour (Kohm et al. 2012). Fear of crime is widely recognised as a significant social problem (Jackson 2009). This denotes a product of individual level processes, many related to perceptions of personal vulnerability to crime, and of an ecological setting condition and dynamic (Wyant 2008). Therefore, fear of crime is a person's emotional response of dread or anxiety to crime or symbols associated with crime (Banks 2005).

Fear of crime is an affective state related to worry about personal safety (Wyant 2008). It is related to demographic factors such as gender, age, race/ethnicity, and other situational factors (Kohm et al. 2012). Fear of crime can be characterised according to a number of properties including intensity, prevalence, and duration both among individuals and within social units (Warr 2000). Therefore, researchers distinguish fear of crime in three dimensions namely cognitive, emotional, and behavioural (Kohm et al. 2012). Cognitive focuses on citizens' estimation of their likelihood of victimisation. Emotional centres on individual feelings about crime. Behavioural focuses on how people respond to fear of perceived risk of victimisation.

Most research on the causes of fear of crime focuses on a vulnerability perspective (Wyant 2008). Vulnerability is an important concept underlying fear (Custers 2011; Kohm et al. 2012). It is a differential perception of likelihood, control, and consequences (Jackson 2009). Vulnerability focuses on the facilitation of fear and the social integration that concentrate on a particular factor inhibiting fear. Hence, the concept of vulnerability can be divided into two categories: physical and social vulnerability (Franklin & Franklin 2009). Physical vulnerability relates to a perception of increased risk to a physical assault, while social vulnerability triggers social problems.

Most prior studies pertaining to fear of crime are associated with gender and age. Callanan and Teasdale (2009) assert that women have higher levels of fear than men. Likewise, the elderly tend to have higher level of fear than younger ones. Grabosky (1995) also reports that women are inclined to be more fearful than men. In Belgium, Custers (2011) found that women experience more fear than men. Jackson (2009) argues that women are more worried than men for the following reasons. Women feel less able to physically defend themselves, have lower perceived self-efficacy, higher perceived negative impacts, and they see the likelihood of victimisation as higher for themselves and for their social groups.

Media has a role to play in spreading fear of crime in the public. Banks (2005) states that media is one stimuli that creates fear. Media that report on crimes can generate fear among the public and perhaps even create moral panic. Individuals receiving media messages about crime become indirect victims through their fears (Kohm et al. 2012). A higher level of crime exposure leads to a higher level of fear. A study conducted by Custers (2011) in Belgium reported crime drama exposure via television affects risk perception and then risk perception

affects fear of crime. However, Chadee and Ditton (2005) found that in Trinidad there is no relationship between media consumption and fear of crime.

Custers (2011) mentioned that fear works in affective areas, while risk perception is in cognitive areas. Fear can be measured by soliciting self-reports from individuals or by monitoring physiological processes associated with fear (Warr 2000). There is a relationship between fear of crime and the likelihood of victimisation (Wynne 2008). The degree of fear attached to a particular crime is a multiplicative function of perceived seriousness and perceived risk of an offence (Warr 2000). A study by Jackson (2009) in London indicates that the incident and risk of crime have become coupled in the public's mind with issues of social stability, moral consensus, and the collective informal control processes.

2.4.5. Risk Perceptions on E-Commerce

Numerous studies have been undertaken to research perceived risk and fraud on e-commerce. This section presents evidence pertaining to scholars' concerns in studying perceived risk and fraud on numerous applications of e-commerce.

A study performed by Bywell and Oppenheim (2001) reveals that transactions via e-commerce provide some advantages such as lower prices to customers. Furthermore, customers have opportunities to compare prices, quality, service, and specifications of products among buyers. Despite the fact that e-commerce provides beneficiaries for customers, this study finds that fraud is still a potential threat in every e-commerce transaction. Therefore, vendors are encouraged to combat all fraudulent forms on the Internet by improving security on e-commerce systems. This is an effort to eradicate the growth of fraud and other drawbacks in e-commerce environments.

Choi and Lee (2003) investigated the influence of risk perceptions on online purchase intentions using e-commerce to reveal cross-culture perceptions of risk differences. Specifically, this study examined whether Koreans' and Americans' risk perceptions are distinct; as it explored whether apparel purchasers and non-apparel purchasers across countries have different views on risk perception. The results point out that Koreans and Americans have a significant difference in viewing risk perceptions of online shopping. Koreans are inclined to have a higher level of perceived risk when committing to online shopping than Americans. The other result concerning different views on risk perceptions between apparel and non-apparel purchasers highlights that there is no different views between apparel and non-apparel purchasers in Korea. This result contradicts the evidence in the USA where the differences exist.

Incidents of fraud in e-commerce can be easily accessed in the news, both digitally or in print. Wall (2008) highlights that the news will reinforce fears to transact via e-commerce. If buyers trust the medium they still may have a perception of not being safe due to the publicity given to cyber-crime. Accordingly, it is important for the media to present advantages of e-commerce and security systems in place to protect e-commerce transactions. Customers need to know that fraud threats not only occur in e-commerce, but also occur in traditional transaction systems.

Cocosila et al. (2009) investigated perceived risk on applications of wireless text messaging using cell phones to support users in maintaining healthy behaviours. The study adopted four risks in the form of perceived risk of customers comprising of perceived financial risk, perceived social risk, perceived privacy risk, and perceived psychological risk. The results point out that perceived financial risk,

perceived social risk, and perceived privacy risk are antecedents of perceived psychological risk. Among the antecedents, perceived privacy risk is the stronger factor to predict perceived psychological risk.

Reisig et al. (2009) examined perceived risk of Internet theft victimisation on credit card. This study identified that personal attributes can predict perceived risk of Internet theft victimisation. In this regard, personal attributes are derived from social vulnerability and personal traits. To test the model, this study recruited participants in Florida, USA. The results indicate that socially vulnerable (low socio-economic status) and financially impulsive customers perceive higher levels of risk when using credit cards online.

In addition, security aspects of online transactions have a significant role to play in defending against attacks by cyber-fraud perpetrators. Safe online transaction environments will contribute to shaping positive perceptions by customers to Internet based e-commerce. Regarding perceptions of customers toward e-commerce, Cocosila et al. (2009) note that negative perceptions to conduct transactions is higher in the early stages of adoptions compared to after customers have used online systems.

Customers' perceptions are the prominent factor that determines their intentions to use or not to use the Internet as a medium to transact commerce. Those who have confidence in the Internet will use it to facilitate their business transactions. On the other hand, those who fear the Internet will not use it. Naturally, customers perceive more risk when undertaking online transactions compared to traditional shopping. In this respect, Lai et al. (2008) assert that customers, indeed, commit transactions on e-commerce due to their perceptions that e-commerce provides more benefit than its potential threat of fraud. Customers

who are concerned about fraud, worry about supplying personal data to vendors (Harridge-March 2006), whereas e-commerce requires customers to provide personal identity data such as address, phone, and financial detail. Simply less risk adverse customers are more likely to perform online shopping. Therefore, understanding consumers' perceptions is very critical for businesses to develop strategies on how to educate consumers and build trust in e-commerce.

2.5. Planned Behaviour

This section will discuss planned behaviour in two parts. The first part discusses the theory of planned behaviour and the second part outlines applications of the theory of planned behaviour to e-commerce.

2.5.1. Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) is derived from the Theory of Reasoned Action—TRA (George 2004). TPB overcomes some of the limitations of the TRA in dealing with behaviour of people who completely violate controls (Liao et al. 2007). TPB is based on the assumption that human beings usually behave in a sensible manner. They take into account available information and consider the implications of their actions (Ajzen 2005). The theory has successful power in predicting and explaining human behaviour in various contexts (Chen & Li 2010; Crespo & Bosque 2008; Lee 2009a; Picazo-Vela et al. 2010). Therefore, TPB is remarkable and widely adopted in studies of human behaviour, including e-commerce (Lu et al. 2007). The model of the TPB is exhibited in Figure 2.5**.**

Crespo and Bosque (2008) argue, that the reasons why many researchers are using TPB to test behaviour in many disciplines are, that TPB is an established and extensively tested theory. TPB is parsimonious and has a wide range of variables

included in the model. TPB also introduces the effect of social influences. This model considers intention as the best behaviour indicator as it shows the effort that a person is willing to go to carry out a specific action. TPB provides a framework to understand how people make planned decisions (Zhang, K. Z. K. et al. 2011).

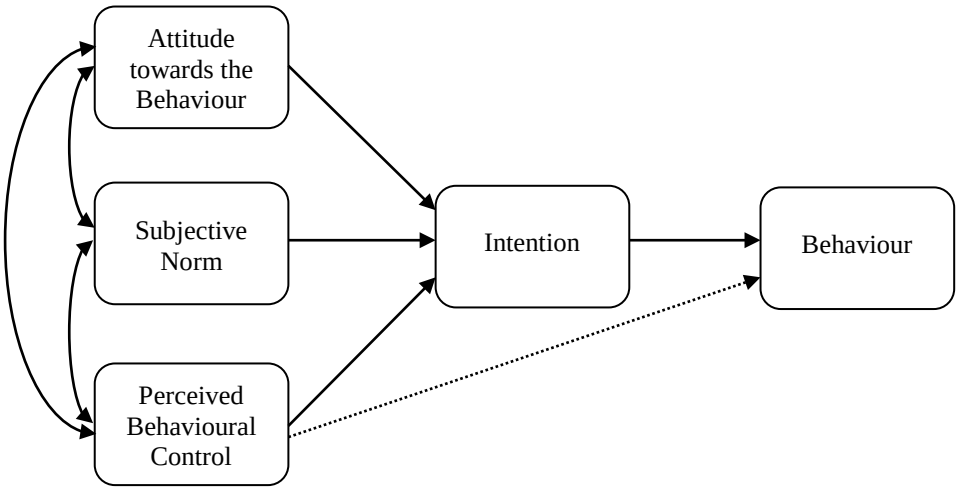


Figure 2.5 The Theory of Planned Behaviour
Source: Adopted from Ajzen (2005, p. 118)

TPB states that attitudes towards behaviour, subjective norm and perceived behavioural control are three basic determinants of intent (Ajzen 1991). In this context, intention indicates people's efforts to conduct activities. Intention captures motivational factors that influence a behaviour and are indications of how much effort people are willing to expend to perform a given behaviour (Mauldin & Arunachalam 2002). According to Zhang, K. Z. K. et al. (2011) behaviour intention indicates people's likelihood and willingness to perform some behaviour.

Attitude reflects an individual's preference for an object (Yu & Wu 2007). Attitude could indicate overall evaluation of whether performing the behaviour is favourable or not (Zhang, K. Z. K. et al. 2011). It is determined by an individual's beliefs regarding the consequences arising from the behaviour and evaluation of the

desirability of the consequences (Midha 2008-9). Cohen et al. (2010) purport that attitude is determined by a person's beliefs that a behaviour leads to certain outcomes and a person's evaluation of those outcomes as favourable or unfavourable.

Subjective norm indicates the degree of people's affection due to some significant referents perception (Crespo & Bosque 2008). It is related to the normative beliefs about expectations from others (Liao et al. 2007). Subjective norms presume that important others believe a person should perform the behaviour (Zhang, K. Z. K. et al. 2011). It captures the social pressure a person feels to perform a behaviour or not (Chen & Lu 2011). Any person or group serving as a reference group could exert a key influence on an individual's beliefs, attitudes, and choices (Hsiao & Yang 2011). Midha (2008-9) suggests that subjective norms reflect the degree to which a person believes that important others think a person should perform the behaviour in question. Yaghoubi and Bahmani (2011) view a subjective norm as an expression of social pressure on a person who intends to perform a behaviour. Therefore, subjective norm is related to a participant's own attitudes and rationalisations derived from his/her understanding of others' opinions (Cohen et al. 2010).

Perceived behavioural control (PBC) refers to a person's beliefs about access to resources and opportunities needed to perform a given behaviour (Chen & Lu 2011). It is a person's perception about the ease or difficulty of performing a given behaviour. Furthermore, PBC reflects demographic factors such as past experiences and anticipates obstacles and resources such as time, money, ability or skills required to perform a behaviour (Hsiao & Yang 2011; Mauldin & Arunachalam 2002). PBC is intended to be a measure of the degree to which a

behaviour is perceived to be under the control of an individual (Conner et al. 2003). PBC is associated with beliefs about the presence of control factors that may facilitate or hinder performance of a behaviour (Liao et al. 2007; Yaghoubi & Bahmani 2011). PBC presents the controllability, facilitation, or difficulty of a person to perform a given behaviour (Zhang, K. Z. K. et al. 2011). Therefore, it represents a person's perceived ability to perform a behaviour based on their past experience, competence, and any expected obstacles they may face (Cohen et al. 2010).

Although TPB mentions that attitude towards behaviour, subjective norm and perceived behavioural control can predict behaviour intention, Ajzen (2005) argues that the degree of the three predictors may vary from each person or population to another. Among the three predictors, it is possible to demonstrate that the important role of a predictor is distinct in different applications. The predictors are relative depending in part on the intention under investigation. For certain cases, to predict intention may not need all three predictors of TPB. Moreover, in some instances attitudinal considerations are more important than normative considerations. Therefore, it proves that TPB has flexibility and power to predict behavioural intentions in wide variety of different situations.

TPB provides opportunities of integration with other concepts or theories (Picazo-Vela et al. 2010). Previous studies demonstrate that TPB allows for including other predictors for improving the predictive power of this theory such as self-identity, moral norm, and habit (Conner et al. 2003). The approach to integration could be direct, mediating, or moderating effects. Mediating and moderating effects have roles to influence relationships among TPB constructs or additional constructs. The influence may affect strengths and/or directions of

relationships. Moderator variables could be a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward).

The next section demonstrates wide areas of TPB applications in e-commerce. The applications include excluding some constructs of TPB, integrating TPB with other constructs or theories, direct effects, mediating effects, and moderating effects in the TPB model.

2.5.2. Theory of Planned Behaviour in E-Commerce

TPB has been adopted widely in information systems research, particularly e-commerce. Many previous researchers demonstrate that TPB emerges to examine phenomena not only as a single model but also integrated with other theories or concepts. The evidence indicates that TPB is an open theory that provides flexibility to interact with others. The following presentations outline various examinations using SEM in e-commerce applications.

Pavlou and Chai (2002) examined a cross-culture model of the TPB to investigate e-commerce transaction intentions in China and USA. In this proposed model, trust is included in the TPB model and subjective norm is split into two constructs namely societal norm and social influence. This model also includes cultural effects such as orientation, power distance, collectivism, and individualism as moderating variables. The study found that trust significantly affects attitude towards behaviour and perceived behavioural control for both China's and USA's customers. Perceived behavioural control also proves a significant predictor of e-commerce transaction intentions in both countries. In contrast, the effects of attitude towards behaviour, societal norm, and social influence on e-commerce

transaction intentions are only significant for China's customers. The evidence asserts that cultural differences could influence customers' behaviour.

George (2004) undertook a study to examine the relationships between Internet purchasing and beliefs in privacy and trustworthiness of the Internet. The study surveyed 193 undergraduate students at South-Eastern University. The results show that a subjective norm of TPB could not be demonstrated as a significant factor that affects Internet purchasing and unauthorised use.

In addition, Hansen et al. (2004) carried out a study by integrating TRA and TPB to predict consumers' online grocery buying intentions. The study made use of samples of Danish and Swedish consumers. The findings exhibit that TRA and TPB have the capability to explain a high proportion of the variance in the future of online grocery behaviour intentions. However, TPB provides a significant best fit and best prediction. Among TPB constructs, consumers' attitudes are the most important predictor of online grocery behaviour intentions.

Lim and Dubinsky (2005) developed a model by integrating TPB with seven other constructs comprising self-efficacy, facilitation of ability, family, friends, merchandise, reliability, and navigation. This model identifies self-efficacy and facilitation of ability as predictors of perceived behavioural control. Family and friend are predictors of subjective norms. Merchandise, reliability, and navigation are supposed to influence attitude towards online shopping. Three TPB constructs consisting of perceived behavioural control, subjective norm, and attitude towards online shopping affect purchase intentions on the Internet. This study introduces new relationships among three TPB constructs. The relationships are perceived behavioural control influencing subjective norm, and subjective norm influencing attitude towards online shopping. To validate the model, 237 students from a

university in USA were recruited. Data analysis employed SEM. The results point out that most relationships are significant, except relationships between friend and subjective norm as well as reliability and attitude towards online shopping.

Wu and Chen (2005) undertook a study to integrate an extension model of TPB with trust and the theory of acceptance model (TAM). This integrated model is used to examine behavioural intention to use online tax return submission in Taiwan. This study received 1,032 valid respondents that were invited through e-mail to participate in the survey by completing an online questionnaire. The results report that two constructs of TAM (perceived usefulness and perceived ease of use) significantly affect attitudes toward behaviour. However, perceived usefulness does not affect intension to use online tax. In addition, the model proves that perceived ease of use significantly influences trust and perceived usefulness. Trust in this model demonstrates it is a good predictor of perceived usefulness and three constructs of TPB (attitude towards behaviour, perceived behavioural control, and subjective norm). Among TPB constructs, attitude towards behaviour and perceived behavioural control significantly influence intention to use online tax, but subjective norm does not.

Furthermore, Pavlou and Fygenson (2006) developed an extension model of TPB to explain and predict the process of consumers' e-commerce adoptions. A proposed model captured the process from two aspects, namely getting information and product purchases. To test the proposed model, they undertook an online survey in United State. The number of valid participants was 312 including students and customers. The major findings of the study show that getting information determines purchasing using e-commerce, whilst purchase intention drives intention to get information.

Liao et al. (2007) conducted a study by integrating TPB and the expectation disconfirmation model (EDM) to predict an individual's continued e-service use. TPB constructs adopted for building the proposed model for the study consist of subjective norm and perceived behavioural control. The model was validated by employing students of National Sun Yat-Sen University of Taiwan. Some 400 students were involved using Cyber University System. Results from the study show that integrated models between EDM and TPB have demonstrated increasing power in explaining customers' behavioural intentions.

Crespo and Bosque (2008) attempted to integrate personal innovativeness within TPB. The objective of the study was to analyse the factors that determine a consumer's intention to shop online. A survey was conducted in Spain that attracted 323 Internet users. The survey showed that perceived behavioural control of TPB failed to be a significant factor in affecting e-commerce adoption. Meanwhile, innovativeness of new technologies has a direct significant effect to attitude and intention, but fails to moderate between subjective norm and intention.

Midha (2008-9) investigates customers' intentions to access 'pay-per-click' (PPC) advertising by integrating theory of reasoned action (TRA), TPB, and deterrence theory. In this model, attitude is explained by evaluation and consequences to others. This study received 155 valid responses and the data was analysed using factor analyses and regressions. The results demonstrate that evaluation, consequences, subjective norm, and perceived behavioural control significantly influence intentions to access PPC. Among constructs, subjective norm is the strongest determinant in affecting intentions.

Lee (2009b) integrates TAM and TPB with perceived risk and perceived benefits to examine customers' intentions to use online banking in Taiwan. This

model integrates three predictors of TPB (attitude, subjective norm, and perceived behavioural control), two predictors of TAM (perceived usefulness and perceived ease of use), five dimensions of risk (performance risk, social risk, time risk, financial risk, and security risk), and perceived benefit. To test the model, an online survey was conducted and received 368 valid respondents. SEM was applied for data analysis. This study found that perceived benefit, perceived usefulness, and perceived ease of use all positively influence attitude. On the other hand, performance risk, time risk, financial risk, and security risk negatively influence attitude. Social risk has a negative effect on subjective norm, but it does not affect attitude. Perceived ease of use positively influences perceived usefulness; in contrast, performance risk has a negative effect on perceived usefulness. In term of intentions to use online banking, perceived usefulness, perceived benefit, attitude, subjective norm, and perceived behavioural control have positive influences but the effect of financial risk and security risk are negative.

Lee (2009a) conducted a research study to predict intentions of online trading use. This study integrates TPB, TAM, perceived benefit, perceived risk, and trust. An online survey was undertaken in Taiwan and obtained 338 eligible responses. Data was analysed using SEM and the results show that perceived benefit, attitude, perceived behavioural control, and perceived usefulness positively impact intentions to use online trading. In contrast, perceived risk negatively affects intentions and subjective norm does not affect anymore. Furthermore, attitude is influenced by perceived usefulness, perceived ease of use, and trust. Trust also influences perceived behavioural control, subjective norm, and perceived usefulness. In addition, perceived ease of use affects perceived usefulness and trust.

Picazo-Vela et al. (2010) undertook a study to evaluate an individual's intention to provide an online review. This study extended TPB with perceived pressure and the Big-Five personality traits including extroversion, neuroticism, agreeableness, conscientiousness, and openness. The model was tested on university students and obtained 171 valid participants. To analyse the data, regression was employed. This study found that attitude, perceived pressure, neuroticism, and consciousness significantly relate to intentions to provide online review. In contrast, subjective norm, perceived behavioural control, extroversion, agreeableness, and openness do not present as good antecedents of intentions.

Research on an individual's continued e-service use was committed by Chen and Li (2010). The aim of the study was to predict consumers' e-service adoption by integrating TPB and technology readiness (TR). The study developed a proposed model which depicts a relationship between TR and TPB constructs such as attitude, subjective norm, and perceived behavioural control. Furthermore, these constructs influence continuance intension. This study examined data from 488 students from five universities in Taiwan. Findings of the study showed that attitude and perceived behavioural control are important determinants affecting continuance of intention to use of e-services, while subjective norm does not. Moreover, technology readiness is a significant determinant that affects all constructs of TPB. The study also found that integrating TPB and TR models can increase the total variance explained of continuance intension to 70%. It proved that an integrated model of TPB and TR has increased the ability of the proposed model to predict customer's behavioural intension to adopt e-services.

Quan et al. (2010) integrated TPB and TAM to examine determinants affecting customers' intentions to use mobile services for transactions. To achieve

the objective, a survey was conducted and achieved 228 valid responses. SEM was employed to analyse the data. The study indicates that behaviour intention to use mobile services is determined by perceived cost, perceived usefulness, perceived ease of use, perceived credibility, and perceived behavioural control. Furthermore, among determinant factors, the study demonstrates that perceived behavioural control relates to perceived ease of use, perceived ease of use relates to perceived usefulness and perceived credibility, and perceived credibility relates to perceived usefulness.

Yaghoubi and Bahmani (2011) investigated customers' intentions to adopt Internet banking services in Iran. This study integrates TPB with perceived risk. A survey was performed and received 349 participants. To analyse the data, SEM was utilised. The study demonstrates that attitude, subjective norm, and perceived behavioural control positively influence intention to adopt Internet banking services. However, security risk and financial risk negatively affect intentions. In addition, time risk, social risk, performance risk, security risk, and financial risk negatively influence intentions.

Grandon et al. (2011) compared TPB and TRA to determine the best model for predicting e-commerce adoptions by SMEs in Latin America. This study observed 210 managers and owners in Chile. Using SEM, the data was analysed. The results found that attitude and subjective norm are significant predictors of intention, but perceived behavioural control is not. TRA states that attitude and subjective norm are predictors of intention. In addition, comparisons of path coefficients between TPB and TRA show that path coefficients resulted in TRA being a greater fit than TPB. Therefore, this study concludes that TRA is the most suitable model to predict e-commerce adoption in Latin America.

Finally, the summary of previous studies that employed TPB for e-commerce applications is presented in **Table 2.4**.

Table 2.4 Previous Studies of TPB in E-commerce

Authors	Focus of Study	Underlying Models	Moderators
Pavlou and Chai (2002)	Cross-cultures, comparison of e-commerce transaction intentions	TPB, societal norm, social influence	Orientation, power distance, collectivism, individualism
George (2004)	Online shopping intentions	TPB, beliefs on privacy, trustworthiness	
Hansen et al. (2004)	Online shopping intentions	TPB, TRA	
Lim and Dubinsky (2005)	Online shopping intentions	TPB, self-efficacy, facilitation of ability, family, friends, merchandise, reliability, navigation	
Wu and Chen (2005)	Online tax use intentions	TPB, TAM, trust	
Pavlou and Fygenson (2006)	E-commerce adoption intentions	TPB, getting information, product purchases	
Liao et al. (2007)	Continued e-service intentions	TPB, EDM	
Crespo and Bosque (2008)	Online shopping intentions	TPB	Innovativeness
Midha (2008-9)	Accessing pay-per-click advertising intentions	TPB, TRA, and Deterrence theory	
Lee (2009b)	Internet banking use intentions	TPB, TAM, perceived risk and perceived benefit	
Lee (2009a)	Online trading use intentions	TPB, TAM, perceived risk, perceived benefit, and trust	
Picazo-Vela et al. (2010)	Providing an online review intentions	TPB, perceived pressure, and Big-Five personality	
Chen and Li (2010)	E-service adoption intentions	TPB and technology readiness	
Quan et al. (2010)	Mobile service use intentions	TPB and TAM, perceived cost and perceived credibility	
Yaghoubi and Bahmani (2011)	Internet banking use intentions	TPB and five dimensions of perceived risk	
Grandon et al. (2011)	E-commerce adoption intentions	TPB and TRA	

2.6. Intention to Purchase Using e-Commerce

Investigating customers' intentions to purchase using e-commerce could be studied through various theories and concepts. This section discusses theories and concepts surrounding intention to purchase using e-commerce that have been studied by previous researchers.

Mukherjee and Nath (2007) carried out a study to investigate intentions to transact using e-commerce. In this study, they re-examined commitment trust theory from the previous study that was used to explore customers' intentions to purchase using e-commerce. An online survey was conducted. A combination of 410 professionals and 241 students from a British university took part in this survey. Data was analysed by applying SEM. The results confirm that intention to transact using e-commerce is positively affected by trust in the Internet and commitment. Commitment is positively influenced by trust in the Internet, shared values, and relationship benefit. Furthermore, shared values, communications, privacy, and security positively influence trust of the Internet. In contrast, opportunistic behaviour negatively affects trust of the Internet. In addition, this study shows that the influence of termination cost on commitment is not significant.

A similar study to examine customers' intentions to transact using e-commerce was undertaken by Kim et al. (2008). They conducted a survey for gathering data and obtained 512 valid respondents. For data analysis, SEM was utilised. The results point out that trust and benefit positively influence customers' intentions to transact using e-commerce. On the other hand, risk negatively affects intentions. In addition, trust negatively influences risk. Among antecedents, trust is the strongest antecedent in influencing intentions.

Dai and Palvia (2009) carried out a multicultural study to explore customers' intentions to use mobile commerce in China and USA. The study received 106 responses from China and 84 responses from the USA. The data was analysed using SEM and the results indicate that innovativeness, perceived usefulness, perceived ease of use, perceived cost, and subjective norm are determinants of intention to use mobile commerce in China. However, in the USA, the determinants of intentions to use mobile commerce are privacy concern, innovativeness, perceived usefulness, perceived enjoyment, and compatibility. On the other hand, privacy concern, perceived value added, perceived enjoyment, and compatibility do not significantly influence intentions to use mobile commerce in China. In addition, perceived value added, perceived ease of use, perceived cost, and subjective norm do not affect intentions to use mobile commerce in the USA. Therefore, the factors that determine if customers use mobile commerce in both countries are different.

Furthermore, El Said and Galal-Edeen (2009) performed a study to investigate customers' intentions to buy using e-commerce in Egypt. The study used university students through experiment in the computer lab. The students were divided into three groups consisting of low, medium, and high uncertainty avoidances. The numbers of participants were 115, 112, and 122 respectively. The data was analysed using SEM. The findings suggest that trust and attitude are significant antecedents of intentions to buy using e-commerce. Perceived familiarity and perceived reputation do not influence attitude and intentions to buy, but both have significant effects on trust. Trust, itself, influences attitude.

Lu and Su (2009) identified factors that affect customers' purchase intentions using mobile commerce. This study received 369 valid responses and

SEM was applied to analyse the data. The findings of the study demonstrate that mobile shopping intention is influenced by enjoyment, usefulness, compatibility, and anxiety. However, the effect of anxiety is negative. Ease of access is not significant to influence mobile shopping intention, but it positively affects enjoyment and usefulness. In addition, mobile skilfulness has a positive effect on enjoyment and usefulness, but it negatively affects anxiety.

Zhao et al. (2010) investigated customers' intentions to adopt Internet banking services (IBS) in China. The participants of this research were university students. The eligible responses received were 432. To analyse the data, SEM was adopted. The research demonstrates that perceived risk of IBS is a negative determinant and IBS competence is a positive determinant of behavioural intention to use IBS. Other evidence shows that trust in banks positively affects IBS competence and negatively affects perceived risk of IBS, but IBS competence does not influence perceived risk of IBS.

Jayasingh and Eze (2010) investigated customers' intentions to adopt mobile coupons. The study was conducted in Malaysia and received 781 valid responses. SEM was applied to analyse the data. The results found that attitude, personal innovativeness, social influence, and compatibility are antecedents of behaviour intentions. Furthermore, the evidence shows that perceived usefulness, perceived ease of use, coupon proneness and perceived credibility are antecedents of attitude. This study also examined moderating effects of price consciousness and value consciousness. The results demonstrate that price consciousness strengthens most relationships except the relationship between perceived ease of use and behavioural intentions. In addition, value consciousness strengthens all relationships.

Kim et al. (2011) examined customers' intentions to purchase digital items through social media. This study postulated that intention to purchase digital items can be predicted by three dimensions of customer value consisting of functional value, emotional value, and social value. Each dimension was extracted by two constructs. Functional value comprises of price utility and functional quality. Emotional value consists of aesthetics and playfulness. Social value embarrasses social self-image expression and social relationship support. An online survey was conducted with Cyworld members in Korea and it received 225 valid responses. SEM was employed for data analysis. This study found that aesthetics, playfulness, and social self-image expression are significant predictors of intention to purchase digital items. On the other hand, price utility, functional quality, and social relationship support do not affect intention to purchase. Although functional quality does not influence intention, it is a significant predictor of social self-image expression. In addition, aesthetics also influences social self-image expression.

Lee, M. K. O. et al. (2011) undertook a study to investigate customers' intentions to shop online with positive informational social influence as a moderator. Participants of the study were university students in Hong Kong. Responses were received from 104 participants. SEM was utilised to analyse the data. The results demonstrate that positive informational social influence moderates the relationship between perceived ease of use and attitude towards online shopping. It also moderates attitude towards online shopping and intention to shop online. In contrast, the relationship between perceived usefulness and attitude towards online shopping is not moderated by positive informational social influence.

Lu et al. (2011) investigated customers' intentions to use mobile payment services in China. An online survey was conducted to gathering data from Alipay users and received 374 valid responses. SEM was applied for data analysis. The study found that mobile payment trust, relative advantage, compatibility, and image positively affect behavioural intention to use mobile payment services. Perceived cost and perceived risk also affect intentions, but their effects are negative. Moreover, initial mobile payment positively influences relative advantage and negatively relates to perceived risk. In addition, Internet payment trust also positively relates to initial mobile payment. In term of a moderating role, Internet payment trust positively moderates initial mobile payment trust with behavioural intention and relative advantage relationships. In contrast, Internet payment trust negatively moderates initial mobile payment trust and perceived risk relationship.

Zhang, Y. et al. (2011) conducted a research study to examine customers' intentions to re-purchase using e-commerce. The study gathered data from university students and staff. The number of responses obtained was 360. Data were analysed using SEM. This study found that online relationship quality and perceived website usability are antecedents to predict customers' online repurchase intentions. Furthermore, online relationship quality is positively influenced by perceived website usability, perceived expertise in order fulfilment, and perceived reputation. In contrast, online relationship quality is negatively influenced by distrust in vendor behaviour.

Yang et al. (2012) performed a research study to evaluate customers' intentions to adopt mobile payment services. This study was conducted by surveying users of Alipay in China through an online survey, and it received 639 valid responses. The data were analysed using SEM. The findings of this research

show that perceived risk and perceived fee have negative effects on behavioural intentions to adopt mobile payment services. On the other hand, compatibility, relative advantage, social influence, and personal innovativeness have positive influences on behavioural intentions to adopt mobile payment services. Furthermore, social influence has a negative effect on perceived risk and a positive effect on relative advantage. Personal innovativeness also has a positive effect on relative advantage, but does not have effect on perceived risk.

A summary of previous studies of intention to purchase via e-commerce is presented in **Table 2.5**.

Table 2.5 Previous Studies of Intention to Purchase Using E-commerce

Authors	Focus of Study	Underlying Models	Moderators
Mukherjee and Nath (2007)	E-commerce use intentions	Trust in the Internet, commitment, shared value, relationship benefit, communication, privacy, security, termination cost, opportunistic behaviour	
Kim et al. (2008)	E-commerce use intentions	Trust, benefit, risk	
Dai and Palvia (2009)	Cross-cultures, mobile commerce use intentions	TAM, innovativeness, perceived cost, subjective norm, privacy concern, perceived value added, perceived enjoyment, compatibility	
El Said and Galal-Edeen (2009)	E-commerce use intentions	Attitude, trust, perceived familiarity, perceived reputation	
Lu and Su (2009)	Mobile commerce use intentions	enjoyment, usefulness, compatibility, anxiety, ease of access, mobile skilfulness	
Zhao et al. (2010)	Internet banking use intentions	Perceived risk, competence, trust, Intention to use	
Jayasingh and Eze (2010)	Mobile coupon use intentions	TAM, attitude, personal innovativeness, social influence, compatibility, coupon proneness, perceived credibility	price consciousness, value consciousness

Continued

Authors	Focus of Study	Underlying Models	Moderators
Kim et al. (2011)	Purchase digital items in social media intentions	Price utility, functional quality, aesthetics, playfulness, social self-image expression, social relationship support, intention to purchase	
Lee, M. K. O. et al. (2011)	Online shopping intentions	TAM and attitude	positive informational social influence
Lu et al. (2011)	Mobile payment use intentions	Trust, relative advantage, compatibility, image, Perceived cost, perceived risk, initial mobile payment trust	Internet payment trust
Zhang, Y. et al. (2011)	Online re-purchase intentions	Online relationship quality, perceived website usability, perceived website usability, perceived expertise in order fulfilment, perceived reputation	
Yang et al. (2012)	Mobile payment use intentions	Perceived risk, perceived fee, compatibility, relative advantage, social influence, personal innovativeness	

2.7. Gaps in Literature

Based on the literature review, a number of gaps have been identified. This study identifies that no published studies have researched the relationships to purchase intentions using e-commerce by applying cyber-fraud perceptions. Many prior studies appear to have conducted research using perceived risk as the only construct influencing intentions to purchase using e-commerce. This research attempts to undertake a study employing cyber-fraud perceptions that are derived from the concept of perceived risk and fear of crime.

Furthermore, previous studies demonstrate that customers' trust of sellers and customers' trust of the (Internet) medium have direct effects on intentions to

purchase using e-commerce. However, it would appear that no published studies have researched how cyber-fraud perceptions moderate the relationship between customer's trust of sellers and intentions to purchase using internet-based e-commerce.

Moreover, there appear to have been no studies adopting an integrated model of trust, cyber-fraud perceptions, and TPB. In addition, this study will add to the literature by being conducted in an emerging country, such as Indonesia, to see if concepts validated in developed countries apply. In addition, this research was carried out in Indonesia as there are limited studies of e-commerce; and degrees of cyber fraud, which remains at high levels, could reduce a big potential market in e-commerce.

2.8. Summary

This Chapter addresses some concepts of e-commerce, such as trust, cyber-fraud perceptions, perceived risk, fear of crime, and planned behaviour relative to the adoption of online shopping. These concepts are based on theoretical and practical backgrounds. The discussion starts from the concept of e-commerce. It is followed by debating the concepts of trust, perceived behaviour, fear of crime, and cyber-fraud perceptions. Then, the theory of planned behaviour, including intentions to purchase using e-commerce is explored. The final section of this chapter identifies research gaps. The next Chapter outlines the research design for this study.

CHAPTER 3
RESEARCH DESIGN

3.0. Introduction

After undertaking a literature review, the next step is to outline the research design. This Chapter begins with formulating the study design. In this section, research philosophy, research approaches, and classification of research purposes are elaborated. These discussions are followed by presenting the research questions. This study has a main research question that is answered by asking sub questions that arise from the research gaps. A conceptual model is formulated to demonstrate the integration and relationships among constructs. Hypotheses are then developed to test the relationships in the model.

3.1. Study Design

This section discusses the research philosophy, research approaches, and classification of research based on specific purposes.

3.1.1. Research Philosophy

Research philosophy is very important since it will guide a researcher in determining strategy and methods in the research process. The main effect of research philosophy is to view the relationship between knowledge and the process being developed. According to Saunders et al. (2009, p. 108) there are four paradigms of research philosophy including positivism, realism, interpretivism, and pragmatism.

This study was conducted by adopting a positivist paradigm. Positivism quantifies facts by applying logical-statistical rationality based on evidence which

is reflected by a causal mechanism (Basden 2011). Positivism works with observable social reality. The end product is intended for making generalisations. Data are generated from phenomena and hypotheses are developed based on existing theory (Saunders et al. 2009, p. 113). This paradigm matches with this study because it intends to investigate relationships-causalities between constructs in the model, which are developed based on previous studies. Finally, the model is validated using social evidence to acquire generalisations.

Saunders et al. (2009, p. 119) emphasise that a positivist paradigm requires credible data from the object of research. This paradigm views that credible data or facts can only be generated from observable phenomena. In addition, this paradigm focuses on causality and generalisation to simplify phenomena. Furthermore, positivism highlights that research should be conducted in a value-free way. The researcher is independent of the data and maintains an objective stance. For data collection, it is highly structured, large samples, equipped with measurements, and quantitative data (but in some cases qualitative data are often used).

3.1.2. Research Approaches

In scientific research, researchers deal with theory and data. Theory describes a number of interactions in the world (Zikmund et al. 2010, p. 39) and data represents facts about the world. Scientific research confronts theory with phenomena or develops new theory based on existing phenomena. Accordingly, researchers should determine a suitable approach in executing their inquiries in order to be consistent with objectives of their research.

Scientific research is carried out by adhering to the scientific method. Zikmund et al. (2010, p. 45) define the scientific method as a set of procedures to

express theoretical statements of phenomena, to analyse empirical evidence, and to predict unknown phenomena. Therefore, the scientific method is applied in accordance with the following procedures:

- evaluating relevant existing knowledge of a phenomenon;
- formulating concepts and propositions;
- generating hypotheses;
- designing a research study to examine hypotheses;
- picking up meaningful empirical data;
- analysing and evaluating data; and
- explaining phenomena and declaring new problems for further research.

In relation to a suitable approach for research, Kalof et al. (2008, p. 16) acknowledge that there are two approaches in scientific research namely deductive and inductive. A deductive approach aims to test a theory, whilst an inductive approach attempts to build a theory (Saunders et al. 2009, p. 124). A deductive approach develops research by starting with a theoretical statement about how phenomena work. The researcher tests the theory through development of hypotheses. On the other hand, an inductive approach works by starting with empirical data to develop larger generalisation and theoretical insights from data (Kalof et al. 2008, p. 17). Hence, a deductive approach works from theory to data and an inductive approach work from data to theory.

This research applied a deductive approach since it embarked from theory and prior studies, followed by extending the study in the form of hypotheses to be tested with data. Therefore, this research adopted suggestions of Saunders et al (2009, p. 124) in performing research using the deductive approach as presented sequentially below:

- deducing hypotheses from the theory or concepts;
- expressing hypotheses in operational terms which propose relationships between constructs or variables;
- testing operationalised hypotheses;
- examining specific outcomes of the investigation; and
- modifying theory in the light of findings, if necessary.

3.1.3. Classification of Research Based on Purposes

In general, a research design describes a master plan of the study (Zikmund et al. 2010, p. 59). It decomposes procedures for gathering information or data to overcome research problems (Malhotra 2010, p. 103). Developing a research design necessarily refers to the purpose of the study. According to Saunders et al. (2009, p. 138) based on the purpose of the study, research can be classified in three types namely exploratory, descriptive, and explanatory.

Exploratory research aims to obtain a better understanding related to phenomena since very limited studies have been performed in certain fields (Sekaran & Bougie 2009, p. 104). Consequently, it can address future research agendas that are very important to answer phenomena (Cooper & Schindler 2003, p. 146). Furthermore, a descriptive study intends to describe characteristics of market, functions (Malhotra 2010, p. 106), objects, people, groups, or organisations (Zikmund et al. 2010, p. 55). Finally, explanatory research aims to explain cause-effect relationships between constructs or variables (Saunders et al. 2009, p. 141). Some authors call explanatory research causal research (Lukas et al. 2006, p. 192; Malhotra 2010, p. 113; Zikmund et al. 2010, p. 57), hypothesis testing (Sekaran & Bougie 2009, p. 108), or predictive research (Adams et al. 2007, p. 20).

This research is considered to be explanatory research since it develops hypotheses reflecting cause-effect relationships between constructs. The hypotheses of this research were developed from theory and prior research studies. After testing the hypotheses with observed data through data analysis procedures, results were gained and then explained to generate understanding. As Malhotra (2010, p. 113) states that from causal research understanding will be obtained as to which construct is the cause and which construct is the effect of a phenomena. Hypotheses are derived to help answer research questions formulated from gaps identified in the literature.

3.2. Research Questions

The main research question of this study is: **to what extent do trust and cyber-fraud perceptions impact on behavioural intentions of customers to use e-commerce?** This question is addressed by answering the following sub questions.

RSQ1 : Do customers' trust of sellers have a positive impact on behavioural intentions to purchase using Internet-based e-commerce?

RSQ2 : Do customers' trust of the (Internet) medium have a positive impact on behavioural intentions to purchase using Internet-based e-commerce?

RSQ3 : Do customers' cyber-fraud perceptions have a negative impact on behavioural intentions to purchase using Internet-based e-commerce?

RSQ4 : Do customers' attitudes towards behaviour have a positive impact on behavioural intentions to purchase using Internet-based e-commerce?

RSQ5 : Do customers' subjective norms have a positive impact on behavioural intentions to purchase using Internet-based e-commerce?

RSQ6 : Do customers' perceived behavioural controls have a positive impact on behavioural intentions to purchase using Internet-based e-commerce?

RSQ7 : Does customers' trust of sellers have a positive impact on attitudes toward behaviour?

RSQ8 : Does customers' trust of the (Internet) medium have a positive impact on attitudes toward behaviour?

RSQ9 : Do customers' cyber-fraud perceptions have negative impacts on attitudes toward behaviour?

RSQ10 : Do customers' cyber-fraud perceptions have negative moderating impacts on the relationship between trust of sellers and behavioural intentions to purchase using Internet-based e-commerce?

3.3. Conceptual Model

This research proposes a conceptual model by integrating constructs of cyber-fraud perceptions, trust of sellers, and trust of the (Internet) medium using the theory of planned behaviour (Ajzen 1991). Cyber-fraud perceptions are derived from perceived risk (Im et al. 2008) and fear of crime (Warr 2000). Reisig et al. (2009) argue from the literature that concepts of perceived risk and fear of crime are distinct. Perceived risk is cognitive judgments concerning the likelihood of victimisation, while fear of crime reflects affective emotions in response to crimes or symbols commonly associated with crime. This research views cyber-fraud perceptions as comprising of both cognitive and affective aspects. Therefore, perceived risk and fear of crime are included to represent cyber-fraud perceptions.

Furthermore, some prior studies appear very vague when including trust in a model for examining trust, as simply one construct. Therefore, this study attempts

to clearly differentiate trust in two constructs as trust of sellers and trust of the (Internet) medium. In this respect, trust of sellers are composed of three dimensions consisting of ability, benevolence, and integrity (Mayer et al. 1995). Trust of the (Internet) medium is developed from dimensions of medium trust comprising technical competence, reliability, and medium understanding (Lee & Turban 2001). **Figure 3.1** exhibits the conceptual model of this study that depicts the relationships between constructs.

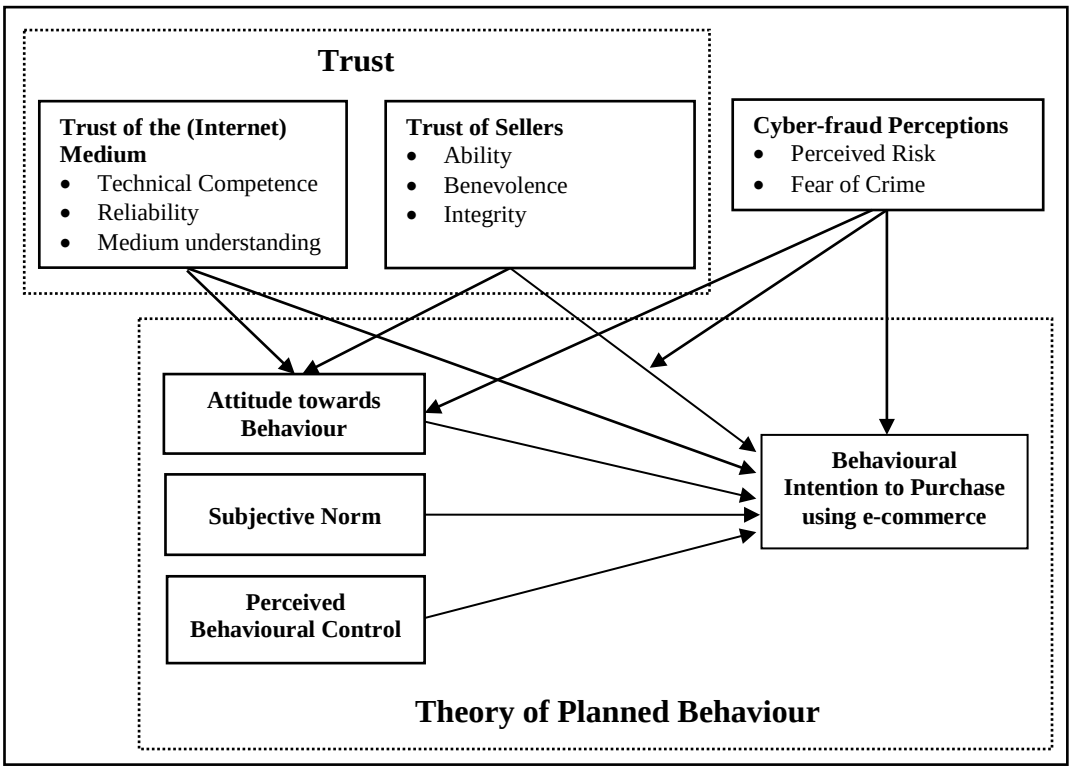


Figure 3.1 Conceptual Model

The model postulates that trust of the (Internet) medium, trust of a seller and cyber-fraud perceptions have direct effects on attitude towards behaviour as well as intentions to purchase using Internet based-e-commerce. Furthermore, cyber-fraud perceptions have moderating effects on the relationship between trust of sellers and behavioural intention to purchase using Internet-based e-commerce. Cyber-fraud

perception is treated as a moderating construct to test whether or not it has a significant influence on the relationship between trust of sellers and behavioural intentions of customers. In addition, it is postulated that attitude towards behaviour, subjective norm, and perceived behavioural controls influence behavioural intention to purchase using e-commerce. To validate the conceptual model hypotheses are developed.

3.4. Hypotheses Developments

A hypothesis is an unproven statement or proposition about a factor or phenomenon that is examined by researchers through a study (Malhotra 2010, p. 85). The hypothesised model of this research is presented in **Figure 3.2.** This model consists of ten hypotheses that test the relationships between constructs.

Trust is a vital antecedent that influences the nature of many businesses and the social order (Lee 2009a). It indicates the willingness to believe in partners of business contracts (Lee, K. C. et al. 2011). Trust is a set of specific beliefs about another party that positively influence an individual's intention to enter a relationship (Dinev et al. 2008-9). An individual who has no trust will not enter into a relationship (Harridge-March 2006). The magnitudes of relationships between parties in business are favourably determined by trust. A good relationship between parties in business can emerge when they trust each other. Trust increases confidence in business relationships and determines the quality of transactions between buyers and sellers (Lee 2009a).

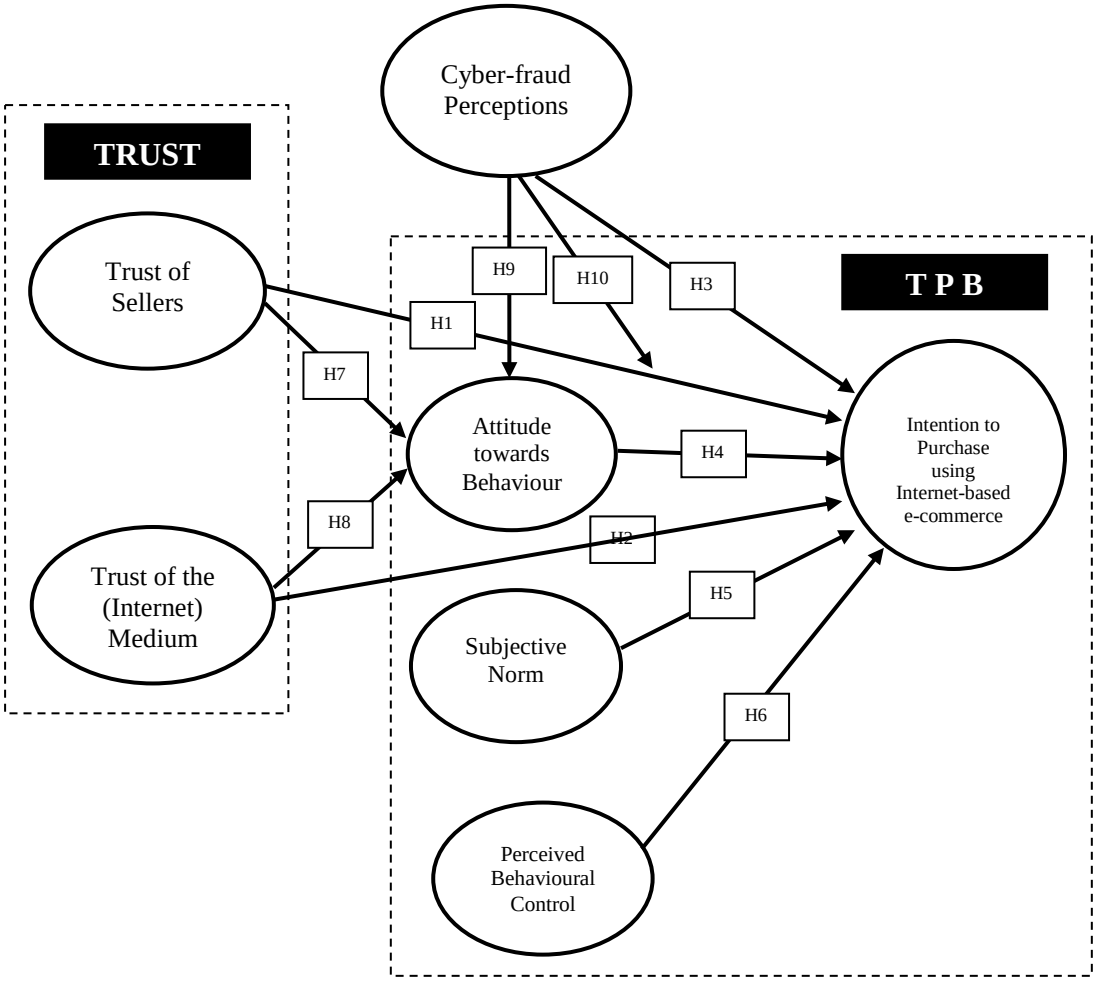


Figure 3.2 The Hypothesised Model

The physical separation of a buyer and seller as well as buyers and merchandise make trust a core issue in e-commerce (Ho & Oh 2009). E-commerce has changed the nature of relationships between buyers and sellers. In traditional stores, buyers have the ability to view and try actual products, to make inquiries with sales persons directly, and to take immediate possession of purchases (Kaplan & Nieschwietz 2003). Trust is an emerging key element of success in the online environment (Corritore et al. 2003), including trust of sellers. This study defines trust of sellers as customers' subjective beliefs that sellers will fulfil their

obligations as they have promised. Trust of a seller is likely to affect perceptions, views, acceptance, or other behaviours. The notion has empirical supports from many prior studies. For instance, Kim et al. (2008) carried out a study pertaining to the role of trust in decision making to purchase using e-commerce in USA. The results confirm that customers' trust have a strong positive impact on consumers' purchase intentions. Many studies also prove that trust has a positive influence on purchase intention using e-commerce (e.g., El Said & Galal-Edeen 2009; Liu et al. 2005; Tung et al. 2008). Therefore, this study formulates hypothesis one as:

H1 : Customers' trust of sellers has a positive impact on behavioural intentions to purchase using Internet-based e-commerce.

Trust plays an important role in a virtual environment when online customers use computer systems to interact with sellers. Computer technology is sometimes quite technical and makes people get frustrated since they are not familiar with it (Ho & Oh 2009). Furthermore, people are very often suffering from computer errors when they use them. Technology errors have strong negative effects on trust (Corritore et al. 2003). Furthermore, using online technology makes customers feel they lack control (Harridge-March 2006). Many customers are hesitant to engage in e-commerce transactions due to a lack of trust in the medium of transaction (Kaplan & Nieschwietz 2003). Trust of the Internet or medium is a construct consisting of technical competence, reliability, and medium understanding (Lee & Turban 2001). Several studies have demonstrated that the role of technology in encouraging customers to conduct transactions using e-commerce is very essential. Chen and Barnes (2007) report that trust in technology affects purchase intentions online. This result is similar with studies

undertaken by several scholars. McKnight et al. (2002) found that trust in the web positively affects intentions to transact online. For other applications, trust of the medium appears to be a very important antecedent. Tung et al. (2008) point out that trust in systems has a positive influence on intention to use electronic logistics information systems. Lee (2009a) also found that trust of the technology positively affects intention to adopt online trading. Mukherjee and Nath (2007) found that trust in the Internet influences intentions to buy online. Once customers trust the technology, they will use it without fear (Kusuma & Setyanti 2011). In this study, trust of the (Internet) medium is defined as customers' beliefs that the Internet, websites, and other technology infrastructures used by sellers to facilitate transactions afford protection for customers from losses. Therefore, this study generates hypothesis two as:

H2 : Customers' trust of the (Internet) medium has a positive impact on behavioural intentions to purchase using Internet-based e-commerce.

Perceived risk becomes an obstacle to e-commerce's success. Customers are reluctant to perform transactions using e-commerce due to risk. Previous research concerning this issue has been undertaken by scholars. McKnight et al. (2002) found that perceived risk negatively affects intentions to transact online. This finding is in line with study results of Pavlou (2001) and Kim et al. (2008). In terms of mobile payments, Yang et al. (2012) found that perceived risk is a major factor for customers' resistance to adopt mobile payments. In another application of e-commerce, online trading, Lee (2009a) found that perceived risk negatively affect intentions to adopt online trading. Apart from the fear of crime, this study adapts perceived risk for investigating cyber-fraud perceptions. In this context, cyber-

fraud perceptions refer to the recognition and interpretation that conducting transactions on the Internet are vulnerable to losing money. Therefore, this study hypothesises:

H3 : Customers' cyber-fraud perceptions have negative impacts on behavioural intentions to purchase using Internet-based e-commerce.

In studying adoption of e-commerce, attitude towards behaviour is defined as a personal evaluation to transact using e-commerce. Prior empirical studies have tested attitude as an essential predictor. A study carried out by Chen and Li (2010) reports that attitude has a positive influence on continuous e-service usage intention. This study supports a finding of Liao et al. (2007) regarding the role of attitude in influencing intention to use e-services. In e-banking applications, Lee (2009b) found that attitude is an important factor encouraging customers to adopt Internet banking. Likewise, Chau and Hu (2002) report that attitude has a significant effect on behavioural intention to adopt telemedicine technology. Jayasingh and Eze (2010) also found that attitude affects intention to adopt m-coupons. Lim and Dubinsky (2005) show that attitude affects purchase intention on the Internet. In e-commerce transactions, Lee, M. K. O. et al. (2011) report attitude positively affects behavioural intention to shop online in Hong Kong. Pennington et al. (2004) also assert that attitude has a positive effect on e-commerce purchase intentions. Similar results also have been presented by El Said and Galal-Edeen (2009), Crespo and Bosque (2008), George (2004), Yu and Wu (2007), and Hansen et al. (2004). Accordingly, this study hypothesises:

H4 : Customers' attitudes toward behaviour have positive impacts on behavioural intentions to purchase using Internet-based e-commerce.

In the context of e-commerce, subjective norm reflects the perceived social pressure that emerges on the question regarding performing transactions using e-commerce. Many previous studies have examined subjective norm relating to intention. Liao et al. (2007) carried out a study concerning the effect of subjective norm on intention to continuously use services online. The study demonstrates that subjective norm has a positive impact on service-online, continuous-use intentions. In other applications, Lee (2009b) found that subjective norm is an important factor in intention to adopt Internet banking. Crespo and Bosque (2008) found that subjective norm has a positive impact on intentions to adopt e-commerce. The study is in line with studies of Yu and Wu (2007), Lim and Dubinsky (2005), and Hansen et al. (2004). Therefore, this study generates the following hypothesis:

H5 : Customers' subjective norms have positive impacts on behavioural intentions to purchase using Internet-based e-commerce.

Perceived behavioural control is a perception of ease or difficulty that controls performing a transaction using e-commerce. In a technology adoption context, Chau and Hu (2002) report perceived behavioural control has a significant effect on behavioural intentions to adopt telemedicine technology. Related to intention to commit to transactions using e-commerce, George (2004) demonstrates that perceived behavioural control affects intentions to purchase through the Internet. This finding is similar with a report of Lim and Dubinsky (2005) that perceived behavioural control affects purchase intentions on the Internet. Hansen et al. (2004) also found that perceived behavioural control influences intentions to buy online groceries. In terms of intention to use services online, Liao et al. (2007)show that perceived behavioural control has a positive impact on behavioural intentions

to use services online continuously. Chen and Li (2010) also present that perceived behavioural control has a direct influence on continuous e-service usage intentions. For Internet banking applications, Lee (2009b) finds that perceived behavioural control is an important factor in intentions to adopt Internet banking. In this regard, this study formulates hypothesis six as follows:

H6 : Customers' perceived behavioural controls have positive impacts on behavioural intentions to purchase using Internet-based e-commerce.

Trust of sellers is one of the important factors affecting a person's attitude to perform online transactions. A study of Pavlou and Chai (2002) proves that trust of sellers affects attitude towards online transaction in China and the USA. It is supported by Pennington et al. (2004) that trust in a vendor has a positive effect on attitude towards e-commerce purchases. El Said and Galal-Edeen (2009) also demonstrate that trust in a vendor positively influences attitudes to buy using e-commerce in Egypt. Accordingly, this study develops the following hypothesis seven:

H7 : Customers' trust of sellers has a positive impact on attitude towards behaviour.

Furthermore, trust of the (Internet) medium is considered a predictor of attitudes. Previous studies provide proof, as Grazioli and Jarvenpaa (2000) show, that trust of technology positively influences attitude towards e-stores. Wu and Chen (2005) also demonstrate that trust in the technology affects attitute towards use of online tax systems.Likewise, Dinev et al. (2008-9) report trust in search

engines positively affects attitude towards advertising online. In accordance with these empirical studies, this study posits:

H8 : Customers' trust of the (Internet) medium has a positive impact on attitude towards behaviour.

As stated before, perceived risk contributes to obstacles of e-commerce success. It leads to making customers resistant in committing to online transactions. The empirical study conducted by Teo and Pok (2003) found that perceived risk negatively affects attitude towards adoption of WAP-enabled mobile phones. Grazioli and Jarvenpaa (2000) also show that perceived risk negatively influence attitudes towards e-stores.Dinev et al. (2008-9) find that perceived risk in search engines negatively affects attitude towards advertising online.Laterly, Lee (2009a) reports that perceived risk negatively affects attitudes towards online trading. Therefore, this study composes the following hypothesis nine:

H9 : Customers' cyber-fraud perceptions have negative impacts on attitude towards behaviour.

When risk is present, trust is needed before a buyer is willing to transact with a seller (Grazioli & Jarvenpaa 2000). It is very common for a customer who is making an online transaction to be reluctant to purchase on the web because of a sense of risk overwhelming them during transaction processes (Kim et al. 2008). Corbitt et al. (2003) state that perceived risk has a negative impact on trust. Apparently, perception plays an important role in behaviour. Therefore, it is postulated that cyber-fraud perception will moderate the relationship between trust

of sellers and behavioural intentions to purchase by customers. In consort with previous researches, this study attempts to hypothesise as follows:

H10 : Customers' cyber-fraud perceptions have negative moderating impacts on the relationship between trust of sellers and behavioural intentions to purchase using Internet-based e-commerce.

3.5. Summary

This Chapter outlines the research design. This research adopts a positivist paradigm for this study. The paradigm applies logical-statistical rationality that quantifies the evidence reflecting causal mechanisms. The study departs from the theory to data so that a deductive approach is selected to organise the research process. Theory and prior studies are used to develop the conceptual model and hypotheses. In this regard, hypotheses reflect cause-effect relationships between constructs. Therefore, this research can be categorised as explanatory. The main research question is stated and elaborated by ten sub questions. The conceptual model explains the relationships between constructs. The next chapter discusses the research methodology applied.

CHAPTER 4
RESEARCH METHODOLOGY

4.0. Introduction

Research methodology consists of two major aspects, data collection and data analysis procedures. In data collection, the discussion focuses on instruments, measures, ethical clearance, data collection methods as well as population and sample frame. This is followed by explaining data analysis methods covering data screening, measurement model and structural model. Data screening demonstrates the procedure applied for missing data, normality, and outlier assessments. In the measurement model, CFA is used to evaluate construct validity and model goodness-of-fit. Convergent validity and discriminant validity are very essential assessments to determine construct validity. The procedure to investigate convergent validity involving standardised factor loadings, composite reliability, and average variance extracted (AVE) are outlined. Then, discriminant validity including correlation between constructs and square root of AVE are elaborated. Finally, the moderating effect test procedure is explained.

4.1. Data Collection

The first discussion in this section is to explain instruments used by the research. The discussion focuses on development of the questionnaire. This is followed by elaborating the measures of the study covering content validity, criterion-related validity, and construct validity. Then, ethical clearance and data collection methods are detailed. This section ends by discussing population and sample, including sample frame, sample techniques and response rates.

4.1.1. Instrument

A questionnaire is used as the primary instrument for data collections. The questionnaire is composed of three parts. First part is related to constructs in the conceptual model and consists of thirty indicators. The constructs are adapted from prior studies with adjustments to improve relevancy to the problem and context of the study. This section uses 7-point Likert-type scales, ranging from one for strongly disagree to seven for strongly agree. The second part contains questions relating to demographics of respondents such as age, gender, education, and occupation. The third part requests information about experiences of respondents in using the Internet and conducting transaction in internet-based e-commerce.

Trust of Sellers

In the context of this study, trust of sellers refers to customers' subjective beliefs that sellers will fulfil their obligation as they have promised. This construct was developed to express three dimensions of trust consisting of ability, integrity, and benevolence. Five indicators using 7-point Likert-type scales were applied to measure this construct. The indicators were composed by adapting those from previous studies conducted by Kaplan and Nieschwietz (2003), Kim et al. (2008), Murphy and Blessinger (2003), Pavlou (2001), and Pennington et al. (2004). This study also proposed one additional indicator (TS5) to confirm respondents' devotions to sellers which they have transacted with. **Table 4.1** presents the indicators used to measure trust of sellers construct.

Table 4.1 Indicators of Trust of sellers

Indicator	Indicator text	Scale	Source
TS1	I believe e-commerce vendors have the ability to deliver a product as promised	7-Likert	Kaplan and Nieschwietz (2003); Kim et al. (2008); Murphy and Blessinger (2003); Pavlou (2001); Pennington et al. (2004)
TS2	I believe e-commerce vendors have my best interest at heart	7-Likert	Kaplan and Nieschwietz (2003); Kim et al. (2008); Murphy and Blessinger (2003); Pavlou (2001); Pennington et al. (2004)
TS3	I believe e-commerce vendors follow acceptable business practices	7-Likert	Kaplan and Nieschwietz (2003); Murphy and Blessinger (2003)
TS4	Overall, I believe e-commerce vendors are trustworthy	7-Likert	Kaplan and Nieschwietz (2003); Murphy and Blessinger (2003); Pavlou (2001); Pennington et al. (2004)
TS5	I only purchase from vendors that I have purchased from in the past	7-Likert	New

Cyber-Fraud Perception

This study defines cyber-fraud perceptions as the recognition and interpretation that conducting transactions on the Internet is vulnerable to losing money. This construct consists of four indicators that were developed by adapting indicators of perceived risks (Im et al. 2008), perceived risk of victimisation (Reisig et al. 2009) and fear of crime (Warr 2000). The indicators of cyber-fraud perceptions are shown in **Table 4.2**.

Table 4.2 Indicators of Cyber-fraud Perception

Indicator	Indicator text	Scale	Source
CF1	Cyber-fraud is a serious problem in society and the economy	7-Likert	Im et al. (2008)
CF2	Cyber-fraud is detrimental in e-commerce transactions	7-Likert	Im et al. (2008)
CF3	I am afraid of cyber-fraud in my e-commerce transactions	7-Likert	Warr (2000)
CF4	Cyber-fraud is a threat to everyone in e-commerce	7-Likert	Reisig et al. (2009)

Trust of the (Internet) Medium

Trust of the (Internet) medium reflects customers' beliefs that the Internet, websites, and other involved infrastructure used by sellers to facilitate transactions, afford protection for customers from any losses. This construct's measures use three indicators reflecting technical competence, reliability, and medium understanding. The indicators were composed by adapting indicators from prior studies undertaken by Corbitt et al. (2003), Lee and Turban (2001), and Pennington et al. (2004). Measures for this construct are presented in **Table 4.3**.

Table 4.3 Indicators of Trust of the (Internet) Medium

Indicator	Indicator text	Scale	Source
TM1	I trust the Internet to technically handle my transaction in e-commerce	7-Likert	Corbitt et al. (2003); Pennington et al. (2004)
TM2	I think the Internet works properly to protect transactions in e-commerce	7-Likert	Pennington et al. (2004)
TM3	I understand how the Internet works in handling transactions in e-commerce	7-Likert	Lee and Turban (2001)

Attitude towards Behaviour

This study defines attitude towards behaviour as personal evaluations of transactions using e-commerce. This construct was measured using five indicators in which four were adapted from Crespo and Bosque (2008) and one new indicator was developed to complement the other four. It is intended to confirm respondents' experiences in conducting transcations using e-commerce. The indicators are reported in **Table 4.4**.

Table 4.4 Indicators of Attitude towards Behaviour

Indicator	Indicator text	Scale	Source
AB1	I like the idea of purchasing a product using the Internet	7-Likert	Crespo and Bosque (2008)
AB2	Purchasing a product using the Internet is a wise idea	7-Likert	Crespo and Bosque (2008)
AB3	Purchasing a product using the Internet is a good idea	7-Likert	Crespo and Bosque (2008)
AB4	Purchasing a product using the Internet is a positive experience	7-Likert	Crespo and Bosque (2008)
AB5	All my experiences in the past have been positive when purchasing products using the Internet	7-Likert	New

Subjective Norm

Subjective norm refers to perceived social pressure that emerges as to whether it is necessary to perform or not to perform transactions using e-commerce. Four indicators were developed to measure this construct by adapting indicators from previous studies undertaken by Crespo and Bosque (2008) and Liao et al. (2007). The detailed indicators are listed in **Table 4.5**.

Table 4.5 Indicators of Subjective Norm

Indicator	Indicator text	Scale	Source
SN1	People whose opinions I value would approve of me purchasing products using the Internet	7-Likert	Crespo and Bosque (2008); Liao et al. (2007)
SN2	People who influence my behaviour would think that I should purchase products using the Internet	7-Likert	Crespo and Bosque (2008); Liao et al. (2007)
SN3	People I know would expect me to purchase products using the Internet	7-Likert	Crespo and Bosque (2008)
SN4	People who are important to me would agree that I should purchase products using the Internet	7-Likert	Crespo and Bosque (2008); Liao et al. (2007)

Perceived Behavioural Control

This study defines perceived behavioural control as a perception of ease or difficulty to control performing transactions using e-commerce. To measure this construct, five indicators were composed by adapting studies of Crespo and Bosque (2008) and Liao et al. (2007).**Table 4.6** presents the measures of this construct.

Table 4.6 Indicators of Perceived Behavioural Control

Indicator	Indicator text	Scale	Source
PC1	Purchasing a product using the Internet is entirely within my control	7-Likert	Crespo and Bosque (2008); Liao et al. (2007)
PC2	I have the financial resources to purchase products using the Internet	7-Likert	Crespo and Bosque (2008)
PC3	I have the knowledge to purchase products using the Internet	7-Likert	Crespo and Bosque (2008)
PC4	I have the technical ability to purchase products using the Internet	7-Likert	Crespo and Bosque (2008)
PC5	I would be able to purchase products using the Internet	7-Likert	Crespo and Bosque (2008)

Intention to Purchase Using E-commerce

Intention to purchase using e-commerce reflects a person's willingness to use e-commerce as a media for conducting transactions. Four indicators were composed to examine this construct by adapting works of Kim et al. (2008), Lu and Su (2009), Pavlou (2001), Pennington et al. (2004), and Salisbury et al. (2001). The indicators are reported in **Table 4.7**.

Table 4.7 Indicator of Intention to Purchase Using E-commerce

Indicator	Indicator text	Scale	Source
IP1	I will purchase at least one product using the Internet in the next 12 months	7-Likert	Kim et al. (2008); Lu and Su (2009); Pavlou (2001); Pennington et al. (2004); Salisbury et al. (2001)
IP2	I would recommend others purchase products	7-Likert	Kim et al. (2008); Liu

	using the Internet		et al. (2005)
IP3	I would purchase products using the Internet again from previous vendors	7-Likert	Kim et al. (2008); Liu et al. (2005)
IP4	I expect to have only positive experiences when purchasing products using the Internet	7-Likert	Liu et al. (2005)

4.1.2. Measures

This study undertook a number of examinations during preparation of the questionnaire prior to data collection and analysis. These examinations were aimed to ensure that the study was conducted with appropriate measure procedures to acquire credible results. The examinations that were conducted were including validity and reliability tests.

Validity and reliability tests are necessary to ensure that measures applied for data collection are accurate and consistent. Data gathered from valid and reliable instruments determine credible findings. Zikmund et al. (2011, p. 266) define validity as the ability for the scale to measure a concept which is to be measured. In relation to validity, Sekaran and Bougie (2009, p. 158) state that validity consists of three categories namely content validity, criterion-related validity, and construct validity.

Content validity is the extent to which the content of indicators covers all problems investigated by the study (Cooper & Schindler 2003, p. 231). For this purpose, Saunders et al. (2009, p. 373) suggest conducting validation through literature reviews from appropriate previous studies or through a panel of individuals. This research used both approaches. Reviews of literature relating to trust, fraud, and TPB in e-commerce applications have been carefully undertaken to formulate the questionnaire. Further, the questionnaire was discussed with a panel of lecturers and students in a research methodology class. Some advice was

obtained from the panel and some refinements performed, including omitting and adding indicators as well as revising wording of questions. The final questionnaire is included in **Appendix B**. Since this survey was conducted in Indonesia, the questionnaire was translated to Bahasa Indonesia **(Appendix C)**. To avoid bias from translation toward contexts of each construct, the questionnaire was translated by an expert and then a pilot test was carried out to ensure that the translation did not contain any obvious bias. Lee and Turban (2001) argue that pilot testing is the way to investigate consistency, easy of understanding, question sequencing, and clarity of a questionnaire. This study conducted a pilot test by recruiting 53 undergraduate and post-graduate students from a state university in Indonesia.

Furthermore, criterion-related validity is the extent to which the predictor affords accommodation of all aspects of the criterion determined for the study (Cooper & Schindler 2003, p. 232). In this respect, Saunders et al. (2009, p. 373) assert that this validation can be undertaken by comparing data from a questionnaire with that specified in criteria. This comparison may be undertaken by using statistical analysis such as correlation. This research completed this test by utilising correlation tools. The results point out that data collected were adequate to predict what this research intends to achieve.

In addition, construct validity aims to address the truthfulness of constructs, which is used to measure a problem (Malhotra 2010, p. 320). As the analysis method of this study is Structural Equation Model (SEM), the discussion of construct validity is elaborated in the measurement model (Section 4.2.2).

Moreover, Zikmund et al. (2011, p. 264) define reliability as the degree of measures to generate consistent results. Since this study employs SEM as a data

analysis method, the discussion regarding reliability is in the measurement model (Section 4.2.2).

4.1.3. Ethical Clearance

Ethical clearance for a study is very essential to ensure that the research will be undertaken in a proper manner. Research ethics is defined as a code of conduct or expected social norm of behaviour while conducting research (Sekaran & Bougie 2009, p. 15). Clearly, it provides guidance for researchers to behave well during the conduct of the study. In this regard, ethics refers to the appropriateness of a researcher's behaviour dealing with the rights of those who become objects of a study or are affected by it (Saunders et al. 2009, p. 184). Researchers have moral obligations to act ethically in conducting research (Kalof et al. 2008, p. 46). Therefore, the most important purpose of research ethics is to avoid negative effects on a study.

Ethical behaviour covers all steps of the research process including data collection, data analysis, reporting, and disseminating information (Sekaran & Bougie 2009, p. 15). Saunders et al. (2009, p. 185) identify a number of key issues relating to ethical clearance including:

- privacy of participants;
- voluntary nature of participation and the right to withdraw from the process;
- consent and possible deception of participants;
- maintenance of confidentiality of data provided by individuals or identifiable participants and their anonymity;
- reaction of participants to the way in which a researcher collects data, including embarrassment, stress, discomfort, pain and harm;

- effects on participants of the way in which a researcher uses, analyses and reports the data; and
- behaviour and objectivity of a researcher.

This research received approval and ethical clearance from the Office of Research and Higher Degrees University of Southern Queensland on October 19, 2010 with approval number H10REA229 **(Appendix A)**. This research did not contain any potential risks from completing the questionnaire. Even though some questions relate to personal information (e.g., gender, age, and income), participants were not required to give their names. To minimise potential risks, this study kept all data regarding personal information safe and used them only for this study. Data are kept confidential and no individual is identified. Data are stored in the researchers' database and no other parties, except supervisors, were allowed access. It is used only for academic purposes and is presented in aggregate form.

4.1.4. Data Collection Methods

This study collected data from respondents through an online survey. This method was adopted for several reasons. According to Roberts (2007), online surveys permit access to worldwide populations, specialised and hidden populations, as well as having the potential for increased statistical power. Online surveys also provide savings such as low cost of data collection, quick data collection, direct input of answers into databases, and increased quality of answers (Gurau 2007). In addition, it has unique capabilities consisting of multimedia graphics and sounds as well as programmability (Roberts 2007), so that a survey can be developed more attractive and interesting. Moreover, online surveys enable data quality checking, ensuring confidentiality, and multiple question formats (Jansen et al. 2007). For

respondents, an online survey provides flexible time for completing a questionnaire. Respondents are free to complete the questionnaire at their leisure (Sax et al. 2003). It is hoped that this has a positive effect on increasing conveniences and participations.

However, scholars note that online surveys have some disadvantages. Jansen et al. (2007) identify a number of online surveys' drawbacks comprising of time-consuming for development, potential for limited access within target populations, potential for technology problems of decreasing return rates, security issues, lack of control over sample, and potential for bias in samples. Roberts (2007) also indicates that online surveys potentially have limitations for research participants due to lack of computer literacy as well as hardware and software compatibility. Sax et al. (2003) state that incompatible browsers to load websites may increase technical problems discouraging potential respondents to participate.

Data collection through online surveys is becoming popular (e.g., Hansen et al. 2004; Jensen et al. 2005; Liao et al. 2007; Murphy & Blessinger 2003; Schierz et al. 2010; Verhagen & van Dolen 2011). To administer the survey, this research developed an online questionnaire to facilitate responses. The questionnaire was composed using a professional online survey tool, Qualtrics (www.qualtrics.com), which is provided by Faculty of Business and Law University of Southern Queensland (https://usqbusiness.us.qualtrics.com). Next, the online questionnaire linked to a website that was created to engage with respondents **(Appendix C)**. The website was hosted on a USQ server (http://studentweb.usq.edu.au/home/w0091500/surveys.htm).

After preparation of the survey, respondents were invited through an e-mail delivered to members of an Indonesia-Online group. The email contained a brief

introduction regarding the study. In addition, a link to the online survey website was also included in the e-mail and members were encouraged to participate in the survey by clicking the link. To increase response rates, previous researches have provided incentives for respondents (Okazaki 2008; Sax et al. 2003; Selm & Jankowski 2006). This study adopted this approach by providing small gifts to participants in appreciation for respondents' participation. All participants were included in the draw. Based on email addresses provided by participants in the online questionnaire, the winners of the draw were contacted to provide a postal address. Then, the gifts were sent to the respective winner's address via post. Furthermore, all respondents will also receive a summary of this study's outcomes once the final report has been completed.

4.1.5. Population and Sample

This section aims to elaborate the population, sample frame, sample as well as sampling technique and response rate for the study. The discussion on population reports the number of Internet users in Indonesia. Information about target sample explains choice of sample frame. Next, the discussion on the sample reveals the number of respondents. Finally, discussion of sampling technique and response rate ends this section.

Population

Population is the whole group of people, events, or things from which a researcher intends to inquire (Sekaran & Bougie 2009, p. 262). As discussed in the previous chapter, the objective of this study is to investigate Indonesian customers' intentions to purchase using e-commerce. Since e-commerce transactions are conducted over the Internet, people who are willing to transact need to use the

technology. Therefore, this research determined the population of the study as all Internet users in Indonesia. According to the report of Internet World Stats (2011), the number of Internet users in Indonesia is approximately 30 million, which represents less than 20% of the population. Indonesia is still in the early stage of adoption of technologies, particularly the Internet.

Sample Frame

A sample frame is set of elements from which a sample is drawn (Adams et al. 2007, p. 88). This study engages Indonesia-Online members as a sample frame. Indonesia-Online is a discussion group set up on Yahoo.com. This group accommodates a wide range of discussion topics such as technology, business, health, and motivation. Members of the group are Indonesian and they live across Indonesia. According to Indonesia-Online (2010), this group had 12,090 members, in the year data were collected. Indonesia-Online was determined as a sample frame because members of the group are likely to come from various backgrounds in term of occupation, education, and ethnicity. Indonesia-Online may reflect Indonesians' behaviour in undertaking e-commerce transactions.

Sample

A sample is the subset of people from the sample frame who participate in the inquiry (Vanderstoep & Johnston 2009, p. 26). From the sample frame of Indonesia-Online's members, the study received 602 respondents who answered the questionnaire completely. Profiles of these respondents are presented in Chapter 5. The survey was conducted from November 2010 to February 2011.

Sampling Technique and Response Rate

The literature indicates that to collect data from populations, a researcher should assign a particular sampling technique in order to obtain an appropriate sample that represents a whole population. According to Zikmund et al. (2011, p. 331) there are two sampling techniques, probability and non-probability sampling. Probability sampling is a sampling technique in which every member of the population has a known, non-zero probability of selection. In contrast, a non-probability technique is a sampling technique in which a unit of sampling is selected on the basis of personal judgement or convenience; the probability of any particular member of the population being chosen is unknown.

This study applied one of the methods of non-probability sampling, namely convenience sampling. Convenience sampling is a procedure to collect data that are most conveniently available (Zikmund et al. 2011, p. 338). Despite knowing the number in the population and sample frame, it is more appropriate to apply non-probability sampling in an online survey since it can be representative for a sub-group of the total population (Selm & Jankowski 2006). Selm and Jankowski argue that using probability sampling in a web survey is problematic, if not impossible, due to its absence of a central registration of users on the web. Therefore, non-probability sampling was applied for this research.

Furthermore, Selm and Jankowski (2006) admit that it is impossible to calculate the response rate from a web survey. Even though the number in the population or sample frame is known, it is no guarantee that every member knows about the survey. Some possibilities causing a member to not know about the invitation include such issues as bouncing emails, cancellation of memberships

without unsubscribing, and not checking emails for a period of time. Therefore, this survey did not consider counting the response rate of the sample.

4.2. Data Analysis Methods

This study employed structural equation modelling (SEM) as the main method for analysing data that are collected from respondents through the survey. The SEM method consists of two model testing procedures namely the measurement model and the structural model (Ho 2006, p. 283; Weston & Gore Jr 2006). In conducting a SEM analysis, the first step is to evaluate the measurement model. This evaluation is performed through Confirmatory Factor Analysis (CFA). The objective of CFA is to verify validity and reliability of constructs (Lee & Turban 2001). The second step is to examine the structural model. The examination aims to investigate relationships amongst latent variables.

The reasons for utilising SEM are that the method has capabilities to assess the measurement properties and test the proposed theoretical relationships (Malhotra 2010, p. 724). As Tomarken and Waller (2005) assert, SEM has the ability to specify latent constructs of a model that provide separate estimates of relationships amongst latent constructs and their manifest indicators (measurement model) as well as of relations among constructs (structural model). Furthermore, SEM enables measurement of global fits that provides a summary evaluation of complex models involving a large number of linear equations. SEM can control for measurement error, provide information on the degree of fit of the entire model and is much more flexible than regression (Frazier et al. 2004).

Crockett (2012) identifies that SEM offers to enhance understanding of complex relationships that exists among theoretical constructs. SEM also enables

overcoming the simultaneous analysis of direct and indirect effects with multiple exogenous and endogenous constructs. In addition, SEM permits interpretation of a construct as exogenous and endogenous constructs at the same time. SEM also affords accomplishing main effects and interaction/moderating effects established in a model. Furthermore, SEM can allow alternative models to determine the best fit of a model. Likewise, SEM provides a path diagram in the visual form to represent hypotheses of the relationships among constructs. The visual form, then, can be translated into mathematical equations for analysis purposes (Crockett 2012).

Despite the evidence that SEM has a good capability to handle model testings including moderating effects, prior studies that examined theoretical models containing moderating effects using SEM are limited (Lee & Turban 2001). Thus this method is in its infancy. Therefore, this study attempted to examine the theoretical model including moderating effects by applying SEM. Assigning SEM to examine the moderating effect is appropriate since Holmbeck (1997) argues that SEM affords the ability to eliminate biased assessments of the moderating effect test.

In general, there are five steps for conducting SEM analysis involving model specification, model identification, model estimation, model testing, and model modification (Crockett 2012). Firstly, model specification is intended to handle the specification of a theoretical model that uses related theory (Malhotra 2010, p. 725) and prior research (Harrington 2009, p. 21) to determine latent and observed variables. Observed variables are indicators that are directly measured (e.g., a response to a question). Latent variables are constructs that need indicators to measure (e.g., satisfaction). Path diagrams are visually constructed to represent

hypothesised relationships among variables in the conceptual model. This study applied the model specification in **Section 3.3.**

Secondly, model identification is used to determine whether the specified model is capable of producing actual results that can be estimated in SEM analysis. In this regard, a model should be identified and able to generate a unique solution and parameter estimates (Weston & Gore Jr 2006). Model identification yields three conditions, namely under-identified, just-identified, and over-identified. Under-identified model happens once the number of unknown parameters (estimated) is greater than the number of known. This indicates a negative degree of freedom (df). Consequently, a model cannot be solved. Moreover, just-identified models are achieved once the number of unknown equals the number of known parameters. This has df = 0. Once this condition is met, models do not need fit testing. Likewise, over-identified models occur once the number of unknown is smaller than the number of known parameters. It has df > 0, consequently model testing can be undertaken (Harrington 2009, p. 26).

Thirdly, model estimation is used to generate the theoretical covariance matrix Σ. It is also applied to minimise the differences between the estimated theoretical covariance matrix Σ and the observed covariance matrix S. Model estimation produces information relating to model fit to the data. The information comprises factor loadings, factor variance-covariances, and indicator error variance-covariances. If a model does not fit to the data well, further treatments should be undertaken through performing model re-specification (revision). SEM provides several estimation methods such as maximum likelihood (ML), weighted least squares (WLS), generalised least square (GLS), unweighted lease squares

(ULS), asymptotically distribution-free (ADF), and robust weighted least squares (WLSMV). Every method requires different criteria to be valid (Mindrila 2010).

Fourthly, model testing analyses, both measurement and structural models aim to determine global fit of an entire model and fit of individual model parameters. In this test, multiple indices of fit are evaluated to determine the degree to which a theoretical model fits sampled data. Finally, model modification is applied to undertake theory trimming or the addition of new parameters devoted to improving a theoretical models' fit to data (Ho 2006, p. 288). The procedures for conducting model testing of SEM analysis are discussed next.

4.2.1. Data Screening

As mentioned in the previous discussion, CFA takes place as the first step of model testing in SEM analysis. However, prior to conducting analysis, CFA requires particular assumptions (pre-requisites) in relation to providing reliable data. Data reliability determines achieving a good model. In respect to this issue, Harrington (2009, p. 36) suggests carrying out such works consisting of missing data, normality, and outlier investigations in order to receive an accounted model through CFA. The works are recognised as data screening (Meyers et al. 2006, p. 43; Tabachnick & Fidell 2007, p. 60) and should be executed before undertaking CFA.

Obviously, data screening is an essential stage in the research process before conducting data analysis. As mentioned before, the purpose of data screening is to ensure that data have been provided of adequate quality. Insufficient data quality leads to bias in results from analysis. Biased results will induce misleading conclusions from a study. Thus, undertaking data screening is necessary

to provide high quality research. The description of data screening procedures is discussed next.

Missing Data

Missing data is one of the factors affecting reduction in the power of analysis. Information resulting from a weak power of analysis will mislead decision making processes (Harrington 2009, p. 36). Scholars have disputed what appropriate methods to use to overcome missing data, including its consequences. Generally, missing data problems can be conquered by deletion, mean substitution, regression, expectation maximisation and multiple imputations (Meyers et al. 2006, p. 59; Tabachnick & Fidell 2007, p. 67).Statistics software (e.g., SPSS, SAS) have provided functions to investigate missing data, such as frequencies. Therefore, this study utilised SPSS for assessing missing data problems.

Normality

Performing a normality test in the CFA is very crucial since this test will guide determination of an appropriate estimation method. Most CFA estimation methods assume that data are normally distributed (Harrington 2009, p. 41). If data cannot meet normality assumptions, it is recommended a structural model analysis apply Bollen-Stine bootstrap methods for assessing goodness-of-fit (Byrne 2010, p. 329; Ory & Mokhtarian 2010; Weston & Gore Jr 2006). Scholars have divided normality distribution in two kinds, namely univariate and multivariate normal.

Most statistics software (e.g., SPSS, AMOS, and SAS) have provided functions to detect normality problems. Since this study used AMOS for SEM analysis, AMOS was also employed to investigate normality problems. Investigating normality problems, particularly univariate normal problems, are

detected by comparing skewness and kurtosis values with the rule of thumb for each critical value. Kline (2005, p. 50)recommends that a skewness value greater than 10 or kurtosis value greater than 3 indicates the existence of normal distribution problems. If a problem of univariate normal exists, a problem of multivariate normal will be present.

Outlier

Outliers have two types of problems like normality namely univariate outlier and multivariate outlier (Meyers et al. 2006, p. 65). A case of univariate outlier occurs when a single variable has an extreme value, while a multivariate outlier will exist when two or more variables have extreme values (Tabachnick & Fidell 2007, p. 72). This study used AMOS to examine outlier problems. In relation to this issue, Kline (2005, p. 51) suggests that outlier problems are identified by observing the value of mahalanobis distance (D^2). Outliers will be present if D^2 values are greater than χ^2 values (Al-Majali & Nik Mat 2011).

4.2.2. Measurement Model

CFA is commonly utilised for multiple purposes in social science research. Several works have applied CFA such as development of new measures, examination of method effects, evaluation of psychometric property for new and existing measures, and construct validations (Harrington 2009, p. 5). Meyers et al. (2006, p. 549) argue that the main engagement of a CFA is a measurement model that examines relationships among indicators (observed variables) and constructs (latent variables).

As mentioned earlier, a CFA model should be underlined by theory or previous research. CFA recognises observed variables, latent variables and error

terms in a model. Error terms represent measurement errors of each observed variable. CFA models depict observed variables by rectangles, latent variables by circles or ovals, and error terms by circles. Relationships between observed variables, latent variables, and error terms are represented by arrows. The measurement model examines construct validity that consists of convergent validity and discriminant validity, as well as assesses model goodness-of-fit. The procedures of assessments are discussed in the following section.

Assessing Construct Validity

After data screening has been done, the first part of a CFA is evaluating construct validity (Hostler et al. 2011). Construct validity consists of convergent validity and discriminant validity (Sekaran & Bougie 2009, p. 160). Procedures to evaluate two kinds of construct validity are explained next.

Convergent Validity

Scholars have described convergent validity in various ways. Zikmund et al. (2010, p. 308) clarify that convergent validity exhibits indicators, which should be related to a construct are in fact related. Statistically, convergent validity can be identified through standardised factor loadings of indicators. The rule of thumb suggests a good construct consists of indicators which have a standardised factor loading higher than 0.50 (Kim et al. 2008; Tung et al. 2008).

Moreover, convergent validity can also be detected by assessing average variance extracted (AVE). The rule of thumb recommends an adequate convergence of constructs requires having an AVE higher than 0.50 (Gewald & Dibbern 2009; Kim et al. 2008; Tung et al. 2008; Urumsah et al. 2011).AVE can be

calculated by applying a formula as below(Fornell & Larcker 1981; Malhotra 2010, p. 734; Woo & Ennew 2004).

$$AVE = \frac{\sum_{i=1}^{n} \lambda i^2}{\sum_{i=1}^{n} \lambda i^2 + \sum_{i=1}^{n} Var(\varepsilon i)}$$

where λ_i is standardised factor loadings, ε_i is the measurement error $(1-\lambda_i^2)$ and *n* is number of indicators.

Discriminant Validity

Discriminant validity aims to demonstrate that different concepts' or constructs' measures are distinct. Measuring discriminant validity can be carried out by correlations between constructs. If a correlation coefficient is less than 0.85, it indicates no problem with discriminant validity (Gewald & Dibbern 2009; Harrington 2009, p. 6; Weston & Gore Jr 2006).

In addition, there is another method to assess discriminant validity, which is by comparing a construct's square root of AVE and its correlation value with other constructs. If the square root of AVE is greater than the correlation value, discriminant validity is met (Kim et al. 2008; Urumsah et al. 2011).The equation to calculate Square Root of AVE:

$$SQRT(AVE) = \sqrt{\frac{\sum_{i=1}^{n} \lambda i^2}{\sum_{i=1}^{n} \lambda i^2 + \sum_{i=1}^{n} Var(\varepsilon i)}}$$

where λ_i is standardised factor loadings, ε_i is the measurement error $(1-\lambda_i^2)$ and *n* is number of indicators. This study utilises both methods to examine discrimant validity.

Assessing Composite Reliability

Composite (or construct) reliability (CR) is one of convergent validity indicators(Hair et al. 2006, p. 777). The rule of thumb suggests that an adequate reliability of constructs should have a CR greater than 0.6(Tung et al. 2008). The equation to evaluate construct reliability is as below (Fornell & Larcker 1981; Malhotra 2010, p. 733; Woo & Ennew 2004).

$$CR = \frac{\left[\sum_{i=1}^{n} \lambda_i\right]^2}{\left[\sum_{i=1}^{n} \lambda_i\right]^2 + \left[\sum_{i=1}^{n} \varepsilon_i\right]}$$

where λ_i is standardised factor loadings, ε_i is the measurement error ($1-\lambda_i^2$) and *n* is number of indicators.

Finally, the rules of thumb in the measurement model to examine convergent validity and discriminant validity are summarised in **Table 4.8**.

Table 4.8 Rules of Thumb of Convergent and Discriminant Validities

Measurement	Threshold	Source
Convergent Validity:		
Factor loading of Indicators	>0.50	Kim et al. (2008); Tung et al. (2008)
Average variance extracted (AVE) of constructs	>0.50	Gewald and Dibbern (2009); Kim et al. (2008); Tung et al. (2008); Urumsah et al. (2011)
Construct reliability (CR)	>0.60	Tung et al. (2008)
Discriminant Validity:		
Correlation between constructs	<0.85	Gewald and Dibbern (2009); Harrington (2009); Weston and Gore Jr (2006)
Square root of AVE	>correlation among constructs	Kim et al. (2008); Urumsah et al. (2011)

Assessing Model Goodness-of-fit

The next step in achieving a measurement model is assessing model goodness-of-fit. The measures aim to investigate how well a model reproduced fit to data. Malhotra (2010, p. 731) classifies fit measures of the model in three groups. Those are absolute fit, incremental fit, and parsimony fit indices. Absolute fit indices consist of χ^2 (chi-square), GFI (Goodness-of-fit index), AGFI (Adjusted goodness-of-fit index), RMSR (Root mean square residual), SRMR (Standardised root mean square residual), and RMSEA (Root mean square error of approximation). Incremental fit indices involve NFI (Normed fit index), NNFI (Non-normed fit index), CFI (Comparative fit index), TLI (Tucker-lewis index), and RNI (relative non-centrality index). Parsimony fit indices include PGFI (Parsimonious goodness-of-fit index) and PNFI (Parsimonious normed fit index).

Since SEM provides many fit indices to evaluate a model, scholars have reported model goodness-of-fit measures of their work in various ways. For instance, Mayers et al. (2006, p. 575) advise applyingχ^2, NFI, CFI, and RMSEA; Schumacker and Lomax(2010, p. 85) suggest to useχ^2, GFI, AGFI, and RMSEA; and Wu and Chen (2005) recommend utilisingχ^2/df, AGFI, GFI, NFI, CFI and RMSEA. Following their suggestions, this study adopted χ^2/df, GFI, AGFI NFI, CFI and RMSEA for investigating model goodness-of-fit. These fit indices can be described as follows:

- χ^2/df is used to evaluate whether observed and estimated matrices differ. A small value and non-significance of this index (based on p-value) indicate that actual and predicted input matrices are not statistically different(Hair et al. 2006).

- AGFI is applied to the measure adjusted by the ratio of degrees of freedom for a proposed model to the degrees of freedom for a null model (Hair et al. 2006).
- GFI is used to measure the ratio of the sum of the squared differences between observed and reproduced matrices to observed variances (Schumacker & Lomax 2010).
- CFI is used to compare between a proposed model and a null/independence model (Ho 2006, p. 285).
- RMSEA is applied to measure discrepancy per degree of freedom in order to answer how well a model fits(Ho 2006, p. 285).

Criteria to evaluate goodness-of-fit measures are presented in **Table 4.9**.

Table 4.9 Rules of Thumb of Goodness-of-fit Measures

Measure	Threshold	Source
p-value	>0.05	Byrne (2010)
χ^2/df	<3.00	Wu and Chen (2005)
GFI	>0.90	Chang et al. (2009); Salisbury et al. (2001)
AGFI	>0.80	Chang et al. (2009); Salisbury et al. (2001)
NFI	>0.90	Chang et al. (2009)
CFI	>0.90	Chang et al. (2009); Salisbury et al. (2001)
RMSEA	<0.08	Chang et al. (2009)

4.2.3. Structural Model

A structural model examination aims to evaluate strength and direction of relationships among constructs in a model (Lee 2009b). In this regard, a comprehensive model specifies a pattern of relationships among exogenous and endogenous constructs as well as items/indicators. Actually, this part statistically evaluates strengths of regression analysis, factor analysis, and multivariate

ANOVA in a single model (Ho 2006, p. 284). Results of an analysis also permit researchers to investigate direct effects, indirect effects, and total effects of relationships between constructs that have been formulated in a model.

Dealing with Moderating Effects on SEM

A moderating effect is an effect of a variable that influences the direction and/or strength of relationships between independent and dependent variables (Baron & Kenny 1986).The presence of moderating effects of construct on SEM may not be avoided if models consider these effects. Therefore, to overcome the matter, scholars have propounded some techniques. The common way to examine moderating effects in SEM is by dividing a data set into two groups such as high and low degrees/involvements and then comparing models across groups (Im et al. 2008). However, Cortina et al. (2001) recommend several models be applied that enable moderating effects in SEM to be accomplished beyond the division approach. The recommended methods consist of Kenny and Judd Model (1984), Jaccard and Wan Model (1995), Joreskog and Yang Model (1996), Ping Model (1995) as well asMathieu, Tannebaum and Salas Model (1992).

This study applied Ping (1995) Model to handle moderating constructs of the proposed model. The reason for assigning this model is because it has most similarity with two other models, Jaccard and Wan (1995) and Joreskog and Yang (1996). The principle of this model is simplifying indicators (items) of interacting constructs to a single indicator and construct. In relation to this, the loading and error variance of the indicator should be defined. For explaining this procedure,Cortina et al. (2001) provide an example. There are two latent constructs X and Z with indicators x_1, x_2 and z_1, z_2 respectively, hypothesised to interact in

affecting construct Y. To determine the value of the indicator, loading and error variance, it is suggested to use the following equations:

Indicator value (xz_1): $(x_1+x_2)\ (z_1+z_2)$

Loading of the indicator: $\lambda_{x:z} = (\lambda_{x1} + \lambda_{x2})\ (\lambda_{z1} + \lambda_{z2})$

Error of the indicator: $\theta_{\varepsilon x:z} = (\lambda_{x1} + \lambda_{x2})^2\ VAR(X)\ (\theta_{\varepsilon z1} + \theta_{\varepsilon z2}) + (\lambda_{z1} + \lambda_{z2})^2$

$VAR(Z)\ (\theta_{\varepsilon x1} + \theta_{\varepsilon x2}) + (\theta_{\varepsilon z1} + \theta_{\varepsilon z2})\ (\theta_{\varepsilon x1} + \theta_{\varepsilon x2})$

In a structural model, moderating effects are then depicted as **Figure 4.1**. Before calculating a structural model with moderating effects, a structural model without moderating effects should be composed first and then be run until obtaining a model fit in accordance with goodness-of-fit criteria. If a fit model has been achieved, a further step is composing a structural model with moderating effects and calculating the indicator value, factor loading, and error variance using the above equation. The equation is executed by harnessing parameter values from the fit model without moderating effects. After obtaining results from the equation, values are integrated into the composed model of moderating effects (e.g., Figure 4.1).

In evaluating the fit of moderated models, the procedure that should be completed is the same used for an ordinary model. The procedure adopted is by evaluating model goodness-of-fit indices. If model fit has been obtained, path coefficients of relationships between constructs proposed in a model could be assessed and described to answer hypotheses.

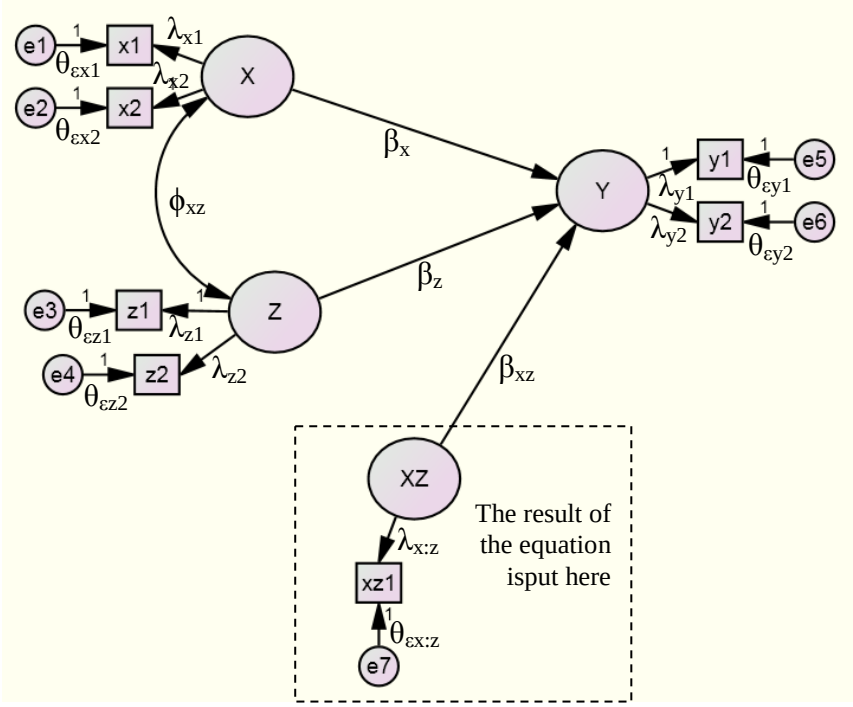


Figure 4.1 Structural Models with Moderating Effects
Source: Adapted from Cortina et al. (2001)

4.3. Summary

This research employs a questionnaire for data collections. The number of constructs investigated in this study is seven measured by 30 questions. The questions are adapted from prior studies. Seven point Likert-type scales are used. Procedures of validity and reliability testing are elaborated to evaluate the quality of questions. This study received ethical clearance from the University of Southern Queensland. For data collection, the study conducted an online survey. The population of the study is Indonesian Internet users; the sample frame is an Indonesian-Online group that has 12,090 members; the number of respondents is 602. This Chapter explains a method for dealing with moderating effects in SEM. For this purpose, this study applied the model suggested by Ping (1995).

CHAPTER 5
ANALYSES AND FINDINGS

5.0. Introduction

The previous Chapter provides insights into the research methodology that indicates information relating to procedures this study carried out. This Chapter describes three important parts of data analysis comprising of descriptive statistics, model estimation and hypotheses testing. Descriptive statistics outline demography characteristics and e-commerce experiences of the samples. Furthermore, model estimation begins with data screening sections. This section presents three procedures to examine data consisting of assessment of missing data, assessment of normality, and assessment of outlier. The aims of assessments are to provide credibility of data. Following this section is the measurement model that will evaluate construct validity and model fit through a series of test. The construct validity will be tested by four examinations covering convergent validity, average variance extracted, construct reliability, and discriminant validity. The following section of data analyses is the structural model test that discusses the assessment of relationships among constructs and the assessment of the proposed model fit. The final section of this part will report hypotheses examinations.

5.1. Descriptive Statistics

This section outlines demography characteristics and e-commerce experiences of the sample using descriptive statistics.

5.1.1. Demography Characteristics

The discussion of demography characteristics covers gender, ages, education, occupation, income, and living aspects.

Gender

Presenting proportions of gender groups is necessary to highlight characteristics of the sample. In relation to gender, the majority of the respondents are male (74%) **(Table 5.1)**. If the number of males in the sample is compared to the number in the sample frame, the proportion is 4%. Likewise, the proportion of female respondents to the sample frame is 1%. Therefore, the total sample is 5% of the sample frame.

Table 5.1 Gender Groups

Gender	Frequency	Percentage
Male	446	74
Female	156	26
Total	**602**	**100**

Ages

Age is likely to influence a human's emotions and behaviour. Results indicate that the sample is quite homogeneous **(Table 5.2)**. Age ranges are concentrated in two groups, 18–30 and 30–40 years old with proportions of 43% and 44% respectively. Surprisingly, there are no respondents who have ages exceeding 60 years. Furthermore, the proportions of 18–30 and 30–40 years old groups to the sample frame are similar (around 2%).

Table 5.2 Ages Groups

Age Groups	Frequency	Percentage
< 18 years	4	1
18–30 years	261	43
30–40 years	267	44
40–50 years	53	9
50–60 years	17	3
> 60 year	0	0
Total	**602**	**100**

Education

Education is considered a prominent factor that affects people's decision making (Fry & Greenop 2009). Most participants of this study have college degrees (60%). This is followed by a master degree (20%). Conversely, a doctoral degree is the least proportion of education (1%) **(Table 5.3)**. If these are compared to the sample frame, the proportion of college degrees is 3% and master degrees is 1%.

Table 5.3 Education

Education	Frequency	Percentage
High School	72	12
Technical	41	7
College	360	60
Master	120	20
Doctoral	9	1
Total	**602**	**100**

Occupation

The study sample is dominated by respondents who work in manufacturing sectors (32%), followed by respondents working as academics (19%). Students are third ranked (14%). In contrast, the proportion of retirees participating in this study is only 1%. Moreover, there are respondents who have other occupations (6%) **(Table 5.4)**. They included certain house-wives, looking for a job, or volunteers. In

addition, the proportion of the sample from manufacturing sectors in relation to the sample frame is approximately 2%. Likewise, the proportion of academics of the sample frame is approximately 1%.

Table 5.4 Occupation

Occupation	Frequency	Percentage
Student	84	14
Academic	133	19
Manufacturing	195	32
Profession	20	3
Business	69	11
Self-employed	81	14
Retiree	4	1
Others	36	6
Total	**602**	**100**

Income

Income is likely to affect people's consumption behaviour, including spending money for luxury goods and entertainment. This study collected data on respondents' income per month in Indonesian Rupiah (Rp) **(Table 5.5).**Most respondents have incomes ranging from Rp 2.5 to 5.0 million a month. Meanwhile, respondents with the least income (less than Rp 1.0 million a month) were 12% of the sample. In AUD, these amounts indicate that the majority of respondents have income from $265 to $530 per month. In contrast, the minority of respondents have income less than $106 per month.

Table 5.5 Income

Income (Rp. Million)	Frequency	Percentage
< 1.0	72	12
1.0–2.5	146	24
2.5–5.0	188	31
5.0–7.50	80	14
> 7.50	116	19
Total	**602**	**100**

Notes: Rp. 1 = AUD 0.000106 as at 30 June 2012.

Living

Most respondents live in Java (88%). These are followed by respondents from Sumatra and Kalimantan (5% and 3% respectively) **(Table 5.6)**. This figure is in line with the evidence reported by BPS (2010) that the population of Indonesia is concentrated in Java (57%). In addition, Java has better infrastructure, including Internet access, compared to other islands.

Table 5.6 Living

Islands	Frequency	Percentage
Java	524	88
Sumatra	30	5
Kalimantan	21	3
Sulawesi	13	2
Others	14	2
Total	**602**	**100**

5.1.2. E-Commerce Experiences

Respondents' experiences in engaging with e-commerce encompasses Internet use experiences, Internet use duration, Internet purchase intensity, spending money on Internet purchases, items purchased on the Internet, payment methods, vendor location, cyber-crime experience, and Internet banking use.

Internet Use Experiences

The majority of respondents have used the Internet for more than six years (70%), with respondents who have user experience in range 4–6 years being 19%. Only 1% of respondents have experienced Internet use for less than six months **(Table 5.7)**. Therefore, results indicate that respondents are mature users of the Internet.

Table 5.7 Internet Use Experience

Length of Experiences	Frequency	Percentage
< 6 months	5	1
6–12 months	11	2
1–3 years	51	8
4–6 years	114	19
> 6 years	421	70
Total	**602**	**100**

Internet Use Duration

The majority of respondents accessed the Internet in excess of 20 hours per week (54%). This is followed by respondents who access the Internet in range 10–20 hours per week (31%). There are 15% of respondents who access the Internet less than 10 hours per week. Thus these results are evidence that most respondents are active users **(Table 5.8)**. In comparison to Internet usage among countries in Southeast Asian, Nielson (2011) reports Singaporeans lead in time spent per week to access the Internet (25 hours), followed by Filipinos (21.5 hours), Malaysians (19.8 hours), Thais (16.6 hours), Vietnamese (16 hours), and Indonesians (14 hours). Hence, in this region Indonesian users spend the least time per week accessing the Internet.

Table 5.8 Internet Use Duration

Internet Access Per Week	Frequency	Percentage
< 10 hours	90	15
10–20 hours	185	31
> 20 hours	327	54
Total	**602**	**100**

Internet Purchases Intensity

The highest proportion of respondents has Internet purchases intensity of 1–2 times per year (43%) followed by 3–6 times per year (28%). There are 19% of

respondents who never purchased goods and services on the Internet **(Table 5.9)**. Compared to the sample frame, the proportion of respondents purchasing online 1–2 times per year is 2%.

Table 5.9 Internet Purchases Intensity

Intensity per Year	Frequency	Percentage
Never	99	17
1–2 times	257	43
3–6 times	168	28
7–11 times	39	6
> 11 times	39	6
Total	**602**	**100**

Spending Behaviour on Internet Purchases

This study surveyed spending behaviour of respondents on a yearly basis. The survey used Indonesia Rupiah (Rp) as a monetary unit and measured it in millions. In the last 12 months (2010-2011), the majority of the respondents spent less than Rp 6 million per year (76%) on Internet purchases. There are no respondents who spent more than Rp 24 million per year. Around 16% of respondents spent nothing on Internet purchases **(Table 5.10)**. The majority of respondents' incomes were from Rp. 30 million to Rp. 60 million (AUD 3,180–6,360) per year. Therefore, the most that respondents spent from their incomes for Internet purchases was around 1%–2% per year. The proportions are still lower compared to global customers' spending for online purchases, which reaches 5% of incomes (Nielson 2010).

Table 5.10 Spending Behaviour on Internet Purchases

Spending (Rp Million)	Frequency	Percentage
Nothing	99	16
< 6.0	459	76
6.0–12.0	33	6
12.0–24.0	11	2
> 24.0	-	-
Total	**602**	**100**

Items Purchased on the Internet

The survey found evidence that respondents have purchased many different items in the last 12 months. In this period, respondents purchased more than one kind of item (average 1.45 items) **(Table 5.11)**.Other purchases were the highest proportion (32%) but this is an aggregation of many different items, such as accessories, cameras, gadgets, toys, and medicine. The proportion of books which were purchased by respondents (32%) is ranked second, followed by clothes and software purchases (17% and 14% respectively). Books and clothes appear to be popular items purchased by Indonesian online customers. This evidence is in line with global trends in online shopping reported by Nielson (2010), who found that books and clothes are top of the list of products customers expect to purchase online in the next six months. Many shoppers buy books and clothes via online probably for reason that these products do not contain a high risk. Furthermore, they may feel more comfortable conducting online purchasing of books and clothes rather than other products.

Table 5.11 Items Purchased on the Internet

Items	Frequency	Percentage
Books	215	25
Music CDs	16	2
Software	136	16
DVDs/Videotapes	46	5
Clothes	167	19
Sports equipment	15	2
Others	277	32
Total	**872**	**100**

Payment Methods

Payment methods used for Internet purchases in Indonesia are strictly determined by sellers. This is due to some sellers just providing certain payment methods. Consequently, buyers must meet sellers' requirements for payments. This survey asked respondents to identify payment methods they have used for Internet purchases in the last 12 months. Bank transfer is a very popular payment method for Internet purchases in Indonesia (59%), followed by credit cards (21%). In contrast, pay on delivery is the most unpopular method of payment (9%) **(Table 5.12)**. Most Indonesians chose bank transfer as the medium for payment possibly because the other methods of payments are still less convenient. In addition, most Indonesian vendors require payments using bank transfers to minimise financial/payment fraud.

Table 5.12 Payment Methods

Methods	Frequency	Percentage
Credit Cards	140	21
PayPal	75	11
Bank transfer	405	59
Pay on Delivery	64	9
Others	-	-
Total	**684**	**100**

Vendor Location

In the last 12 months, as presented in **Table 5.13**, most respondents have mainly made Internet purchases from vendors from Indonesia (82%). Purchases for USA Vendors are ranked second but a much smaller proportion of transactions (9%). Interestingly, the least used region is vendors from neighbouring countries in Southeast Asia such as Singapore, Malaysia, Philippines, Thailand, and Brunai Darussalam (4%). The reason for the majority of Indonesians undertaking Internet

transactions with Indonesian vendors may be to avoid misinterpretation or communication, currency matters, and delivery bans of authorities. Furthermore, international vendors are very reluctant to accept transactions for international orders. As CyberSource (2011) reveals, international orders carry higher risks. Therefore, international vendors often reject transactions from countries where there are high incidents of fraud.

Table 5.13 Vendor Location

Location	Frequency	Percentage
Indonesia	413	82
Southeast Asia	18	4
USA	47	9
Others	25	5
Total	**503**	**100**

Cyber-crime Experience

In undertaking Internet purchases, respondents are likely to have some experiences with cyber-crimes. They are also likely to have encountered the experience more than once and experienced different kinds of cyber-crime. So, this study allowed respondents to express more than one kind of cyber-fraud they or their relatives had experienced. **Table 5.14** shows that most respondents had experienced spam (39%) followed by phishing (16%). Furthermore, 5% of respondents have experienced credit card fraud. On the other hand, auction fraud is the least experienced (3%). Each respondent had experienced attempts or actual frauds at least 2.23 times in last 12 months. Compared to USA, incidents of cyber-crime experienced by Indonesian customers are quite similar (IC3 2011).

Table 5.14 Cyber-crime Experience

Cyber-crime	Frequency	Percentage
Phishing	210	16
Spam	529	39
Credit card fraud	61	5
Identity theft	116	9
Auction fraud	39	3
Counterfeit CC	139	10
Parcel courier ES	68	5
Investment fraud	135	10
Others	46	3
Total	**1343**	**100**

Internet Banking Uses

Currently, almost every bank in Indonesia provides services such as Internet banking with benefits and ease. However, some customers have not utilised this facility. This study found that the proportion of respondents who have not used Internet banking is high (44%) **(Table 5.15)**. This evidence indicates that Internet banking adoption among Indonesians remains low.

Table 5.15 Internet Banking Uses

Internet Banking	Frequency	Percentage
Yes	339	56
No	263	44
Total	**602**	**100**

In relation to Internet banking use, **Table 5.16** presents activities undertaken by respondents at least once a month. Most respondents who have Internet banking facilities perform money transfers regularly (34%). This is followed by checking bank balances (31%). The data also shows that respondents very rarely buy bank products through Internet banking (6%). Still the number of Internet bank transactions per month is 1.73 per person on average.

Table 5.16 Activities on Internet Banking

Activities	Frequency	Percentage
Check bank balance	325	31
Pay loan/mortgage	126	12
Pay bills	172	17
Buy bank products	64	6
Money transfers	354	34
Total	**1041**	**100**

5.2. Model Estimation

This section covers three areas encompassing data screening, measurement model, and structural model.

5.2.1. Data Screening

Chapter Four discussed the reason of conducting data screening in order to provide accuracy and completeness of data as well as to comply with required assumptions of the statistical analysis method adopted (Meyers et al. 2006, p. 43). For this purpose, this section outlines data screening procedures that have been undertaken in this study including the examination of missing data, normality, and outlier. Data screening has been undertaken by employing SPSS (Statistical Package for the Social Sciences) and AMOS (Analysis of Moment Structures) version 19. The detailed work of data screening is presented below.

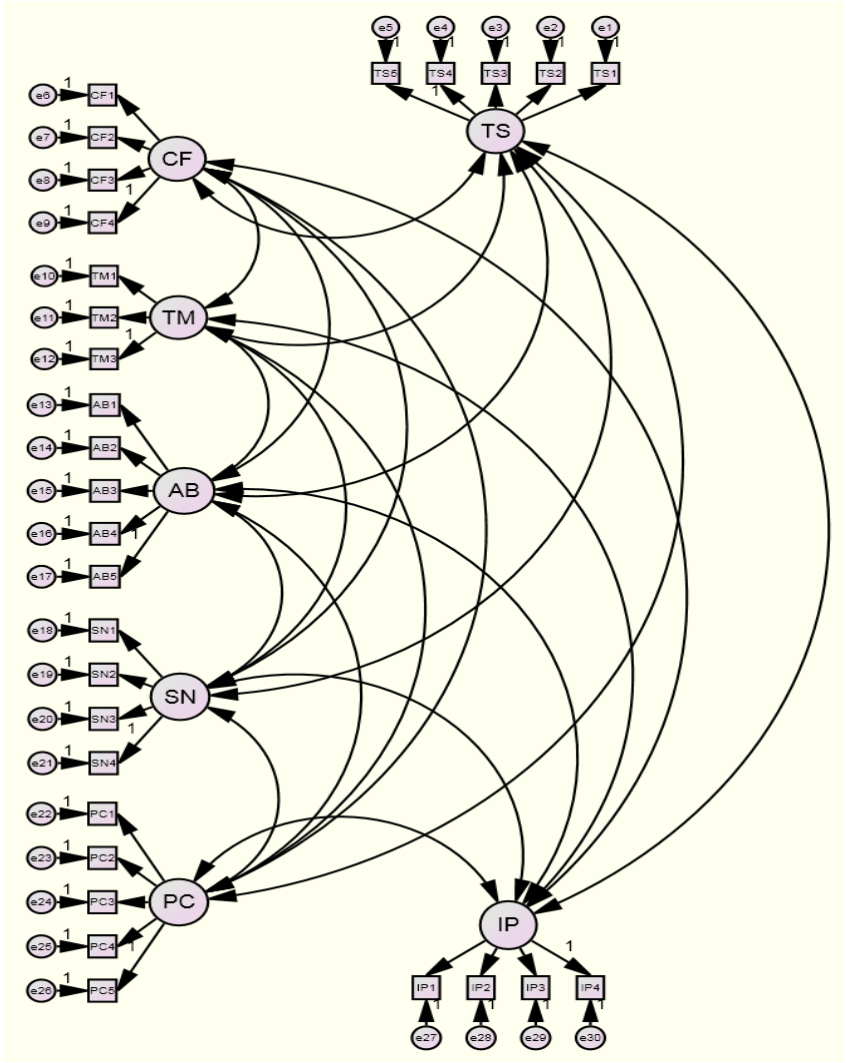
Assessment of Missing Data

The results from frequency tables of SPSS point out that the missing values of 30 indicators are zero **(Appendix D).** In other word, 602 respondents participating in this survey have completed all questions perfectly. This evidence reveals that missing data did not exist. Hence, an assumption of no missing data can be made

by this assessment so further treatments for handling missing data problems are not needed.

Assessment of Normality

A test of normality was undertaken using AMOS by applying a CFA method.The CFA model derived using AMOS is shown in **Figure 5.1.**



Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **IP** = intention to purchase using e-commerce

Figure 5.1 Initial CFA Model

The initial CFA model consists of seven constructs and 30 indicators. The seven constructs include TS (trust of sellers), CF (cyber-fraud perceptions), TM (trust of the [Internet] medium), AB (attitude towards behaviour), SN (subjective norm), PC (perceived behavioural control), and IP (intention to purchase using e-commerce). Each construct consists of a different number of indicators. TS has five indicators (TS1 to TS5), CF comprises four indicators (CF1 to CF4), TM consists of three indicators (TM1 to TM3), AB has five indicators (AB1 to AB5), SN comprises five indicators (SN1 to SN5), PC consists of five indicators (PC1 to PC5), and IP has four indicators (IP1 to IP4).

The results from the AMOS analysis point out that the absolute skewness values are ranging from 0.208 (SN2, SN3) to 3.483 (CF2) and the absolute kurtosis values are ranging from 0.032 (TS4) to 17.482 (CF2)**(Table 5.17)**. Accordingly, this test achieved a maximum skewness value of 3.483 and kurtosis value of 17.482. The rule of thumb recommends that a skewness value greater than 3.0 or a kurtosis value greater than 10.0 indicate that the distribution is non-normal (Kline 2005). Therefore, data of this study could not fulfil the normality assumption. Consequently, further estimations of SEM involving measurement model and structural models should be conducted by using the Bollen-Stine bootstrap method (Ory & Mokhtarian 2010). The procedure in conducting the Bollen-Stine bootstrap is presented in **Appendix O.**

Assessment of Outlier

Outlier assessment was conducted by evaluating Mahalanobis distance (D^2) values. The output of D^2 result from AMOS is presented in **Appendix D**. The results demonstrate that the maximum value of D^2 is 126.044 and the minimum value is

48.823. The rule of thumb guide is that outliers will exist if D^2 value is greater than chi-square (χ^2). Based on the chi-square table, the value of χ^2 with df = 254 and α = 0.05 is 292.062. This indicates that the D^2 value is lower than χ^2. Therefore, data outliers are not present. Thus, the assumption of no outlier data is met.

Table 5.17 The Results of Normality Test of 30 Indicators

Variable	Min	Max	Skew	c.r.	Kurtosis	c.r.
IP1	1.000	7.000	-.909	-9.106	-.063	-.317
IP2	1.000	7.000	-.912	-9.133	.237	1.186
IP3	1.000	7.000	-1.303	-13.054	1.709	8.561
IP4	2.000	7.000	-2.113	-21.168	6.923	34.672
PC1	1.000	7.000	-.902	-9.035	-.248	-1.241
PC2	1.000	7.000	-1.633	-16.354	2.410	12.072
PC3	2.000	7.000	-1.679	-16.823	3.847	19.268
PC4	2.000	7.000	-1.677	-16.796	3.624	18.152
PC5	2.000	7.000	-1.730	-17.330	4.551	22.793
SN1	1.000	7.000	-.746	-7.470	-.245	-1.227
SN2	1.000	7.000	-.208	-2.080	-.955	-4.785
SN3	1.000	7.000	-.208	-2.084	-.902	-4.517
SN4	1.000	7.000	-.541	-5.418	-.645	-3.229
AB1	1.000	7.000	-2.062	-20.649	6.876	34.439
AB2	1.000	7.000	-1.854	-18.568	4.544	22.759
AB3	1.000	7.000	-1.652	-16.545	3.548	17.772
AB4	2.000	7.000	-1.418	-14.203	2.977	14.909
AB5	2.000	7.000	-1.182	-11.838	1.093	5.474
TM1	2.000	7.000	-1.662	-16.651	3.604	18.048
TM2	1.000	7.000	-.743	-7.443	-.185	-.926
TM3	1.000	7.000	-.966	-9.676	.199	.998
CF1	1.000	7.000	-2.982	-29.866	11.105	55.616
CF2	1.000	7.000	-3.483	-34.885	17.482	87.558
CF3	1.000	7.000	-1.636	-16.386	2.613	13.085
CF4	1.000	7.000	-2.188	-21.915	4.860	24.340
TS1	1.000	7.000	-1.133	-11.347	.938	4.696
TS2	1.000	7.000	-1.359	-13.609	2.316	11.598
TS3	1.000	7.000	-.758	-7.594	.261	1.306
TS4	1.000	7.000	-.698	-6.988	.032	.160
TS5	1.000	7.000	-.676	-6.766	-.793	-3.970
Multivariate					377.900	105.802

5.2.2 Measurement Model

The measurement model aims to examine construct validity and model fit. The procedure to investigate construct validity and model fit is discussed in the following sections.

Testing of Construct Validity

This study performed a construct validity test by examining convergent validity and discriminant validity. Convergent validity was conducted by applying three kinds of tests comprising of assessing standardised factor loadings of indicators, average variance extracted of constructs, and composite reliability. Meanwhile, discriminant validity was carried out by evaluating correlation values between constructs and comparing square root of AVE with correlation values among constructs. Detailed procedures and descriptions of the results are presented below.

Convergent Validity

The discussion of convergent validity encompasses standardised factor loadings of indicators, average variance extracted, and composite reliability.

Standardised Factor Loadings of Indicators

Convergent validity was examined by evaluating standardised factor loadings of indicators (standardised regression weights). The result of this examination is presented in **Appendix D**. The rule of thumb suggests that only indicators that have standardised factor loadings greater than 0.50 are valid. **Table 5.18** summarises the result of the factor loadings and shows that five indicators from 30 indicators do not have a factor loading value of more than 0.50. These indicators are TS5 = 0.01,

AB5 = 0.46, PC1 = 0.37, IP3 = 0.50, and IP4 = 0.22. Therefore these indicators cannot meet the threshold and are excluded from the model.

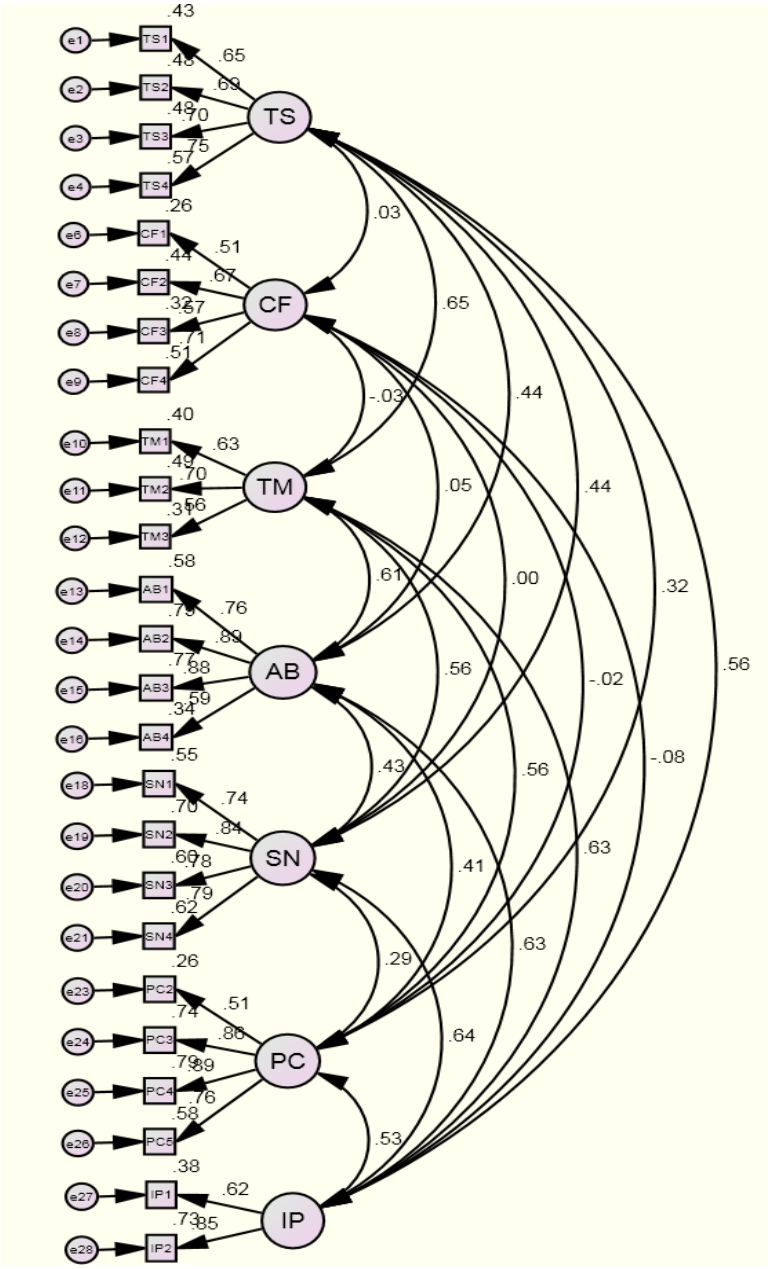
Table 5.18 Standardised Factor Loadings of Indicators

Constructs	Indicators	Std Loadings (λ)
Trust of sellers	TS1	.651
	TS2	.689
	TS3	.692
	TS4	.752
	TS5	.011
Trust of the (Internet) medium	TM1	.628
	TM2	.703
	TM3	.561
Cyber-fraud perceptions	CF1	.513
	CF2	.667
	CF3	.567
	CF4	.716
Attitude towards behaviour	AB1	.766
	AB2	.877
	AB3	.867
	AB4	.605
	AB5	.459
Subjective norm	SN1	.738
	SN2	.835
	SN3	.778
	SN4	.787
Perceived behavioural control	PC1	.365
	PC2	.520
	PC3	.856
	PC4	.883
	PC5	.764
Intention to purchase using e-commerce	IP1	.629
	IP2	.828
	IP3	.500
	IP4	.220

After deleting five indicators that cannot meet the threshold, model re-estimation was performed. The CFA model after deleting the invalid indicators is exhibited in Figure 5.2 and the results of re-estimation are presented in **Appendix E**.

Based on the evidence demonstrated in the results, the standardised factor loadings of indicators are greater than 0.50. This indicates that all constructs have good convergent validity. However, some goodness-of-fit measures, summarised in

Table 5.19, cannot meet the threshold to prove that the model fits the data well. In addition, since the distribution of data is non-normal as reported in the normality assessment, this study applied Bollen-stine p-value to evaluate model goodness-of-fit.



Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **IP** = intention to purchase using e-commerce

Figure 5.2 CFA Model after Re-specification

The goodness-of-fit measure results demonstrate that GFI, AGFI, CFI, and RMSEA can fulfil the threshold, yet χ^2/df and NFI cannot. As reported in **Table 5.19**, this model yields χ^2/df of 3.150 and NFI of 0.882, while the threshold requires χ^2/df less than 3.00 and NFI more than 0.90. This evidence indicates that χ^2/df and NFI do not allow the model to pass the threshold. Therefore, this model does not fit the data. Consequently, a model modification is necessary to overcome this problem.

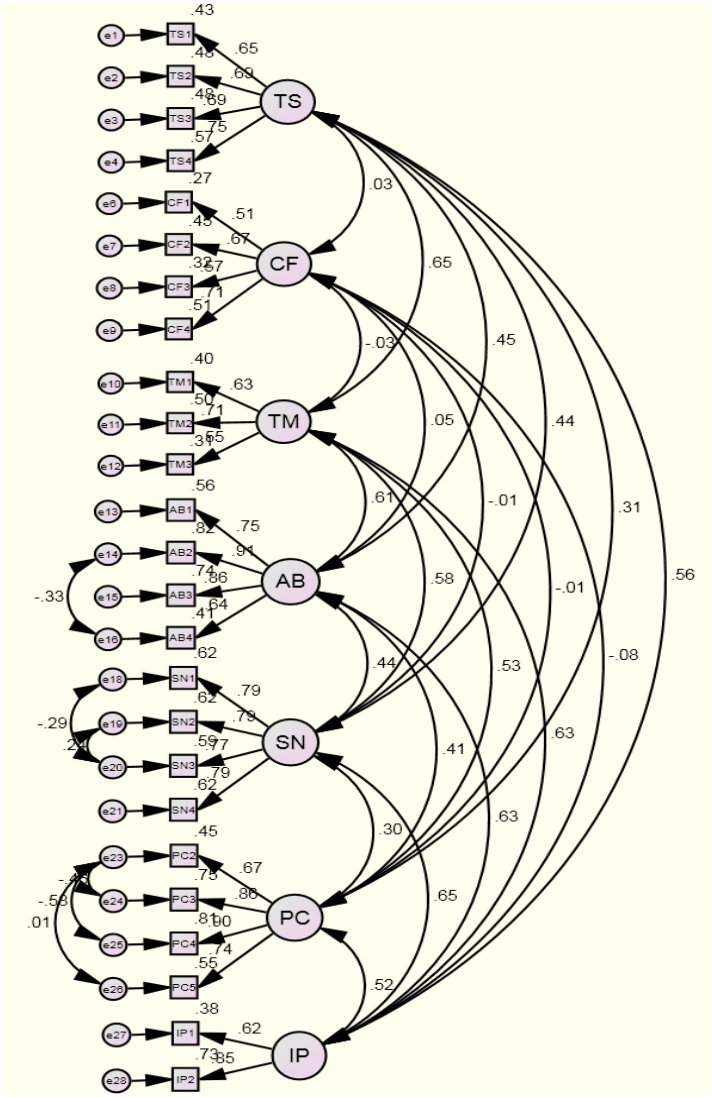
Table 5.19 Model Goodness-of-fit Indices

Measures	Results	Threshold	Remarks
Bollen-stine p-value	0.091	>0.05	Fit
χ^2/df	3.150	<3.00	Unfit
GFI	0.903	>0.90	Fit
AGFI	0.876	>0.80	Fit
NFI	0.882	>0.90	Unfit
CFI	0.916	>0.90	Fit
RMSEA	0.060	<0.08	Fit

Following Byrne's (2010, p. 108) notion, this study performed a model modification based on the modification indices resulting from AMOS. The modification indices provide suggestions to improve model goodness-of-fits. However, selecting a suggestion should be undertaken with caution to consider some aspects such as the relevancy of theory, concept, or rationality underlying the model.

Referring to suggestions from the modification indices table exhibited in **Appendix E**, the model was modified by adding covariance of error terms; those are covariance of e14 and e16, e18 and e20, e19 and e20, e23 and e26, e24 and e26 as well as e25 and e26. The reasons for accepting this suggestion is that these covariances contribute quite highly to improving goodness-of-fit. The suggested

covariances also appear in the same constructs that may correlate among the error terms of indicators while the indicators measure the sample. In the model, covariance is depicted using two-way arrows correlating two error terms. AB, SN, and PC have two-way arrows to represent modification indices. Based on the nature of theory modification, it is permitted to connect two error terms of indicators in the same constructs. The modified model for this study is presented in **Figure 5.3** and the output of model re-estimation is detailed in **Appendix F**.



Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **IP** = intention to purchase using e-commerce

Figure 5.3 CFA Model after Modification

The results presented in **Table 5.20** indicate that the modification has improved the model's goodness-of-fit. Before modification is undertaken, the value of χ^2/df is 3.150 and NFI is 0.882, which causes the model not to fit the data. After conducting the modification, the values change to 2.72 and 0.90 respectively, thus meeting the thresholds. Hence, all goodness-of-fit measures of the modified model meet the rule of thumb so that the model fits the data well.

Table 5.20 Model Goodness-of-fit Indices after Modification

Measures	Results	Threshold	Remarks
Bollen-stine p-value	0.091	>0.05	Fit
χ^2/df	2.718	<3.00	Fit
GFI	0.918	>0.90	Fit
AGFI	0.893	>0.80	Fit
NFI	0.901	>0.90	Fit
CFI	0.934	>0.90	Fit
RMSEA	0.053	<0.08	Fit

Furthermore, an inspection of the factor loadings of indicators was undertaken to confirm that standardised factor loadings comply with the rule of thumb as a valid indicator. **Table 5.21** shows that the minimum standardised factor loadings is 0.515 (CF1) and the maximum is 0.908 (AB2). Thus all indicators have standardised factor loadings greater than 0.50. Therefore this result points to all indicators being valid.

Table 5.21 Standardised Factor Loadings after Model Modification

Constructs	Indicators	Std Loadings (λ)
Trust of sellers	TS1	.655
	TS2	.691
	TS3	.695
	TS4	.755
Trust of the (Internet) medium	TM1	.631
	TM2	.707
	TM3	.555
Cyber-fraud perceptions	CF1	.515
	CF2	.669
	CF3	.567
	CF4	.713
Attitude towards behaviour	AB1	.751
	AB2	.908
	AB3	.858
	AB4	.637
Subjective norm	SN1	.788
	SN2	.790
	SN3	.768
	SN4	.788
Perceived behavioural control	PC2	.671
	PC3	.864
	PC4	.900
	PC5	.742
Intention to purchase using e-commerce	IP1	.620
	IP2	.853

Average Variance Extracted

Average variance extracted (AVE) for each construct was calculated in accordance with the AVE equation presented in **Appendix G**. A summary of the calculation is provided in **Table 5.22**.

Table 5.22 Average Variance Extracted of Constructs

Constructs	AVE
Trust of sellers	0.490
Trust of the (Internet) medium	0.402
Cyber-fraud perceptions	0.386
Attitude towards behaviour	0.633
Subjective norm	0.614
Perceived behavioural control	0.639
Intention to purchase using e-commerce	0.556

The results show that the AVE values of the constructs range from 0.39 (cyber-fraud perceptions) to 0.64 (perceived behavioural control). The rule of thumb is that good convergent validity of constructs can be achieved by AVE values greater than 0.50. In this study, the AVE value of trust of sellers is 0.490, trust of the (Internet) medium is 0.402, and cyber-fraud perception is 0.386. Since three constructs have AVE values less than 0.50, convergent validity of the constructs could not be fully achieved. However, an alternative test can be undertaken to overcome this matter by applying a composite reliability test.

Composite Reliability

A composite reliability (CR) test was conducted by following the procedure as presented in **Appendix H**. The result of CR test is shown in **Table 5.23**.

Table 5.23 Composite Reliability

Constructs	CR
Trust of sellers	0.793
Trust of the (Internet) medium	0.666
Cyber-fraud perceptions	0.712
Attitude towards behaviour	0.871
Subjective norm	0.864
Perceived behavioural control	0.875
Intention to purchase using e-commerce	0.710

The results demonstrate that the minimum CR value of the constructs is 0.666 (trust of the [Internet] medium) and the maximum is 0.875 (perceived behavioural control). The rule of thumb recommends that if a construct possesses CR value greater than 0.60, the construct has good reliability (Tung et al. 2008). Since CR values of all constructs are greater than this threshold, all constructs of this study have good reliabilities. Therefore, convergent validity is achieved by assessing CR.

Discriminant Validity

The discussion of discriminant validity embodies correlations between constructs and the square root of AVE. An outline of the assessment is explained in the following sections.

Correlation between Constructs

Based on the results of the model estimation **(Appendix F)**, correlation coefficients (r) between constructs (**Table 5.24)** indicate that a minimum correlation value (in absolute terms) is achieved by a correlation between CF and PC with a correlation coefficient of 0.007. A maximum correlation value (absolute) is achieved by the association between SN and IP with a value of 0.650. Since correlation coefficients between constructs are less than 0.85, the discriminant validity test can be met. Based on the criteria, since all correlation values of constructs are less than 0.85, the constructs of this study have good discrimant validities.

Table 5.24 Correlation Coefficients among Constructs

Correlations			Values	Correlations			Coefficients (r)
TS	↔	CF	.034	CF	↔	AB	.055
CF	↔	TM	-.031	CF	↔	SN	-.012
TM	↔	AB	.614	CF	↔	PC	-.007
AB	↔	SN	.439	CF	↔	IP	-.081
SN	↔	PC	.299	TM	↔	SN	.576
PC	↔	IP	.521	TM	↔	PC	.534
TS	↔	TM	.649	TM	↔	IP	.630
TS	↔	AB	.448	AB	↔	PC	.407
TS	↔	SN	.443	AB	↔	IP	.635
TS	↔	PC	.306	SN	↔	IP	.650
TS	↔	IP	.560				

Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **IP** = intention to purchase using e-commerce

The Square Root of AVE

An examination of discriminant validity can be undertaken by comparingthe square root of AVE to the correlation amongst constructs. The calculation of the square root of AVE is exhibited in **Appendix G**. Furthermore, **Table 5.25** presents the square root of AVE values along the diagonal. The values are in a range from 0.621(CF) to 0.800 (PC). The rule of thumb states that a construct which has a square root of the AVE value greater than correlation values among constructs indicates the construct has a good convergent validity. This study demonstrates that the square root of the AVE value of every construct is greater than their correlation values between every construct and other constructs. Hence, it is concluded that the constructs of this study are considered unique so that discriminant validity is achieved.

Table 5.25 Correlations between Construct and Square Root of AVE

	TS	CF	TM	AB	SN	PC	IP
TS	**0.700**						
CF	0.034	**0.621**					
TM	0.649	-0.031	**0.654**				
AB	0.448	0.055	0.614	**0.795**			
SN	0.443	-0.012	0.576	0.439	**0.784**		
PC	0.306	-0.007	0.534	0.407	0.299	**0.800**	
IP	0.560	-0.081	0.630	0.635	0.650	0.521	**0.746**

Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **IP** = intention to purchase using e-commerce

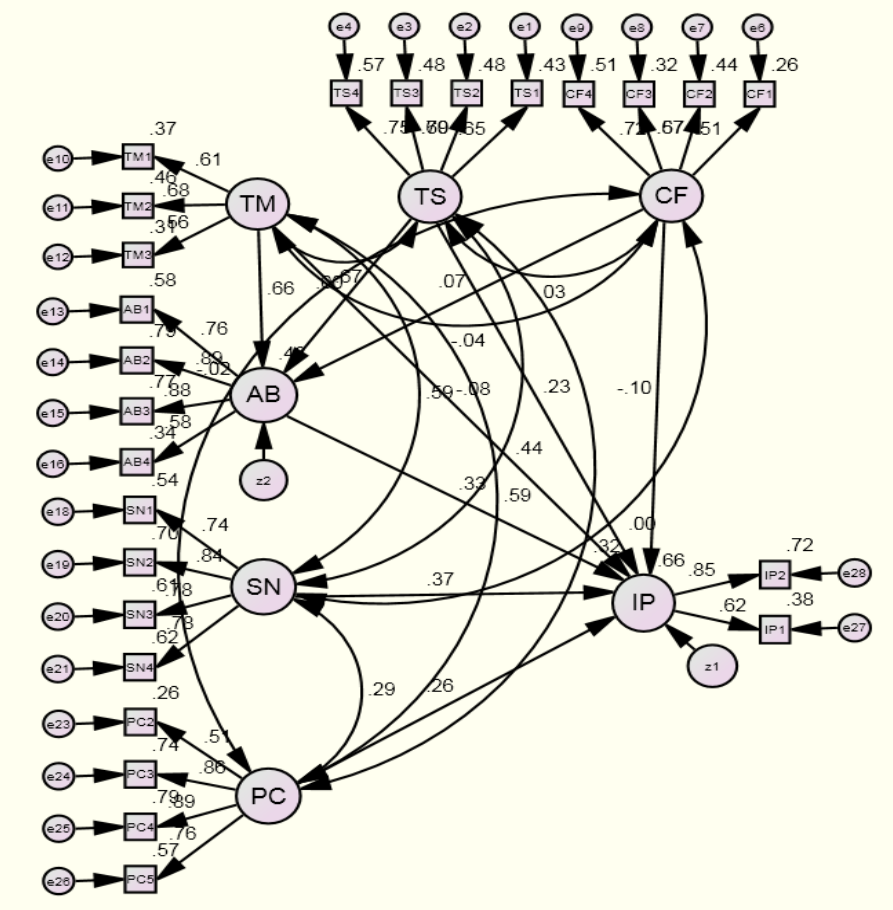
5.2.3. Structural Model

The purpose of this test is to examine the relationships between constructs. Since this study addresses a moderating effect of a construct, an examination of the structural model was conducted in two steps. Step one examined the structural model without the moderating effect (this study called it the 'initial' structural

model) and step two examined the structural model with the moderating effect. The procedure of all examinations is discussed below.

Initial Structural Model

The initial structural model **(Figure 5.4)** consists of five exogenous constructs and two indigenous constructs. The exogenous constructs consist of cyber-fraud perceptions (CF), trust of sellers (TS), trust of the (Internet) medium (TM), subjective norm (SN), and perceived behavioural control (PC). Meanwhile, the indigenous constructs consist of attitude towards behaviour (AB) and intention to purchase using e-commerce (IP).



Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **IP** = intention to purchase using e-commerce

Figure 5.4 Initial Structural Model

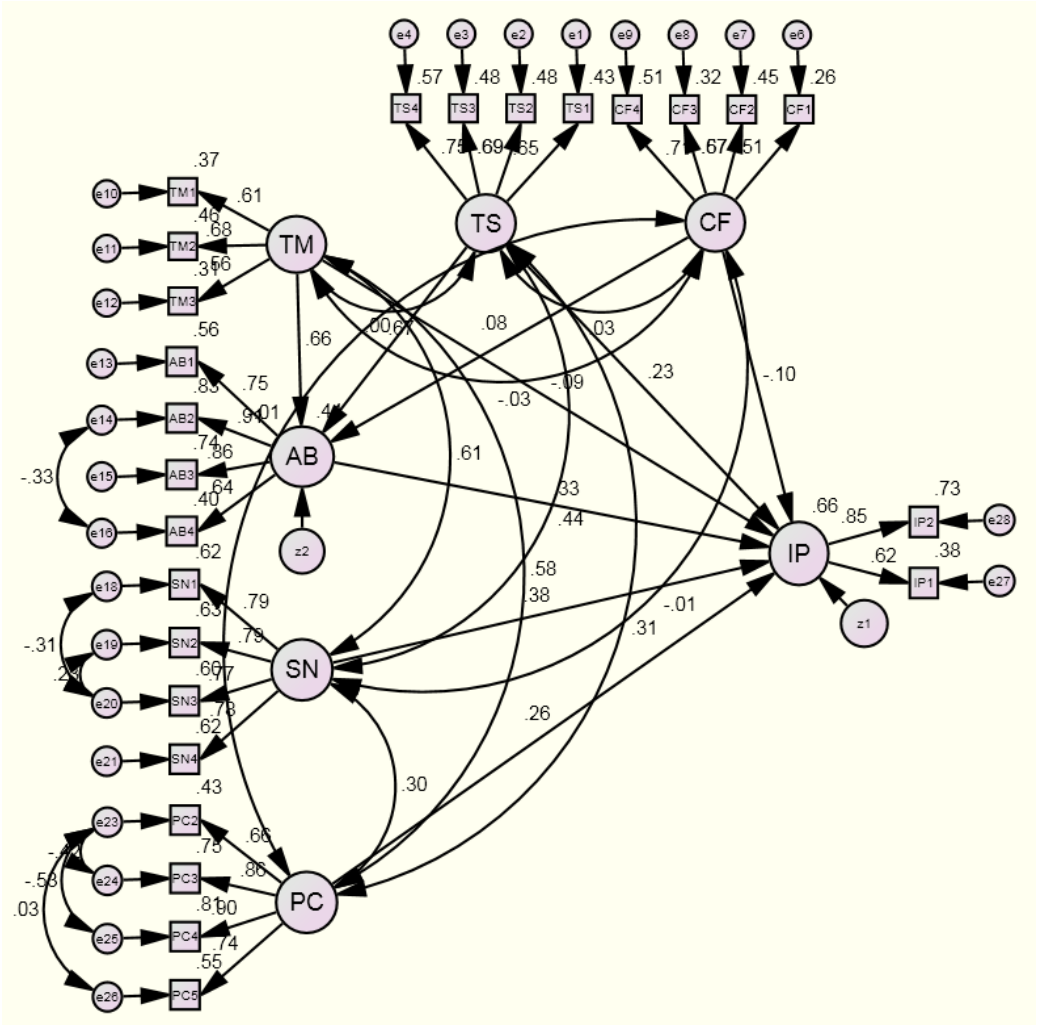
After the model estimation process is undertaken **(Appendix I),** a summary of the model goodness-of-fit measures is derived **(Table 5.26)**. The results show that the value of χ^2/df = 3.147 and NFI = 0.881 do not fulfil the threshold which requires the value of χ^2/df< 3.00 and NFI > 0.90. Despite other measures (Bollen-stine p-value, GFI, AGFI, CFI, RMSEA) showing that this model could comply with the threshold, the model does not fit well to the data. Therefore, model modification is necessary to obtain a better structural model.

Table 5.26 Model Fit Indices of the Initial Model

Measures	Results	Threshold	Fit/Unfit
Bollen-stine p-value	0.091	>0.05	Fit
χ^2/df	3.147	<3.00	Unfit
GFI	0.903	>0.90	Fit
AGFI	0.877	>0.80	Fit
NFI	0.881	>0.90	Unfit
CFI	0.915	>0.90	Fit
RMSEA	0.060	<0.08	Fit

Following a suggestion from the measurement model, the modification was made by adding five covariances of error terms to the initial structural model. Those covariances are between e14 and e16, e18 and e20, e19 and e20, e23 and e26, e24 and e26 as well as e25 and e26. This modification added covariances of error terms derived from three constructs namely attitude towards behaviour (AB), subjective norm (SN), and perceived behavioural control (PC). In this respect, covariance between e14 and e16 is from attitude towards behaviour; covariance between e18 and e20, and e19 and e20 are from subjective norm; and covariance between e23 and e26, e24 and e26, and e25 and e26 are from perceived behavioural control.

After adding covariance of error terms to the initial structural model, a re-estimation process was performed. The modified structural model is depicted in **Figure 5.5**. The results of the process are presented in **Appendix J** and the summarised model goodness-of-fit is exhibited in **Table 5.27**. Currently, with the value of χ^2/df = 2.723 and NFI = 0.900, the evidence demonstrates that all goodness-of-fit measures (Bollen-stine p-value, χ^2/df, GFI, AGFI, NFI, CFI, and RMSEA) can meet the threshold. Consequently, the structural model fits the data well.



Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **IP** = intention to purchase using e-commerce

Figure 5.5 The Structural Model after Modification

Table 5.27 Model Fit Indices after Modification in the Initial Model

Measures	Results	Threshold	Fit/Unfit
Bollen-stine p-value	0.091	>0.05	Fit
χ^2/df	2.723	<3.00	Fit
GFI	0.918	>0.90	Fit
AGFI	0.893	>0.80	Fit
NFI	0.900	>0.90	Fit
CFI	0.934	>0.90	Fit
RMSEA	0.054	<0.08	Fit

Furthermore, the modified structural model produces a path coefficient (β) that reflects the magnitude of relationships between constructs. The results demonstrate that there are three path coefficients that are not significant statistically at a p-value< 0.05. These path coefficients are between CF and AB (β = 0.077; p-value = 0.095), TS and AB (β = 0.004; p-value = 0.954) as well as TM and IP (β = -0.086; p-value = 0.467) **(Table 5.28)**.

Table 5.28 Path Coefficients among Constructs in the Modified Model

Paths			Estimate	S.E.	C.R.	P-values	Std Estimate
AB	<---	CF	.052	.031	1.667	.095	.077
AB	<---	TS	.002	.043	.057	.954	.004
AB	<---	TM	.508	.073	6.991	***	.659
IP	<---	CF	-.112	.045	-2.466	.014	-.104
IP	<---	TS	.221	.065	3.420	***	.229
IP	<---	TM	-.106	.146	-.727	.467	-.086
IP	<---	AB	.526	.097	5.415	***	.330
IP	<---	SN	.310	.047	6.556	***	.382
IP	<---	PC	.361	.079	4.549	***	.256

Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **IP** = intention to purchase using e-commerce

In addition, an analysis of the modified structural model also yields direct, indirect, and total effects of the relationships between exogenous and endogenous constructs **(Table 5.29).**

Table 5.29 Total Effect of the Constructs of the Modified Model

	Direct Effects	Indirect Effects	Total Effects
Constructs		IP	
TS	0.229	0.001	0.230
TM	-0.086	0.218	0.131
CF	-0.104	0.025	-0.078
AB	0.330		0.330
SN	0.382		0.382
PC	0.256		0.256

Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **IP** = intention to purchase using e-commerce

These results demonstrate that SN has the most direct effect and total effect on IP (0.382). TM has the most indirect effect on IP (0.218). In contrast, TM has the least direct effect on IP (-0.086), TS has the least indirect effect on IP (0.001), and CF has the least total effect on IP (-0.078).

Structural Models with Moderating Effects

The procedure of performing structural modelling with moderating effects is to determine indicator values, factor loading (λ) and error variance (θ) of an interaction. This study investigated the moderating effect of cyber-fraud perceptions (CF) on the relationship between trust of sellers (TS) and intentions to purchase (IP). CF and TS consist of four valid indicators each. Indicators of CF are CF1, CF2, CF3, and CF4, while indicators of TS are TS1, TS2, TS3, and TS4. This study proposed a new construct to represent the interaction between TS and CF called MSF as well as a new single indicator and error variance called SF and er1 respectively. Following Ping's (1995) notion, the moderating effect of this study is formulated through the following procedure.

Indicator value: MSF = $(x_1+x_2)\ (z_1+z_2)$

Loading of MSF: $\lambda_{TS:CF} = (\lambda_{TS1} + \lambda_{TS2} + \lambda_{TS3} + \lambda_{TS4})\ (\lambda_{CF1} + \lambda_{CF2} + \lambda_{CF3} + \lambda_{CF4})$

Error of MSF: $\theta_{\varepsilon TS:CF} = (\lambda_{TS1} + \lambda_{TS2} + \lambda_{TS3} + \lambda_{TS4})^2\ VAR(TS)$

$(\theta_{\varepsilon CF1} + \theta_{\varepsilon CF2} + \theta_{\varepsilon CF3} + \theta_{\varepsilon CF4}) + (\lambda_{CF1} + \lambda_{CF2} + \lambda_{CF3} + \lambda_{CF4})^2$

$VAR(CF)\ (\theta_{\varepsilon TS1} + \theta_{\varepsilon TS2} + \theta_{\varepsilon TS3} + \theta_{\varepsilon TS4}) +$

$(\theta_{\varepsilon CF1} + \theta_{\varepsilon CF2} + \theta_{\varepsilon CF3} + \theta_{\varepsilon CF4})\ (\theta_{\varepsilon TS1} + \theta_{\varepsilon TS2} + \theta_{\varepsilon TS3} + \theta_{\varepsilon TS4})$

The calculation of factor loadings and error variances of the moderating effect are based on factor loadings and error variances resulting from estimating model fit **(Figure 5.5)**. The output of the model is exhibited in **Appendix J** and results summarised in **Table 5.30**. The factor loadings of trust of sellers are in the range 0.655 to 0.755 and cyber-fraud perceptions are from 0.513 to 0.715. Meanwhile, the error variances of trust of sellers are between 0.559 and 0.807 as well as cyber-fraud perceptions between 0.347 and 1.054.

Table 5.30 Factor Loadings and Error Variance for Moderating Calculation

Constructs	Indicators	Std Loadings (λ)	Error Variance
Trust of sellers	TS1	.655	.807
	TS2	.691	.559
	TS3	.695	.767
	TS4	.755	.688
Cyber-fraud perceptions	CF1	.513	.582
	CF2	.667	.347
	CF3	.568	1.054
	CF4	.715	.696

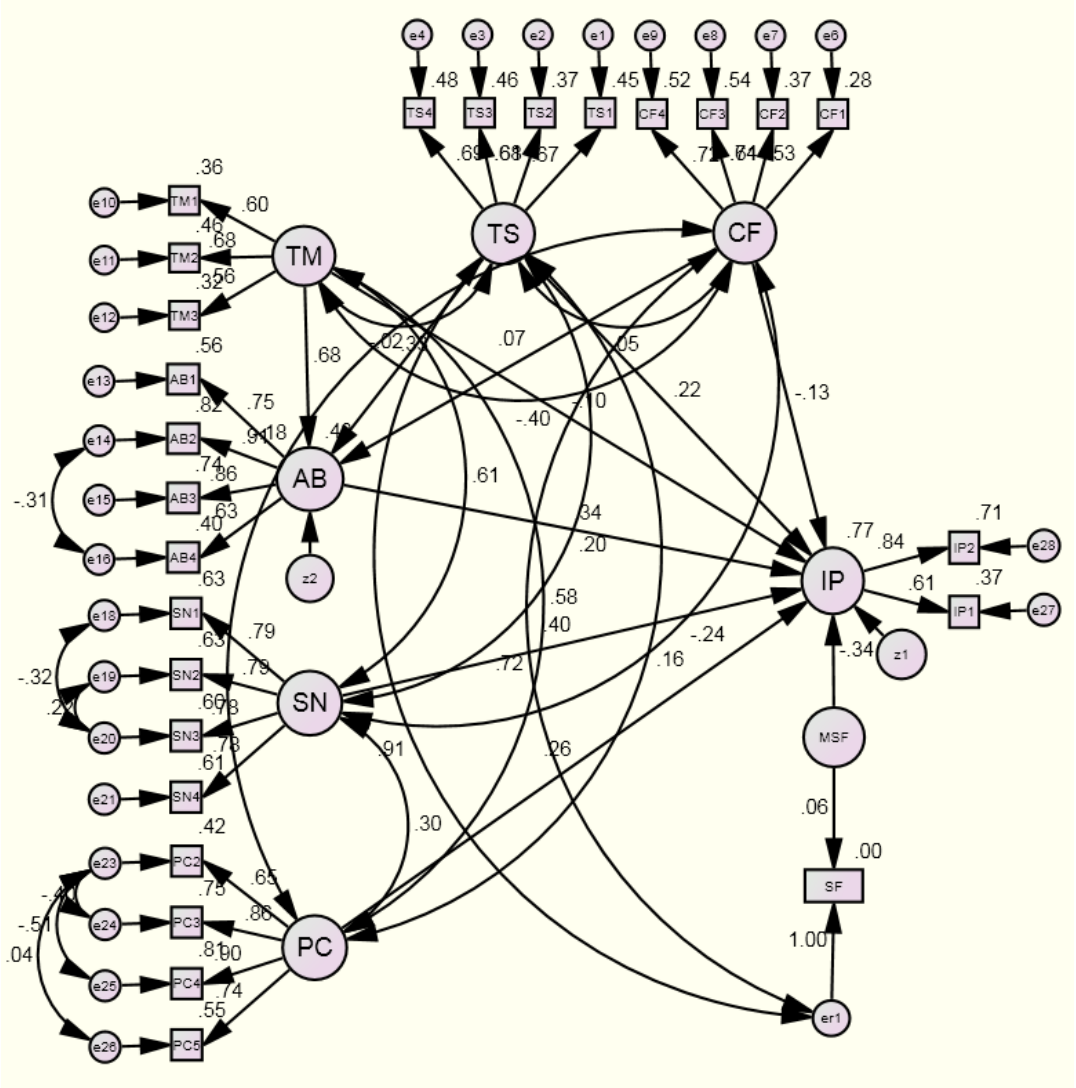
The calculation of the formula to obtain factor loading (λ) and error variance (θ) of the interaction is illustrated in **Appendix K**. Based on the calculation, the result of factor loading is 6.887 and error variance is 39.036. Both values were inserted as parameters in the structural model as a moderator. In

addition, a new column was added to accommodate the result of MSF (moderating of CF on TS and IP relationship) calculation. The moderated structural model with the moderating effect is presented in **Figure 5.6** and results of estimation are reported in **Appendix M**.

The results shows that most measures of goodness-of-fit (Bollen-stine p-value, GFI, AGFI, NFI, CFI, and RMSEA) comply with the threshold criteria, except χ^2/df. The value of χ^2/df is 3.079, while threshold requires a value of $\chi^2/df <$ 3.00. Therefore, the structural model does not fit well to the data so model modification should be performed again to achieve a better fit of the model. The results of model goodness-of-fit measures are reported in **Table 5.31**.

Table 5.31 Model Fit Indices of the Moderated Model

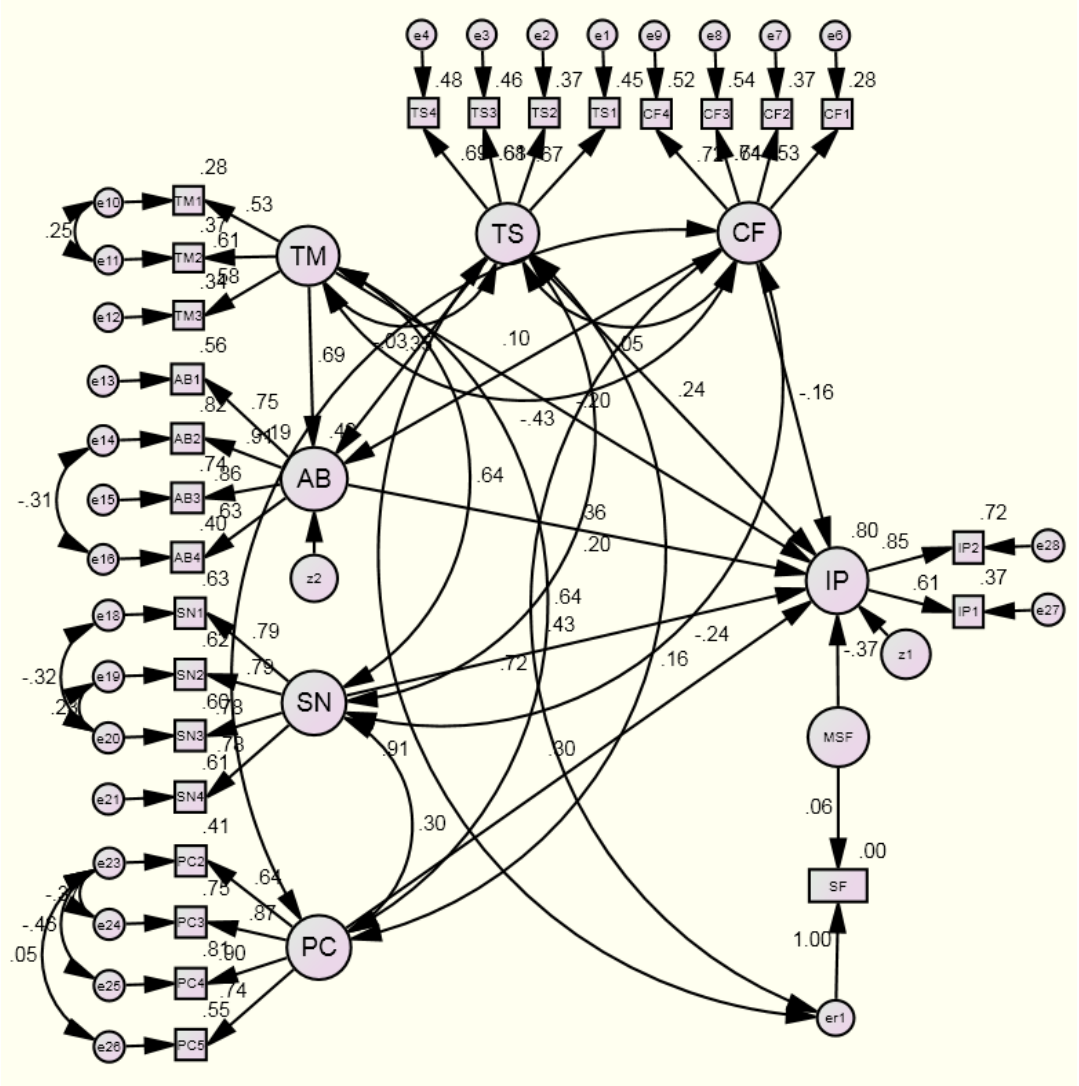
Measures	Results	Threshold	Fit/Unfit
Bollen-stine p-value	0.091	>0.05	Fit
χ^2/df	3.079	<3.00	Unfit
GFI	0.902	>0.90	Fit
AGFI	0.873	>0.80	Fit
NFI	0.912	>0.9	Fit
CFI	0.938	>0.90	Fit
RMSEA	0.059	<0.08	Fit



Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **MSF** = moderating of CF on TS and IP relationship; **IP** = intention to purchase using e-commerce

Figure 5.6 Structural Models with Moderator

Based on suggestions of modification indices **(Appendix L)** this research included covariance of e10 and e11 to the model. The modified structural model with moderation is illustrated in **Figure 5.7** and the result of model re-estimation is exhibited in **Appendix N**.



Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **MSF** = moderating of CF on TS and IP relationship; **IP** = intention to purchase using e-commerce

Figure 5.7 Structural Models with Moderation after Modification

After re-estimation, this model achieved a value for χ^2/df of 2.997. This result proves that χ^2/df meets the threshold. Likewise, the other goodness-of-fit measures (Bollen-stine p-value, GFI, AGFI, NFI, CFI, and RMSEA) can fulfil the threshold. Hence, the structural model with moderation modification fits the data very well. The model's goodness-of-fit measures are reported in **Table 5.32**.

Table 5.32 Model Fit Indices of the Moderated Model after Modification

Measures	Results	Thresholds	Remarks
Bollen-stine p-value	0.091	>0.05	Fit
χ^2/df	2.997	<3.00	Fit
GFI	0.904	>0.90	Fit
AGFI	0.876	>0.80	Fit
NFI	0.914	>0.9	Fit
CFI	0.941	>0.90	Fit
RMSEA	0.058	<0.08	Fit

The results of the structural model reported in **Table 5.33** demonstrate that there are four path coefficients among constructs statistically not significant at a p-value < 0.05. These are path coefficients between CF and AB (β = 0.098; p-value = 0.081), TS and AB (β = -0.033; p-value = 0.444), TM and IP (β = -0.0204; p-value = 0.219) as well as MSF and IP (β = -0.375; p-value = 0.069).

Table 5.33 Relationships of Construct of the Modified Moderated Model

Paths			Estimate	S.E.	C.R.	P-values	Std Estimate
AB	<---	CF	.061	.035	1.742	.081	.098
AB	<---	TS	-.023	.030	-.766	.444	-.033
AB	<---	TM	.504	.066	7.628	***	.694
IP	<---	CF	-.156	.059	-2.623	.009	-.158
IP	<---	TS	.263	.065	4.080	***	.244
IP	<---	TM	-.235	.191	-1.230	.219	-.204
IP	<---	AB	.568	.107	5.322	***	.358
IP	<---	SN	.345	.060	5.725	***	.432
IP	<---	PC	.419	.106	3.944	***	.305
IP	<---	MSF	-.338	.186	-1.817	.069	-.375

Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **MSF** = moderating of CF on TS and IP relationship; **IP** = intention to purchase using e-commerce

Furthermore, the modified moderated structural model analysis also generates direct, indirect, and total effects of the relationship between exogenous and endogenous constructs. **Table 5.34** presents the effects of the constructs in the moderated structural model.

Table 5.34 Total Effect of the Constructs in the Moderated Model

	Direct Effects	Indirect Effects	Total Effects
Constructs		IP	
TS	0.244	-0.012	0.232
TM	-0.204	0.249	0.045
CF	-0.158	0.035	-0.122
AB	0.358		0.358
SN	0.432		0.432
PC	0.305		0.305

Notes: **TS** = trust of sellers; **CF** = cyber-fraud perception; **TM** = trust of the (Internet) medium; **AB** = attitude towards behaviour; **SN** = subjective norm; **PC** = perceived behavioural control; **IP** = intention to purchase using e-commerce

The results demonstrate that SN has the most direct effect and total effect on IP (0.432). TM has the most indirect effect on IP (0.249). In contrast, CF has the least direct effect (in absolute terms) on IP (0.158), TS has the least indirect effect on IP (0.012), and TM has the least total effect on IP (0.045).

5.3. Hypothesis Testing

After conducting a series of examinations, the best structural model fit was obtained as shown in **Figure 5.8.** In the model, relationships of constructs proposed in this study generate the coefficients of paths. Based on these coefficients, hypotheses are examined.

Impact of Trust of Sellers on Purchase Intentions

Hypothesis 1 states that *"Customers' trust of sellers has a positive impact on behavioural intentions to purchase using Internet-based e-commerce"*. Results from the final structural model shows that the relationship between trust of sellers and intention to purchase using e-commerce yields standardised coefficient $\beta = 0.244$ at p-value < 0.01. This result also demonstrates that the value of the coefficient is positive. Due to a p-value of the coefficient being less than 0.05

significance level, it means that trust of sellers significantly and positively affects intention to purchase using e-commerce. Therefore, hypothesis 1 is **supported.**

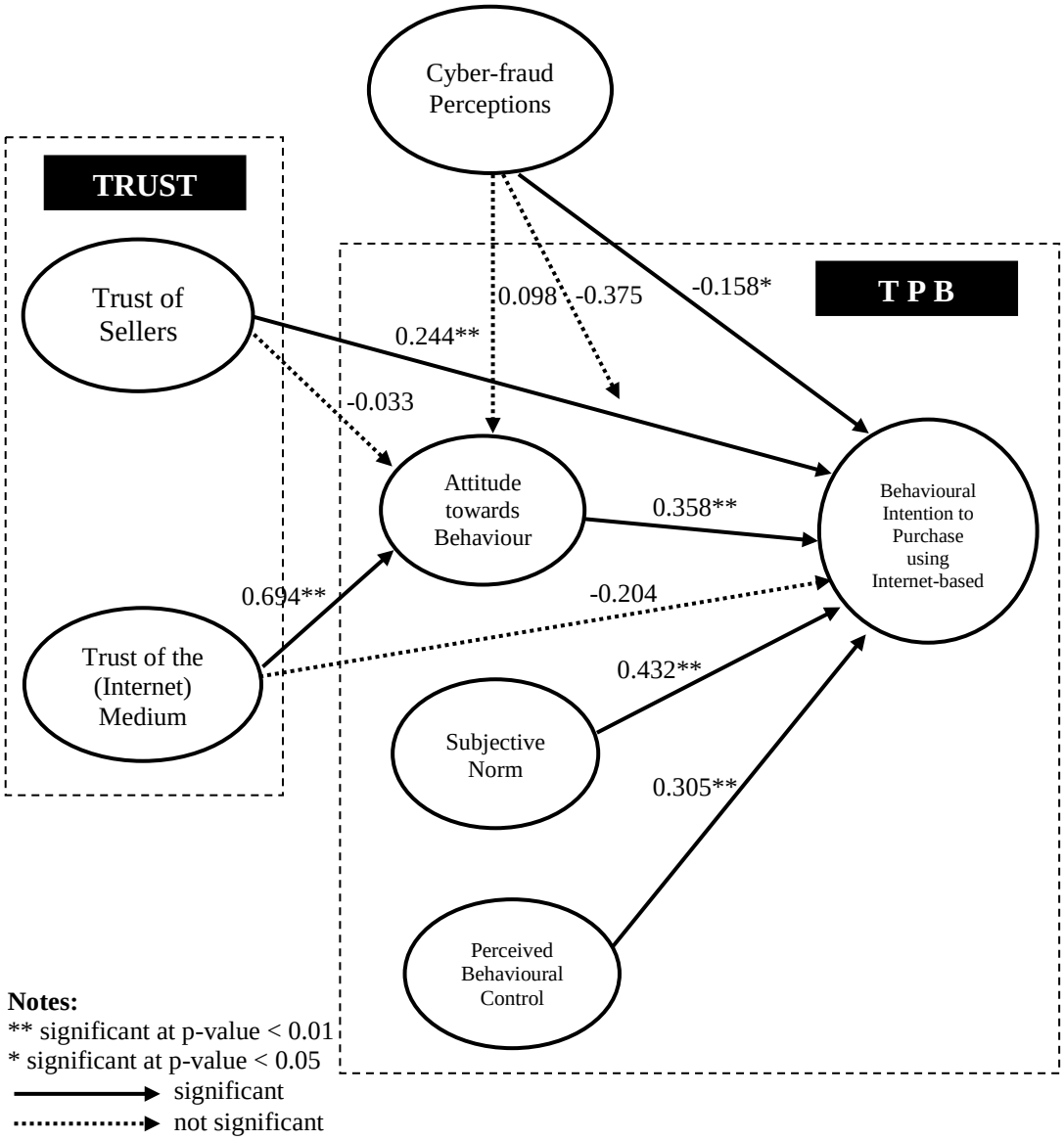


Figure 5.8 The Final Structural Model of the Study

Impact of Trust of the (Internet) Medium on Purchase Intentions

Hypothesis 2 posits that "*Customers' trust of the (Internet) medium has a positive impact on behavioural intentions to purchase using Internet-based e-commerce*". The final model demonstrates that the path coefficient of the relationship between trust of the (Internet) medium and intention to purchase using e-commerce is $\beta = -0.204$ at p-value = 0.219. As p-value is more than 0.05, the relationship is not significant. Hence, hypothesis 2 is **rejected.**

Cyber-Fraud Perceptions on Purchase Intentions

Hypothesis 3 states that *"Customers' cyber-fraud perception has a negative impact on behavioural intentions to purchase using Internet-based e-commerce"*. Results from the final model testing shows that the relationship between cyber-fraud perception and intention to purchase using e-commerce has a $\beta = -0.158$ at p-value < 0.05. The value of β is also negative meaning that a customer's negative perceptions (fear and concerns) of cyber-crime will contribute to reducing intentions to purchase, using e-commerce. Thus, hypothesis 3 is **supported.**

Impact of Attitude towards Behaviour on Purchase Intentions

Hypothesis 4 states that "*Customers' attitude towards behaviour has a positive impact on behavioural intentions to purchase using Internet-based e-commerce"*. Based on the results of the final model testing, the relationship between attitude towards behaviour and intention to purchase using e-commerce shows a $\beta = 0.358$ at p-value < 0.01. This evidence demonstrates that hypothesis 4 is **supported.**

Impact of Subjective Norm on Purchase Intentions

Hypothesis 5 asserts that *"Customers' subjective norm has a positive impact on behavioural intentions to purchase using Internet-based e-commerce"*. The final structural model presents the relationship between subjective norm and intention to purchase using e-commerce results in a coefficient $\beta = 0.432$ at p-value < 0.01. Thus hypothesis 5 is **supported.**

Impact of Perceived Behavioural Control on Purchase Intentions

Hypothesis 6 declares that *"Customers' perceived behavioural control has a positive impact on behavioural intentions to purchase using Internet-based e-commerce"*. The results from the final structural model demonstrate that the relationship between perceived behavioural control and intention to purchase using e-commerce has a coefficient $\beta = 0.305$ at p-value < 0.05. It indicates that hypothesis 6 is **supported.**

Impact of Trust of Sellers on Attitude towards Behaviour

Hypothesis 7 posits that *"Customers' trust of sellers has a positive impact on attitude towards behaviour"*. The results show that the relationship between trust of sellers and attitude towards behaviour obtains a coefficient $\beta = -0.033$ at p-value = 0.444. Due to p-value being greater than 0.05, hypothesis 7 is **rejected.**

Impact of Trust of the (Internet) Medium on Attitude towards Behaviour

Hypothesis 8 asserts that *"Customers' trust of the (Internet) medium has a positive impact on attitude towards behaviour"*. The final model demonstrates that this

relationship generates a coefficient value of β = 0.694 at p-value < 0.05. Therefore, hypothesis 8 is **supported.**

Impact of Cyber-Fraud Perceptions on Attitude towards Behaviour

Hypothesis 9 states that *"Customers' cyber-fraud perceptions have a negative impact on attitude towards behaviour"*. Results of the estimated final model show that the relationship between cyber-fraud perception and intention to purchase using e-commerce has a coefficient β = 0.098 at p-value = 0.081. Due to p-value being more than 0.05, the relationship is not significant. Accordingly, hypothesis 9 is **rejected.**

Moderating Effects of Cyber-Fraud Perceptions

Hypothesis 10 posits that *"Customers' cyber-fraud perceptions have a negative moderating impact on the relationship between trust of sellers and behavioural intentions to purchase using Internet-based e-commerce"*. The result of the moderating effect demonstrates that a value of β = -0.375 at p-value = 0.069. Since this study applied a significance level of 0.05 and p-value obtained is greater, hypothesis 10 is **rejected.**

Thus four hypotheses did not meet the criteria so these are rejected. Among the accepted relationships, the highest value of coefficient β is 0.694. This value is obtained for H8. It means that the relationship between trust of the (Internet) medium and attitude towards behaviour is the strongest relationship compared to others in the model. A summary of the hypotheses examined is presented in **Table 5.35**.

Table 5.35 The Summary of the Hypotheses Testing

	Hypotheses	Coefficient	p-values	Remarks
H1	: Customers' trust of sellers has a positive impact on behavioural intentions to purchase using Internet-based e-commerce.	0.244	< 0.01	Supported
H2	: Customers' trust of the (Internet) medium has a positive impact on behavioural intentions to purchase using Internet-based e-commerce.	-0.204	0.219	Rejected
H3	: Customers' cyber-fraud perceptions have a negative impact on behavioural intentions to purchase using Internet-based e-commerce.	-0.158	< 0.05	Supported
H4	: Customers' attitude towards behaviour has a positive impact on behavioural intentions to purchase using internet-based e-commerce.	0.358	< 0.01	Supported
H5	: Customers' subjective norm has a positive impact on behavioural intentions to purchase using Internet-based e-commerce.	0.432	< 0.01	Supported
H6	: Customers' perceived behavioural control has a positive impact on behavioural intentions to purchase using Internet-based e-commerce.	0.305	< 0.05	Supported
H7	: Customers' trust of sellers has a positive impact on attitude towards behaviour.	-0.033	0.444	Rejected
H8	: Customers' trust of the (Internet) medium has a positive impact on attitude towards behaviour.	0.694	< 0.01	Supported
H9	: Customers' cyber-fraud perceptions have a negative impact on attitude towards behaviour.	0.098	0.081	Rejected
H10	: Customers' cyber-fraud perceptions have a negative moderating impact on the relationship between trust of sellers and behavioural intentions to purchase using Internet-based e-commerce.	-0.375	0.069	Rejected

5.4. Summary

This chapter has discussed data analyses and findings of the study. This begins with elaborating demography characteristics and e-commerce experiences of the respondents. Following this discussion, data screening is detailed. The results from missing data assessment demonstrate that there is no missing data. Assessment for normality of data proves that the data has a non-normal distributed. The examination of outlier found that there are no outlier data. In the measurement model, convergent and discriminant validity are assessed. Convergent validity is

tested by undertaking standardised factor loadings of indicators, AVE of constructs, and construct reliability evaluations. In a standardised factor loadings test, five indicators are deleted as they are not valid so that the total valid indicators are 25. In the AVE test, three of seven constructs did not meet the criteria set. However, an alternative test to identify convergent validity was conducted through a CR test. Results from the test prove that all constructs meet the threshold. Therefore, convergent validity is achieved. Discriminant validity is undertaken by investigating correlations between constructs as well as comparing the square root of AVE with correlation values among constructs. The results show that both tests can meet the threshold. Hence, discriminant validity is acquired. In the structural model, after performing some modification to the model, the final fit model is obtained. The results demonstrate that four of ten relationships among constructs proposed in the study are not significant. Consequently, in the hypothesis testing, there four hypotheses are rejected. The next Chapter will cover discussions of and conclusions from the study.

CHAPTER 6
DISCUSSIONS, CONCLUSIONS, CONTRIBUTIONS, AND FUTURE RESEARCH

6.0. Introduction

This final Chapter begins with discussing the findings. It elaborates evidence from the data analysis, particularly relating to hypotheses of the study. Following this discussion, conclusions from the study are summarised. Next, contributions are identified to the literature and practice. Some limitations are also presented. The Chapter ends with directions for future research.

6.1. Discussions of Findings

6.1.1. Summary of Research Methodology Used

This research emanates from the main question **to what extents do trust and cyber-fraud perceptions impact on behavioural intentions of customers to use e-commerce?** To address this question, ten sub questions were composed and ten hypotheses were developed to answer the research questions. The model was developed by integrating the constructs of trust and cyber-fraud perceptions with theory of planned behaviour (TPB). In this model, the construct of trust is discriminated by trust of sellers and trust of the (Internet) medium.

Data are collected from an Indonesia-Online group through an online survey. Structural equation modelling (SEM) was applied to analyse and test the model. SEM analysis was conducted in two steps, the measurement model and the structural model. The measurement model applied confirmatory factor analysis (CFA) to test convergent validity and discriminant validity of the constructs. The

structural model confirmed the relationship between constructs, the moderating effect and the goodness-of-fit of the whole model. The following section discusses the results from the study.

6.1.2. Respondent Characteristics

To summarise what the characteristics of a typical respondent are, and consequently an Indonesian e-commerce user looks like, some interesting attributes are presented next. In this study, the number of male respondents is more than females. This result supports other studies (Palmquist & Stueve 1996) that males respond to online surveys more often than females. The fewer number of female respondents compared to males may also be caused by media preferences, where females prefer to participate in paper-based surveys rather than online surveys (Tomsic et al. 2000).

In addition, the fewer number of female participants than males may reflect actual e-commerce users. In online usage and purchases, males dominate (Shiu & Dawson 2004). Males spend more money since they prefer online shopping as a purchasing channel. Meanwhile, females prefer online shopping for entertainment facilitating hedonic traits that cause them to spend less money (Lai et al. 2008). The degree of female involvement in online transactions, which is lower than males, may be caused by perceived risk. Females perceive more risk in online shopping than males(Garbarino & Strahilevitz 2004).

Other effects of gender differences in online shopping are reported (Lai et al. 2008). Males and females have different motives in online shopping. Males are inclined to be task oriented and focus on uncertainty reduction, whereas females are hedonic oriented and emphasise loss minimisations. Males undertake searches for

pre-purchase information, to assure the quality of their decision to purchase. Females do little research; their online purchasing is impulsive and unplanned, just for pleasure. Females merely do online shopping for cheaper transactions. If they buy expensive items, they will move to transact physically in conventional stores(Lai et al. 2008).

In relation to age, younger ages dominate respondents of this survey. This evidence is consistent with the finding of (Palmquist & Stueve 1996). The study shows that younger people are more likely to respond to online surveys. This may also reflect the degree of e-commerce engagement. Karjaluoto et al. (2002) report that young people dominate conducting e-commerce transactions.

Besides a typical online e-commerce user being male, they have the following characteristics:

- aged between 18 and 40 years old;
- with a college (university) degree;
- working in manufacturing or academia;
- earning a monthly income of between Rp. 2.5–5.0 million (AUD 265–530); and
- living on the island of Java.

When it comes to use of the Internet and e-commerce, the average Indonesian:

- has more than six years Internet experience;
- spends more than 20 hours per week assessing the Internet;
- purchases one to two items per year;
- spends less than Rp. 1 million (AUD 106) per year;
- spends mainly on books;

- uses bank transfers; and
- buys almost exclusively from Indonesian vendors.

However, they have not been free from cyber-crime attacks averaging over two fraud attempts per year mainly from spam and phishing, as more and more Indonesians use Internet banking for checking account balances, paying bills, and loans or mortgages.

6.1.3. Impact of Trust of Sellers on Purchase Intentions

This study demonstrates that trust of sellers has a positive and significant impact on purchase intentions using e-commerce. The evidence proves that Indonesian e-commerce customers consider trust of sellers as an important factor in decision making to transact using e-commerce. The influence of trust of sellers on purchase intentions using e-commerce is positive. It implies that the more customers trust sellers, the more customers intend to transact using e-commerce. This result supports previous studies conducted by Kim et al. (2008), El Said and Galal-Edeen (2009), Liu et al. (2005), and Tung et al. (2008). Thus Indonesian customers are no different to customers around the world when it comes to trusting that sellers will fulfil their obligations in the virtual world of commerce.

6.1.4. Impact of Trust of the (Internet) Medium on Purchase Intentions

The results of this study show that trust of the (Internet) medium is not a significant influence on purchase intentions using e-commerce. This evidence signals that Indonesian e-commerce customers do not consider trust of the (Internet) medium as an important factor in making transactions using e-commerce. They may believe that all technologies that sellers utilise are given. Indonesian e-commerce customers may think that sellers would choose sophisticated technology for their e-

commerce systems. This finding is opposite to previous studies undertaken by McKnight et al. (2002), Pavlou (2001), Kim et al. (2008), Yang et al. (2012), and Lee (2009a). Indonesian Internet users may still be naive in the digital world as they are purchasing only one to two items per year using e-commerce.

6.1.5. Impact of Cyber-Fraud Perceptions on Purchase Intentions

The results report that cyber-fraud perceptions have a negative and significant effect on purchase intentions using e-commerce. The evidence points out that Indonesian e-commerce customers view cyber-fraud as a serious threat when conducting transactions using e-commerce. Therefore, customers are reluctant to undertake e-commerce transactions if they perceive that cyber-fraud will threaten their decisions. Perceptions can be generated from incidents they have experienced or information they receive via friends and the press. This result is in line with prior empirical studies undertaken by McKnight et al. (2002), Pavlou (2001), Kim et al. (2008), Yang et al. (2012), and Lee (2009a). Again it would appear that e-commerce users around the world have similar behavioural patterns when it comes to their perceptions of cyber-fraud.

6.1.6. Impact of Attitude towards Behaviour on Purchase Intentions

The results demonstrate that customers' attitudes have positive impacts on behavioural intentions to purchase using Internet-based e-commerce. Indonesian e-commerce customers, in conducting e-commerce transactions, are affected by their attitude. This finding is supported by previous studies undertaken by Chen and Li (2010), Liao et al. (2007), Lee (2009b), Chau and Hu (2002), Jayasingh and Eze (2010), Lim and Dubinsky (2005), Lee, M. K. O. et al. (2011), Pennington et al.

(2004), El Said and Galal-Edeen (2009), Crespo and Bosque (2008), George (2004), Yu and Wu (2007), and Hansen et al. (2004).

6.1.7. Impact of Subjective Norm on Purchase Intentions

This study confirms that customers' subjective norms have positive impacts on behavioural intentions to purchase using Internet-based e-commerce. Subjective norm is a person's perceived social pressure (e.g., from families and friends) to perform or not to perform a certain behaviour. The results show that subjective norm is important antecedents to predict Indonesian e-commerce customers' intentions to purchase using e-commerce. This evidence supports previous studies of Liao et al. (2007), Lee (2009b), Crespo and Bosque (2008), Yu and Wu (2007), Lim and Dubinsky (2005), and Hansen et al. (2004). It would appear that, in general, human beings are no different when it comes to subjective norms.

6.1.8. Impact of Perceived Behavioural Control on Purchase Intentions

This empirical study of Indonesian e-commerce customers shows that customers' perceived behavioural controls have positive impacts on behavioural intentions to purchase using Internet-based e-commerce. This evidence is very important in that perceived behaviour is a predictor of Indonesian customers conducting e-commerce transaction. This finding is in line with several studies conducted by Chau and Hu (2002), George (2004), Lim and Dubinsky (2005), Hansen et al. (2004), Liao et al. (2007), Chen and Li (2010), and Lee (2009b). It shows that Indonesian customers have no different views to other customers in several countries, in terms of perceived behavioural control on purchase intentions using e-commerce.

6.1.9. Impact of Trust of Sellers on Attitude towards Behaviour

This study demonstrates that customers' trust of sellers does not have a positive impact on attitude towards behaviour. It indicates that for Indonesian e-commerce customers, trust of sellers is not an important factor which affects their attitudes to transact online. This result contradicts previous studies carried out by Pavlou and Chai (2002), Pennington et al. (2004), and El Said and Galal-Edeen (2009). It shows that Indonesian customers have different views to customers in several countries, when considering the trust of sellers related to their attitudes in intentions to conduct e-commerce transactions.

6.1.10. Impact of Trust of the (Internet) Medium on Attitude towards Behaviour

Findings from this study indicate that customers' trust of the (Internet) medium has a positive impact on attitude towards behaviour. It implies that attitude towards purchasing using e-commerce of Indonesian e-commerce customers is determined by their beliefs in the medium. This result supports previous studies undertaken by Grazioli and Jarvenpaa (2000), Wu and Chen (2005), and Dinev et al. (2008-9). This evidence points out that Indonesia customers are like customers from other countries that consider trust of the (Internet) medium as a crucial factor in their attitude towardse-commerce transactions.

6.1.11. Impact of Cyber-Fraud Perceptions on Attitude towards Behaviour

The results point out that customers' cyber-fraud perceptions do not have negative impacts on attitudes toward behaviour. This reflects that cyber-fraud perceptions are not an important factor for Indonesian e-commerce customers influencing their attitudes to conduct online transactions. The result does not support previous

studies of Teo and Pok (2003), Grazioli and Jarvenpaa (2000), Dinev et al. (2008-9), and Latest, Lee (2009a). This finding may be as a result of where Indonesian Internet users are on the technology use curve.

6.1.12. Moderating Effects of Cyber-Fraud Perceptions

Indonesian customers' cyber-fraud perceptions do not have negative moderating impacts on the relationship between trust of sellers and behavioural intentions to purchase using Internet-based e-commerce. This finding indicates that cyber-fraud perception is not a factor which can improve the relationship between the trust of sellers and behavioural intention to purchase through e-commerce for Indonesian e-commerce customers.

6.2. Conclusions

This study proposed a model to predict Indonesian e-commerce customers' intentions to commit transactions using e-commerce. A model was composed by integrating concept of trust and cyber-fraud perceptions with the theory of planned behaviour. To validate the model, an online survey was conducted to gather data from Indonesian Internet users. The data was analysed using structural equation modelling by employing AMOS.

The results demonstrate that a predictor model can be achieved parsimoniously and with robustness. These criteria were evaluated through goodness-of-fit indices. The relationships between constructs show that trust of sellers, cyber-fraud perceptions, attitude towards behaviour, subjective norm, and perceived behavioural control are good antecedents to predict Indonesian e-commerce customers' intentions to purchase using e-commerce. Furthermore, trust of the (Internet) medium influences attitude towards behaviour. In contrast, trust of

the (Internet) medium does not directly affect intentions to purchase via e-commerce. In addition, trust of sellers and cyber-fraud perception do not influence attitude towards behaviour. Finally, cyber-fraud perception is not a moderating construct on the relationship between trust of sellers and intentions to purchase.

6.3. Contributions

6.3.1. To the Literature

This research provides new insights, particularly to promote cyber-fraud perceptions in measuring customers' intentions to purchase using e-commerce. This construct is derived from perceived risk and fear of crime. In addition, this study provides an alternative model of intentions by extending the theory of planned behaviour (TPB) with trust and cyber-fraud perceptions' constructs. This study also promotes extending concepts of trust with trust of sellers and trust of the (Internet) medium to examine intentions. So far, previous studies measuring intention simply used trust, without decomposing trust to trust of sellers and trust of the (Internet) medium. However, this study found that trust of the (Internet) medium does not directly affect intentions to purchase via e-commerce. Finally, this study demonstrates that cyber-fraud perception directly affects purchase intentions but is not a moderating factor on the relationship between trust of sellers and intention. It is also not a predictor of attitude.

6.3.2. To Practice

This research indicates that customers' cyber-fraud perceptions have significant, negative, direct, effects on behaviour intentions to purchase using Internet-based e-commerce. This implies that if customers have high degrees of cyber-fraud

perceptions, then their intentions to transact using e-commerce will decrease. Therefore, e-commerce sellers should take into account this factor. Sellers are urged to have programs to advance seller-buyer relationships. Furthermore, in order to develop and counter publicity creating negative customers' perceptions toward cyber-fraud, sellers are advised to educate customers regarding e-commerce system security and proper behaviours while completing transactions.

Furthermore, Lai et al. (2008) state that, based on motivations of customers in committing transactions using e-commerce, customers can be classified into two groups, namely task oriented and hedonic oriented. Previous studies found that male customers are inclined to be task-oriented, while female customers tend to be hedonic-oriented. With different orientations of customers, different strategies should be applied by e-commerce businesses to succeed in encouraging transactions. A strategy that may be effective for task oriented customers is by providing good product information and quality insurance; for hedonic orientation, the better strategy is by supplying unique items not available in stores and through competitive pricing. Therefore, it is essential for businesses to recognise the motivations of customers.

Finally, other parties such as governments and commerce agencies are urged to provide support in developing a safe e-commerce environment. This study shows that customers' cyber fraud perceptions influence customers' intentions to purchase using Internet-based e-commerce. It indicates that a safe e-commerce environment is needed by customers to protect transactions from any fraud. If customers feel that the e-commerce environment is safe, they are likely to increase their transactions. Furthermore, the amount of money lost due to e-commerce fraud is still high as discussed in the previous chapter. Therefore, it emerges that there are

some consequences for governments in providing a safe e-commerce environment; for instance, taking actions to establish institutions such as a cyber-crime complaint centre that has a role to supervise and control e-commerce transactions across the country, and to have cooperation with similar institutions internationally. The centre should also actively collaborate with other parties or institutions within the country, including police, to prevent or investigate fraud incidents. The collaborations will protect both customers and sellers from cyber-fraud. Moreover, legislation for e-commerce needs to be assertive and be implemented appropriately. In addition, a commerce agency contributes to providing a better infrastructure and technology to protect e-commerce transactions. Likewise, infrastructure and technology should be regularly supervised and improved to ensure that fraud perpetrators experience difficulties to act unethically.

6.4. Limitations

Most studies, including this research, suffer from limitations. Most limitations revolve around data collections, analysis methods, and this study is no exception.

The study surveyed respondents from one mailing list in Indonesia. Consequently, the results may have less power to predict Indonesian customers' intentions to purchase using e-commerce. Furthermore, even though the number on the mailing list is known, this research could not ascertain the actual number of active members. In mailing lists, it is very common that some members are inactive for several reasons such as bounced, banned, and not continuing to use the email address provided. This study did not have privileges to check every member's status. Therefore it may lead to bias, taking responses from only active and live

members. In addition, no potential customers that were not on the Internet user's mailing list or were not Internet users *perse*, were sampled.

Furthermore, this study did not consider focusing the sample on particular types of respondents' involvements in e-commerce. All members of the mailing list had an opportunity to participate in this research without differentiating between high, medium, and low involvement, which may have biased findings.

This study employed two kinds of trust, namely trust of sellers and trust of the (Internet) medium as predictors. In the structural model, these two trusts were measured directly to influence indigenous constructs. This study did not re-calibrate the model by applying second order CFA analysis. This may reduce the power of the model. SEM is an evolving tool, which in its own right may have inherent limitations currently unknown in the literature.

6.5. Directions for Further Research

This study provides several recommendations for future research in order to gain better outcomes from the model. First, to improve the capability of the model in predicting antecedents of customers' intentions to purchase using e-commerce, and to increase the power of the model in making generalisations, future research could expand the sample frame of the research. The sample frame could be expanded to more than one mailing list, non-Internet users, and include more females. In addition, the sample and/or model could include other developing countries.

To obtain more focused conclusions, analysis based on characteristics of respondents should be undertaken. Some studies show that characteristics of respondents contribute to their behaviour in decision making. In this respect, future research could conduct multiple group analyses. The analysis suggested to be

undertaken, could consider respondents' degree of involvement in e-commerce transactions, gender, educations, kinds of goods/service purchased, or occupations. Therefore, any resulting models could draw more specific conclusions and have more power to predict actual behaviours of e-commerce users.

Furthermore, trust of sellers and trust of the (Internet) medium constructs in this study are decomposed from the trust construct. Therefore, in order to achieve a more precise structural model, future research is suggested to analyse the construct of trust using second-order structural methods (Byrne 2010, p. 129).

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Appendix A: Ethical Clearance

University of Southern Queensland

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OFFICE OF RESEARCH AND HIGHER DEGREES
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Ethics Officer
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Tuesday, 19 October 2010

Mr Ainur Rofiq
3/417 Stenner Street,
Darling Heights
Toowoomba QLD 4350

Dear Mr Rofiq

The Chair of the USQ Fast Track Human Research Ethics Committee (FTHREC) recently reviewed your responses to the FTHREC's conditions placed upon the ethical approval for the below project. Your proposal now meets the requirements of the *National Statement on Ethical Conduct in Human Research (2007)* and full ethics approval has been granted.

Project Title	Impact of Cyber Fraud and Trust of e-Commerce System on Purchasing Intentions: Analysing Planned Behaviour in Indonesian Business
Approval no.	H10REA229
Expiry date	30/04/2011
FTHREC Decision	**Approved**

The standard conditions of this approval are:

(a) conduct the project strictly in accordance with the proposal submitted and granted ethics approval, including any amendments made to the proposal required by the HREC
(b) advise (email: ethics@usq.edu.au) immediately of any complaints or other issues in relation to the project which may warrant review of the ethical approval of the project
(c) make submission for approval of amendments to the approved project before implementing such changes
(d) provide a 'progress report' for every year of approval
(e) provide a 'final report' when the project is complete
(f) advise in writing if the project has been discontinued.

For (c) to (e) forms are available on the USQ ethics website: http://www.usq.edu.au/research/ethicsbio/human

Please note that failure to comply with the conditions of approval and the *National Statement (2007)* may result in withdrawal of approval for the project.

You may now commence your project. I wish you all the best for the conduct of the project.

Helen Phillips
Ethics Officer
Office of Research and Higher Degrees

Appendix B: Questionnaire (in English)

University of Southern Queensland

The University of Southern Queensland

Participant Information

TO: Participants

TITLE OF PROJECT: Impact of Cyber-fraud and Trust of e-Commerce System on Purchasing Intentions: Analysing Planned Behaviour in Indonesian Business

RESEARCH TEAM: Ainur Rofiq, PhD Student, Faculty of Business University of Southern Queensland, Phone: +62 7 46875764, email: ainur.rofiq@usq.edu.au

Description

The purpose of this project is to address how customers' trust and cyber-fraud perceptions influence their intentions to purchase via internet-based e-commerce

The research team request your assistance because you are an Internet user in Indonesia which eligible as a participant of this project.

This project is being undertaken as part of a PhD project for Ainur Rofiq.

Participation

Your participation in this project is voluntary. You can withdraw from the project at any stage without comment or penalty. Your decision to participate or not, or to withdraw from the project will not affect your current or future ***relationship with*** the University of Southern Queensland.

This project involves the submission of anonymous (non-identifiable) material. Please note: it will not be possible to withdraw your data once submitted.

It is expected your participation will take approximately 15 minutes of your time.

Please note: the data obtained from this project may be used at a later time for any research purpose.

Risks

There are no risks beyond day-to-day living associated with your participation in this project.

Confidentiality

Any information obtained in connection with this project and that can identify you will remain confidential. It will only be disclosed with your permission, subject to legal requirements. If you give us your permission by signing the Consent Form, we plan to ***publish*** the results with ***my supervisor to the Academic Journal.***

In any publication, information will be provided in such a way that you cannot be identified.

All data received for this project will remain stored for a minimum of 5 years in secure facilities.

Consent to Participate

Please read this information sheet carefully so that you understand what the project involves. If you do not understand any part of the project or require further information please contact the research teams members named above.

The return of the completed anonymous survey is accepted as an indication of your consent to participant in this project

Questions/further information about the project

Please contact the research teams members named above if you have any questions or if you require further information about the project.

Concerns/complaints regarding the conduct of the project

If you have any concerns or complaints about the ethical conduct of the project you may contact the USQ Ethics Officer on +61 7 4631 2690 or email ethics@usq.edu.au. The Ethics Officer is not connected with the project and can facilitate a resolution in an impartial manner.

Where the research may cause distress, independent 24 hour counselling services are available through Lifeline on 13 11 14 from anywhere in Australia.

Best regards,

Ainur Rofiq
Researcher/PhD Student

Please indicate your perception on each statement below based on the scale of 1 (strongly disagree) to 7 (Strongly agree). If your opinion is less strong, tick one of the numbers in the middle

Ref	Indicators	Perception
C1	**Trust of a seller**	1 (Strongly disagree) 7 (Strongly agree)
	I believe e-commerce vendors have the ability to deliver a product as promised	1 2 3 4 5 6 7
	I believe e-commerce vendors have my best interests at heart	1 2 3 4 5 6 7
	I believe e-commerce vendors follow acceptable business practices	1 2 3 4 5 6 7
	Overall, I believe e-commerce vendors are trustworthy	1 2 3 4 5 6 7
	I only purchase from vendors that I have purchased from in the past	1 2 3 4 5 6 7
C2	**Cyber-fraud perceptions**	1 (Strongly disagree) 7 (Strongly agree)
	Cyber-fraud is a serious problem in society and the economy	1 2 3 4 5 6 7
	Cyber-fraud is detrimental in e-commerce transaction	1 2 3 4 5 6 7
	I am afraid of cyber-fraud in my e-commerce transaction	1 2 3 4 5 6 7
	Cyber-fraud is a threat to everyone in e-commerce	1 2 3 4 5 6 7
C3	**Trust of the (internet) medium**	1 (Strongly disagree) 7 (Strongly agree)
	I trust the Internet to technically handle my transaction in e-commerce	1 2 3 4 5 6 7
	I think the Internet works properly to protect transactions in e-commerce.	1 2 3 4 5 6 7
	I understand how the Internet works in handling transactions in e-commerce.	1 2 3 4 5 6 7
C4	**Attitude towards Behaviour**	1 (Strongly disagree) 7 (Strongly agree)
	I like the idea of purchasing a product using the Internet	1 2 3 4 5 6 7
	Purchasing a product using the Internet is a wise idea	1 2 3 4 5 6 7
	Purchasing a product using the Internet is a good idea	1 2 3 4 5 6 7
	Purchasing a product using the Internet is a positive experience	1 2 3 4 5 6 7
	All my experiences in the past have been positive when purchasing products using the Internet	1 2 3 4 5 6 7
C5	**Subjective norm**	1 (Strongly disagree) 7 (Strongly agree)
	People whose opinions I value would approve of me purchasing products using the Internet	1 2 3 4 5 6 7
	People who influence my behaviour would think that I should purchase products using the Internet	1 2 3 4 5 6 7
	People I know would expect me to purchase products using the Internet.	1 2 3 4 5 6 7
	People who are important to me would agree that I should purchase products using the Internet	1 2 3 4 5 6 7

C6	**Perceived behavioural control**	1 (Strongly disagree) 7 (Strongly agree)
	Purchasing a product using the Internet is entirely within my control	1 2 3 4 5 6 7
	I have the financial resources to purchase products using the Internet	1 2 3 4 5 6 7
	I have the knowledge to purchase products using the Internet	1 2 3 4 5 6 7
	I have the technical ability to purchase a product using the Internet	1 2 3 4 5 6 7
	I would be able to purchase a product using the Internet	1 2 3 4 5 6 7
C7	**Intention to purchase using e-commerce**	1 (Strongly disagree) 7 (Strongly agree)
	I will purchase at least one product using the Internet in next 12 months	1 2 3 4 5 6 7
	I would recommend others purchase products using the Internet	1 2 3 4 5 6 7
	I would purchase products using the Internet again from previous vendors	1 2 3 4 5 6 7
	I expect to have only positive experiences when purchasing products using the Internet	1 2 3 4 5 6 7

1. How long have you been using the Internet?
   - ☐ Less than 6 months
   - ☐ 6 to 12 months
   - ☐ 1 to 3 years
   - ☐ 4 to 6 years
   - ☐ 7 years or more

2. How long do you use the Internet per week?
   - ☐ Less than 10 hours
   - ☐ 10–20 hours
   - ☐ More than 20 hours

3. How often did you buy products over the Internet in the past 12 months?
   - ☐ Never
   - ☐ 1–2 times
   - ☐ 3–6 times
   - ☐ 7–11 times
   - ☐ 12 or more times

4. If you have bought some products over the Internet in the last 12 months, what did you buy?
   - ☐ Books
   - ☐ Music CDs
   - ☐ Software
   - ☐ DVDs or videotapes
   - ☐ Clothes
   - ☐ Sports equipment
   - ☐ Others (please specify: .....)

5. If you have bought some products over the Internet in the last 15 months, what method did you use to pay?
   ☐ Credit Card
   ☐ Pay pal
   ☐ Bank transfer
   ☐ Pay on Delivery
   ☐ Others (please specify: .....)

6. If you have bought some products over the Internet in the last 12 months, where were vendors located that you mainly bought from?
   ☐ Indonesia
   ☐ Neighbouring Countries (e.g. South East Asia)
   ☐ USA
   ☐ Other international countries

7. How much would you say you spend on internet purchases each month (year)?
   ☐ Nothing
   ☐ Less than Rp. 500,000 (Rp. 6,000,000)
   ☐ Rp. 500,000 to Rp. 1,000,000 (Rp. 6,000,000 to Rp. 12,000,000)
   ☐ Rp. 1,000,000 to Rp. 2,000,000 (Rp. 12,000,000 to Rp. 24,000,000)
   ☐ More than Rp. 2,000,000 (Rp. 24,000,000)

8. How much would you say your net income per month is?
   ☐ Less than Rp. 1,000,000
   ☐ Rp. 1,000,000 to Rp. 2,500,000
   ☐ Rp. 2,500,000 to Rp. 5,000,000
   ☐ Rp. 5,000,000 to Rp. 7,500,000
   ☐ More than Rp. 7,500,000

9. In what age range are you?
   ☐ Less than 18 years
   ☐ 18–30 years
   ☐ 30–40 years
   ☐ 40–50 years
   ☐ 50–60 years
   ☐ More than 60 years

10. What is your occupation?
    ☐ Student
    ☐ Academic
    ☐ Manufacturing/construction
    ☐ Profession
    ☐ Business
    ☐ Self-employed
    ☐ Retiree
    ☐ Others (please specify.....)

11. What is your gender? ☐ Male ☐ Female

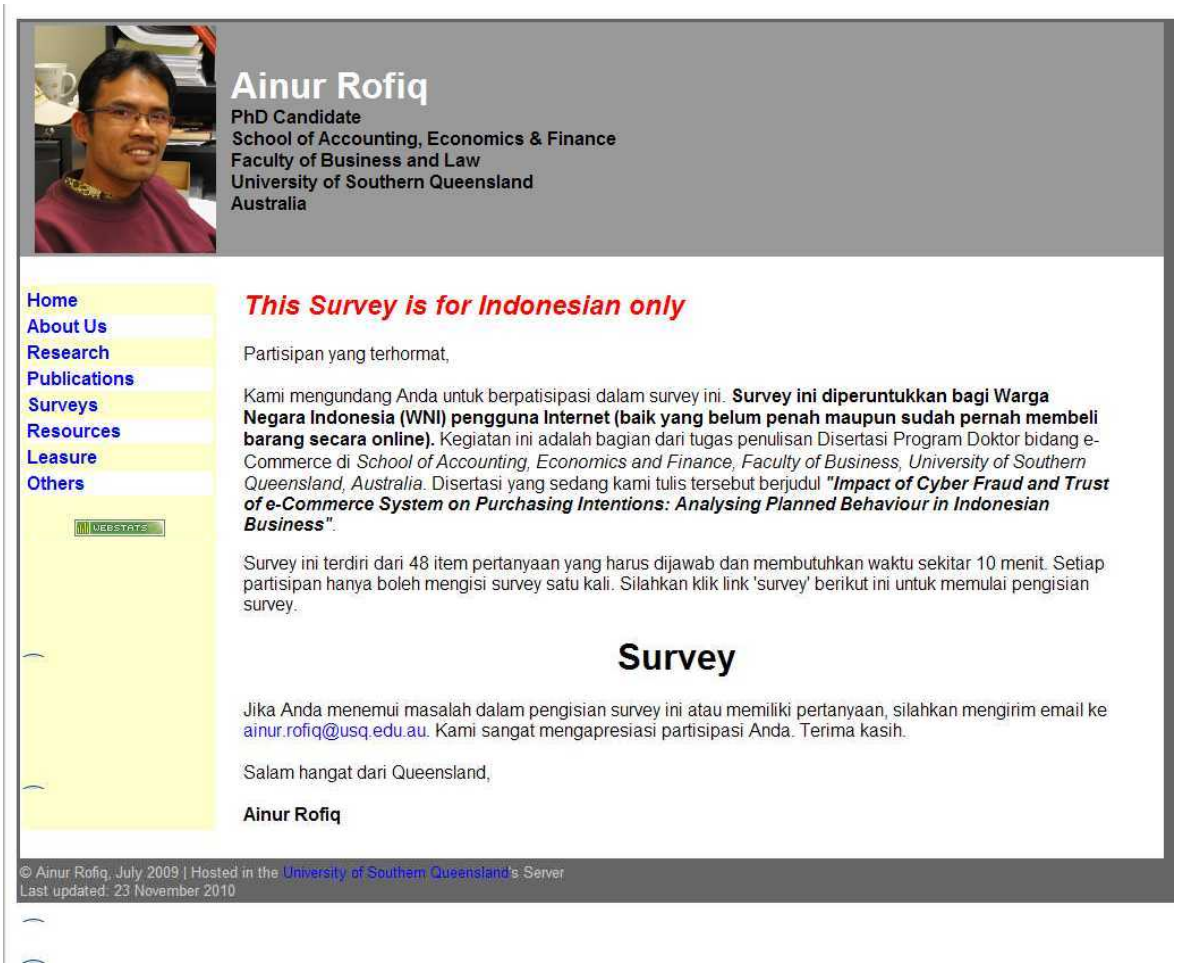
12. What is your highest education level?
    - ☐ High School
    - ☐ Technical
    - ☐ Collage
    - ☐ Master
    - ☐ Doctoral

13. What city in Indonesia do you live? Please specify .....

14. What cyber crime incidents did you or your relative experience? (If any applicable)
    - ☐ Phishing
    - ☐ Spam
    - ☐ Credit Card Fraud
    - ☐ Identity Theft
    - ☐ Auction Fraud
    - ☐ Counterfeit Cashier's Check
    - ☐ Parcel Courier Email Scheme
    - ☐ Investment Fraud
    - ☐ Others (please specify .....)

15. Do you use the Internet for banking? ☐ Yes ☐ No
    If yes, what types or activities do you do at least monthly? (If any applicable)
    - ☐ Check bank balance
    - ☐ Pay loan/mortgage
    - ☐ Pay bills
    - ☐ Buy bank products/services (e.g. Insurance)

Appendix C: Questionnaire (Translated in Bahasa Indonesia)



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Australia

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Surveys
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WEBSTATS

This Survey is for Indonesian only

Partisipan yang terhormat,

Kami mengundang Anda untuk berpatisipasi dalam survey ini. **Survey ini diperuntukkan bagi Warga Negara Indonesia (WNI) pengguna Internet (baik yang belum penah maupun sudah pernah membeli barang secara online).** Kegiatan ini adalah bagian dari tugas penulisan Disertasi Program Doktor bidang e-Commerce di *School of Accounting, Economics and Finance, Faculty of Business, University of Southern Queensland, Australia*. Disertasi yang sedang kami tulis tersebut berjudul ***"Impact of Cyber Fraud and Trust of e-Commerce System on Purchasing Intentions: Analysing Planned Behaviour in Indonesian Business"***.

Survey ini terdiri dari 48 item pertanyaan yang harus dijawab dan membutuhkan waktu sekitar 10 menit. Setiap partisipan hanya boleh mengisi survey satu kali. Silahkan klik link 'survey' berikut ini untuk memulai pengisian survey.

Survey

Jika Anda menemui masalah dalam pengisian survey ini atau memiliki pertanyaan, silahkan mengirim email ke ainur.rofiq@usq.edu.au. Kami sangat mengapresiasi partisipasi Anda. Terima kasih.

Salam hangat dari Queensland,

Ainur Rofiq

USQ UNIVERSITY OF SOUTHERN QUEENSLAND **Faculty of Business and Law**

Kuesioner Penelitian Disertasi Doktor Bidang e-Commerce

Impact of Cyber Fraud and Trust of e-Commerce System on Purchasing Intentions: Analysing Planned Behaviour in Indonesian Business

Isilah jawaban sesuai dengan persepsi Anda

Saya percaya bahwa toko online *(e-commerce vendors)* memiliki kemampuan untuk memenuhi barang sesuai yang dijanjikan

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya percaya bahwa toko online *(e-commerce vendors)* memilki niat yang baik kepada konsumennya

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya percaya bahwa toko online *(e-commerce vendors)* mengikuti aturan bisnis yang benar sesuai ketentuan hukum yang berlaku

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya percaya sepenuhnya bahwa toko online *(e-commerce vendors)* dapat dipercaya

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya hanya membeli barang dari toko *(vendors)* di mana saya pernah membeli sebelumnya

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Penipuan melalui Internet merupakan masalah serius bagi masyarakat dan ekonomi

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Penipuan melalui Internet merugikan transaksi pembelian secara online

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya takut penipuan melalui Internet terjadi pada transaksi online saya

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Penipuan melalui Internet merupakan ancaman bagi semua orang yang melakukan transaksi secara online

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

>>

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Saya percaya bahwa Internet secara teknis dapat menangani transaksi online saya

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya yakin bahwa Internet dapat beroperasi secara tepat dalam melindungi transaksi online

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya mengerti/memahami cara kerja Internet dalam menangani transaksi online

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya menyukai ide tentang pembelian barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Pembelian barang melalui Internet merupakan ide yang cerdas

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Pembelian barang melalui Internet merupakan ide yang bagus

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Pembelian barang melalui Internet merupakan pengalaman yang positif

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Semua pengalaman saya ketika membeli barang melalui Internet pada masa lalu adalah positif

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Orang yang menganggap bahwa diri saya penting akan setuju jika saya membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Orang yang mempengaruhi perilaku saya akan berpikir bahwa saya harus membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Pembelian barang melalui Internet merupakan ide yang cerdas

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Pembelian barang melalui Internet merupakan ide yang bagus

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Pembelian barang melalui Internet merupakan pengalaman yang positif

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Semua pengalaman saya ketika membeli barang melalui Internet pada masa lalu adalah positif

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Orang yang menganggap bahwa diri saya penting akan setuju jika saya membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Orang yang mempengaruhi perilaku saya akan berpikir bahwa saya harus membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Orang yang saya kenal akan mengharapkan saya membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Pembelian barang melalui Internet merupakan ide yang bagus

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Pembelian barang melalui Internet merupakan pengalaman yang positif

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Semua pengalaman saya ketika membeli barang melalui Internet pada masa lalu adalah positif

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Orang yang menganggap bahwa diri saya penting akan setuju jika saya membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Orang yang mempengaruhi perilaku saya akan berpikir bahwa saya harus membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Orang yang saya kenal akan mengharapkan saya membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Orang yang penting bagi saya akan setuju jika saya membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

>>

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Membeli barang melalui Internet secara keseluruhan dalam pengendalian *(control)* saya

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya memiliki sumber keuangan untuk membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya memiliki pengetahuan untuk membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya memiliki kemampuan teknis (keterampilan) untuk membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya berkemampuan membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya akan membeli paling sedikit satu barang melalui Internet dalam 12 bulan ke depan

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya akan merekomendasikan (menyarankan) kepada teman, keluarga, atau kenalan lainnya untuk membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya akan kembali membeli barang melalui Internet dari toko *(vendors)* sebelumnya

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Saya berharap hanya memiliki pengalaman positif ketika membeli barang melalui Internet

Sangat tidak setuju	Tidak setuju	Agak tidak setuju	Antara setuju dan tidak setuju	Agak setuju	Setuju	Sangat setuju
○	○	○	○	○	○	○

Berapa lama Anda telah menggunakan Internet?

- ○ Kurang dari 6 bulan
- ○ 6 - 12 bulan
- ○ 1 - 3 tahun
- ○ 4 - 6 tahun
- ○ Lebih dari 6 tahun

Berapa jam Anda mengakses Internet dalam seminggu?

- ○ Kurang dari 10 jam
- ○ 10 - 20 jam
- ○ Lebih dari 20 jam

Seberapa sering Anda membeli barang melalui Internet dalam 12 bulan terakhir?

- ○ Tidak pernah
- ○ 1 - 2 kali
- ○ 3 - 6 kali
- ○ 7 - 11 kali
- ○ Lebih dari 11 kali

>>

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Jenis barang apa saja yang telah Anda beli melalui Internet dalam 12 bulan terakhir? *(Jawaban boleh lebih dari satu)*

- [ ] Buku
- [ ] CD Musik
- [ ] Software
- [ ] DVD atau Videotape
- [ ] Pakaian
- [ ] Peralatan Olah Raga
- [ ] Lainnya, sebutkan:

Metode pembayaran apa saja yang telah Anda gunakan ketika membeli barang melalui Internet dalam 12 bulan terakhir? *(Jawaban boleh lebih dari satu)*

- [ ] Credit Card
- [ ] PayPal
- [ ] Transfer bank
- [ ] Pembayaran pada waktu menerima barang (Pay on Delivery)
- [ ] Lainnya, sebutkan:

Dari Toko online *(e-commerce vendors)* negara mana yang paling sering Anda membeli barang melalui Internet dalam 12 bulan terakhir?

- ( ) Indonesia
- ( ) Negara tetangga di Asia Tenggara
- ( ) Amerika Serikat
- ( ) Negara Lainnya, sebutkan:

Berapa banyak Anda membelanjakan uang untuk membeli barang melalui Internet?

- ( ) Kurang dari Rp. 500.000,- per bulan (Rp. 6.000.000,- per tahun)
- ( ) Rp. 500.000,- sampai Rp. 1.000.000, - per bulan (Rp. 6.000.000,- sampai Rp. 12.000.000,- per tahun)
- ( ) Rp. 1.000.000,- sampai Rp. 2.000.000,- per bulan (Rp. 12.000.000,- sampai Rp. 24.000.000,- per tahun)
- ( ) Lebih besar dari 2.000.000,- per bulan (Rp. 24.000.000,- per tahun)

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Berapa banyak pendapatan bersih Anda dalam sebulan?

- ○ Kurang dari Rp. 1.000.000,-
- ○ Rp. 1.000.000,- sampai Rp. 2.500.000,-
- ○ Rp. 2.500.000,- sampai Rp. 5.000.000,-
- ○ Rp. 5.000.000,- sampai Rp. 7.500.000,-
- ○ Lebih besar dari Rp. 7.500.000,-

Berapa usia Anda pada saat ini?

- ○ Kurang dari 18 tahun
- ○ 18 - 30 tahun
- ○ 30 - 40 tahun
- ○ 40 - 50 tahun
- ○ 50 - 60 tahun
- ○ Lebih dari 60 tahun

Apa pekerjaan Anda pada saat ini?

- ○ Pelajar/Mahasiswa
- ○ Guru/Dosen/Peneliti
- ○ Karyawan Perusahaan
- ○ Profesi (Akuntan, Dokter, Apoteker, Perawat, dsb)
- ○ Pegawai Pemerintahan
- ○ Wiraswasta
- ○ Pensiunan
- ○ Lainnya, sebutkan:

Apa jenis kelamin Anda?

- ○ Pria
- ○ Wanita

Apa pendidikan terakhir Anda?

- ○ SLTA
- ○ Diploma
- ○ Sarjana
- ○ Master
- ○ Doktor

Anda tinggal di kota mana di Indonesia? *(Tuliskan)*

Kejahatan internet apa saja yang pernah Anda/teman Anda/keluarga Anda alami? *(Jawaban boleh lebih dari satu)*

- ☐ Penipuan untuk permintaan data pribadi seperti user name dan password (Phishing)
- ☐ Menerima email yang tidak bermanfaat/sampah (Spam)
- ☐ Pembobolan Credit Card
- ☐ Pencurian Identitas (Identity Theft)
- ☐ Penipuan Pelelangan Barang (Auction Fraud)
- ☐ Penipuan untuk pembayaran suatu pembelian
- ☐ Penipuan email dari jasa pengiriman barang
- ☐ Penipuan Investasi
- ☐ Menerima kiriman dokumen yang mengandung virus
- ☐ Lainnya, sebutkan:

Apakah Anda memilki Internet banking?

- ○ Ya
- ○ Tidak

>>

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Aktivitas apa saja yang Anda lakukan paling sedikit satu kali dalam sebulan melalui fasilitas Internet banking? *(Jawaban boleh lebih dari satu)*

- ☐ Memeriksa Saldo
- ☐ Membayar pinjaman/cicilan barang/rumah/credit card
- ☐ Membayar listrik, telepon, air dan sejenisnya
- ☐ Membeli produk/jasa bank (misalnya asuransi, investasi, dsb)
- ☐ Mentransfer uang
- ☐ Lainnya, sebutkan:

Tuliskan nama Anda

Tuliskan email Anda

>>

Ainur Rofiq
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School of Accounting, Economics & Finance
Faculty of Business and Law
University of Southern Queensland
Australia

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Terima Kasih

atas partisipasi Anda dalam survey ini

Partisipasi Anda sangat berharga bagi kami. Oleh karena itu, kami mengikutsertakan Anda dalam undian untuk memenangkan merchandise yang telah kami sediakan. Partisipan yang beruntung akan diumumkan di website ini dan juga akan diberitahu melalui email. Sekali lagi terima kasih atas kesediaan Anda ikut ambil bagian dalam survey ini. Semoga Tuhan YME membalas kebaikan Anda dan senantiasa mencurahkan rahmat-Nya. Jika Anda memiliki pertanyaan dapat dialamatkan ke ainur.rofiq@usq.edu.au.

Salam hangat dari Queensland,

Ainur Rofiq

Appendix D: CFA Data Screening

Frequencies

Statistics

	N	
	Valid	Missing
TS1	602	0
TS2	602	0
TS3	602	0
TS4	602	0
TS5	602	0
CF1	602	0
CF2	602	0
CF3	602	0
CF4	602	0
TM1	602	0
TM2	602	0
TM3	602	0
AB1	602	0
AB2	602	0
AB3	602	0
AB4	602	0
AB5	602	0
SN1	602	0
SN2	602	0
SN3	602	0
SN4	602	0
PC1	602	0
PC2	602	0
PC3	602	0
PC4	602	0
PC5	602	0
IP1	602	0
IP2	602	0
IP3	602	0
IP4	602	0

Observations farthest from the centroid (Mahalanobis distance) (Group number 1)

Observation number	Mahalanobis d-squared	p1	p2
540	126.044	.000	.000
60	123.784	.000	.000
466	117.651	.000	.000
550	114.177	.000	.000
469	111.504	.000	.000
91	103.681	.000	.000
149	93.427	.000	.000
357	92.022	.000	.000
503	91.312	.000	.000
583	91.261	.000	.000
157	89.185	.000	.000
525	88.024	.000	.000
480	87.660	.000	.000
405	87.375	.000	.000
494	87.256	.000	.000
495	86.213	.000	.000
252	82.864	.000	.000
426	80.640	.000	.000
234	79.642	.000	.000
251	78.296	.000	.000
189	77.831	.000	.000
265	76.181	.000	.000
467	76.096	.000	.000
530	75.669	.000	.000
397	75.236	.000	.000
240	73.504	.000	.000
378	73.310	.000	.000
547	73.308	.000	.000
50	72.936	.000	.000
222	72.699	.000	.000
192	72.613	.000	.000
562	72.378	.000	.000
556	71.896	.000	.000
289	71.596	.000	.000
266	71.423	.000	.000
324	71.129	.000	.000
151	71.120	.000	.000
448	71.098	.000	.000
535	71.000	.000	.000
51	70.583	.000	.000
59	69.960	.000	.000
29	69.613	.000	.000
519	68.780	.000	.000
450	67.904	.000	.000
538	67.119	.000	.000
432	66.183	.000	.000
350	63.845	.000	.000
41	62.379	.000	.000
239	62.169	.000	.000
505	61.674	.001	.000

Observation number	Mahalanobis d-squared	p1	p2
296	61.392	.001	.000
271	60.096	.001	.000
539	59.988	.001	.000
158	59.968	.001	.000
311	59.648	.001	.000
491	59.415	.001	.000
321	59.415	.001	.000
351	59.308	.001	.000
441	58.623	.001	.000
526	58.376	.001	.000
363	57.793	.002	.000
279	57.429	.002	.000
499	57.162	.002	.000
471	56.409	.002	.000
123	56.137	.003	.000
464	55.917	.003	.000
542	55.282	.003	.000
501	55.155	.003	.000
506	55.013	.004	.000
300	54.548	.004	.000
484	54.361	.004	.000
438	54.304	.004	.000
368	53.726	.005	.000
322	53.510	.005	.000
163	53.390	.005	.000
38	52.910	.006	.000
212	52.865	.006	.000
140	52.703	.006	.000
574	52.537	.007	.000
312	52.455	.007	.000
339	52.277	.007	.000
598	52.142	.007	.000
371	51.958	.008	.000
43	51.508	.009	.000
317	51.383	.009	.000
419	51.336	.009	.000
210	50.958	.010	.000
304	50.894	.010	.000
309	50.750	.010	.000
188	50.547	.011	.000
226	50.428	.011	.000
57	50.234	.012	.000
436	49.608	.014	.000
191	49.459	.014	.000
534	49.412	.014	.000
489	49.325	.015	.000
330	49.149	.015	.000
303	49.083	.015	.000
205	48.855	.016	.000
141	48.823	.016	.000

Scalar Estimates (Group number 1 - Default model)
Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
TS5	<---	TS	1.000				
TS4	<---	TS	48.433	10.149	4.772	***	par_1
TS3	<---	TS	42.989	9.073	4.738	***	par_2
TS2	<---	TS	36.363	7.678	4.736	***	par_3
TS1	<---	TS	39.473	8.379	4.711	***	par_4
CF4	<---	CF	1.000				
CF3	<---	CF	.828	.073	11.288	***	par_5
CF2	<---	CF	.617	.072	8.583	***	par_6
CF1	<---	CF	.534	.070	7.577	***	par_7
TM3	<---	TM	1.000				
TM2	<---	TM	1.249	.119	10.466	***	par_8
TM1	<---	TM	.840	.084	9.952	***	par_9
AB5	<---	AB	1.000				
AB4	<---	AB	.994	.099	10.046	***	par_10
AB3	<---	AB	1.637	.147	11.166	***	par_11
AB2	<---	AB	1.685	.151	11.189	***	par_12
AB1	<---	AB	1.301	.119	10.928	***	par_13
SN4	<---	SN	1.000				
SN3	<---	SN	1.020	.053	19.403	***	par_14
SN2	<---	SN	1.112	.055	20.052	***	par_15
SN1	<---	SN	.920	.051	18.174	***	par_16
PC5	<---	PC	1.000				
PC4	<---	PC	1.316	.061	21.687	***	par_17
PC3	<---	PC	1.199	.057	21.014	***	par_18
PC2	<---	PC	.918	.073	12.608	***	par_19
PC1	<---	PC	.861	.100	8.593	***	par_20
IP4	<---	IP	1.000				
IP3	<---	IP	2.966	.638	4.651	***	par_21
IP2	<---	IP	5.635	1.175	4.796	***	par_22
IP1	<---	IP	4.937	1.041	4.742	***	par_23

Standardized Regression Weights:
(Group number 1 - Default model)

			Estimate
TS5	<---	TS	.011
TS4	<---	TS	.752
TS3	<---	TS	.692
TS2	<---	TS	.689
TS1	<---	TS	.651
CF4	<---	CF	.716
CF3	<---	CF	.567
CF2	<---	CF	.667
CF1	<---	CF	.513
TM3	<---	TM	.561
TM2	<---	TM	.703
TM1	<---	TM	.628
AB5	<---	AB	.459
AB4	<---	AB	.605
AB3	<---	AB	.867
AB2	<---	AB	.877
AB1	<---	AB	.766
SN4	<---	SN	.787
SN3	<---	SN	.778
SN2	<---	SN	.835
SN1	<---	SN	.738
PC5	<---	PC	.764
PC4	<---	PC	.883
PC3	<---	PC	.856
PC2	<---	PC	.520
PC1	<---	PC	.365
IP4	<---	IP	.220
IP3	<---	IP	.500
IP2	<---	IP	.828
IP1	<---	IP	.629

Appendix E: The Output of CFA Model after Deleting Invalid Indicators

Modification Indices (Group number 1 - Default model)
Covariances: (Group number 1 - Default model)

			M.I.	Par Change
e27	<-->	PC	6.777	.079
e23	<-->	IP	6.846	.086
e23	<-->	AB	4.618	.041
e23	<-->	e27	8.261	.151
e24	<-->	IP	7.642	-.050
e24	<-->	TS	7.276	.056
e24	<-->	e27	4.561	-.062
e24	<-->	e23	5.732	-.058
e25	<-->	AB	6.757	-.028
e25	<-->	e23	10.181	-.079
e25	<-->	e24	5.846	.029
e26	<-->	AB	10.059	.036
e26	<-->	e23	32.789	.150
e26	<-->	e24	4.336	-.029
e18	<-->	SN	5.372	-.096
e18	<-->	TM	6.308	.074
e19	<-->	IP	6.691	-.079
e19	<-->	SN	5.992	.093
e19	<-->	e28	6.460	-.093
e19	<-->	e18	6.455	.101
e20	<-->	AB	10.094	-.060
e20	<-->	e18	27.670	-.226
e20	<-->	e19	15.569	.157
e21	<-->	IP	8.142	.089
e21	<-->	SN	6.126	-.098
e21	<-->	AB	4.001	.036
e21	<-->	TM	5.382	-.066
e21	<-->	e28	12.726	.132
e21	<-->	e19	13.217	-.138
e14	<-->	e20	4.771	-.056
e15	<-->	e28	5.473	-.053
e15	<-->	e18	5.138	-.058
e15	<-->	e21	6.896	.065
e15	<-->	e13	4.823	-.034
e15	<-->	e14	7.442	.037
e16	<-->	IP	7.001	.063
e16	<-->	AB	18.192	-.058
e16	<-->	TS	9.243	.084
e16	<-->	e28	10.119	.090
e16	<-->	e26	5.609	.045
e16	<-->	e18	5.438	.074
e16	<-->	e14	16.232	-.074
e10	<-->	SN	7.792	-.096
e10	<-->	CF	6.272	.086
e10	<-->	e27	4.970	.095
e10	<-->	e20	4.042	-.072
e10	<-->	e16	6.506	.066

			M.I.	Par Change
e11	<-->	PC	25.818	-.133
e11	<-->	e10	7.297	.098
e12	<-->	PC	59.494	.222
e12	<-->	TM	6.122	-.078
e12	<-->	e24	13.264	.099
e12	<-->	e20	4.077	.100
e12	<-->	e13	6.749	.081
e12	<-->	e14	6.483	-.074
e12	<-->	e10	12.203	-.140
e6	<-->	TM	6.571	.059
e6	<-->	TS	15.599	.115
e6	<-->	e10	6.665	.072
e7	<-->	SN	4.041	-.055
e7	<-->	TM	6.777	.049
e7	<-->	e20	4.682	-.061
e7	<-->	e10	13.250	.084
e7	<-->	e6	29.184	.116
e8	<-->	e19	4.211	.090
e8	<-->	e20	4.339	.097
e8	<-->	e6	15.276	-.140
e9	<-->	TM	8.509	-.082
e9	<-->	e6	4.249	-.065
e9	<-->	e8	17.492	.179
e1	<-->	IP	5.665	.072
e1	<-->	AB	4.359	.037
e1	<-->	e28	9.040	.108
e2	<-->	CF	7.824	.093
e2	<-->	e24	4.817	.042
e2	<-->	e6	4.839	.059
e2	<-->	e7	6.648	.057
e2	<-->	e8	6.282	-.092
e3	<-->	e24	4.865	.049
e3	<-->	e26	6.923	-.064
e3	<-->	e8	8.886	.128
e3	<-->	e9	6.190	-.096
e3	<-->	e2	4.253	.065
e4	<-->	CF	6.801	-.100
e4	<-->	e7	6.811	-.067
e4	<-->	e8	5.309	-.098

Bollen-Stine Bootstrap (Default model)
The model fit better in 10 bootstrap samples.
It fit about equally well in 0 bootstrap samples.
It fit worse or failed to fit in 0 bootstrap samples.
Testing the null hypothesis that the model is correct, Bollen-Stine bootstrap p = .091

Model Fit Summary
CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	71	800.021	254	.000	3.150
Saturated model	325	.000	0		
Independence model	25	6795.471	300	.000	22.652

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.083	.903	.876	.706
Saturated model	.000	1.000		
Independence model	.403	.334	.279	.309

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.882	.861	.917	.901	.916
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.847	.747	.775
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	546.021	464.445	635.204
Saturated model	.000	.000	.000
Independence model	6495.471	6230.492	6766.823

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.331	.909	.773	1.057
Saturated model	.000	.000	.000	.000
Independence model	11.307	10.808	10.367	11.259

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.060	.055	.065	.000
Independence model	.190	.186	.194	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	942.021	948.441	1254.439	1325.439
Saturated model	650.000	679.391	2080.084	2405.084
Independence model	6845.471	6847.732	6955.477	6980.477

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.567	1.432	1.716	1.578
Saturated model	1.082	1.082	1.082	1.130
Independence model	11.390	10.949	11.842	11.394

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	220	233
Independence model	31	32

Appendix F: CFA Output after Modification

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
TS4	<---	TS	1.000				
TS3	<---	TS	.887	.058	15.250	***	par_1
TS2	<---	TS	.750	.051	14.754	***	par_2
TS1	<---	TS	.816	.058	14.124	***	par_3
CF4	<---	CF	1.000				
CF3	<---	CF	.830	.074	11.291	***	par_4
CF2	<---	CF	.622	.072	8.648	***	par_5
CF1	<---	CF	.538	.070	7.643	***	par_6
TM3	<---	TM	1.000				
TM2	<---	TM	1.271	.121	10.503	***	par_7
TM1	<---	TM	.854	.086	9.962	***	par_8
AB4	<---	AB	1.000				
AB3	<---	AB	1.550	.098	15.736	***	par_9
AB2	<---	AB	1.667	.108	15.483	***	par_10
AB1	<---	AB	1.220	.083	14.639	***	par_11
SN4	<---	SN	1.000				
SN3	<---	SN	1.007	.060	16.747	***	par_12
SN2	<---	SN	1.050	.057	18.488	***	par_13
SN1	<---	SN	.980	.055	17.917	***	par_14
PC5	<---	PC	1.000				
PC4	<---	PC	1.381	.065	21.150	***	par_15
PC3	<---	PC	1.246	.060	20.618	***	par_16
PC2	<---	PC	1.216	.129	9.438	***	par_17
IP2	<---	IP	1.192	.088	13.531	***	par_18
IP1	<---	IP	1.000				

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
TS4	<---	TS	.755
TS3	<---	TS	.695
TS2	<---	TS	.691
TS1	<---	TS	.655
CF4	<---	CF	.713
CF3	<---	CF	.567
CF2	<---	CF	.669
CF1	<---	CF	.515
TM3	<---	TM	.555
TM2	<---	TM	.707
TM1	<---	TM	.631
AB4	<---	AB	.637
AB3	<---	AB	.858
AB2	<---	AB	.908
AB1	<---	AB	.751
SN4	<---	SN	.788
SN3	<---	SN	.768
SN2	<---	SN	.790
SN1	<---	SN	.788
PC5	<---	PC	.742
PC4	<---	PC	.900
PC3	<---	PC	.864
PC2	<---	PC	.671
IP2	<---	IP	.853
IP1	<---	IP	.620

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
TS	<-->	CF	.028	.045	.611	.542	par_19
CF	<-->	TM	-.019	.041	-.480	.631	par_20
TM	<-->	AB	.264	.034	7.797	***	par_21
AB	<-->	SN	.288	.038	7.551	***	par_22
SN	<-->	PC	.222	.037	6.016	***	par_23
PC	<-->	IP	.315	.040	7.783	***	par_24
TS	<-->	TM	.462	.057	8.142	***	par_25
TS	<-->	AB	.247	.033	7.513	***	par_26
TS	<-->	SN	.481	.063	7.617	***	par_27
TS	<-->	PC	.191	.032	5.942	***	par_28
TS	<-->	IP	.494	.060	8.172	***	par_29
CF	<-->	AB	.027	.025	1.073	.283	par_30
CF	<-->	SN	-.012	.050	-.238	.812	par_31
CF	<-->	PC	-.004	.028	-.146	.884	par_32
CF	<-->	IP	-.064	.045	-1.431	.152	par_33
TM	<-->	SN	.489	.063	7.809	***	par_34
TM	<-->	PC	.261	.038	6.819	***	par_35
TM	<-->	IP	.435	.059	7.398	***	par_36
AB	<-->	PC	.154	.021	7.402	***	par_37
AB	<-->	IP	.339	.040	8.430	***	par_38
SN	<-->	IP	.684	.076	8.952	***	par_39
e26	<-->	e23	.003	.056	.046	.963	par_40
e20	<-->	e18	-.244	.049	-5.033	***	par_41
e16	<-->	e14	-.103	.020	-5.035	***	par_42
e24	<-->	e23	-.191	.061	-3.124	.002	par_43
e25	<-->	e23	-.223	.066	-3.352	***	par_44
e20	<-->	e19	.212	.068	3.139	.002	par_45

Correlations: (Group number 1 - Default model)

			Estimate
TS	<-->	CF	.034
CF	<-->	TM	-.031
TM	<-->	AB	.614
AB	<-->	SN	.439
SN	<-->	PC	.299
PC	<-->	IP	.521
TS	<-->	TM	.649
TS	<-->	AB	.448
TS	<-->	SN	.443
TS	<-->	PC	.306
TS	<-->	IP	.560
CF	<-->	AB	.055
CF	<-->	SN	-.012
CF	<-->	PC	-.007
CF	<-->	IP	-.081
TM	<-->	SN	.576
TM	<-->	PC	.534
TM	<-->	IP	.630
AB	<-->	PC	.407
AB	<-->	IP	.635
SN	<-->	IP	.650
e26	<-->	e23	.005
e20	<-->	e18	-.293
e16	<-->	e14	-.332
e24	<-->	e23	-.460

			Estimate
e25	<-->	e23	-.581
e20	<-->	e19	.239

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
TS	.910	.093	9.787	***	par_46
CF	.724	.102	7.073	***	par_47
TM	.557	.088	6.345	***	par_48
AB	.334	.042	7.998	***	par_49
SN	1.295	.121	10.713	***	par_50
PC	.427	.042	10.187	***	par_51
IP	.856	.112	7.629	***	par_52
e4	.688	.057	11.978	***	par_53
e3	.768	.056	13.597	***	par_54
e2	.559	.041	13.598	***	par_55
e1	.807	.057	14.270	***	par_56
e9	.699	.084	8.359	***	par_57
e8	1.055	.081	13.014	***	par_58
e7	.346	.036	9.487	***	par_59
e6	.581	.043	13.544	***	par_60
e12	1.252	.085	14.712	***	par_61
e11	.899	.081	11.074	***	par_62
e10	.615	.045	13.691	***	par_63
e16	.489	.033	14.894	***	par_64
e15	.287	.024	12.065	***	par_65
e14	.197	.024	8.133	***	par_66
e13	.384	.026	15.037	***	par_67
e21	.791	.066	12.074	***	par_68
e20	.914	.089	10.309	***	par_69
e19	.860	.073	11.798	***	par_70
e18	.761	.065	11.671	***	par_71
e26	.350	.024	14.725	***	par_72
e25	.191	.024	7.984	***	par_73
e24	.225	.022	10.413	***	par_74
e23	.770	.122	6.331	***	par_75
e28	.457	.073	6.226	***	par_76
e27	1.374	.093	14.814	***	par_77

Bollen-Stine Bootstrap (Default model)

The model fit better in 10 bootstrap samples.
It fit about equally well in 0 bootstrap samples.
It fit worse or failed to fit in 0 bootstrap samples.
Testing the null hypothesis that the model is correct, Bollen-Stine bootstrap p = .091

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	77	674.122	248	.000	2.718
Saturated model	325	.000	0		
Independence model	25	6795.471	300	.000	22.652

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.076	.918	.893	.701
Saturated model	.000	1.000		
Independence model	.403	.334	.279	.309

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.901	.880	.935	.921	.934
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.827	.745	.772
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	426.122	352.754	507.144
Saturated model	.000	.000	.000
Independence model	6495.471	6230.492	6766.823

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.122	.709	.587	.844
Saturated model	.000	.000	.000	.000
Independence model	11.307	10.808	10.367	11.259

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.053	.049	.058	.117
Independence model	.190	.186	.194	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	828.122	835.086	1166.942	1243.942
Saturated model	650.000	679.391	2080.084	2405.084
Independence model	6845.471	6847.732	6955.477	6980.477

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.378	1.256	1.513	1.389
Saturated model	1.082	1.082	1.082	1.130
Independence model	11.390	10.949	11.842	11.394

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	255	270
Independence model	31	32

Appendix G: Computation of AVE and Square Root of AVE

$$AVE = \frac{\sum_{i=1}^{n} \lambda i^2}{\sum_{i=1}^{n} \lambda i^2 + \sum_{i=1}^{n} Var(\varepsilon i)} \quad SQRTofAVE = \sqrt{\frac{\sum_{i=1}^{n} \lambda i^2}{\sum_{i=1}^{n} \lambda i^2 + \sum_{i=1}^{n} Var(\varepsilon i)}}$$

Calculation of $\sum_{i=1}^{n} \lambda i^2$

Constructs	λ_1	λ_2	λ_3	λ_4		λ_1^2	λ_2^2
TS	0.655	0.691	0.695	0.755	=	0.429	
CF	0.515	0.669	0.567	0.713	=	0.265	
TM	0.631	0.707	0.555		=	0.398	0.50
AB	0.751	0.908	0.858	0.637	=	0.564	0.82
SN	0.788	0.790	0.768	0.788	=	0.621	0.62
PC	0.671	0.864	0.900	0.742	=	0.450	0.74
IP	0.620	0.853			=	0.384	0.72

Calculation of $\sum_{i=1}^{n} Var(\varepsilon i)$

Constructs	**Var ε_1**	**Var ε_2**	**Varε_3**	**Var ε_4**		$\sum_{i=1}^{n} Var(\varepsilon i)$
TS	0.571	0.523	0.517	0.430	=	2.040
CF	0.735	0.552	0.679	0.492	=	2.457
TM	0.602	0.500	0.692		=	1.794
AB	0.436	0.176	0.264	0.594	=	1.470
SN	0.379	0.376	0.410	0.379	=	1.544
PC	0.550	0.254	0.190	0.449	=	1.443
IP	0.616	0.272			=	0.888

The Results of AVE and Square Root of AVE

Constructs	**AVE**	**SQRT of AVE**
TS	0.490	0.700
CF	0.386	0.621
TM	0.402	0.654
AB	0.633	0.795

SN	0.614	0.784
PC	0.639	0.800
IP	0.556	0.746

Appendix H: Computation of Construct Reliability (CR)

$$CR = \frac{\left[\sum_{i=1}^{n} \lambda_i\right]^2}{\left[\sum_{i=1}^{n} \lambda_i\right]^2 + \left[\sum_{i=1}^{n} \varepsilon_i\right]}$$

Calculation of $\sum_{i=1}^{n} \lambda_i$

Constructs	λ_1	λ_2	λ_3	λ_4		$\sum_{i=1}^{n} \lambda_i$
TS	0.655	0.691	0.695	0.755	=	2.796
CF	0.515	0.669	0.567	0.713	=	2.464
TM	0.631	0.707	0.555		=	1.893
AB	0.751	0.908	0.858	0.637	=	3.154
SN	0.788	0.790	0.768	0.788	=	3.134
PC	0.671	0.864	0.900	0.742	=	3.177
IP	0.620	0.853			=	1.473

Calculation of λ_i^2

Constructs	λ_1^2	λ_2^2	λ_3^2	λ_4^2
TS	0.429	0.477	0.483	0.570
CF	0.265	0.448	0.321	0.508
TM	0.398	0.500	0.308	
AB	0.564	0.824	0.736	0.406
SN	0.621	0.624	0.590	0.621
PC	0.450	0.746	0.810	0.551
IP	0.384	0.728		

Calculation of $\sum_{i=1}^{n} \varepsilon_i$

Constructs	ε_1	ε_2	ε_3	ε_4		$\sum_{i=1}^{n} \varepsilon_i$
TS	0.571	0.523	0.517	0.430	=	2.040
CF	0.735	0.552	0.679	0.492	=	2.457
TM	0.602	0.500	0.692		=	1.794
AB	0.436	0.176	0.264	0.594	=	1.470
SN	0.379	0.376	0.410	0.379	=	1.544
PC	0.550	0.254	0.190	0.449	=	1.443
IP	0.616	0.272			=	0.888

The Results of CR

Constructs	**CR**
TS	0.793
CF	0.712
TM	0.666
AB	0.871
SN	0.864
PC	0.875
IP	0.710

Appendix I: Structural Model

Modification Indices (Group number 1 - Default model)
Covariances: (Group number 1 - Default model)

			M.I.	Par Change
e27	<-->	PC	6.971	.083
e23	<-->	z2	10.582	.064
e23	<-->	z1	6.862	.086
e23	<-->	e27	8.260	.151
e24	<-->	TS	4.004	.042
e24	<-->	z1	7.646	-.049
e24	<-->	e27	4.613	-.062
e24	<-->	e23	5.513	-.056
e25	<-->	z2	4.391	-.023
e25	<-->	e23	9.898	-.077
e25	<-->	e24	5.245	.028
e26	<-->	z2	15.251	.046
e26	<-->	e23	33.327	.151
e26	<-->	e24	4.102	-.028
e18	<-->	SN	4.934	-.097
e18	<-->	TM	13.564	.103
e18	<-->	z2	4.898	.044
e19	<-->	z1	6.731	-.079
e19	<-->	e28	6.443	-.092
e19	<-->	e18	6.416	.101
e20	<-->	z2	9.532	-.061
e20	<-->	e18	28.369	-.228
e20	<-->	e19	14.420	.150
e21	<-->	TS	6.222	.092
e21	<-->	z2	11.962	.066
e21	<-->	z1	8.215	.090
e21	<-->	e28	12.831	.133
e21	<-->	e19	12.661	-.135
e14	<-->	e20	4.203	-.052
e15	<-->	e28	5.464	-.053
e15	<-->	e18	4.950	-.057
e15	<-->	e21	7.526	.068
e15	<-->	e13	4.748	-.034
e15	<-->	e14	7.305	.036
e16	<-->	PC	6.623	.049
e16	<-->	TS	14.179	.105
e16	<-->	z2	12.023	-.050
e16	<-->	z1	7.024	.063
e16	<-->	e28	10.134	.090
e16	<-->	e26	5.569	.045
e16	<-->	e18	5.280	.073
e16	<-->	e14	16.137	-.074
e10	<-->	SN	8.168	-.104
e10	<-->	CF	6.178	.086
e10	<-->	e27	4.879	.095
e10	<-->	e16	6.120	.065

			M.I.	Par Change
e11	<-->	PC	27.717	-.142
e11	<-->	TM	4.147	.054
e11	<-->	e21	4.307	-.091
e11	<-->	e10	14.656	.142
e12	<-->	PC	44.640	.196
e12	<-->	TM	9.346	-.092
e12	<-->	z2	6.905	-.058
e12	<-->	e24	12.254	.095
e12	<-->	e13	6.520	.079
e12	<-->	e14	6.923	-.076
e12	<-->	e10	9.165	-.122
e6	<-->	TS	15.537	.117
e6	<-->	e10	7.151	.074
e7	<-->	SN	4.312	-.060
e7	<-->	TM	10.572	.059
e7	<-->	e20	4.723	-.061
e7	<-->	e10	13.483	.085
e7	<-->	e6	29.672	.117
e8	<-->	TM	5.601	-.070
e8	<-->	TS	5.032	-.091
e8	<-->	e19	4.091	.089
e8	<-->	e20	4.278	.096
e8	<-->	e6	15.193	-.139
e9	<-->	TM	5.474	-.062
e9	<-->	e6	4.233	-.065
e9	<-->	e8	17.050	.177
e1	<-->	z2	8.915	.055
e1	<-->	z1	5.681	.072
e1	<-->	e28	9.048	.108
e2	<-->	CF	8.337	.096
e2	<-->	e24	4.763	.042
e2	<-->	e6	4.832	.059
e2	<-->	e7	6.673	.057
e2	<-->	e8	6.297	-.092
e3	<-->	e24	4.772	.049
e3	<-->	e26	6.976	-.064
e3	<-->	e8	8.940	.129
e3	<-->	e9	6.203	-.096
e3	<-->	e2	4.227	.065
e4	<-->	CF	7.278	-.104
e4	<-->	e7	6.788	-.067
e4	<-->	e8	5.319	-.098

Bollen-Stine Bootstrap (Default model)
The model fit better in 10 bootstrap samples.
It fit about equally well in 0 bootstrap samples.
It fit worse or failed to fit in 0 bootstrap samples.
Testing the null hypothesis that the model is correct, Bollen-Stine bootstrap p = .091

Model Fit Summary
CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	69	805.580	256	.000	3.147
Saturated model	325	.000	0		
Independence model	25	6795.471	300	.000	22.652

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.084	.903	.877	.711
Saturated model	.000	1.000		
Independence model	.403	.334	.279	.309

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.881	.861	.916	.901	.915
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.853	.752	.781
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	549.580	467.717	639.051
Saturated model	.000	.000	.000
Independence model	6495.471	6230.492	6766.823

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.340	.914	.778	1.063
Saturated model	.000	.000	.000	.000
Independence model	11.307	10.808	10.367	11.259

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.060	.055	.064	.000
Independence model	.190	.186	.194	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	943.580	949.820	1247.197	1316.197
Saturated model	650.000	679.391	2080.084	2405.084
Independence model	6845.471	6847.732	6955.477	6980.477

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.570	1.434	1.719	1.580
Saturated model	1.082	1.082	1.082	1.130
Independence model	11.390	10.949	11.842	11.394

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	220	233
Independence model	31	32

Appendix J: AMOS Output of Full Model after Modification

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
AB	<---	CF	.052	.031	1.667	.095	par_25
AB	<---	TS	.002	.043	.057	.954	par_26
AB	<---	TM	.508	.073	6.991	***	par_27
IP	<---	CF	-.112	.045	-2.466	.014	par_19
IP	<---	TS	.221	.065	3.420	***	par_20
IP	<---	TM	-.106	.146	-.727	.467	par_21
IP	<---	AB	.526	.097	5.415	***	par_22
IP	<---	SN	.310	.047	6.556	***	par_23
IP	<---	PC	.361	.079	4.549	***	par_24
TS4	<---	TS	1.000				
TS3	<---	TS	.888	.058	15.253	***	par_1
TS2	<---	TS	.750	.051	14.754	***	par_2
TS1	<---	TS	.816	.058	14.122	***	par_3
CF4	<---	CF	1.000				
CF3	<---	CF	.830	.073	11.304	***	par_4
CF2	<---	CF	.619	.071	8.657	***	par_5
CF1	<---	CF	.535	.070	7.632	***	par_6
TM3	<---	TM	1.000				
TM2	<---	TM	1.211	.110	11.005	***	par_7
TM1	<---	TM	.825	.081	10.240	***	par_8
AB4	<---	AB	1.000				
AB3	<---	AB	1.551	.099	15.713	***	par_9
AB2	<---	AB	1.670	.108	15.468	***	par_10
AB1	<---	AB	1.221	.084	14.619	***	par_11
SN4	<---	SN	1.000				
SN3	<---	SN	1.018	.061	16.804	***	par_12
SN2	<---	SN	1.056	.057	18.524	***	par_13
SN1	<---	SN	.985	.055	17.940	***	par_14
PC5	<---	PC	1.000				
PC4	<---	PC	1.384	.065	21.139	***	par_15
PC3	<---	PC	1.249	.061	20.598	***	par_16
PC2	<---	PC	1.190	.126	9.425	***	par_17
IP2	<---	IP	1.193	.088	13.520	***	par_18
IP1	<---	IP	1.000				

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
AB	<---	CF	.077
AB	<---	TS	.004
AB	<---	TM	.659
IP	<---	CF	-.104
IP	<---	TS	.229
IP	<---	TM	-.086
IP	<---	AB	.330
IP	<---	SN	.382
IP	<---	PC	.256
TS4	<---	TS	.755
TS3	<---	TS	.695
TS2	<---	TS	.691
TS1	<---	TS	.655
CF4	<---	CF	.715
CF3	<---	CF	.568
CF2	<---	CF	.667
CF1	<---	CF	.513

			Estimate
TM3	<---	TM	.557
TM2	<---	TM	.676
TM1	<---	TM	.612
AB4	<---	AB	.636
AB3	<---	AB	.858
AB2	<---	AB	.908
AB1	<---	AB	.751
SN4	<---	SN	.785
SN3	<---	SN	.773
SN2	<---	SN	.792
SN1	<---	SN	.789
PC5	<---	PC	.740
PC4	<---	PC	.901
PC3	<---	PC	.864
PC2	<---	PC	.656
IP2	<---	IP	.852
IP1	<---	IP	.618

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
TS	.909	.093	9.786	***	par_44
CF	.727	.103	7.097	***	par_45
TM	.560	.086	6.529	***	par_46
SN	1.285	.120	10.676	***	par_47
PC	.426	.042	10.171	***	par_48
z2	.186	.025	7.398	***	par_49
z1	.287	.049	5.846	***	par_50
e4	.688	.057	11.982	***	par_51
e3	.767	.056	13.591	***	par_52
e2	.559	.041	13.598	***	par_53
e1	.807	.057	14.274	***	par_54
e9	.696	.084	8.323	***	par_55
e8	1.054	.081	13.035	***	par_56
e7	.347	.036	9.539	***	par_57
e6	.582	.043	13.556	***	par_58
e12	1.249	.083	15.085	***	par_59
e11	.977	.076	12.821	***	par_60
e10	.638	.045	14.319	***	par_61
e16	.490	.033	14.896	***	par_62
e15	.287	.024	12.057	***	par_63
e14	.196	.024	8.095	***	par_64
e13	.384	.026	15.029	***	par_65
e21	.801	.065	12.246	***	par_66
e20	.897	.088	10.133	***	par_67
e19	.854	.073	11.747	***	par_68
e18	.758	.065	11.652	***	par_69
e26	.351	.024	14.771	***	par_70
e25	.190	.024	7.943	***	par_71
e24	.225	.022	10.370	***	par_72
e23	.800	.117	6.836	***	par_73
e28	.456	.073	6.209	***	par_74
e27	1.374	.093	14.813	***	par_75

Standardized Total Effects (Group number 1 - Default model)

	PC	SN	TM	CF	TS	AB	IP
AB	.000	.000	.659	.077	.004	.000	.000
IP	.256	.382	.131	-.078	.230	.330	.000
IP1	.158	.236	.081	-.048	.142	.204	.618
IP2	.218	.326	.112	-.067	.196	.281	.852
PC2	.656	.000	.000	.000	.000	.000	.000
PC3	.864	.000	.000	.000	.000	.000	.000
PC4	.901	.000	.000	.000	.000	.000	.000
PC5	.740	.000	.000	.000	.000	.000	.000
SN1	.000	.789	.000	.000	.000	.000	.000
SN2	.000	.792	.000	.000	.000	.000	.000
SN3	.000	.773	.000	.000	.000	.000	.000
SN4	.000	.785	.000	.000	.000	.000	.000
AB1	.000	.000	.495	.058	.003	.751	.000
AB2	.000	.000	.599	.070	.004	.908	.000
AB3	.000	.000	.566	.066	.004	.858	.000
AB4	.000	.000	.419	.049	.003	.636	.000
TM1	.000	.000	.612	.000	.000	.000	.000
TM2	.000	.000	.676	.000	.000	.000	.000

	PC	SN	TM	CF	TS	AB	IP
TM3	.000	.000	.557	.000	.000	.000	.000
CF1	.000	.000	.000	.513	.000	.000	.000
CF2	.000	.000	.000	.667	.000	.000	.000
CF3	.000	.000	.000	.568	.000	.000	.000
CF4	.000	.000	.000	.715	.000	.000	.000
TS1	.000	.000	.000	.000	.655	.000	.000
TS2	.000	.000	.000	.000	.691	.000	.000
TS3	.000	.000	.000	.000	.695	.000	.000
TS4	.000	.000	.000	.000	.755	.000	.000

Standardized Direct Effects (Group number 1 - Default model)

	PC	SN	TM	CF	TS	AB	IP
AB	.000	.000	.659	.077	.004	.000	.000
IP	.256	.382	-.086	-.104	.229	.330	.000
IP1	.000	.000	.000	.000	.000	.000	.618
IP2	.000	.000	.000	.000	.000	.000	.852
PC2	.656	.000	.000	.000	.000	.000	.000
PC3	.864	.000	.000	.000	.000	.000	.000
PC4	.901	.000	.000	.000	.000	.000	.000
PC5	.740	.000	.000	.000	.000	.000	.000
SN1	.000	.789	.000	.000	.000	.000	.000
SN2	.000	.792	.000	.000	.000	.000	.000
SN3	.000	.773	.000	.000	.000	.000	.000
SN4	.000	.785	.000	.000	.000	.000	.000
AB1	.000	.000	.000	.000	.000	.751	.000
AB2	.000	.000	.000	.000	.000	.908	.000
AB3	.000	.000	.000	.000	.000	.858	.000
AB4	.000	.000	.000	.000	.000	.636	.000
TM1	.000	.000	.612	.000	.000	.000	.000
TM2	.000	.000	.676	.000	.000	.000	.000
TM3	.000	.000	.557	.000	.000	.000	.000
CF1	.000	.000	.000	.513	.000	.000	.000
CF2	.000	.000	.000	.667	.000	.000	.000
CF3	.000	.000	.000	.568	.000	.000	.000
CF4	.000	.000	.000	.715	.000	.000	.000
TS1	.000	.000	.000	.000	.655	.000	.000
TS2	.000	.000	.000	.000	.691	.000	.000
TS3	.000	.000	.000	.000	.695	.000	.000
TS4	.000	.000	.000	.000	.755	.000	.000

Standardized Indirect Effects (Group number 1 - Default model)

	PC	SN	TM	CF	TS	AB	IP
AB	.000	.000	.000	.000	.000	.000	.000
IP	.000	.000	.218	.025	.001	.000	.000
IP1	.158	.236	.081	-.048	.142	.204	.000
IP2	.218	.326	.112	-.067	.196	.281	.000
PC2	.000	.000	.000	.000	.000	.000	.000
PC3	.000	.000	.000	.000	.000	.000	.000
PC4	.000	.000	.000	.000	.000	.000	.000
PC5	.000	.000	.000	.000	.000	.000	.000
SN1	.000	.000	.000	.000	.000	.000	.000
SN2	.000	.000	.000	.000	.000	.000	.000
SN3	.000	.000	.000	.000	.000	.000	.000
SN4	.000	.000	.000	.000	.000	.000	.000
AB1	.000	.000	.495	.058	.003	.000	.000
AB2	.000	.000	.599	.070	.004	.000	.000
AB3	.000	.000	.566	.066	.004	.000	.000

	PC	SN	TM	CF	TS	AB	IP
AB4	.000	.000	.419	.049	.003	.000	.000
TM1	.000	.000	.000	.000	.000	.000	.000
TM2	.000	.000	.000	.000	.000	.000	.000
TM3	.000	.000	.000	.000	.000	.000	.000
CF1	.000	.000	.000	.000	.000	.000	.000
CF2	.000	.000	.000	.000	.000	.000	.000
CF3	.000	.000	.000	.000	.000	.000	.000
CF4	.000	.000	.000	.000	.000	.000	.000
TS1	.000	.000	.000	.000	.000	.000	.000
TS2	.000	.000	.000	.000	.000	.000	.000
TS3	.000	.000	.000	.000	.000	.000	.000
TS4	.000	.000	.000	.000	.000	.000	.000

Bollen-Stine Bootstrap (Default model)

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	75	680.800	250	.000	2.723
Saturated model	325	.000	0		
Independence model	25	6795.471	300	.000	22.652

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.077	.918	.893	.706
Saturated model	.000	1.000		
Independence model	.403	.334	.279	.309

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.900	.880	.934	.920	.934
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.833	.750	.778
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	430.800	357.032	512.218
Saturated model	.000	.000	.000
Independence model	6495.471	6230.492	6766.823

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.133	.717	.594	.852
Saturated model	.000	.000	.000	.000
Independence model	11.307	10.808	10.367	11.259

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.054	.049	.058	.111
Independence model	.190	.186	.194	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	830.800	837.582	1160.819	1235.819
Saturated model	650.000	679.391	2080.084	2405.084
Independence model	6845.471	6847.732	6955.477	6980.477

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.382	1.260	1.518	1.394
Saturated model	1.082	1.082	1.082	1.130
Independence model	11.390	10.949	11.842	11.394

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	255	270
Independence model	31	32

Appendix K: Moderating Value Calculation

Indicator value:

MSF = $(x1+x_2)\ (z_1+z_2)$

Calculation of MSF value was conducted in the raw data using SPSS.

Loading of MSF:

$\lambda_{TS:CF} = (\lambda_{TS1} + \lambda_{TS2} + \lambda_{TS3} + \lambda_{TS4})\ (\lambda_{CF1} + \lambda_{CF2} + \lambda_{CF3} + \lambda_{CF4})$

$= (0.655 + 0.691 + 0.695 + 0.755) \times (0.513 + 0.667 + 0.568 + 715)$

$= 2.796 \times 2.463$

$=$ **6.887**

Error of MSF:

$\theta_{\varepsilon TS:CF} = (\lambda_{TS1} + \lambda_{TS2} + \lambda_{TS3} + \lambda_{TS4})^2\ VAR(TS)\ (\theta_{\varepsilon CF1} + \theta_{\varepsilon CF2} + \theta_{\varepsilon CF3} + \theta_{\varepsilon CF4}) + (\lambda_{CF1} + \lambda_{CF2} + \lambda_{CF3} + \lambda_{CF4})^2$

$VAR(CF)\ (\theta_{\varepsilon TS1} + \theta_{\varepsilon TS2} + \theta_{\varepsilon TS3} + \theta_{\varepsilon TS4}) + (\theta_{\varepsilon CF1} + \theta_{\varepsilon CF2} + \theta_{\varepsilon CF3} + \theta_{\varepsilon CF4})\ (\theta_{\varepsilon TS1} + \theta_{\varepsilon TS2} + \theta_{\varepsilon TS3} + \theta_{\varepsilon TS4})$

$= (0.655 + 0.691 + 0.695 + 0.755)^2 \times 0.909 \times (0.582 + 0.347 + 1.054 + 0.696) +$

$(0.513 + 0.667 + 0.568 + 715)^2 \times 0.727 \times (0.807 + 0.559 + 0.767 + 0.688) +$

$(0.582 + 0.347 + 1.054 + 0.696) \times (0.807 + 0.559 + 0.767 + 0.688)$

$= (2.796)^2 \times 0.909 \times (2.679) + (2.463)^2 \times 0.727 \times (2.821) + (2.679) \times (2.821)$

$= (7.818 \times 0.909 \times 2.679) + (6.066 \times 0.727 \times 2.821) + (2.679 \times 2.821)$

$= 19.038 + 12.441 + 7.557$

$=$ **39.036**

Appendix L: Moderating Effects

Modification Indices (Group number 1 - Default model)
Covariances: (Group number 1 - Default model)

			M.I.	Par Change
e27	<-->	PC	9.069	.089
e23	<-->	e27	5.450	.118
e24	<-->	z1	6.291	-.044
e25	<-->	CF	4.690	-.009
e25	<-->	TS	4.089	-.006
e25	<-->	z2	4.374	-.025
e26	<-->	z2	15.048	.048
e18	<-->	TM	6.154	.068
e20	<-->	z2	9.752	-.063
e21	<-->	z2	10.069	.064
e21	<-->	z1	7.134	.082
e21	<-->	e28	11.445	.124
e21	<-->	e18	6.940	-.102
e13	<-->	er1	4.056	.017
e13	<-->	CF	4.413	-.010
e15	<-->	e28	4.417	-.047
e15	<-->	e18	6.439	-.063
e15	<-->	e21	9.256	.074
e16	<-->	z2	4.512	-.032
e16	<-->	z1	4.185	.047
e16	<-->	e28	8.260	.079
e16	<-->	e26	7.549	.050
e16	<-->	e18	5.729	.073
e10	<-->	SN	6.319	-.091
e10	<-->	TM	5.494	.053
e10	<-->	e27	4.433	.091
e10	<-->	e16	6.384	.066

			M.I.	Par Change
e11	<-->	PC	26.165	-.130
e11	<-->	e10	17.677	.158
e12	<-->	MSF	4.103	.136
e12	<-->	PC	37.449	.169
e12	<-->	TM	10.749	-.101
e12	<-->	z2	9.285	-.072
e12	<-->	z1	4.136	-.074
e12	<-->	e24	12.298	.094
e12	<-->	e18	4.338	.099
e12	<-->	e20	5.753	.114
e12	<-->	e13	6.670	.080
e12	<-->	e14	8.344	-.082
e12	<-->	e10	7.616	-.112
e6	<-->	TM	4.925	.036
e6	<-->	e10	4.369	.042
e7	<-->	TM	5.255	.028
e7	<-->	z2	4.072	.018
e7	<-->	e10	4.704	.034
e7	<-->	e6	8.324	.027
e8	<-->	e25	5.003	-.026
e8	<-->	e6	4.377	-.021
e9	<-->	e26	4.881	.027
e9	<-->	e13	5.082	-.029
e1	<-->	z2	5.663	.021
e1	<-->	e26	6.970	.028
e3	<-->	e25	4.180	-.021
e4	<-->	e26	4.212	.021

Bollen-Stine Bootstrap (Default model)
The model fit better in 10 bootstrap samples.
It fit about equally well in 0 bootstrap samples.
It fit worse or failed to fit in 0 bootstrap samples.
Testing the null hypothesis that the model is correct, Bollen-Stine bootstrap p = .091

Model Fit Summary
CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	79	837.523	272	.000	3.079
Saturated model	351	.000	0		
Independence model	26	9478.574	325	.000	29.165

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	7.473	.902	.873	.699
Saturated model	.000	1.000		
Independence model	13.039	.314	.259	.291

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.912	.894	.939	.926	.938
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.837	.763	.785
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	565.523	482.162	656.497
Saturated model	.000	.000	.000
Independence model	9153.574	8839.237	9474.263

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.394	.941	.802	1.092
Saturated model	.000	.000	.000	.000
Independence model	15.771	15.231	14.708	15.764

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.059	.054	.063	.001
Independence model	.216	.213	.220	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	995.523	1002.955	1343.143	1422.143
Saturated model	702.000	735.021	2246.490	2597.490
Independence model	9530.574	9533.020	9644.981	9670.981

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.656	1.518	1.808	1.669
Saturated model	1.168	1.168	1.168	1.223
Independence model	15.858	15.335	16.391	15.862

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	224	237
Independence model	24	25

Appendix M: Moderating Effects after Modification

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
AB	<---	CF	.061	.035	1.742	.081	par_25
AB	<---	TS	-.023	.030	-.766	.444	par_26
AB	<---	TM	.504	.066	7.628	***	par_27
IP	<---	CF	-.156	.059	-2.623	.009	par_19
IP	<---	TS	.263	.065	4.080	***	par_20
IP	<---	TM	-.235	.191	-1.230	.219	par_21
IP	<---	AB	.568	.107	5.322	***	par_22
IP	<---	SN	.345	.060	5.725	***	par_23
IP	<---	PC	.419	.106	3.944	***	par_24
IP	<---	MSF	-.338	.186	-1.817	.069	par_38
TS4	<---	TS	1.000				
TS3	<---	TS	.942	.045	21.145	***	par_1
TS2	<---	TS	.724	.037	19.537	***	par_2
TS1	<---	TS	.910	.043	21.045	***	par_3
CF4	<---	CF	1.000				
CF3	<---	CF	1.069	.054	19.807	***	par_4
CF2	<---	CF	.551	.032	17.040	***	par_5
CF1	<---	CF	.537	.034	15.576	***	par_6
TM3	<---	TM	1.000				
TM2	<---	TM	1.049	.100	10.486	***	par_7
TM1	<---	TM	.680	.072	9.396	***	par_8
AB4	<---	AB	1.000				
AB3	<---	AB	1.564	.100	15.639	***	par_9
AB2	<---	AB	1.677	.109	15.399	***	par_10
AB1	<---	AB	1.232	.085	14.575	***	par_11
SN4	<---	SN	1.000				
SN3	<---	SN	1.026	.061	16.716	***	par_12
SN2	<---	SN	1.059	.057	18.477	***	par_13
SN1	<---	SN	.994	.055	17.919	***	par_14
PC5	<---	PC	1.000				
PC4	<---	PC	1.375	.065	21.244	***	par_15
PC3	<---	PC	1.247	.060	20.678	***	par_16
PC2	<---	PC	1.155	.120	9.636	***	par_17
IP2	<---	IP	1.192	.088	13.553	***	par_18
IP1	<---	IP	1.000				
SF	<---	er1	39.036				
SF	<---	MSF	6.887				

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
AB	<---	CF	.098
AB	<---	TS	-.033
AB	<---	TM	.694
IP	<---	CF	-.158
IP	<---	TS	.244
IP	<---	TM	-.204
IP	<---	AB	.358
IP	<---	SN	.432
IP	<---	PC	.305
IP	<---	MSF	-.375
TS4	<---	TS	.692
TS3	<---	TS	.676
TS2	<---	TS	.606
TS1	<---	TS	.668
CF4	<---	CF	.722
CF3	<---	CF	.737
CF2	<---	CF	.610
CF1	<---	CF	.534
TM3	<---	TM	.582

			Estimate
TM2	<---	TM	.612
TM1	<---	TM	.527
AB4	<---	AB	.629
AB3	<---	AB	.858
AB2	<---	AB	.906
AB1	<---	AB	.750
SN4	<---	SN	.781
SN3	<---	SN	.776
SN2	<---	SN	.790
SN1	<---	SN	.793
PC5	<---	PC	.743
PC4	<---	PC	.898
PC3	<---	PC	.866
PC2	<---	PC	.639
IP2	<---	IP	.846
IP1	<---	IP	.610
SF	<---	er1	.998
SF	<---	MSF	.061

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
TS	<-->	TM	.231	.032	7.320	***	par_28
TS	<-->	SN	.188	.033	5.735	***	par_29
TS	<-->	PC	.087	.018	4.944	***	par_30
TS	<-->	CF	.034	.040	.863	.388	par_31
CF	<-->	TM	-.304	.043	-7.058	***	par_32
CF	<-->	SN	-.251	.045	-5.601	***	par_33
CF	<-->	PC	-.112	.024	-4.678	***	par_34
TM	<-->	SN	.566	.066	8.609	***	par_35
TM	<-->	PC	.326	.041	7.899	***	par_36
SN	<-->	PC	.222	.037	6.007	***	par_37
CF	<-->	er1	1.904	.157	12.105	***	par_44
TS	<-->	er1	2.188	.157	13.974	***	par_45
e20	<-->	e18	-.263	.049	-5.348	***	par_39
e16	<-->	e14	-.098	.020	-4.796	***	par_40
e25	<-->	e23	-.186	.061	-3.072	.002	par_41
e26	<-->	e23	.028	.052	.526	.599	par_42
e24	<-->	e23	-.161	.056	-2.854	.004	par_43
e20	<-->	e19	.196	.068	2.887	.004	par_46
e11	<-->	e10	.232	.049	4.735	***	par_47

Correlations: (Group number 1 - Default model)

			Estimate
TS	<-->	TM	.354
TS	<-->	SN	.200
TS	<-->	PC	.159
TS	<-->	CF	.045
CF	<-->	TM	-.427
CF	<-->	SN	-.244
CF	<-->	PC	-.187
TM	<-->	SN	.641
TM	<-->	PC	.637
SN	<-->	PC	.300
CF	<-->	er1	.723
TS	<-->	er1	.907
e20	<-->	e18	-.324
e16	<-->	e14	-.313
e25	<-->	e23	-.462
e26	<-->	e23	.051
e24	<-->	e23	-.374
e20	<-->	e19	.225
e11	<-->	e10	.255

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
MSF	1.000				
TS	.696	.063	10.980	***	par_48
CF	.830	.085	9.744	***	par_49
TM	.612	.090	6.781	***	par_50
SN	1.274	.120	10.608	***	par_51
PC	.429	.042	10.213	***	par_52
er1	8.358	.484	17.271	***	par_53
z2	.188	.026	7.224	***	par_54
z1	.164	.137	1.204	.229	par_55
e4	.755	.035	21.524	***	par_56
e3	.736	.034	21.489	***	par_57
e2	.629	.030	20.948	***	par_58
e1	.715	.033	21.720	***	par_59
e9	.762	.038	19.994	***	par_60
e8	.799	.039	20.475	***	par_61
e7	.425	.022	19.672	***	par_62
e6	.600	.031	19.588	***	par_63
e12	1.196	.082	14.515	***	par_64
e11	1.125	.083	13.608	***	par_65
e10	.737	.049	15.002	***	par_66
e16	.494	.033	14.965	***	par_67
e15	.284	.024	11.973	***	par_68
e14	.199	.024	8.194	***	par_69
e13	.381	.025	14.981	***	par_70
e21	.812	.066	12.347	***	par_71
e20	.886	.089	9.925	***	par_72
e19	.859	.073	11.797	***	par_73
e18	.744	.065	11.464	***	par_74
e26	.348	.024	14.724	***	par_75
e25	.195	.024	8.291	***	par_76
e24	.222	.021	10.427	***	par_77
e23	.831	.109	7.592	***	par_78
e28	.457	.073	6.246	***	par_79
e27	1.373	.093	14.822	***	par_80

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
AB	.418
IP	.798
SF	.004
IP1	.372
IP2	.716
PC2	.408
PC3	.750
PC4	.806
PC5	.552
SN1	.629
SN2	.624
SN3	.602
SN4	.611
AB1	.563
AB2	.820
AB3	.736
AB4	.395
TM1	.277
TM2	.375
TM3	.339
CF1	.285
CF2	.372
CF3	.543
CF4	.521
TS1	.446
TS2	.367
TS3	.456
TS4	.479

Standardized Total Effects (Group number 1 - Default model)

	MSF	PC	SN	TM	CF	TS	AB	IP
AB	.000	.000	.000	.694	.098	-.033	.000	.000
IP	-.375	.305	.432	.045	-.122	.232	.358	.000
SF	.061	.000	.000	.000	.000	.000	.000	.000
IP1	-.228	.186	.263	.027	-.075	.141	.218	.610
IP2	-.317	.258	.366	.038	-.104	.196	.303	.846
PC2	.000	.639	.000	.000	.000	.000	.000	.000
PC3	.000	.866	.000	.000	.000	.000	.000	.000
PC4	.000	.898	.000	.000	.000	.000	.000	.000
PC5	.000	.743	.000	.000	.000	.000	.000	.000
SN1	.000	.000	.793	.000	.000	.000	.000	.000
SN2	.000	.000	.790	.000	.000	.000	.000	.000
SN3	.000	.000	.776	.000	.000	.000	.000	.000
SN4	.000	.000	.781	.000	.000	.000	.000	.000
AB1	.000	.000	.000	.521	.074	-.025	.750	.000
AB2	.000	.000	.000	.629	.089	-.030	.906	.000
AB3	.000	.000	.000	.595	.084	-.029	.858	.000
AB4	.000	.000	.000	.437	.062	-.021	.629	.000
TM1	.000	.000	.000	.527	.000	.000	.000	.000
TM2	.000	.000	.000	.612	.000	.000	.000	.000
TM3	.000	.000	.000	.582	.000	.000	.000	.000
CF1	.000	.000	.000	.000	.534	.000	.000	.000
CF2	.000	.000	.000	.000	.610	.000	.000	.000
CF3	.000	.000	.000	.000	.737	.000	.000	.000
CF4	.000	.000	.000	.000	.722	.000	.000	.000
TS1	.000	.000	.000	.000	.000	.668	.000	.000
TS2	.000	.000	.000	.000	.000	.606	.000	.000
TS3	.000	.000	.000	.000	.000	.676	.000	.000
TS4	.000	.000	.000	.000	.000	.692	.000	.000

Standardized Direct Effects (Group number 1 - Default model)

	MSF	PC	SN	TM	CF	TS	AB	IP
AB	.000	.000	.000	.694	.098	-.033	.000	.000
IP	-.375	.305	.432	-.204	-.158	.244	.358	.000
SF	.061	.000	.000	.000	.000	.000	.000	.000
IP1	.000	.000	.000	.000	.000	.000	.000	.610
IP2	.000	.000	.000	.000	.000	.000	.000	.846
PC2	.000	.639	.000	.000	.000	.000	.000	.000
PC3	.000	.866	.000	.000	.000	.000	.000	.000
PC4	.000	.898	.000	.000	.000	.000	.000	.000
PC5	.000	.743	.000	.000	.000	.000	.000	.000
SN1	.000	.000	.793	.000	.000	.000	.000	.000
SN2	.000	.000	.790	.000	.000	.000	.000	.000
SN3	.000	.000	.776	.000	.000	.000	.000	.000
SN4	.000	.000	.781	.000	.000	.000	.000	.000
AB1	.000	.000	.000	.000	.000	.000	.750	.000
AB2	.000	.000	.000	.000	.000	.000	.906	.000
AB3	.000	.000	.000	.000	.000	.000	.858	.000
AB4	.000	.000	.000	.000	.000	.000	.629	.000
TM1	.000	.000	.000	.527	.000	.000	.000	.000
TM2	.000	.000	.000	.612	.000	.000	.000	.000
TM3	.000	.000	.000	.582	.000	.000	.000	.000
CF1	.000	.000	.000	.000	.534	.000	.000	.000
CF2	.000	.000	.000	.000	.610	.000	.000	.000
CF3	.000	.000	.000	.000	.737	.000	.000	.000
CF4	.000	.000	.000	.000	.722	.000	.000	.000
TS1	.000	.000	.000	.000	.000	.668	.000	.000
TS2	.000	.000	.000	.000	.000	.606	.000	.000
TS3	.000	.000	.000	.000	.000	.676	.000	.000
TS4	.000	.000	.000	.000	.000	.692	.000	.000

Standardized Indirect Effects (Group number 1 - Default model)

	MSF	PC	SN	TM	CF	TS	AB	IP
AB	.000	.000	.000	.000	.000	.000	.000	.000
IP	.000	.000	.000	.249	.035	-.012	.000	.000
SF	.000	.000	.000	.000	.000	.000	.000	.000
IP1	-.228	.186	.263	.027	-.075	.141	.218	.000
IP2	-.317	.258	.366	.038	-.104	.196	.303	.000
PC2	.000	.000	.000	.000	.000	.000	.000	.000
PC3	.000	.000	.000	.000	.000	.000	.000	.000
PC4	.000	.000	.000	.000	.000	.000	.000	.000
PC5	.000	.000	.000	.000	.000	.000	.000	.000
SN1	.000	.000	.000	.000	.000	.000	.000	.000
SN2	.000	.000	.000	.000	.000	.000	.000	.000
SN3	.000	.000	.000	.000	.000	.000	.000	.000
SN4	.000	.000	.000	.000	.000	.000	.000	.000
AB1	.000	.000	.000	.521	.074	-.025	.000	.000
AB2	.000	.000	.000	.629	.089	-.030	.000	.000
AB3	.000	.000	.000	.595	.084	-.029	.000	.000
AB4	.000	.000	.000	.437	.062	-.021	.000	.000
TM1	.000	.000	.000	.000	.000	.000	.000	.000
TM2	.000	.000	.000	.000	.000	.000	.000	.000
TM3	.000	.000	.000	.000	.000	.000	.000	.000
CF1	.000	.000	.000	.000	.000	.000	.000	.000
CF2	.000	.000	.000	.000	.000	.000	.000	.000
CF3	.000	.000	.000	.000	.000	.000	.000	.000
CF4	.000	.000	.000	.000	.000	.000	.000	.000
TS1	.000	.000	.000	.000	.000	.000	.000	.000

	MSF	PC	SN	TM	CF	TS	AB	IP
TS2	.000	.000	.000	.000	.000	.000	.000	.000
TS3	.000	.000	.000	.000	.000	.000	.000	.000
TS4	.000	.000	.000	.000	.000	.000	.000	.000

Bollen-Stine Bootstrap (Default model)
The model fit better in 10 bootstrap samples.
It fit about equally well in 0 bootstrap samples.
It fit worse or failed to fit in 0 bootstrap samples.
Testing the null hypothesis that the model is correct, Bollen-Stine bootstrap p = .091

Model Fit Summary
CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	80	812.079	271	.000	2.997
Saturated model	351	.000	0		
Independence model	26	9478.574	325	.000	29.165

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	7.430	.904	.876	.698
Saturated model	.000	1.000		
Independence model	13.039	.314	.259	.291

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.914	.897	.941	.929	.941
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.834	.762	.785
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	541.079	459.284	630.494
Saturated model	.000	.000	.000
Independence model	9153.574	8839.237	9474.263

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.351	.900	.764	1.049
Saturated model	.000	.000	.000	.000
Independence model	15.771	15.231	14.708	15.764

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.058	.053	.062	.003
Independence model	.216	.213	.220	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	972.079	979.605	1324.100	1404.100
Saturated model	702.000	735.021	2246.490	2597.490

Model	AIC	BCC	BIC	CAIC
Independence model	9530.574	9533.020	9644.981	9670.981

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.617	1.481	1.766	1.630
Saturated model	1.168	1.168	1.168	1.223
Independence model	15.858	15.335	16.391	15.862

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	230	243
Independence model	24	25

Appendix N: Frequency Tables of Respondent's Profile

Frequency Table

int_use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 6 month	5	.8	.8	.8
	6 - 12 months	11	1.8	1.8	2.7
	1 - 3 years	51	8.5	8.5	11.1
	4 - 6 years	114	18.9	18.9	30.1
	>= 7 years	421	69.9	69.9	100.0
	Total	602	100.0	100.0	

acc_int

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 10 hours	90	15.0	15.0	15.0
	10 - 20 hours	185	30.7	30.7	45.7
	> 20 hours	327	54.3	54.3	100.0
	Total	602	100.0	100.0	

Buyfrec

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	99	16.4	16.4	16.4
	1 - 2 times	257	42.7	42.7	59.1
	3 - 6 times	168	27.9	27.9	87.0
	7 - 11 times	39	6.5	6.5	93.5
	>= 12 times	39	6.5	6.5	100.0
	Total	602	100.0	100.0	

Shop

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Indonesi	413	68.6	82.1	82.1
	South East Asia	18	3.0	3.6	85.7
	USA	47	7.8	9.3	95.0
	Others	25	4.2	5.0	100.0
	Total	503	83.6	100.0	
Missing	System	99	16.4		
Total		602	100.0		

Spending

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nothing	99	16.4	16.4	16.4
	< 500,000	459	76.2	76.2	92.7
	500,000 - 1,000,000	33	5.5	5.5	98.2
	1,000,000 - 2,000,000	11	1.8	1.8	100.0
	Total	602	100.0	100.0	

net_income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 1,000,000	72	12.0	12.0	12.0
	1,000,000 - 1,500,000	146	24.3	24.3	36.2
	2,500,000 - 5,000,000	188	31.2	31.2	67.4
	5,000,000 - 7,500,000	80	13.3	13.3	80.7
	> 7,500,000	116	19.3	19.3	100.0
	Total	602	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 18 years	4	.7	.7	.7
	18 - 30 years	261	43.4	43.4	44.0
	30 - 40 years	267	44.4	44.4	88.4
	40 - 50 years	53	8.8	8.8	97.2
	50 - 60 years	17	2.8	2.8	100.0
	Total	602	100.0	100.0	

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Student	84	14.0	14.0	14.0
	Academic	113	18.8	18.8	32.7
	Manufacturing	195	32.4	32.4	65.1
	Profession	20	3.3	3.3	68.4
	Business	69	11.5	11.5	79.9
	Self-employed	81	13.5	13.5	93.4
	Retairee	4	.7	.7	94.0
	Others	36	6.0	6.0	100.0
	Total	602	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	446	74.1	74.1	74.1
	Female	156	25.9	25.9	100.0
	Total	602	100.0	100.0	

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School	72	12.0	12.0	12.0
	Technical	41	6.8	6.8	18.8
	Collage	360	59.8	59.8	78.6
	Master	120	19.9	19.9	98.5
	Doctoral	9	1.5	1.5	100.0
	Total	602	100.0	100.0	

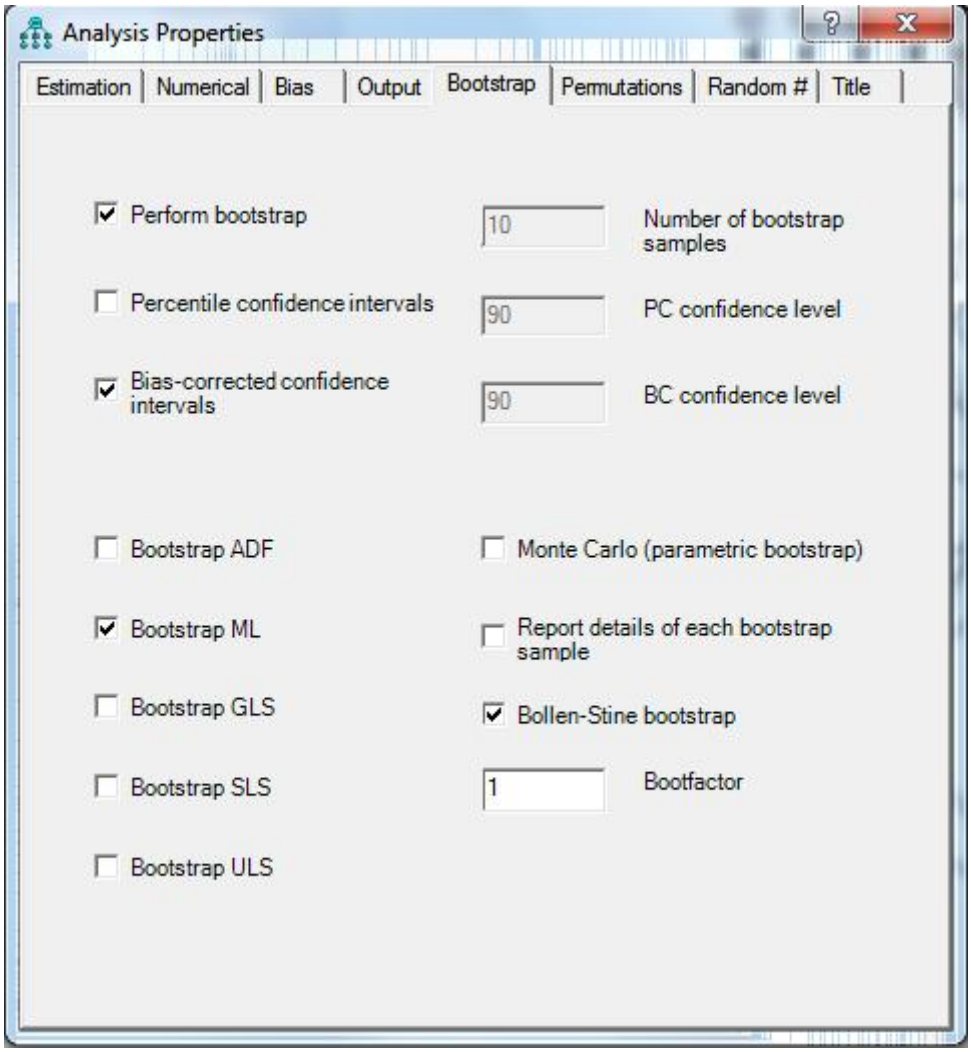
i_bank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	339	56.3	56.3	56.3
	No	263	43.7	43.7	100.0
	Total	602	100.0	100.0	

Appendix O: Measurement Process of the Bollen-Stine Bootstap

According to Byrne (2010, p. 336) the process to performing the Bollen-Stine bootstrap is as follows:

1. In the AMOS menu, choose **View** and then **Analysis Properties**.
2. In the **Analysis Properties**, select **Bootstrap**tab.
3. Check **Perform bootstrap**, **Bias-corrected confidence interval**, **Bootstrap ML**, and **Bollen-Stine bootstrap**. The detailed window is as below:



4. Close the **Analysis Properties** window and choose **Analyze** menu then click **Calculate Estimates** to produce the AMOS output.