THE DETERMINANTS OF CUSTOMER INTERNET BANKING RESISTANCE AND THE ROLE OF MEDIATING VARIABLES IN YEMENI UNIVERSITIES

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By

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ABSTRACT

Although internet banking has been widely adopted in developed countries, there is still a low percentage of internet banking adoption in Yemen, indicating a probable high resistance to internet banking. Hence, the objective of this research was to determine the direct predictors (attitude, subjective norm, perceived behavior control (PBC), credibility, trust, compatibility, self-efficacy and government support) of customer resistance, attitude, subjective norm, PBC and credibility towards internet banking. Additionally, this study examined the mediating effects of attitude, subjective norm, PBC, and credibility on the relationship between predictors and customer resistance to internet-banking behavior using Decomposed Theory of Planned Behavior (DTPB). A quantitative research survey was used whereby 900 questionnaires were distributed randomly to University employees. 451questionnaires were returned, representing a 50% response rate. After screening, 372 useable data sets were analyzed using the Structural Equation Modeling (SEM). The study found five significant predictors of customer resistance (attitude, credibility, compatibility, self-efficacy, and government support); three significant factors predicting attitude (government support, subjective norm and PBC); two significant predictors of SN (government support and self-efficacy); two significant predictors of PBC (compatibility and self-efficacy); and three predictors of credibility (trust, government support and PBC). It was also found that attitude fully mediated the relationship between subjective norm and customer resistance as well as between PBC and customer resistance. Contrastingly, attitude was a partial mediator between the relationship of government support and customer resistance. Likewise, credibility is a full mediator on the relationship between trust and customer resistance; PBC and customer resistance. Credibility also partially mediated the relationship between government support and customer resistance. Finally, the study contributes empirically by validating DTBP as an effective underpinning theory in explaining the internet banking resistance and that government should enact more stringent laws and policies to control the internet banking in Yemen.

Keywords: customer resistance, internet banking, credibility, government support, trust.

ABSTRAK

Walaupun perbankan internet telah diterima pakai secara meluas di negara-negara maju, namun peratusan penggunaan perbankan internet di Yemen masih berada pada tahap yang rendah, menggambarkan satu kemungkinan kekangan yang tinggi bagi perbankan internet. Oleh itu, objektif kajian ini adalah untuk menentukan peramal langsung (sikap, norma subjektif, kawalan tingkah laku tanggapan atau perceived behavior control (PBC), kredibiliti, amanah, keserasian, efikasi kendiri dan sokongan kerajaan) terhadap kekangan pelanggan, sikap, norma subjektif, PBC dan kredibiliti perbankan internet. Selain itu, kajian ini turut menyelidik kesan-kesan pengantara sikap, norma subjektif, PBC, dan kredibiliti terhadap hubungan antara peramal dan kekangan pelanggan ke atas tingkah laku internet-perbankan menggunakan 'Decomposed Theory of Planned Behavior' (DTPB). Bancian kajian kuantitatif telah digunakan di mana 900 soal selidik telah diedarkan secara rawak kepada pekerja universiti. 451 soal selidik yang mewakili kadar tindak balas sebanyak 50% telah dikembalikan. Selepas saringan dibuat, hanya 372 set data yang boleh digunakan. Data ini telah dianalisis dengan menggunakan Permodelan Persamaan Berstruktur. Kajian mendapati lima peramal kekangan pelanggan yang signifikan (sikap, kredibiliti, keserasian, efikasi kendiri, dan sokongan kerajaan); tiga faktor signifikan yang meramalkan sikap (sokongan kerajaan, norma subjektif dan PBC); dua peramal SN yang signifikan (sokongan kerajaan dan efikasi kendiri); dua peramal PBC yang signifikan (keserasian dan efikasi kendiri); dan tiga peramal kredibiliti (kepercayaan, sokongan kerajaan dan PBC). Dapatan kajian juga mendapati sikap menjadi pengantara penuh dalam hubungan antara norma subjektif dan kekangan pelanggan serta hubungan antara PBC dan kekangan pelanggan, sebaliknya, menjadi pengantara separa dalam hubungan antara sokongan kerajaan dan kekangan pelanggan. Kredibiliti pula didapati menjadi pengantara penuh dalam hubungan antara kepercayaan dan kekangan pelanggan serta PBC dan kekangan pelanggan, tetapi menjadi pengantara separa dalam hubungan antara sokongan kerajaan dan kekangan pelanggan. Akhir sekali, kajian ini menyumbang secara empirikal dengan mengesahkan DTPB sebagai suatu tiori asas yang efektif bagi menerangkan kekangan pelanggan internet dan kerajaan perlu merangka undang-undang dan polisi yang lebih ketat untuk mengawal perbankan internet di Yemen.

Kata kunci: rintangan pelanggan, perbankan internet, kredibiliti, sokongan kerajaan, amanah.

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AGFI	Adjusted Goodness-of-Fit Index
AMOS	Analysis of Moment Structures
ATT	Attitude
AVE	Average Variance Extracted
CBY	Central Bank of Yemen
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
COM	Compatibility
CR	Critical Ratio
CRD	Credibility
CRS	Customer Resistance
DOI	Diffusion of Innovation
DTPB	Decomposed Theory of Planned Behavior
EFA	Exploratory Factor Analysis
GFI	Goodness-of-Fit Index
GM	Generated Model
GOF	Goodness-of-Fit
GS	Government Support
IBS	Internet Banking Service
ICT	Information Communication Technology
IFI	Incremental Fit Index
IS	Information System
IT	Information Technology
ML	Maximum Likelihood
NFI	Normed Fit Index
NP	Number of employee in each region

NS	Number of sample to be distributed
PBC	Perceived Behavior Control
RMSEA	Root Mean Square Error of Approximation
SE	Self-Efficacy
SEM	Structural Equation Modeling
SMC	Squared Multiple Correlation
SN	Subjective Norm
SPSS	Statistical Package for Social Science
SRMR	Standardized Root Mean Residual
SSC	Social Security Corporation
TAM	Technology Acceptance Model
TLI	Tucker-Lewis Index
TPB	Theory of Planned Behavior
TR	Trust
TRA	Theory of Reasoned Action
TAM	Technology Acceptance Model
UK	United Kingdom
USA	United States of America
χ^2	Chi-square
χ^2/ df	Chi-square per degree of freedom ratio

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter presents the background of the study, problem statement, research questions and research objectives. This is followed by a discussion on the significance and scope of the study. Finally, the organization of the study is provided.

1.2 Background of the Study

The main aim of this research is to investigate the antecedents of internet banking resistance that may be hindering the adoption of internet banking in Yemen. Records show only 5% have adopted internet banking (Al-Hariry, 2007), as supported by Al-Ajam & Nor (2013); and Zolait (2014). They found internet banking adoption to be very low in Yemen. Despite the increasing usage of internet services in Yemen, many bank customers are still not willing to use or adopt internet banking services (Zolait, Sulaiman & Alwi, 2008a; Al-Ajam & Nor, 2013a, 2013b). Further, a review of extant literature shows that empirical studies in Yemen on internet banking are scarce (Zolait, 2010; Al-Ajam & Nor, 2013a, 2013b). This study intends to look at eight antecedents of customer resistance to internet banking and employs the Decomposed Theory of Planned Behavior in order to enhance the empirical research findings via the Structural Equation Modeling (SEM).

By way of definition, innovation resistance is a situation whereby customers resist new technology because of the fact that it presents potential changes to their satisfactory

status quo or that the innovation may interfere with customers' belief system (Ram & Sheth, 1989). Further, Ellen, Bearden and Sharma (1991) opined that internet banking resistance is "a legitimate response to a proposed technological innovation which occurs as a result of the potential user's perceptions of the effect of changing from one method to another" (p. 298). Resistance to internet banking is a relatively neglected area in marketing research. This is because of the partial scheme that all advances are upgraded in excess of accessible services to provide additional value for most customers (Danneels, 2003; Joseph, 2010; Kuisma, Laukkanen & Hiltunen, 2007; Moore, 2002). To date, the literature on internet banking has extensively dwelt with the adoption of internet banking and the factors which fast-track the acceptance procedure (e.g., Hsu & Hsu, 2007; Luo, Li, Zhang & Shim, 2010; Ozdemir & Trott, 2009; Polasik & Wisniewski, 2009; Rogers, 2003; Suki, 2010) and less on reasons that slow down or prevent the adoption (Kuisma *et al.*, 2007; Rotchanakitumnuai, Chaisrakeo, Larpsiri & Speece, 2003). In fact, examining the progression of internet banking resistance might be even more urgent than examining adoption (Laukkanen, Sinkkonen & Laukkanen, 2008). This is because customers' response to internet banking which is an innovation necessitates changing present habits and practices (Ram, 1987). Any innovation which has succeeded might have faced resistances in the beginning (Molesworth & Suortti, 2002; Ram, 1987, 1989). The justifications for such resistance differ and are not as yet established in a significant number of studies, other than instances that demonstrate the variety of advances, which lead to resistance. The adoption process can start when resistance is overcome (Patsiotis, Hughes & Webber 2012; Bagozzi & Lee, 1999; Ram, 1987).

Fundamentally, some of the reasons for customer resistance to internet banking in Yemen may be attributed to lack of trust, close knit family culture and self-efficacy.

The customers most likely prefer to put their money in saves rather than in the banks, due to their lack of trust in the banks to handle their transactions efficiently (Al-Swidi & Mahmood, 2011). When compared to other countries, Yemen seems to have low level of IT usage (Zolait, 2010). Additionally, there is the absence of government plans in Yemen regarding self-service activities compared to other regions around the globe (Zolait, 2010). Also, looking at the Yemeni environment, the customers prefer to deal on a face-to-face basis instead of using self-services (Al-Swidi & Mahmood, 2011c).

Nowadays, bank institutions, in a bid to attract and maintain their customers, have introduced new banking channels, as technology presents new dimensions to archetypal banking systems. Among these new channels, the self-service banking technology is the most popular, also known as internet banking (Calisir & Gumussoy, 2008). Developing unconventional channels for maintaining the preferred clients through modern banking is extremely crucial for bank institutions (Kimball & Gregor, 1995; Thornton & White, 2001). According to Eriksson and Nilsson (2007), in recent years, e-banking technologies have transformed the needs of bank tellers and customers alike. Over the last three decades, the banking sector has had realistic growth mainly in e-banking technology, where the utilization of banking technologies is connected to "self-service technologies". Self-service banking skills allow vast changes in core businesses, such as face-to-interface mobility, 24/7 entrance accessibility and altering the mode of customer interaction with banks to get very quick outcomes in comparison to the personal mode (Lin, Wu & Tran, 2015; Zolait, Ainin & Alawi, 2007). Padachi, Rojid and Seetanah (2008) argued that banks have to take advantage of technological advancements to provide excellent services and decrease operating costs in order to build customer satisfaction. The importance of technological innovations in the banking sector has attracted researchers to empirically

analyze improvements in e-banking and its operations (e.g., Balachandher, Santha, Norhazlin & Prasad, 2000; Bielski, 2000; Karjaluoto, Mattila & Pento, 2002a; Pikkarainen, Pikkarainen, Karjaluoto & Pahnila, 2004). In fact, e-banking allows banks to present a cheap and straight-forward method of doing business, accessing information and buying or selling products and services with the bank (Padachi *et al.*, 2008).

1.3 Research Problem Statement

This study has identified six problems, which are: (1) high level of resistance towards internet banking as indicated by the small percentage of internet banking users in Yemen; (2) lack of trust and lack of government support; (3) previous work on internet banking services has proposed the antecedents of internet banking to be diverse due to the fragmented models and inconsistent findings (Al-Majali & Nik-Mat, 2010; Lee, 2009; Nor & Pearson, 2008; Shih & Fang, 2004; Tan & Teo, 2000); and scarce research on antecedents that hinder internet banking adoption (Kleijnen, Lee, & Wetzels, 2009; Elbadrawy & A-Aziz, 2011); (4) there are gaps as most studies have used intention instead of actual behavior as a dependent variable (Ho & Ko, 2008; Peng *et al.*, 2012; Wang, Wu, Lin, Wang & He, 2011); (5) limited studies on resistance as opposed to adoption (Kuisma, Laukkanen & Hiltunen, 2007; Laukkanen, Sinkkonen & Laukkanen, 2008; Laukkanen & Kiviniemi, 2010; Yousafzai, 2012). There is also a lack of studies on the service sector compared to the manufacturing sector in terms of innovation research (Bradley & Stewart, 2002; De Brentani, 2001; Johne & Storey, 1998; Yoshida, 2009); and (6) methodological issues in which previous researchers have recommended exploring resistance to internet banking as an

alternative to adoption by using the quantitative method (Kuisma *et al.*, 2007; Rotchanakitmnuai *et al.*, 2003; Laukkanen & Kiviniemi, 2010).

To reiterate, the foremost goal of this study is to comprehend customer resistance to internet banking services in Yemen by investigating its key antecedents. Internet banking service has been introduced and offered by the Yemeni banks as a new free channel for receiving or delivering the bank's services to the customers (Zolait *et al.*, 2008a). Although, banking activities through the internet is rapidly growing in Yemen, it is commonly assumed that internet banking practices are not proceeding at the same level as internet usage (Zolait, 2014; Al-Ajam & Nor, 2013a, 2013b). Only 5% of the Yemeni banks' clients use internet banking services (Al-Hariry, 2007) which is supported by other studies which have found very low adoption of internet banking in Yemen (Zolait *et al.*, 2008a; Al-Ajam & Nor, 2013a, 2013b). Overall, internet banking technologies are not utilized efficiently and rarely used by Yemeni customers and they seem to be uninterested or not attracted to use internet banking (Commercial Service & USA Department of State, 2008; Zolait, 2010). Zolait *et al.* (2008a) suggested that it will be useful to study Yemeni customers who are considered as non-adopters who actually reject, postpone and oppose internet banking. Kleijnen *et al.* (2009); and Laukkanen *et al.* (2008) asserted that non-adopters are resistors, and there are three types of resistors, which are rejecters, postponers and oppositors. In this regard, this study treats non-adopters as resistors towards banking on the internet.

The current study focuses on the resistance to internet banking in Yemen for several reasons. First, internet banking in Yemen differs culturally compared to western countries where many studies have addressed the use of internet banking. For instance, Yemeni customers do not trust banks to handle their business transactions (Al-Swidi

& Mahmood, 2011). Compared to other countries in the world, Yemen is regarded as having a low IT usage level (Zolait, 2010). The need to include trust in this study is evitable considering Yemen's environmental issues and the significant role trust plays in the banking sector (Al-Qasa, Filzah & Faaeq, 2013). Moreover, it is clear that more people prefer to keep their hard earned money in the safe box in their homes instead of depositing it in the bank (Al-Swidi & Mahmood, 2011c).

There is also a lack of government policies in Yemen regarding online activities compared to other countries around the world (Zolait, 2010). For example, Tan and Teo (2000) reported that the Singaporean government has established facilities to enable internet commerce. Also, well-documented evidence shows that in Singapore, the government is a foremost motivating factor in the dissemination of IT. The Electronic Transaction Law in Yemen was implemented in 2006, but until the time of this study, it is not proficient in resolving internet fraud, thus the need for it to be improved. In addition, most customers of the bank perceive that the Yemeni Courts lack the skills in the event of any internet banking cases being brought to the Court, as proof of online transactions and deciding on the case fairly is difficult (Al-Hariry, 2007). Indeed, the Yemen Gulf Online Banking (Willems, 2009) reports that the main hindrance to on-line banking in Yemen is the lack of legal backing to defend customers and banks that use the service in the event something goes wrong.

In terms of choosing antecedents, self-efficacy has been suggested by Laukkanen *et al.* (2008) as having an important role in psychological risks. This is because resistors fear making errors when they type out the information on-line. Additionally, Ellen, Bearden and Sharma (1991); and Tan and Teo (2000) empirically verified that self-efficacy is a major factor which can affect resistance to technological innovations.

Prior studies have mixed and inconsistent findings on the factors that determine resistance. For example, self-efficacy was found to negatively affect customer resistance (Khan & Hyunwoo, 2009; Hernandez & Martin, 2007). Yet, Khan and Hyunwoo (2009) found insignificant relationship between self-efficacy and customer resistance. Another determinant is government support, which was found to have a negative relationship with internet banking adoption (Dauda, Santhapparaj, Asirvatham & Raman, 2007; Hernandez & Mazzon, 2007). Meanwhile, Al-Majali and Nik Mat (2010); and Tan and Teo (2000) established that government support significantly and positively influences internet banking adoption. Therefore, this study needs to include these antecedent variables in the conceptual model.

Regarding the constructs of attitude, subjective norm, perceived behavioral control and credibility, several studies have investigated these mediators with intention rather than actual behavior as a dependent variable (Ho & Ko. 2008; Peng *et al.*, 2012; Wang *et al.*, 2011). This study adds credibility to the decomposed theory of planned behavior due to the scarcity of studies that have been undertaken on credibility and actual behavior, especially with regards to resistance. Some studies have investigated the relationship between credibility under privacy and security and actual behavior (Sathye, 1999; Yousafzai, Pallister & Foxall, 2009; Hashjin, Roaia & Hemati, 2014).Most researchers have studied credibility as a mediator of intention, such as Ariff, Yeow, Zakuan, Jusoh and Bahari, (2012; 2013); and Wang, Wang, Lin and Tang (2003). Hence, the need to study these relationships in order to have a clearer picture is fundamental.

Academically, there is scarcity of research on opinions of customers about hurdles in using internet banking, more especially in developing countries in the Middle Eastern

region (Podder, 2010; Elbadrawy & Abdel Aziz, 2011; Al-Ajam & Nor, 2013a, 2013b). Looking at the obstacles is important for the reason that most financial institutions meet with innovation failures (Joseph, 2010; Patsiotis *et al.*, 2012). This might be because top management focuses on the benefits as the key driver of customer adoption to innovation whereas many innovations still face resistance (Joseph, 2010; Patsiotis *et al.*, 2012; Garcia, Bardhi & Friedrich, 2007). Accordingly, literature indicates that internet banking adoption is not due to bankers themselves or government support but also due to customers' acceptance, which has particularly put enormous pressure on the banks to ensure that the customers adopt internet banking (Bashir & Madhavaiah, 2015; Mols, 2000; Pikkarainen *et al.*, 2004; Sathye, 1999). Some studies, such as Martins, Oliveira & Popovic (2014); and Aladwani (2001) have explained that the majority of customers of banks rank internet banking as not being too significant compared to advanced technological-based distribution channels, like the Automated Transfer Machines (ATM) and mobile banking.

In prior studies, respondents of internet banking were classified as adopters (Martins *et al.*, 2014; Al-Muala, Al-Majali & Al-Ziadat, 2012; Shih & Fang, 2004; Al-Majali & Nik-Mat, 2010). Still, some other researchers used respondents in internet banking as adopters and resistors (Patsiotis *et al.*, 2012; Sohail & Al-Jabri, 2014; Ozdemir & Trott, 2009). Meanwhile, Mzoughi and M'Sallem (2013); Agwu (2013); Laukkanen and Kiviniemi (2010); Kleijnen *et al.* (2009); and Laukkanen *et al.* (2008) concentrated on customers who do not utilize internet banking. Thus, this study investigates resistance among customers to have a deeper insight on this comparatively under-researched area. Moreover, this study focuses on respondents comprising resistors only which are scarcely used in previous studies, following suggestions of (Laukkanen & Kiviniemi, 2010; Zolait, Mattila & Sulaiman, 2009a).

Many studies in the area of technology resistance have focused predominantly on products in contrast to services, whereby internet banking is a service (Bradley & Stewart, 2002). Even though the service sector contributed 20.8 percent of gross national product (GNP) in developed countries, such as the United Kingdom (UK) in 2005 compared to the manufacturing sector's 14.9 percent of GNP (EIU, 2006), research on resistance to technology has been given little attention by academic researchers (Bradley & Stewart, 2002; De Brentani, 2001; Elbadrawy & Abdel Aziz, 2011; Laukkanen et al., 2009; Yoshida, 2009). Drew (1995); Un and Montoro-Sanchez (2010) argued that research on new product development and innovation in financial services has lagged behind the manufacturing sector. This is due to the discontinuous nature of service innovation which is still being developed (Szmigin, 1997); and the dearth of agreement in terms of the classification of innovation in the services' sector (Un & Montoro-Sanchez, 2010; Menor, Tatikonda, & Sampson, 2002).

From a methodological point of view, many studies on customer resistance to internet banking have been conducted using a qualitative approach (Kleijnen *et al.*, 2009; Kuisma *et al.*, 2007; Laukkanen *et al.*, 2009; Luo, Lee, Mattila & Liu, 2012; Rotchanakitmnuai *et al.*, 2003). The current study adopts a quantitative method by using structured data collection protocol which is suggested by previous studies. A qualitative study comprises non-standardized data, which requires arrangements into different subsets and deals with analysis conducted through the use of conceptualizations. On the order hand, a quantitative study encompasses numerical and standardized data and has to do with analysis that is carried out through the use of diagrams and statistics (Saunders, Lewis & Thornhill, 2009). A quantitative researcher looks for causes and facts from external views or from a worldwide perspective (Vidich & Lyman, 1994). Further, calls have been made by previous studies to carry

out future research on resistance to internet banking using a quantitative method (Laukkanen & Kiviniemi, 2010; Kuisma *et al.*, 2007). By using an area study design, findings of a quantitative study have a higher degree of external validity, denoting that the outcomes can be widespread, generalized or stretched to other situations (Churchill, Brown & Suter, 2010).

Answering the clarion calls above, this study has therefore quantitatively explored the possible factors or barriers causing Yemenis to resist internet banking despite the availability of internet banking applications. This was achieved as this research provided holistic view of the issue at hand and which will be of immense benefits to both academics and practitioners alike.

1.4 Research Questions

From the above arguments, this study intends to figure out answers to the following questions:

1. What is the extent of customer resistance to internet banking (postponers, oppositors and rejectors)?
2. What is the impact of attitude, subjective norms, perceived behavioral control and credibility on customer resistance to internet banking in Yemen?
3. What is the impact of trust, compatibility and government support on attitude to internet banking in Yemen?
4. What is the impact of trust, self-efficacy and government support on subjective norms to internet banking in Yemen?
5. What is the impact of trust, self-efficacy, compatibility and government support on perceived behavioral control towards internet banking in Yemen?

6. What is the impact of trust, self-efficacy, compatibility and government support on credibility to internet banking in Yemen?
7. What is the mediating role of attitude, subjective norm, perceived behavioral control, credibility on specific relationships between exogenous variables and customer resistance to internet banking in Yemen?

1.5 Research Objectives

The main objective of this study is to investigate the factors that make people resist internet banking (resistors). The specific objectives are as follows:

1. To ascertain the level of customer resistance to internet banking (postponers, oppositors and rejectors).
2. To determine the impact of attitude, subjective norms, perceived behavioral control and credibility on customer resistance to internet banking in Yemen.
3. To examine the impact of trust, compatibility and government support on attitude to internet banking in Yemen.
4. To determine the impact of trust, self-efficacy and government support on subjective norms to internet banking in Yemen.
5. To examine the impact of trust, self-efficacy, compatibility and government support on perceived behavioral control to internet banking in Yemen.
6. To examine the impact of trust, self-efficacy, compatibility, government support and perceived behavioral control on credibility to internet banking in Yemen.

7. To determine the mediating effect of attitude, subjective norm, perceived behavioral control and credibility on specific relationships between exogenous variables and customer resistance.

1.6 Significance of the Study

This study intends to investigate the antecedents of customer resistance to internet banking in the Yemeni university environment, using the Decomposed Theory of Planned Behavior (Taylor & Todd, 1995) and advanced quantitative methods (SEM). The scholar expects that this study is significant in several areas in that it adds new knowledge for academics, practitioners and organizations in Yemen. Specific expected contributions to each of the above are discussed in the following paragraphs.

From the academic point of view, literature reviewed shows that there is dearth of empirical research in the area of innovation resistance in the marketing area (Joseph, 2010; Patsiotis *et al.*, 2012). Up to now, the few studies on innovation have mainly focused on adoption and also the factors that expedite the process of adoption (e.g., Rogers, 2003). Only a few studies have sought the causes that decrease the speed or complete avoidance of adoption (Joseph, 2010; Patsiotis *et al.*, 2012). Therefore, this study fills the gap by exploring those barriers (attitude, subjective norm, perceived behavioral control, credibility, trust, compatibility, self-efficacy and government support) that affect customer resistance to adoption.

Further, studying the resistance to innovation procedure may be more essential than studying adoption (Joseph, 2010; Patsiotis *et al.*, 2012; Ram, 1987, 1989). In fact, before any innovation succeeds, it might face resistance at the beginning (Joseph, 2010; Patsiotis *et al.*, 2012; Molesworth & Suortti, 2002; Ram, 1987, 1989). The

adoption process can begin when the resistance is overcome (Joseph, 2010; Patsiotis *et al.*, 2012; Garcia, Bardhi & Friedrich, 2007). Therefore, this study responds to the previous research calls by identifying the barriers and resistors to internet banking usage (e.g., Laukkanen & Kiviniemi, 2010; Poon, 2008; Zolait *et al.*, 2009a). This study invariably can help researchers, practitioners and bankers gain better understanding of internet banking.

Finally, from the methodological perspective, many studies on customer resistance to internet banking have been conducted qualitatively (Kuisma *et al.*, 2007; Laukkanen *et al.*, 2009; Rotchanakitmnuai *et al.*, 2003) and few quantitatively (Mzoughi & M'Sallem, 2013; Agwu, 2013; Laukkanen & Kiviniemi, 2010; Laukkanen *et al.*, 2008). It has been suggested that future research on resistance to internet banking be conducted quantitatively (Kuisma *et al.*, 2007; Laukkanen & Kiviniemi, 2010). By doing a quantitative study, the results can be generalized or extended to other situations (Churchill *et al.*, 2010).

The new variables (trust, compatibility, credibility, self-efficacy, government support, attitude, subjective norm, perceived behavioral control) have been found to play major roles in the adoption or rejection of internet banking (e.g., Al-Majali & Nik-Mat, 2010; Zolait, 2010; Elbadrawy & Abdel Aziz, 2011; Al-Ajam & Nor, 2013a, 2013b). The researcher believes that these factors are relevant to the present study because studying resistance to internet banking service should take into account different psychological and functional factors to be able to get a more holistic view of the problem.

From a practical viewpoint, Zolait *et al.* (2008a); Zolait (2014); and Al-Ajam and Nor (2013a, 2013b) pointed out that internet banking research is still in its initial stage and

has received very little direct academic attention in Yemen. They stated that internet banking (IB) is rapidly growing in Yemen. However, it is generally believed that internet banking practices are not progressing at the same level. Therefore, more academic consideration should be given to the study of this phenomenon to understand the potential characteristics that deter Yemeni internet users' adoption behavior towards online transactions (Zolait *et al.*, 2008a) (p. 153).

For bankers, clear understanding and identifying of these barriers may assist Yemeni financial institutions and concerned parties to formulate applicable marketing strategies and equally design online financial service systems more effectively. This eventually can lead to the acceleration and diffusion of online financial services of Yemeni financial institutions in the near future. Moreover, by investigating these factors, vital information regarding the antecedents that influence clients' behavior concerning internet banking in Yemen can be generated. Further, after determining these antecedents, the banks could work on developing and improving their relationships with their clients. The findings will also help the banks provide their clients with internet banking services and assist them in making the right decisions by providing them with what they need to make them more inclined to adopt the service. Finally, the researcher expects that the banks will educate any potential users on the usage of the new technology and online services.

From the customers' perspective, the fact that customers can access banking services 24 hours a day and that internet banking provides convenience of transacting business from anywhere in the world, should be particularly interesting to customers, since the flexibility that internet banking allows seems to fit their increasingly mobile daily life (Nasri, 2011; Khalfan *et al.*, 2006). Moreover, internet banking technologies allow

customers' effortless access, lesser physical bill-paying and time consumed in running their finances (Nasri, 2011; Anguelov, Hilgert & Hogarth, 2004). As a result of the compensations for both dealer and customers in the banking institutions, internet banking services have fast developed.

1.7 Definition of Key Terms

The following terms are defined in the context of this research and supported by literature review.

1. Internet banking is defined as *"the use of banking services through the computer network (the internet), offering a wider range of potential benefits to financial institutions due to more accessibility and user-friendly use of the technology"* (Aladwani, 2001; Yiu, Grant, & Edgar, 2007).
2. Customer resistance is defined as *"the resistance offered by consumers to an innovation, either because it poses potential changes from a satisfactory status quo or because it conflicts with consumers' belief structure" (*Ram & Sheth 1989, p. 24).
3. Attitude is defined as**"***the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question''* (Ajzen 1991, p.188).
4. Subjective norm is defined as *"a perception that significant referents desire the individual to perform a behavior or not"* (Taylor &Todd, 1995, p.149).
5. Perceived behavior control is defined as *"the perceived ease or difficulty of performing the behavior, people's perceptions of their ability to perform a given behavior"* (Ajzen 1991, p. 188).

6. Credibility consists of two important elements namely privacy and security. *"Security and privacy refer to the protection of information or systems from unsanctioned intrusions or outflows"* (Wang *et al.*, 2003).
7. Trust refer to *"the willingness to rely on an exchange partner in whom one has confidence in"* (Moorman, Deshpande and Zaltman 1992).
8. Compatibility is defined as *" the degree to which an innovation is perceived as being consistent with the existing values, needs, and past experiences of potential adopters"* (Rogers 1983, p. 224).
9. Self-efficacy is defined as *"Judgment of one's ability to use a technology" (e.g., computer) to accomplish a particular job or task"* (Compeau & Higgins 1995).
10. Government support is defined as *"Creation of a suitable environment to encourage the clients and the organizations to use the technology and adopt the technological developments"* (Goh, 1995).

1.8 Scope of Study

This research is practically on resistors of internet banking services, including customers who are accounts holders and are resistors to internet banking adoption. This study chooses this type of people because of the large percentage of resistors in the Republic of Yemen (Zolait, 2014; Al-Ajam & Nor, 2013a, 2013b), in spite of availability of Yemeni internet banking websites. Moreover, the Internet World Statistics (2012) has reported that although the number of Yemeni internet users has increased from 15,000 users in 2000 to 2,609,698 in 2011, they did not utilize the internet banking transactions (Commercial Service & U.S. Department of State, 2008). Therefore, this study is useful to help Yemeni banks create strategies to increase the

number of adopters. Primary data is collected from academic staff of Yemeni universities. The main reasons for selecting this segment of population are explained in chapter four.

Theoretically, the current research concentrates on determining the various antecedents of customer resistance to internet banking in Yemen, such as attitude, subjective norm, perceived behavioral control and credibility. Attitude is predicted by three antecedents: trust, compatibility and government support. Subjective norm is predicted by three antecedents: trust, self-efficacy and government support. Perceived behavioral control is predicted by trust, compatibility, self-efficacy and government support. Credibility is predicted by four antecedents: trust, compatibility, self-efficacy and government support. To test the influence of the above antecedents on customer resistance to banking on the internet in Yemen, the decomposed theory of planned behavior by Taylor and Todd (1995) is modified and used.

1.9 Organization of Remaining Chapters

The thesis contains six chapters. The first chapter discusses the background, problem statement, research objectives, research questions, significance and scope of the study. Chapter two discusses the country, such as background of Yemen, IT and internet in Yemen, development of the banking system in Yemen and internet banking in Yemen. Chapter three concentrates on an overview of the existing literature related to the variables considered, including the concept of customer resistance to internet banking and the factors that hinder internet banking adoption. The fourth chapter discusses the research methodology. It also discusses research design, theoretical framework adopted and hypotheses, population and sample, variable measurements, data

collection and data analysis procedure. Statistical techniques adopted to analyze data and assessment of the hypotheses are presented in the last part of the chapter .

Chapter five presents the main research findings. It starts with the overall response rate, descriptive analysis, data screening, constructs' validity, confirmatory factor analysis, hypothesis development, the generated model and squared multiple correlation, hypothesis result and mediating effect. Chapter six focuses on discussion of findings and conclusion. It contains discussion about the research objectives, significant and insignificant predictions, mediation effects, research contributions, research implications, limitations of the study and suggestions for future research.

CHAPTER TWO

OVERVIEW OF INTERNET BANKING IN YEMEN

2.1 Introduction

This chapter provides a general overview of Yemen. It also deals with several issues such as the development of information technology and the internet technology in Yemen. Moreover, the chapter also addresses the present status of banking service with respect to the opportunities and challenges that are inherent in the application of internet banking system.

2.2 Background of Yemen

The Republic of Yemen is cited in the Middle East of southern end of the Arabian Peninsula and surrounded from south and west by three seas namely; the Arabian Sea, the Gulf of Aden and the Red Sea. The entire area is estimated to be 527,970 square kilometers (203,849 square miles) with a coast line of 1,906 kilometers (1,184 miles). Sana'a is the capital and is located in the west. Other major cities are Aden in the south and Al-Hudiedah on the Red Sea coast and Al-Mukala in the east, Taiz in the middle which has the logiest population among the cities . Moreover, Yemen is strategically located at the southern part of the Arabian Peninsula and shares borders with Saudi Arabia and Oman which controls the strategic straits at the Southern entrance to the Red Sea (Bab al Mendab). Accordingly, the country has three well-defined areas: a coastal strip along the Red Sea, the highlands, island and a desert area to the east, several mountains and deserts as demonstrated in figure 2.1. Moreover, the whole of Yemeni population is poor and rural in general, nonetheless, there is large-scale urbanization in the last decade occasioning the movement of practically half of the population to live in towns (Library of Congress, 2008).

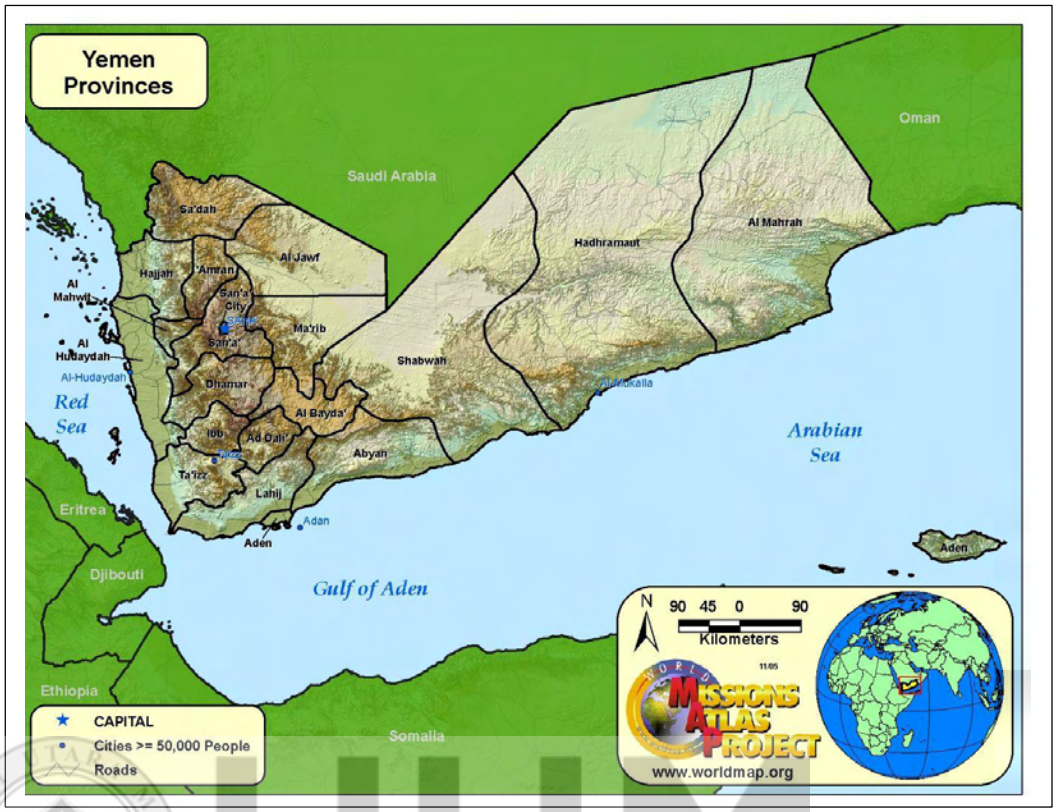

Figure 2.1
Map of Yemen Source: www.worldmap.org

Historically, the current Republic of Yemen was founded out of two countries. First one was the Yemen Arab Republic, which was referred to as North Yemen and came into being 26th September 1962 following a military coup which overthrew the Imam of the Mutawakkilite. The second one was the People's Republic of South Yemen (later known as the People's Democratic Republic of Yemen) formed 30th November 1967 from the territory of the former Federation of South Arabia and the Aden Protectorate. On 22 May 1990, these two countries came together to form a single nation called Republic of Yemen (ROY) (Library of Congress, 2008).

2.3 Information Technology and Internet in Yemen

The Public Telecommunication Company, PTC, was formed after the unification of the two parts of Yemen. The communication infrastructure consists of different

technologies such as: GSM & CDM mobile-cellular phones, networks, landlines, microwave radio relay, etc. The number of main line in use is about 1.1 million (2012) and mobile phones 13.9 million (2012) according to source (CIA, 2014).

The international submarine landing point which called Fiber-Optic Link around the Globe (FLAG) is passing nearby the country in the Red Sea. This made the investment of future development in the internet and communication easier by nature in Yemen that can be a very important source of revenue for the government. It is worth mentioning that the number of users was 2.349 million in 2009 and the number was speculated to increase (Library of Congress – Federal Research Division, 2008; CIA 2014**)**.The Government of Yemen has invested a lot in the communication sector to upgrade the infrastructure. It had deployed fiber optical cables along the country to provide connectivity with redundancy to different cities and to rural areas. In addition the mobile networks facilitated the reach to difficult terrain areas and it became handy to use the telecommunication facilities to serve the public (CIA 2014).

The Public Telecommunication Corporation (PTN), owned by the government, had full control on Telecommunications in Yemen. Number of internet users was 270,000 in 2006 according to the U.S. government and this low rate of subscriptions is due to the high cost and low income of the population in addition to low bandwidth available to Yemen. Another mobile network, Yemen Mobile, was established to be the third operator and was a joint venture between group of Yemeni investors and China mobile. This joint venture has a share of 55%, while the government would retain 25% of Yemen Mobile. In addition to the main two telecom operators, Tele-Yemen and Yemen Mobile, there are three private telecommunication companies, namely: Saba Phone, MTN, and Y-Mobile. All of these private companies have contract and

subscription from Tele-Yemen and under the umbrella of PTC Library of Congress, 2008**)**. They use the infrastructure of PTC.

Yemen government has two major responsibilities toward its people and the international community. The neighboring countries, e.g. Saudi Arabia and other gulf cooperation countries , has better life standards and high income compared to the poor country of Yemen; therefore the government of Yemen has commitment towards the country to develop it and to build a systematic government services and regulations. Strategic plans have been developed to automate the classical paperwork of government activities. In other words, all ministries and governmental departments there are computer departments that serve and facilitate the procedures of transactions to speed up the operations and to better serve the public.

The internet usage has started clearly in Yemen in 1996 with number of subscribers of 110,000. This number is growing which indicated the huge demand for internet facility among the public with increasing awareness of people to use this technology. 80 billion YR was invested plus $31 million to upgrade the telecom infrastructure. The number of mobile subscribers jumped from 1.2 million in 2006 to 11.7 million in 2012 (CIA, 2014). The growing number of internet subscribers lead to more investment on ISDN (late 1990 and early 2000) and recently on ADSL technologies. Yemen has a difficult topography, population groups are scattered with low density in different terrain, and the distribution of telecommunication networks has low level. With these problems, the telecommunication system in the country did not effectively utilize the infrastructure of it and made the benefit at a low level, as explained by CIA, (2014).

As of 2014, the tariffs of internet and international calls are relatively less compared to the early of 2000. On the other hand, these tariffs are still higher than the neighboring countries and the speed of internet is still beyond the desired average of internet speeds. In addition, the quality of service delivered to internet users is poor and suffers from intermittent services which causes dissatisfaction among subscribers. To conclude, Yemen is trying to move forward to achieving more progress in the development of ICT sector. It is worth mentioning that there are attempts to improve the services to comply with the international standards. Unfortunately, these toddling measures do not allow for going in line with the rest of the world especially the country has monopoly of the internet in this era of open space, cloud technology, and globalization (CIA, 2014).

In spite of the increase in internet banking services introduced by banks in Yemen, the customers are still adamant not utilizing the facilities for the financial transactions like checking account, credit card or debit card purchases on the internet (Commercial Service & U.S. Department of State, 2008; Zolait, 2014). This might be due to the fact that Yemen is still one of the countries that have the lowest usage of computers and internet, telephone, and lowest level of e-government readiness (Alsohybe, 2007; Zolait, 2014). The resistance of customers toward internet banking services forms a major challenge to the Yemeni banking sector. This study intends to examine such resistance rather than the adoption since there has been very limited study on this issue.

2.4 Development of Banking System in Yemen

Initially, Yemen was made up of two countries: one in the north and the other in the south; however, the country did not have any commercial banks in North or South until 1871 when two companies in Southern Yemen established its first money

exchange offices in Aden. These companies were the Captain Lock Tomas Agency, which started the Bank of Aden and an Indian GahwajeeDansha company. Both offices operated based on the financial needs of the foreign commercial and marine companies operating there then. By 1894, the National Bank of India established a local office in Aden, which controlled monetary marketplace up to 1950 (CBY, 2011).

However, the financial system in North Yemen was not yet developed until October 1962. The Yemen Bank for Reconstruction and Development (YBRD) started then as a public shareholding company and 51% of its paid-up investment was controlled by the government, and the rest 49% controlled by the private division. It was measured as the first step in accelerating the implementation of a combined financial system for the administrative and economic sectors in Yemen (Othman, 1982, as cited by Zolait *et al.*, 2007). Subsequently, the Central Bank of Yemen was founded in 1971. When both parts of Yemen (northern and southern) unified and become the republic of Yemen on 22 of May 1990, the Central Bank of Yemen merged with the Bank of Yemen under a new name of "Central Bank of Yemen," which dominates the other banks in Yemen (CBY, 2011).

Majorly, the monetary policy of the country alongside the responsibility overseeing the banking sector and serving the government's banking needs is under the control of the Central Bank of Yemen (CBY). Additionally, the CBY also takes care of all the currency issues and manages the official reserves of the government (CBY, 2011). Moreover, the banking system in Yemen offers the customers a widespread variety of financial services such as the current accounts; saving accounts; call accounts; inward and outward transfers. In addition, SWIFT transfers; travelers' checks, bankers' draft; and currency exchange. Also, it offers numerous commercial services like letters of

credits; letters of guarantees and bills of collection. Furthermore, there are some credit facilities services like loans; syndicated loans and project finance. Of recently, a few Yemeni banks commenced e-banking services such as ATM, internet banking and SMS banking (Zolait et al.,2008a).

In order to achieve stability in the foreign exchange market, the CBY and the Ministry of Finance have been exerting huge efforts in adopting the floating exchange rate policy. In addition to that, the CBY has been developing its resources of foreign currency and improving its reserve management. This can be done through the investment mentality out the limits of the liquidity and security standards (Embassy of Yemen in Washington DC ECO, 2010).

Due to the fact that the banking sector in Yemeni needs to be reorganized and transformed, CBY has engaged itself in several measures to improve the performance of the banking system to enable it deal with universal financial challenges and to serve local and regional development processes in better way. For instance, it has become mandatory for banks operating in Yemen to increase their capital to YR 6 billion. This was enforced by the CBY to advance the banking system to the standard of international banking requirements (Yemen Observer Newspaper, 2005). The new regulations give opportunities to foreign banks to enter Yemeni market and play their own significant role to boost the banking system. It is assumed that these banks are far better than the local banks in terms of managerial and technological systems; hence the business environment for the banking industry totally changed and there was fierce competition (Stiglitz, 1994). This, in turn, pressed both academics and practitioners to pinpoint the factors responsible for the long desired effective performance.

On December 2009, only 17 banks registered with the Yemen Central Bank, and they segregated into two types of banks. The first one is Islamic banks such as the Islamic Bank of Yemen for Finance and Investment, Tadhamon Islamic Bank, and Saba Islamic Bank. The second type is commercial banks such as the International Bank of Yemen, Yemen Bank for Reconstruction and Development, Yemen Commercial Bank, National Bank of Yemen, Yemen Kuwait Bank for Trade & Investment, Yemen Gulf Bank, Arab Bank, Cooperative & Agricultural Credit Bank, Calyon Credit Agricole CIB, United Bank LTD, Qatar National Bank (QNB), Rafidan Bank, Housing Bank, and Shamil Bank of Yemen & Bahrain.

These new lift in Yemen's banking system moved it towards the cyber financial system from the year 2002 since the government hosted the electronic payment gateway and the e-Rial for the first time (Zolait, Sulaiman, &Alwi, 2008a). As opined by Willems (2009), Yemen Gulf Bank (YGB) online banking was set to improve since it was the first original Yemen-owned bank system that has an ATM at the end of 2001. It was also the first bank that gave access to internet banking for transactions or checking balance and paying bills using internet, according to the International Financial Corporation (IFC) (2007). Later on, other banks followed YGB's footstep by introducing internet banking in their organization such as the International Bank of Yemen; Yemen Kuwait Bank for Trade and Investment; Yemen Commercial Bank; Cooperative and Agricultural Credit Bank, and Qatar National Bank (QNB).

The service sector including banks in Yemen was described to have a considerable contribution to the Gross Domestic Product (GDP). As reported in CBY annual report (2011), within the year 2010, the service sector contributed to the GDP of Yemen to approximately 62.8 percent compared to 37.2 percent from the manufacturing sector.

Being the main driver in the development process of Yemen, the banking sector contributed 22 percent of the GDP of the country in 2000. This is an indication that banking sector is an indispensable sector in Yemen' economy and thus should be given further and better opportunities to improve the banking performance (Zolait, Sulaiman, &Alwi, 2008b).

Apparently, there is general consensus among the scholars and practitioners that the banking system in any country is actually the prime mechanism of economic growth and development (Al-Hajri, 2008; Al-Marri, Ahmed, & Zairi, 2007; Al-Swidi & Mahmood, 2011a, 2011b, Fub, Gmeiner, Schiereck, & Strahringer, 2007). The banking system is also seen as the mainstay of the general economic structure and one of the strategic determining factor of any developmental programs (Al-Marri *et al.*, 2007). Basically, the importance of banks originates from their acclaimed roles in expediting the movement of the financial resources through various modes of services such as: ATM, phone banking, mobile banking, internet banking to different parties in the economic sector (Al-Swidi & Mahmood, 2011c; Calisir & Gumussoy, 2008).

2.5 Yemeni Banking System

Generally speaking, it is believed that there exist a relationship between the weak economy and the absence of a healthy financial system which mediates between the investors and the financial institutions (Al-Hajri, 2008). Hence, for a better future economic performance, there is need to develop the financial services to support the economic development process in Yemen (Library of Congress, 2008).

In addition to that, banking system Yemeni has envisaged many problems in connection with its operations. For instance, Library of Congress, (2008) recorded that the Yemeni banking system is very weak in supporting the development process of the country due several problems. The chief among these problems which hamper the proficient operations of the bank is comprised of the following: large volume of non-performing loans; low capitalization and weak enforcement of regulatory standards. Furthermore, most of the banks are technically bankrupt because many fail to refund loans within the stipulated period of time.

Fundamentally, the banking system equally failed to gain the trust and confidence of their customers. Furthermore, the Mayor of the Central Bank of Yemen and their citizens prefer to be in custody of their money rather than entrusting the banks with it. He also iterated that there exist only about 600 thousand bank accounts, representing only 2.7 % of the populace, and approximately 500-600 thousand cheques were circulated annually. These facts were established in a recent study by the Malaysian company SIRIM Berthed (2010) in a bid to create a strategic plan for industrial development in Yemen. In this study, it has noticed that the percentage of entire Yemeni population have banking accounts increasing from 4% (Al-Swidi and Mahmood, 2011c) to 7% (The Economist Intelligence Unit, 2013). These figures depict that there exist weak relationship between banks and the savers in Yemeni. These circumstances entail that these banks need to exercise immense efforts to attract an increasing number of savers who abstain from participating in the current operating banks.

As it was widely reported that 70% of the Yemenis live in the rural areas and in most cases, they have no trust on the internet banking system; additionally, the banking

system holds only 60% of the money supply and the bulk of the economy operates with cash (Al-Kamaly, 2004; Zolait et al. 2008b).

2.6 Internet Banking in Yemen

Internet banking service is introduced as a new free channel for receiving or delivering banking services to customers in Yemen (Zolait *et al.*, 2008a). Although, internet banking is rapidly growing in Yemen; it is commonly assumed that internet banking practices are not progressing at the same level (Zolait *et al.*, 2007). Only 5% of the Yemeni banks' clients use internet banking services (Al-Hariry, 2007). In addition, internet banking technologies are not utilized efficiently and rarely used by the customers and they seem to be uninterested or not attracted to use internet banking (Commercial Service & USA Department of State, 2008). Zolait *et al.* (2008a) suggest that it will be useful to study Yemeni customers who are considered as non-adopters that actually reject, postpone, and oppose to use internet banking. According to Kleijnen *et al.* (2009), and Laukkanen *et al.* (2008), non-adopters are resistors, and there are three types of resistors such as rejecters, postponers, and oppositors. In this regard, this study treat non-adopters as resistors towards internet banking.

This study focuses on the context of internet banking resistance in Yemen for several reasons. First, internet banking in Yemen has a different environment compared to West countries where many studies have addressed the use of internet banking. For instance, Yemeni customers do not trust banks to deal their business transactions (Al-Swidi & Mahmood, 2011c). Compared to other countries in the world, Yemen is regarded as having a low IT usage level (Zolait, 2010). In addition, there is a lack of government policies in Yemen regarding online activities compared to other countries around the world (Zolait, 2010). For example, Tan and Teo (2000) reported that

Singaporean government has established facilities to enable internet commerce. Also it has been well documented that the local government in Singapore is a major driving force to the diffusion of information technology.

Moreover, the Electronic Transaction Law in Yemen was implemented in 2006, unfortunately, it is not capable of handling internet fraud efficiently; Customers also perceive that the courts still lack the ability to protect customers of the bank in cases of financial loss via internet banking, interestingly, the customers also have the view that the courts cannot trace online evidence on fraud nor resolve cases fairly (Al-Hariry, 2007). Indeed, the Yemen Gulf Bank Online banking (Willems, 2009) reports that the main hindrance to advanced transfers in the banking sector in Yemen is hinged on the fact that the bank lacks legal backing to protect customers and banks that use the service.

2.7 Chapter Summary

This chapter presented a comprehensive view of Yemen, background of Yemen, information technology and rate of internet penetration in Yemen. The chapter also dealt with the development of banking system generally and internet banking system in particular with respect to critical issues facing the banking sectors. Some of the issues that were discussed include low internet usage among Yemenis, weak banking system, lack of confidence and trust among the customers, lack of good government policies regarding online activities and inability of the electronic transaction law to effectively handle internet banking fraud. Lastly, this chapter has succeeded in revealing that banking system generally is the prime mechanism of economic growth of Yemen, while internet banking is the heart of the banking system in particular.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

This chapter highlights the concept of customer resistance; followed by discussions on customer behavior in innovation, customer diffusion behavior, the development of research into innovation, customer resistance behavior, and the importance of internet banking. Then, the chapter illustrates the development of diffusion of internet banking, its adoption and the characteristics of internet banking. The variables selected as the independent variables for this study are then discussed. At the end, the summary of the chapter is presented.

3.2 Customer Resistance to Innovation

Innovation resistance is considered as situation in which customers oppose an innovation because of some possible alterations which may occur from their status quo or may conflict with customers' view point (Ram & Sheth 1989). Therefore, innovation resistance could be concluded to be a particular way of resistance to status modification (Ram, 1989). Customer resistance is clarified through diverse barriers which reduce and avoid innovation adoption. Accordingly, Ram (1987, 1989) asserts that where innovation is subsequent, confrontation is imminent. Therefore, the resistance is observed as a usual way through which customer responds to innovation or practices that may force them to change their behavior (Ram, 1987). The larger the change the greater the resistance is anticipated to be (Ram & Seth, 1989). Resistance to innovation might obstruct or yet evade the innovation adoption, hence the need to defeat the former than the latter (Ram, 1987). Consequently, it could be considered that resistance affects customers' intent to use an innovation.

Selwyn (2003) discusses that resistors of innovative technology is the least researched group who avoid using the technology. Some, who after using the new technology, become disappointed and they soon become non-users and suspend using the technology (Kingsley & Anderson, 1998). In the case of internet banking, previous studies have examined transmission of the innovation entirely on users or among users and non-users (Martins *et al.*, 2014; Al-Muala, Al-Majali, & Al-Ziadat 2012; Shih & Fang, 2004; Al-Majali & Nik-Mat, 2010; Patsiotis *et al.*, 2012; Sohail &Al-Jabri, 2014; Ozdemir & Trott 2009). Thus, it is very important to differentiate resistors from adopters for theoretical proposition (Laukkanen *et al.*, 2008; Lee, Kwon, & Schumann, 2005). Karjaluoto *et al.* (2002a) stated that the expansion of internet banking will basically rely on how many people obtain and maintain internet access. The major reason for adopting internet banking depends on their intention to use the internet banking. Those who know how to deal with PCs and internet will adopt the internet banking services in comparison to those who do not know how to handle PCs and internet (Laforet & Li, 2005; Lee *et al.*, 2005).

In term of development of research in innovation, much work has improved in this area and the particular interests of researchers in the field. Mittelstaedt, Grossbart, Curtis, and Devere (1976) identify four areas that have received continued consideration in this line of research: (1) The innovation itself; (2) The channels through which it is communicated; (3) The time over which it is diffused, and (4) The members of the social system. Many researchers have concentrated on how innovations spread across a community over time (Midgley, 1977; Rogers, 1962; Rogers & Shoemaker, 1971) and what constitutes the nature of innovation (Robertson, 1971; Rogers, 1983). Researchers have also considered the nature of people who are early adopters especially in terms of relationship between their behavior and their

personality traits (Foxall 1989a, 1989b; Foxall & Bhate, 1993; Goldsmith 1987; Horton 1979; Midgley 1977; Mudd 1990; Rogers 1983) and also whether there is such a thing as intrinsic innovativeness (Hirschman1980; Midgley, 1977; Midgley & Dowling 1978).

Despite the burgeoning interest in innovation research, less attention has been paid as to why some people do not show innovative behavior (Kusima *et al.*, 2007; Lukkanen *et al.*, 2008; Elbadrawy & Abdel Aziz, 2011; Laukkanen *et al.*, 2009; Yoshida, 2009). This issue is pertinent because why people did not use new products or services such as innovative payment methods has been often discussed. This could in many cases be described as a conscious decision not to adopt particular innovations. In addition, another area of interest in innovation diffusion setting is concept of innovation itself and its measurement (Mudd, 1990). Literature points out that researchers do not appear to have reached an agreement regarding the nature of the construct. As a result, the different methodologies employed by researchers may well be measuring different things (Hurt, Joseph, & Cook, 1977). Typically researchers have used one of three approaches to measure customer innovativeness (Goldsmith, 2011; Goldsmith & Hofacker, 1991; Kohn & Jacoby, 1973). They are the time-of-adoption method, the cross-sectional method, and the self-report method. When Kohn and Jacoby (1973); and Goldsmith and Hofacker (1991) tested these three measures of innovativeness, they found low correlation among the alternative measures, leading them to conclude that these measures were not in fact measuring the same thing.

3.3 Overview of Internet Banking

In this section, this study explores the development of internet banking, diffusion of internet banking, and the adoption of internet banking

3.3.1 Development of Internet Banking

According to Lee and Lee (2000), express internet banking technologies have been around for 30 years. Before 1995, Self-Service Technologies (SSTs) were developed for the use in the banking industry. Automated Transfer Machines (ATM) were introduced in the 1970s. Also, the Electronic Funds Transfers at Point of Sale (EFTPOS) terminals were introduced in the early 1980s; and Tele-banking was launched in the mid-1990s (Barbesino, Camerani, & Gaudino, 2005; Bitner, Brown, & Meuter, 2000). According to Calisir and Gumussoy (2008), ATM was the initial instance of a self-check machine that was designed to offer ease customers to convene their banking desires while diminishes expenses for the bank.

In October 1995 internet banking, an innovative SSTs was launched by the Security First Network Bank that enables customers to verify their current and deposit accounts via PC and internet (Editorial, 1996). Later, it expanded gradually as more developed SSTs participate in offering internet banking services to customers (Lin, Wu, & Tran, 2015; Nasri, 2011). Nasri, (2011); and Claessens, Dem, De Cock, Preneel, and Vandewalle (2002) state that as banking sectors and particularly retailing banks are concerned with obtaining a main share of the financial market, they looked at the internet as a way to offer new banking products. Weir, Anderson, and Jack (2006) assert that banking via the internet gives distant customers the opportunities to run their financial transactions easily and have records of their dealings with the banks.

Today, banks offer an variety of services using the internet since they are profitable compared to the other customer-contact channels (Nasri, 2011; Martins *et al.*, 2014; Gopalakrishnan, Wischnevsky, & Dmanpour, 2003; Polatoglu & Ekin, 2001), and most often can be provided with fewer employees and fewer substantial outlet

requirements (Cheng, Lam, & Yeung, 2006).Yakhlef (2001) demonstrated that in most cases, regular transaction disbursement by a complete services bank is USD $1.08, while the internet is 13 cents or fewer. Nevens (1999) also notes that the bank transaction rate falls 80% or more when it switched electronically. The Eurobarometer survey (2002) as cited by Sayar and Wolfe (2007) survey found that internet banking is placed in the sixth position after e-mail, and other online searches.

3.3.2 Diffusion of Internet banking

The increase in technology communication media has forced numerous financial institutions to employ new techniques of delivering services to their customers (Nasri, 2011; Martins *et al.*, 2014; Lee *et al.*, 2005), as e-technologies are inexpensive and customers can simply build up their skills at service meets (Nasri, 2011; Bitner, Brown, & Meuter, 2000; Keeney, 1999). Furthermore, the technologies enhance competent customer relationship management for service suppliers (Xue, Hitt, & Chen, 2011; Ghose & Dou, 1998; Kopf, 2000). However, service skills delivered via the internet are relatively exclusive, often elevating public fears about confidentiality and safety. Whereas banks compete for online trade authority (Retail Delivery News, 2000), customer adoption of internet banking requires specific research knowledge. Rogers (1995) argues that adoption of innovation involves more time and is put into various classes such as the innovators, early adopters, early and late majority, and then the idlers.

Although number of internet banking are increasing among the banks, the adoption remains an issue of concern to scholars and senior bank administrators (Al-Ajam & Nor 2015; Gerrard & Barton, 2003). Academics are concerned with the adoption process by examining how adopters and resisters differ in the levels and phases of

adoption. Sundry studies look at the diffusion of banking using the internet in advanced countries (Gerrard & Barton, 2003) but less in developing countries (Elbadrawy *et al.*, 2011; Ndubisi & Sinti 2005) such as Yemen (Al-Ajam & Nor 2015; Al-Ajam & Nor, 2013a, 2013b).

Senior bank executive are concerned with studies on internet banking diffusion because the outcome will help them understand how to speed the adoption to attract more customers (Rogers, 1995, p. 106), which will have an effect on the bank's bottom line. For example, Barto (1999) states that in the USA the number of people who used on-line banking rose to 35 million by the end of 2003. In the UK, 28 percent of users of internet banking was anticipated by 2004 (Gandy, 1999). A similar rise was also anticipated in Sweden, Germany and Norway (Bons, 1999), but in Yemen, only 5% of users declared to utilize internet banking (Al-Hariry, 2007).

3.3.3 Adoption of Internet Banking

Studies on banking technology began to accelerate towards the end of 1980s and in 1990s innovative technologies like online banking, ATMs, balance cards and internet banking began to gain academic interest. Early studies such as Akinci *et al.* (2004) examined four areas of innovation technologies in bank these are new retail bank services, channels of distribution for the services, the banks' and customer's acumen on the new banking technologies and customers' view concerning adoption of the new technologies. Other studies were also along similar lines such as examining internet banking by customers (e.g. Howcroft, Hamilton, & Hewer, 2002).

Late 1990s, research works on internet banking and its adoption were of two types (Hernandez & Mazzon, 2007): these are descriptive and Relational (interpersonal).

Descriptive determines the nature of internet banking users, responses, thoughts and the obstacles or features which attract internet banking to potential users (e.g., Akinci *et al.*, 2004; Lee *et al.*, 2005). Relational seeks to detect the variables which control the adoption by using various theoretical models (innovation diffusion theory, theory of reasoned action, technology acceptance model, technology acceptance model 2, theory of planned behavior, and decomposed theory of planned behavior) (Hernandez & Mazzon, 2007). Analysis of this group of research seems to propose, at first sight, that the literature on internet banking adoption is already mature and constructs a stable theoretical body. Nevertheless, further examination shows that various theoretical representations and diverse types of data and analysis add to the complexity of incorporating them in the studies (Hernandez & Mazzon, 2007). Consequently, it is doubtful whether the factors or barriers that have been found actually hinder adoption of banking on the internet.

3.4 Importance of Banking via Internet

This section discusses on the importance of internet banking from Bank's Perspective, Customers' Perspective, and Financial Perspective.

3.4.1 The Importance of Internet Banking from Bank's Perspective

Banks are aware of the importance of internet banking in this era (Khalfan, Al-Refaei, & Al-Hajery, 2006). The internet has emerged as a key competitive advantage for the future of financial services. Many companies are using e-business as a crucial part of their competitive strategy (Khalfan *et al.*, 2006). Internet banking has been a remarkable expansion in many countries and is progressively managed as a significant part of multi-channel strategy (Black, Lockett, Winklhofer, & Ennew, 2001). Internet banking signifies an effective electronic transmission channel for the delivery of

monetary services (Daniel, 1999). It offers access to the business with innovative means of accomplishing competitive benefit through price reduction for customers (Daniel, 1999; Mols, 1999).

In addition, internet banking offers customers to deal with bank through electronic means using the web site of the banks – anytime at any place, quicker, and with lesser costs than using conventional, real-world bank branches. Besides that, internet banking provides services for accessing of accounts, transferring funds, and buying financial products or services instantaneous. This is referred to as online banking "transactional" (Sathye, 1999). Specifically internet banking provides applications in their web page similar those done in the traditional banking system: transfer of money into variety accounts; setting up bill payments online to a wide range of firms; standing orders; direct debits; paying bills; checking account balances; viewing financial transactions; printing out bank account statements; ordering and paying-in books; and copying information into other financial running posts (Khalfan *et al.*, 2006). As a result, internet banking can reduce the amount of human resources, cost, time and effort.

offering internet banking services are eager to speed up the adoption so that expenses associated with offering the same service over the counter can be reduced (Polatoglu & Ekin, 2001). Adoption is the procedure through which organizations or individuals choose to connect in e-commerce activities in their daily business (Khalfan *et al.*, 2006). However, despite the benefits, the general population is yet to embrace internet banking (Canniffe, 2000; Poulter, 2000). Wang*et al.* (2003) highlights that internet banking technology in the 1990s was under-utilized because business organizations only made use of this technology to market their products and services. But recent

research demonstrates that internet banking is seen as insignificant in contrast to other electronic service delivery channels and many are still unwilling to use internet banking (Aladwani 2001; Suganthi, 2001). This may be due to the risk linked with it (Dixit & Datta, 2010). Therefore, bankers have to address the risk related to internet banking (Al-Alawi, 2004).

3.4.2 The Importance of Internet Banking from Customers' Perspective

From the customers' perspective, internet banking provides many benefits, for instance, direct access to accounts and balances, capability to perform remote banking transactions and investments, and completion of e-applications (Donner & Dudley, 1997). With internet banking, time and location is no longer relevant (Jayawardhena & Foley, 2000) given that these services can be accessed at any time. The fact that customers can access bank services 24 hours a day and that internet banking provides convenience of transacting business from anywhere in the world should be particularly interesting to customers, since the flexibility that internet banking allows seems to fit the increasingly mobile daily life (Nasri, 2011; Khalfan *et al.*, 2006).

Moreover, internet banking technologies authorize customer's effortless access, lesser bill-paying, and time consuming in running their finances (Anguelov, Hilgert, & Hogarth, 2004). As a result of the compensations for both dealer and customers in the banking institutions, internet banking services have fast developed. For instance, Anguelov *et al.* (2004) state that the standard amount of modern technologies utilized by standard U.S domestic enlarged from 1.4 in 1995 to nearly 2.5 in 2001, whereas the standard amount of non-electronic technologies did not transform throughout the equivalent time.

Though the innovative internet banking technology systems are designed to enhance our lives and assist the achievement of everyday dealings, the number of customers utilizing these services has not increased as expected (Flavian *et al.*, 2004). Millions of Americans, for example, are not utilizing the internet banking technologies and they probably not use it effectively in the coming future (Kolodinsky & Hogarth. 2001; Wang *et al.*, 2003).

3.4.3 The Importance of Internet Banking from Financial Perspective

From the financial perspective, industries and services observed an important force in the previous years that have influenced the marketplace condition, which is technology (Liao & Cheung, 2002). With the help of technology, bank institutions have found news ways of offering banking services. Internet banking and new electronic payment systems are innovative, and the growth and transmission of these technologies in the banking sector facilitate a well-organized banking scheme (Akinc *et al.*, 2004).

The new technology has provided banks with non-conventional distribution channels which banking products and services can be delivered to customers more effortlessly and cost effective. In other words, internet banking can substantially impact a bank's bottom line. Particularly, internet banking lowers operational and administrative costs, thereby creating considerable cost advantages for the banking industry (Aladwani, 2001). In the United States, the cost of developing a traditional bank is USD25 to USD30 million compared to the cost of $6 million to open an internet bank; further the cost for establishing internet banking services in an existing community bank is merely USD100,000 (Joseph & Stone, 2003). Therefore, from a competitive perspective, community banks profit especially from providing internet banking since

it presents them the opportunity to compete with larger financial institutions on an equal level (Donner & Dudley, 1997).

As a matter of fact, in the e-commerce environment, the main role of internet banking is to offer e-services at a very low cost and in information oriented environment. The E-commerce embodies the front-end services (i.e. retail branch) (Nasri, 2011; Khalfan *et al.*, 2006). In the case, well-run services mobilize competence and productivity, reduce complexity and minimizes costs. Information systems capture the branch's duty to offer a 'non-stop 24 hour-online banking' so as to provide customers with the utmost flexibility. The benefits entrenched in this system is that the customer can obtain services at anytime and anywhere around the globe. A good example of this practice is the Bank of Scotland's statement: '*open a branch in your own living room'* at the opening page so as to give the customer the much needed confidence (Khalfan *et al.*, 2006).

3.5 Customer Resistance to Internet Banking

Rogers (2003) categorized users of technology innovations into categories, according to him, they are Idlers, Early Adopters, Late and Early Majority and lastly, innovators. However, all of these categories have a diversity rank and a sort of opposition to innovation which affects the adoption time (Joseph, 2010; Ram & Sheth, 1989). Nonetheless, acceptance of the technology merely occurs once the primary confrontation to it is overcome (Joseph, 2010; Patsiotis *et al.*, 2012). Moreover, some level resistance is inevitable prior to adoption and resistance may still occur after adoption as well. The adoption procedure does not basically result in adoption, while excessive negative response may terminate the entire procedure. In order to understand the resistance level, it is crucial that the concepts of resistance and rejection are

differentiated because they are slightly obscurely conceptualized in the past literature. So, Kuisma *et al.* (2007) identified rejection as a submissive form of the customer behavior outcome within an excessive choice of not adopting innovation, while resistance is a dynamic action which could arise in every adoption procedure, driving to adoption or negative response.

Previous studies on internet banking often examined adoption (Rogers, 2003; Zolait *et al.*, 2008a, 2008b) but little concentration was given on barriers toward internet banking adoption (Kuisma *et al.*, 2007; Elbadrawy & Abdel Aziz, 2011; Laukkanen *et al.*, 2009; Yoshida, 2009; Rotchanakitumnuai & Speece, 2004). Innovation resistance is worthy of empirical consideration in addition to innovation adoption (Seth, 1981) because understanding the resistors may give important information toward the growth of innovation (Laukkanen *et al.*, 2008; Zolait *et al.*, 2008a). Thus, this study concerns with resistors to innovation of internet banking.

Mittelstaedt *et al.* (1976) differentiated "rejection" from "adoption." They demonstrated three likely explanations on why people refuse to adopt innovation by explaining that innovation may be rejected if a person has a preference based on the information on innovation he /she received that it may not be for him; also, that innovation may be factually accepted but the individual for some other reasons is unwilling or unable to adopt the innovation and finally, they asserted that innovation may be symbolically accepted but an individual may delay the adoption until such a time that is suitable for use.

Accordingly, Gatignon, and Robertson (1991), as cited in Laukkanen *et al.* (2008) categorized resistors of innovation into postponers and rejecters. They disputed that

postponers are undecided if they ought to adopt and are still reluctant at a given point in time to trust the online activity; demanding for additional evidence than what they have at present and additional time to process the information. Contrariwise, rejecters somehow have advanced towards the information they need to make decision against adoption. Szmigin and Foxall (1998) concluded by signifying three forms of innovation resistance which they referred to as rejection, postponement and opposition. These authors argued that rejection or refutation is an essential structure of opposition with the aim of usually an outcome of new services that do not contribute any valuable gain to an exacting user. However, postponement is usually determined through situational aspects, while opposition might be an outcome of many causes, like situational aspects, assumed comparative limitation, and customs resistance.

According to Ram and Sheth (1989), there are two main barriers that cause customer resistance: psychological and functional barriers. Psychological barriers contain image barrier and tradition barrier while functional barriers contain usage, vale, and risk barrier. The following sections discuss these barriers in greater detail.

3.5.1 Psychological Barriers

Psychological barriers occur due two factors: traditions and image (Ram & Sheth, 1989). They stated that these difficulties are persistently created during conflict with the customers' former beliefs. Tradition barrier is mostly linked to the changing of innovation that might result into changing the way of using the products or services, while image barrier is connected with the basis of an innovation like the name of the company or product class (Kuisma *et al.*, 2007; Laukkanen & Kiviniemi, 2010).

3.5.1.1 Tradition Barriers

Tradition barriers are primarily related to everyday custom. Whilst routine interaction like face to face is necessary to customers, the tradition obstacle will be essentially strong (Laukkanen *et al.*, 2009; Laukkanen & Kiviniemi, 2010). In addition, behavior that differs from family values and societal custom can lead to obstruction (Ram & Sheth, 1989). Howcroft and Durkin (2000) noted that in banking relationships, the individual service may be entirely distorted via web. Ram and Sheth (1989) observed that customers observe daily custom that could be possibly very essential to them. Clients may have ancestral and societal principles. Behavior that is inconsistent with these values and standards will not be executed.

Laukkanen *et al.* (2008) found that in Finland the three resistor groups (postponers, oppositors, and rejecters) are different significantly with respect to the traditional barriers encountered in internet banking adoption. Their results showed that traditional barrier to internet banking were considerably different between oppositors and rejectors, but not significantly different from postponers.

Lee *et al.* (2003) examined the issues affecting customers' adoption of two technology-based service innovations (ATM &internet banking) in America. They found that a customers' favorite for a person teller is related with the awareness that electronic banking is not as consistent as banking with human tellers. But Gerrard, Cunningham and Develin (2006) found otherwise. They studied why customers were resistant to utilizing internet banking in Singapore by using qualitative method. They found that absence of human touch is not an imperative inhibitor in adopting internet banking.

Laukkanen *et al.* (2007) examined innovation resistance between older and younger users in the internet banking in Finland. They found that tradition barrier is not a problem for each group. Yet, they showed that younger users in comparison to mature customers, had to some extent new optimistic views of internet banking. Elbadrawy and Abdel Aziz (2011) investigated the significant difference among postponers, opponents and rejecters to tradition barrier in Egypt. They found that tradition barriers did not show any statistical significance. Which means the three group postponers, opponents and rejectors are highly concerned about tradition barrier.

According to earlier studies (e.g. Forman & Sriram, 1991; Heinonen, 2004) tradition barrier occurs because users have to modify the way they conduct their transactions. Kuisma *et al.* (2007) confirmed that resistance to banking through the internet will happen because those who are not users find it hard to modify their traditional ways of doing things. In sum, it can be concluded that tradition barrier plays a crucial role in customer resistance towards internet banking (Hashim & Chaker, 2009; Ram & Sheth 1989) because it diminishes the daily routine of face-to-face interaction (Ram & Sheth, 1989). Thus tradition barrier is considered in this study because Yemeni customers prefer face-to-face interaction with banks' clerks (Hashim & Chaker, 2009).

3.5.1.2 Image Barriers

An image barrier is formed from branded thoughts about an innovation. The image barrier comes from uniqueness related with the variety, product or state of origin (Laukkanen *et al.*, 2008; Ram & Sheth, 1989; Laukkanen & Kiviniemi, 2010). This type of barrier is seen as the general image on innovation (Laukkanen *et al.*, 2007), as a result of fear towards the innovation (Kay, 1993). Fain and Roberts (1997) argue that in internet banking image barrier might happen because of the negative "difficult-to-

use" image of PCs and websites especially. Kuisma *et al.* (2007) observed that several internet banking resistors possibly will have an obviously depressing image as regards to innovative technology. Correspondingly, Laukkanen *et al.* (2008) noted that the three resistor groups (postponers, oppositors, and rejecters) are considerably varied with regards to the image barriers in internet banking adoption. They found that image barrier is a higher determinant of resistance for oppositors and rejectors while image barrier is a low determinant for postponers.

In another study, Laukkanen *et al.* (2007) tested the responses between older and younger users of internet banking. Their results demonstrated that mature customers differed from younger users in terms of image barriers to take on internet banking. Thus this variable needs to be investigated due to the differential impacts it has on customer resistance. Elbadrawy and Abdel Aziz (2011) investigated the significant difference among postponers, opponents and rejectors with respect to image barrier in Egypt. They found that the three group postponers, opponents and rejectors have significantly with respect to image barrier. The image barrier received the lowest mean score among the three groups and being the weakest barrier to the m-banking adoption.

3.5.2 Functional Barriers

Ram and Sheth (1989) argue that functional barriers occur due to three factors; these are: usage barrier, value barrier, and risk barrier. Usage barrier is associated to the difficulty and unsuitability with customers' habits or practices (Kuisma *et al.*, 2007; Ram & Sheth, 1989). Value barrier depends on the financial charge of a novelty (Kuisma *et al.*, 2007), while risk barrier relates to the level of threats central within an innovation (Kuisma *et al.*, 2007; Ram & Sheth, 1989).

3.5.2.1 Usage Barriers

Usage barrier is mainly connected to the accessibility and easy-of-use of an innovation and the transforms it stresses from the users. The barrier starts to be effective when an innovation is not well-matched with accessible work flows, performance or habits (Ram & Sheth, 1989; Laukkanen & Kiviniemi, 2010). Dover (1988) stated that an innovation that is complicated to recognize or utilize was a single cause for failure for adopting banking in the USA. Prior literature Liao and Cheung (2002) documents that superficial ease of use is proven to be significant determinant of readiness to utilize effectively and efficiently internet banking, and user-friendliness determines usage (Wang *et al.*, 2003) and adoption of the service (Yiu *et al.*, 2007).

Previous researchers such as Black *et al.* (2002); Gerrard and Cunningham, (2003); Howcroft *et al.* (2002) found that difficulty in using internet banking hinders the users from adopting the service. In their qualitative research on the causes of internet banking resistance, Kuisma *et al.* (2007) indicated that some of those who resist Internet banking think is hard, problematic, and slow. Ram and Sheth (1989) noted that the usage barrier arises from tangible, functional elements of the internet channel. The need for an internet link, unreliable secret words and indistinct arrangement at the screen are open roots of resistance.

Lee *et al.* (2003) studied users' adoption of technology equipment-based service innovations (ATM and internet banking) in America. They found that involvement was found to be related with internet banking. Users who found online banking difficult to utilize were less expected to adopt computer banking and ATMs. In addition, Laukkanen *et al.* (2007) analyzed innovation resistance between older and younger users in the internet banking circumstance in Finland. Their results

demonstrated that usage barriers are the strong and obvious barriers to internet banking adoption for both young and old customers.

Similarly, in Malaysia, Ndubisi and Sinti (2006) found that internet banking difficulty is inversely related to adoption, which indicates that the lesser the effort expended to use a complicated system the higher the adoption likelihood. Laukkanen *et al.* (2008) found that usage barrier was significant for rejectors, but low for postponers, and opponents. Elbadrawy and Abdel Aziz (2011) investigated the significant difference among postponers, opponents and rejectors to usage barrier in Egypt. They found that the three group postponers, opponents and rejectors have significantly with respect to usage barrier. The result shows that usage barrier is high with rejectors rather than postponers and opponents.

This study selects usage barrier as a variable because of inconsistent results. Previous works (Black *et al.*, 2002; Howcroft, Hamilton, & Hewer, 2002; Lockett & Littler, 1997) argue that complicated service prevents users from accepting the service. Kuisma *et al.* (2007) noted that those who do not use the internet always have a negative understanding about the procedure on the PC screen and the use of varying PIN codes. Conversely, several researchers (Laukkanen *et al.*, 2008; Pikkarainen *et al.*, 2004) found usage did not significantly affect the acceptance or rejection on internet banking.

3.5.2.2 Value Barriers

Value barrier depends on the financial worth of an innovation. If the innovation is not expensive for users to modify their habits, resistance to it may not be likely (Laukkanen & Kiviniemi, 2010; Laukkanen *et al.*, 2008; Ram & Sheth, 1989).

According to Rogers (2003), value barrier refers to the notion of comparative gain, described as the apparent advantage of an innovation to product or service being offered. It also equivalent with the notion of professed usefulness in technology acceptance model (Wu & Wang, 2005), which describes the individual's awareness of utilizing particular improvement to develop his/her routine (Davis *et al.*, 1989). Thus, the value of internet banking can be felt due to low transaction costs for both customers and banks (Floh & Treiblmaier, 2006; Lichtenstein & Williamson, 2006).

Brown, Cajee, Davies, and Stroebel (2003) contended that the greater the advantage of banking on the internet, the more probable for customers to adopt the technology. When they believe that they can access internet banking anytime anywhere, and can manage their finances better, they will eventually adopt it (Laukkanen & Lauronen, 2005; Laukkanen *et al.*, 2007). According to Dunphy and Herbig (1995), the major reason for resistance to a new technology is because it is not "simple". Laukkanen *et al.* (2008) demonstrated that the three resistor groups (postponers, oppositors, and rejectors) were different significantly regarding the value barriers for internet banking adoption. They found that value barrier was rather lower for oppositors and postponers but higher for rejectors.

Elbadrawy and Abdel Aziz (2011) investigated the significant difference among postponers, opponents and rejectors to value barrier in Egypt. They found that the three group postponers, opponents and rejectors have significantly with value barrier. The result shows that value barrier is high with rejectors and opponents rather than postoners.

The value of using bank services depends also on the reasonable costs involved (Sathye, 1999). Numerous studies (e.g. Guadagni & Little, 1983; Gupta, 1988; Mazursky, LaBarbera, & Aiello, 1987) state that cost is the main reason to change to a new technology, even though Cooper (1997) reported that innovative goods frequently have higher cost/routine features. Howard (1977) highlighted that lower cost is attributed to adoption and dispersal of innovation. Rayport and Sviokla (1994) hinted price is an imperative element for internet sharing of goods and services. According to Wallis' Report (1997) in order for users to utilize innovative equipment's, the technologies should be rationally priced equivalent to their substitutes.

Most banking appreciate the fact that the fees charged for services are reasonable (Howcroft *et al.*, 2002; Karjaluoto, 2002; Karjaluoto *et al.*, 2002a; Poon, 2008), however, those who do not use the internet may be less likely to adopt because it entails that they purchase computers, and get an internet connection, and the cost may outbalance the benefits from the service they got (Fain & Roberts 1997; Gerrard *et al.*, 2006; Kuisma *et al.*, 2007). Lee *et al.* (2005) found that resistors who were willing to use online were worried with the financial advantages of the service.

In another study, Pikkarainen *et al.* (2004) demonstrated that usefulness influences significantly online banking adoption. Nonetheless, usefulness was observed to be the main driver of use of internet banking services. Lee *et al.* (2003) examined factors influencing users' adoption of two technological equipment-based service innovations (ATM & internet banking) in America. They found that the advantages of electronic banking were a major reason for adopting internet banking and ATM. Laukkanen *et al.* (2007) investigated innovation resistance among older and younger users of the

internet banking in Finland. They found value barrier as the strongest obstacle to adoption of mobile phone banking among older users.

Walker and Johnson (2006) tested why people use or refuse to use the three types of technology-enabled services: internet banking, telephone bill-paying, and shopping online in Melbourne, Australia. They found that the benefit people could receive from adopting the technologies explained significantly why they adopted them.

Value barrier is chosen in this study because a number of researchers acknowledge the importance of clients' control over their own financial dealings while transacting online (Daniel, 1999; Jayawardhena & Foley, 2000; Laukkanen *et al.*, 2006). For instance, Laukkanen *et al.* (2007) discovered that a few customers felt they need to have control when doing their banking transactions via the internet. In Yemen, prior studies have revealed that value barrier is one substantial factor why the general population does not handle their financial transactions over the internet (Commercial Service and U.S. Department of State, 2008). When people want to use the internet banking, they need to buy computers and internet lines, which are costly in Yemen (Al-Hariry, 2007). Zolait *et al.* (2008b) recommended that banks in the Republic of Yemen reduce the value barrier if they need to encourage internet banking.

3.5.2.3 Risk Barriers

According to Laukkanen and Kiviniemi, (2010); Kuisma *et al.* (2007); and Ram and Sheth (1989), risk barrier relates to the amount of intrinsic threats involved in innovation. Uncertainty is a character of innovation that is related to threat. Risk might (a) be substantial and hurt a person or property, (b) be monetary, (c) be functional; and (d) social (Kuisma *et al.*, 2007; Lee, 2009; Ram &Sheth, 1989). It is opined that some

users feel nervous concerning the prospect of making mistakes during internet banking transaction (Suganthi*et al.*, 2001; Howcroft *et al.*, 2002) and their safety when using the e-service. Adopters could run into panic when they produce mistake while performing their bank dealings by using a PC (Black *et al.*, 2001; Kuisma *et al.*, 2007; Poon, 2008) while resistors are upset about link breaks that occur during the banking process. In addition, some people are nervous about financial verification using the internet service (Rotchanakitumnuai&Speece, 2004), and as a result many customers prefer making transaction through ATM rather than an internet service (Laukkanen, 2006; Kuisma *et al.*, 2007). The PIN codes might also cause danger intimidation to internet banking as the list might be misplaced. Kuisma *et al.* (2007) argues that risk barrier is a critical aspect that creates resistance to do online banking among non-users.

Safety and confidentiality are important issues often raised with online banking transactions. Safety is associated with the anxiety of monetary loss, while confidentiality is associated with private data on the customer. Pavlou (2003) likens privacy threat in online dealings to fraudulent of confidential information. In the online banking situation privacy is found to be a major concern with regard to safety (Liao & Cheung, 2002). Cooper (1997) considers security of transactions on the internet as threats that hinder adoption of innovation. Other authors also posit similar concern (Daniel, 1999; O'Connell, 1996).

Internet banking will not be adopted if customers feel that it is not safe and secure. Lee *et al.* (2003) look at components that influence users' adoption of two technology equipment-based service innovations (ATM & internet banking) in America. They found that security was correlated with client adoption of electronic banking technologies. They found that users who felt that electronic banking is secure will

consider giving private information through online banking schemes. Elbadrawy and Abdel Aziz (2011) investigated the significant difference among postponers, opponents and rejectors to risk barrier in Egypt. They found that risk barriers did not show any statistical significance. Which means the three group postponers, opponents and rejectors are highly concerned about risk barrier. Studies also revealed that postponers, oppositors, and rejecters did not have significantly different perceptions of risk barrier in internet banking (Kuisma *et al.* 2007; Laukkanen *et al.* 2008) perceived that all internet banking transactions are risky.

In a survey by Karjaluoto *et al.* (2002), security alarm does not really stand as an utmost impediment on adoption of internet banking. Laukkanen *et al.* (2007) compared innovation resistance between mature and young users in the mobile phone banking situation in Finland. Their findings suggest a significantly higher risk perception among mature customers more than the younger customers. The outcomes of the present study indicated that the security risk of mobile banking is reflected to be quite low even among non-users of mobile banking. Ndubisi and Sinti (2006) look at the basic structure of customers' attitude system's characteristics on the adoption of internet banking among Malaysian bank customers. They came out with the finding that risk is low among Malaysian customers. This could be as a result of the continuous guarantee of the banks to its customers over the security of their internet banking.

This study selects risk variable because of various types of threat posed by internet banking perceived by customers. Some users are concerned with the likelihood of errors (Howcroft *et al.*, 2002), security (Aladwani, 2001; Black *et al.*, 2002; Elliot & Fowell, 2000; Howcroft *et al.*, 2002; Lockett & Littler, 1997; Sathye, 1999), making mistakes (Kuisma *et al.*, 2007), connection break down (Black, Lockett, Winklhofer,

& Ennew, 2001; Kuisma *et al.*, 2007), the absence of tangible evidence when using internet banking (Rotchanakitumnuai & Speece, 2003). Kuisma *et al.* (2007) found that some bank customers utilize ATM to pay their bills instead of the internet because of safety reasons. In a similar vein, Liao and Cheung (2002) found that privacy is one of the main issue raised by users of internet banking. It is argued that Yemeni banks should lower the threat associated with internet banking if they want to hearten its adoption (e.g. Zolait*et al.*, 2008a).

The study also focused on three groups of resistors (postponers, oppositors, rejectors) while it also discussed five dimensions of customer resistance. These dimensions which include image, tradition, use, value, and risk barriers as previously discussed in the preceding sections were selected because of their relevance in eliciting the holistic reasons why the selected users of internet banking are not disposed to adoption.

3.6 Past Research Models

Over the years, sundry studies were conducted by different researchers to identify and examine what hinder customers from using internet banking. Among the predictor variables that have been examined and reported to have correlation with customer resistance to innovation or internet banking are discussed next.

3.6.1 Antecedents of Resistance

Kleijnen *et al.* (2009) examined the relationship between antecedents of customer resistance to innovation (physical risk, economic risk, functional risk, social risk, traditions and norms, patterns of usage, and perceived image) and the components of resistance (postponement, opposition, and rejection) in Finland. They found that the three different types of resistance (postponement, opposition, and rejection) are the

most influential type of economic risk. For the postponement, existing usage patterns was found to be the most influential factor. For rejection, the level of risk happens to be the key factor. Economic risk was already mentioned, but rejection was distinguished from deferment by the significance of other forms of risk on the mind of the customer; functional risk was indicated to be more vital and social risks appeared to be the strongest antecedent of rejection. Perceived image was also most often discussed antecedent of rejection of innovation. The resistant type shares a series of antecedents with rejection. However, functional and social risks are seemingly of utmost significance. Moreover, they found that physical risk is significant for the opposition group.

In conclusion, the difference between the above study and this study is that the former used Customer Resistance Theory only to study the three types of resistance meanwhile this study uses Decomposed Theory of Planned Behavior to illustrate Yemeni behavior. In addition, previous study considered independent variables like risk, image and tradition norms while this study uses all antecedents of resistance as dependent variables, which are the main barrier for adoption. Finally, in the previous study, a small size of respondents was employed, thus limiting generalization to the whole population, and it did not focus on one product or service. On the other hand, this study considers government universities and concentrate on internet banking sector in Yemen. Figure 3.1 shows the framework of Kleijnen *et al.* (2009).

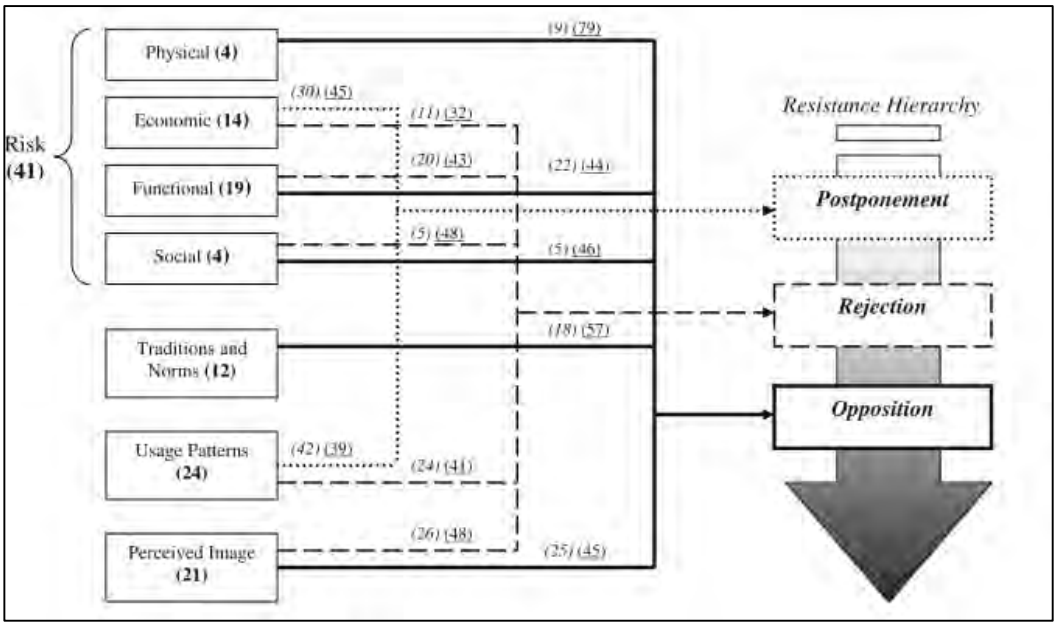

Figure 3.1
An Exploration of Consumer Resistance to Innovation and Its Antecedents
Source: Kleijnen et al. (2009).

Another study on resistance was conducted by Laukkanen *et al.* (2008) in Finland. Their objective was to understand why customers resist innovation by segmenting internet banking resistors into three; postponers, opponents and rejectors, on the basis of their intentions to use the innovation. They examined functional barriers (value, usage, risk barrier) and psychological barriers (image, and traditional barrier) against the three groups of resistors. They found that the three groups were similarly concerned with risk barrier. For the postponers, only risk barrier was found to have the highest impact while the rest of variables like (usage, value, image, and tradition barrier) have less effect. For the oppositors, risk barrier and psychological barriers (image and tradition) have high impact. For rejectors, they extremely reject the use of internet banking; therefore, all psychological barriers (image and tradition) and functional barriers (value, usage, and risk barrier) have high impact.

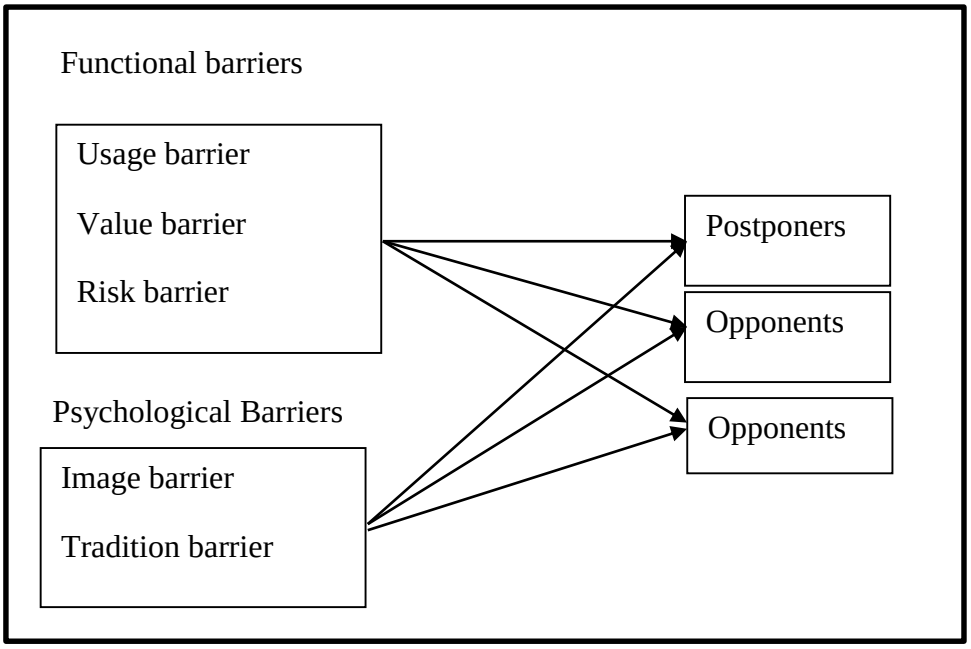

Figure 3.2
Consumer Resistance to Internet Banking: Postponers, Opponents and Rejectors
Source: Laukkanen et al. (2008).

In conclusion, there are some differences that can be identified from previous study and the present study. First, they use the barrier variables as the independent variables (IVs) while this study uses the variables as the dependent variables (DV). Second, they used Consumer Resistance Theory while this study uses Decomposed Theory of Planned Behavior. In addition, previous study was conducted in Finland but the present study is carried out on internet banking in Yemen. Finally, the present study also considers the effect of self-efficacy on customer resistance. Figure 3.2 shows the research framework of Laukkanen et al (2008).

Another study, Laukkanen, and Kiviniemi (2010) also carried out another study with the aim to look at the consequence of information and direction by banks on five barriers (usage, value, risk, tradition and image) in a mobile banking. Their findings revealed that the information and guidance has the most significant impact on decreasing the usage, image, value and risk barrier, respectively, while information

and guidance appeared not to have consequence on the traditional barrier. Figure 3.3 shows their research framework.

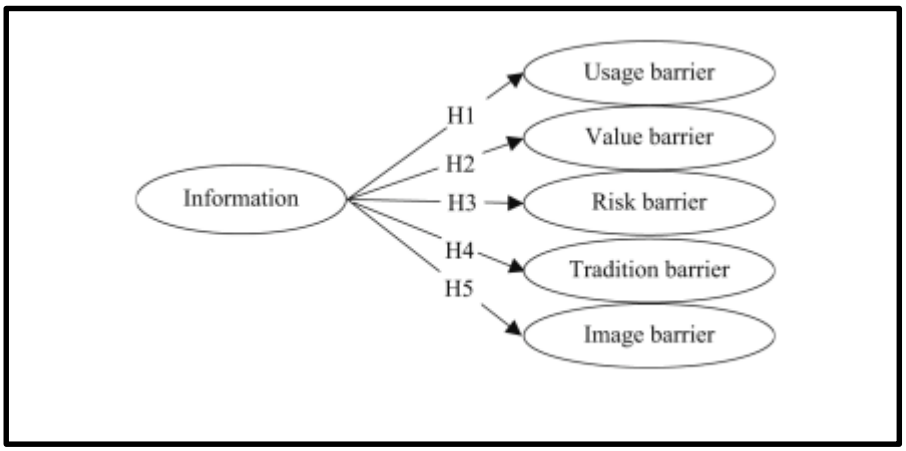

Figure 3.3
The Role of Information in Mobile Banking Resistance.
Source: Laukkanen, and Kiviniemi (2010).

There are some differences between the above study and this study. Firstly, their study used mobile banking and this study uses internet banking. Moreover the study done in Finland, a developed country but the present study focuses on Yemen. Secondly, according to Laukkanen, and Kiviniemi (2010), "More research is needed to enhance the validity of the adoption barriers. Both qualitative and quantitative research approaches in different empirical contexts are welcome. Also cross-national studies in terms of construct validation are needed. In addition, the common method variance problem should also be taken into account by designing studies in which the data are collected through different sources or by using longitudinal surveys. To conclude, understanding customer resistance as a phenomenon deserves more attention among academics and practitioners alike" (p. 385). Therefore, this study considers their comments and uses quantitative method and conduct a cross national study in Yemen.

3.6.2 Antecedents of Adoption

Academic works that examined adaptors and non-adopters have been carried out. On adoption, Barati and Mohammadi (2009) propose a theoretical relationship between adoption barriers (e.g. usage, value, risk, tradition, and image) and behavioral intention to use internet banking. They also consider other variables like facilitating conditions and social culture factors. They integrate Theory Acceptance Model and Consumer Resistance Theory. They argue that e-services are an innovation and every innovation is associated with some kind of resistance. Factors that cause resistance must be considered before the acceptance model is built. If resistance to mobile banking increases, intention to use this service is decreased. Hence, they suggest a need to study the barriers to innovation resistance, and banks should consider these in their strategy to increase the adoption of mobile banking.

This study considers recommendation made by Barati and Mohammadi (2009) and examines the barriers to adopt internet banking as this main problem (dependent variable). Moreover this study focus on the antecedents to use internet banking. Since Barati and Mohammadi's proposition is yet to be tested, this study intends to validate it. Figure 3.4 shows the theoretical framework of (Barati & Mohammadi, 2009).

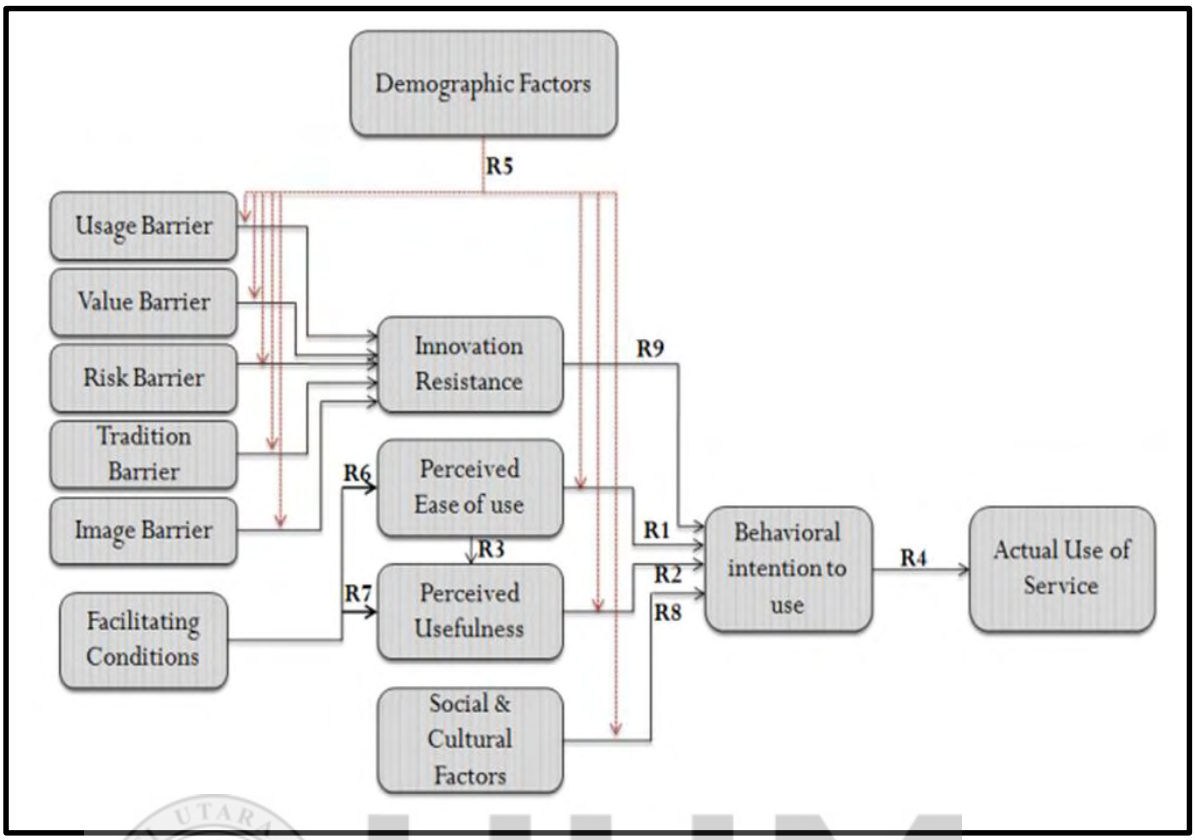

Figure 3.4
An Efficient Model to Improve Customer Acceptance of Mobile Banking.
Source: Barati and Mohammadi (2009).

Al-Somali, Gholami, and Clegg (2009) attempted to determine the factors that motivate customers to adopt online banking in Saudi Arabia amongst 400 customers. The factors were identified from Technology Acceptance Model. They also incorporated additional control variables which are quality of the internet connection, awareness of services and its benefits, trust, social influence, resistance to change, computer self-efficacy, and demographics characteristic. Their results revealed that quality of internet connection, awareness of online banking and its benefits, social influence and computer self-efficacy have significant relationship with perceived usefulness and perceived ease of use of online banking acceptance. Meanwhile trust, resistance to change and education have significant impact on attitude towards the possibility of adopting online banking. Figure 3.5 shows their research framework.

Some differences between the above study and this study can be identified. The above study used Technology Acceptance Model and this study uses Decomposed Theory of Planned Behavior. Moreover, the above study used resistance to change as the independent variable (IV) meanwhile this study uses customer resistance to internet banking adoption as the dependent variable (DV). In addition, we consider many dimensions to measure resistance to adoption.

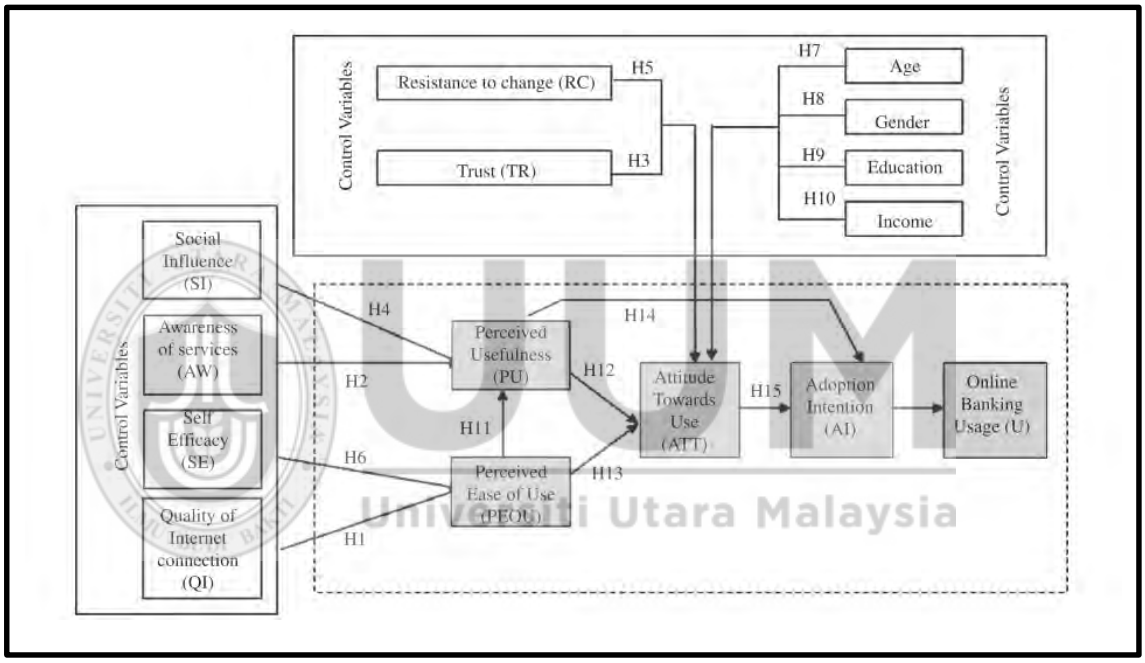

Figure 3.5
An Investigation into the Acceptance of Online Banking in Saudi Arabia.
Source: Al-Somali, Gholami, and Clegg (2009).

Ozdemir and Trott (2009) proposed and tested those variables that affect the practice of adoption and depict different internet Banking adopter and non-adopter segments in Turkey. The study utilized a multi-method approach employing the qualitative and quantitative types of research methods. The results portrayed that adopters and non-adopters of internet banking have diverse perceptual, experience related, socioeconomic and situational characteristics. Furthermore, they explained that aside the perceptual factors being connected to use internet banking and were also influential

in the internet banking adoption process in Turkey. The researcher adopted the extended Technology Acceptance Model with Diffusion of Innovation Theory and Theory of Perceived Risk to characterize various internet banking adopter and non-adopter categories. They stated that the recent indicators regarding internet banking use in Turkey revealed that the majority of the users have not adopted the service. Figure 3.6 shows their research model.

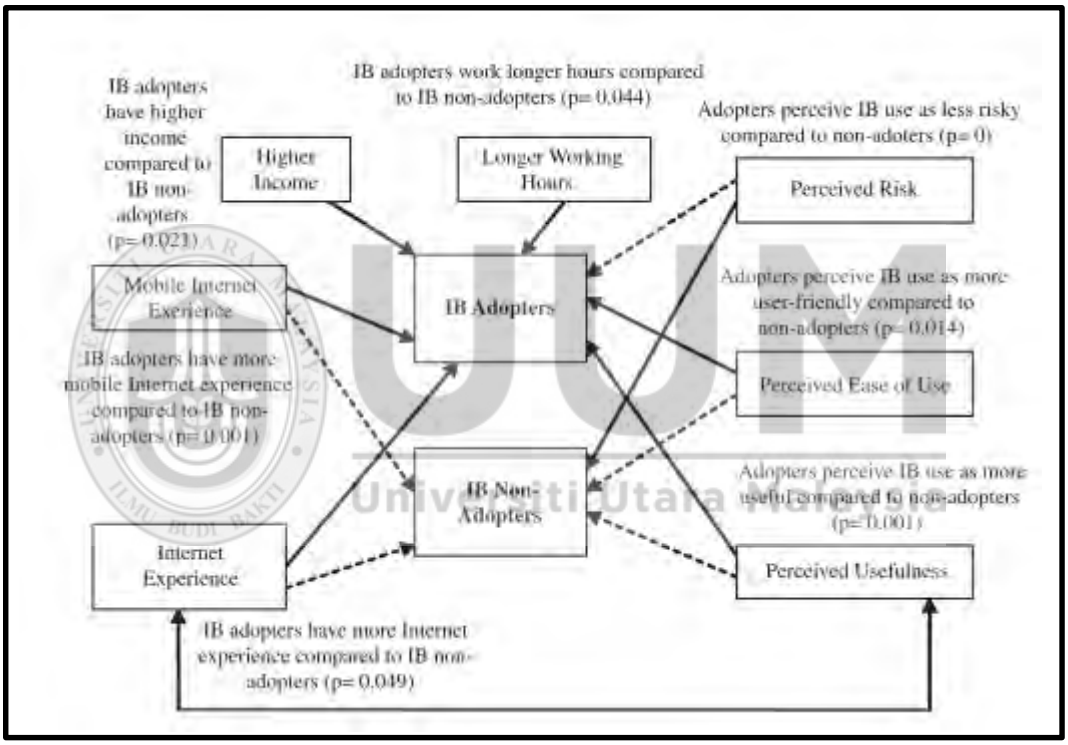

Figure 3.6
Exploring the Adoption of a Service Innovation: A Study of Internet Banking Adopters and Non-Adopters.
Source: Ozdemir and Trott.(2009).

Lee (2009) examined the diverse advantages of online banking to form a positive factor named perceived benefit. In addition, drawing from perceived risk theory, five specific risk facets namely, financial, security/privacy, performance, social and time risk were incorporated with perceived benefit. Technology Acceptance Model and Theory of Planned Behavior were used to elucidate customers' intention to use online

banking. The results specified that the intention to use online banking is negatively affected mostly by the security/privacy risk, as well as financial risk and is positively affected largely by perceived benefit, attitude and perceived usefulness. Figure3.7 shows their research framework.

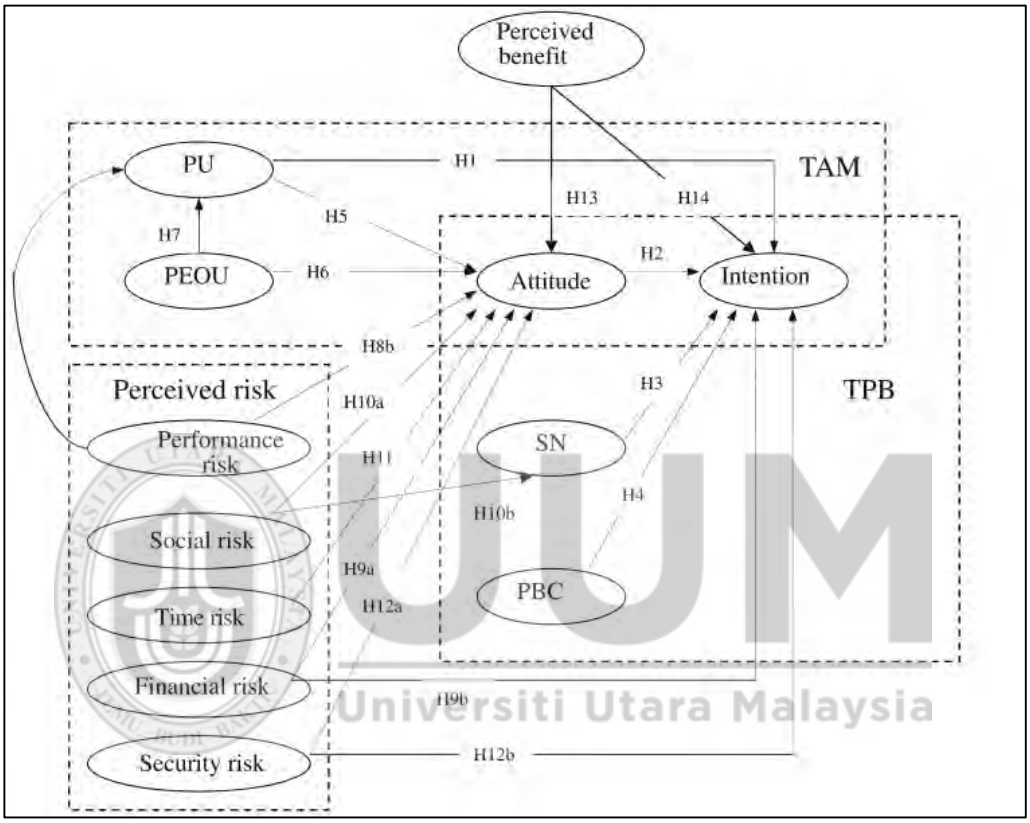

Figure 3.7
Factors Influencing the Adoption of Internet Banking: An Integration of TAM And TPB with Perceived Risk and Perceived Benefit.
Source: Lee (2009).

The present study extends the previous literature on Decomposed Theory of Planned Behavior by adding variables such as trust, government support, self-efficacy, credibility, and customer resistance towards internet banking. However, the present study contributes by combining the incorporation of functional barriers (i.e. Risk, vale, usage barrier) and psychological barriers (i.e. image and tradition) as dimensions of customer resistance behavior. New variables that were not included in previous

studies are considered in the present research because they were found to play critical roles in resistance to adopting internet banking.

3.7 Previous Models on Information System

This section concentrates on the various underpinning theories that have been used in studies on information system.

Understanding customer acceptance or rejection is the main concern for information technology practitioners. Many well-established theoretical models have been used to assess customer acceptance of a technology such as theory reasoned action (Fishbein & Ajzen, 1975), theory of planned behavior (Ajzen, 1991), Theory Acceptance Model (Davis, 1989), diffusion of innovation (Rogers, 1983), UTAUT (Venkatesh, Morris, Davis, & Davis, 2003), social cognitive theory (SCT) (Bandura, 1986), motivational model (MM) (Davis *et al.*, 1989), model of personal computer utilization (MPCU) (Thompson, Higgins, & Howell, 1991), and decomposed theory of planned behavior (Taylor & Todd, 1995).

Each theory identifies different concepts and factors that influence the acceptance process. For instance, theory reasoned action contains behavior, behavioral intention, subjective norm and attitude. Theory Planned Behavior contains behavior, behavioral intention, perceived behavioral control, subjective norm and attitude. Theory acceptance model contains external factors, perceived usefulness and perceived ease of use, behavioral intention, and actual usage. Diffusion of innovation theory contains relative advantages, complexity, compatibility, observability, trial ability, and actual usage. Decomposed theory of planned behavior contains perceived usefulness, perceived ease of use, compatibility, peer influences, superior influence, self-efficacy,

resource facilitating conditions, technology facilitating condition, perceived behavioral control, subjective norm, attitude, behavioral intention, and actual usage.

In addition, motivational model includes extrinsic motivation, intrinsic motivation, and user acceptance. Model of personal computer utilization contains complexity, attitude towards use, job-fit, and facilitating conditions. Decomposed theory of planned behavior include attitude, subjective norms, and perceived behavioral control, ease of use, usefulness, behavioral intention, and behavior. Last but not least, unified theory of acceptance and use of technology contains performance expectancy, effort expectancy, social influence and facilitating condition. Among, the mostly used theoretical models are theory of reasoned action (TRA), theory of planned behavior (TPB), technology acceptance model (TAM), and innovation diffusion theory (IDT). These few models have dominated the theoretic basis of IS acceptance over the past 20 years (Kim & Malhotra, 2005).

There are some common attributes among these models. In this section, the study presents a summary of each and discusses studies that have used the theories to examine internet banking.

3.7.1 Theory of Reasoned Action (TRA)

Theory of reasoned action was specifically propounded by Fishbein and Ajzen in 1967 and was revised again in 1980. It is designed to clarify user behavior (Ajzen & Fishbein, 1980). Theory of reasoned action assumes that customers are rational in analyzing information (Ajzen & Fishbein, 1980). They are participating in an activity or adopting a new technology after they consider the implication of their behaviors (Ajzen & Fishbein, 1980).

Theory of reasoned action proposes that attitude predicts behavioral intention and actual behavior. Individual behavior is affected by behavioral intention and behavioral intention is affected by attitude and subjective norms. Fishbein and Ajzen (1975) postulates that attitude is "*an individual's positive or negative feeling about performing the target behavior"* (p. 216), in addition they assume the position that subjective norm is *"an individual perception on people whether it's important to the individual to think that the behavior should be performed"* (p. 302).

Theory of reasoned action was utilized in several studies of information system acceptance (e.g. Loiacono, Watson, & Goodhue, 2007; Rensel, Abbas, & Rau, 2006; Shih & Fang, 2006) to explain why people consent or reject a technology. Ok and Shon (2006) employed reasoned action theory to show that behavior the individual is controlled by his/her tendency to engage in a given behavior. In another study, Fishbein and Ajzen (1975) revealed that the tendency to use new a product is influenced by social influence and perception towards the immediate consequences of a behavior. Wu (2003) used TRA to assess the key factors that encourage the acceptance of information system in process reengineering. Subjective norm was found to be essential in information technology acceptance (Wu, 2003).

Theory of reasoned action is widely used in social psychology background. Lu, Lai, and Cheng (2007) investigated the key influences in internet services adoption of liner shipping services. They found a weak but positive association between security protection and the intent to use internet services. Limayem, Khalifa, and Frini (2000) found that attitude towards web-shopping was most significant in influencing the intentions for online shopping. Wong and Schulli (2005) as cited by Irwansyah (2008)

found that customers' perception on perceived risk in Hong Kong tend to be high, and was found to lead to decreased attitude toward web shopping intention.

Al-Muala *et al.* (2012) studied the components that effect an individual's intention for internet banking service in Jordan by applying theory of reasoned action. Their finding indicated a significant and positive relationship among universities staffs' attitude, subjective norm, intention, and internet banking services adoption. Ok and Shon (2006) applied theory of reasoned action to identify the factors that impact the actual use of internet banking in Korea among 300 personal banking customers. Their finding showed that theory of reasoned action is fundamental in predicting behavioral intention to bank on the internet.

Nor and Pearson (2008) employed theory of reasoned action to examine internet banking among undergraduate business students and MBA students at four public universities in Malaysia. They found empirical support for theory of reasoned action in predicting an individual's behavioral intention toward internet banking in which an individual's behavioral intention to adopt internet banking service is influenced by his/her attitude and subjective norm. In another study, Shih and Fang (2006) used TRA to ascertain if attitude and subjective norms would influence individuals' internet banking acceptance. The findings revealed that customer attitude has a significant relationship with behavioral intention while subjective norms did not. Figure 3.8 shows TRA.

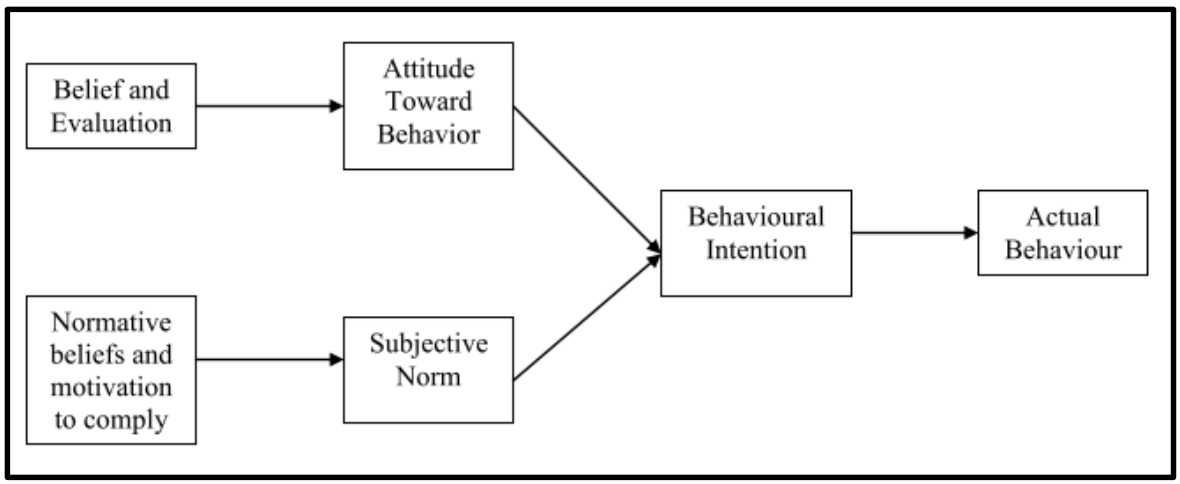

Figure 3.8
Theory of Reasoned Action
Source: Lu, Lai, and Cheng (2007).

Even though several researchers have used theory of reasoned action in their research, the theory has a number of weaknesses. The theory assumes that when customers have a desire to perform something, they are free to do it without any constraint. This suggests that this theory is practical when an individual could make a decision to act on a certain behavior (Ajzen, 1991). Sheppard, Hartwick and Warshaw (1988) also managed to identify some limitations of TRA. Firstly, the researchers argue that one needs to distinguish first behaviors from intention. This is because motivational factors affect a customer's intention first, which later determines how the behavior is performed. Secondly, the theory does not distinguish whether the reason for not performing is because of the customer's behavior or the customer's intention. Thirdly, illogical decisions, typical actions or any behavior that is not known cannot be described in theory of reasoned action. This is because the model has less ability to be implemented when a behavior is habitual (Wan, Chung-Leung, & Chow, 2005).

3.7.2 Theory of Planned Behavior (TPB)

The theory of planned behavior (Ajzen, 1991, 2001) is viewed as an extension of the famous theory reasoned action (Fishbein & Ajzen, 1975). This theory argues that

behavior is a critical sign of behavioral intention. Similar to theory reasoned action, intention is influenced by attitude and subjective norm (Fishbein & Ajzen, 1975). But, theory of planned behavior concentrates on perceived behavioral control as an additional factor (Ajzen, 1991, 2001). Perceived behavioral control described as *"people's perception on the easiness or difficulties in performing the behavior"* (Ajzen, 1991, p. 188). Attitude towards the behavior is considered as *"the individual's positive or negative feelings about performing a behavior"* (Ajzen, 1991, p. 188). Subjective norm is defined as *"an individual's perception on whether peoples' influences are subjected to the individuals thinking on how ones' behavior should be performed"* (Ajzen, 1991, p. 188).

Attitudinal beliefs are defined as behavioral belief that is the subjective probability that the behavior will produce a given outcome, which influence attitude towards behavioral intention (Ajzen, 1991). Normative beliefs are defined as the perceived behavioral expectations of swaying referent individual or group, which influence subjective norms towards behavior intention. Control beliefs are considered as perceptions of internal and external constraints on behavior, which influence perceived behavior control towards behavioral intention (Ajzen, 1991).

The positive relationship between control beliefs and perceived behavioral control has been verified by prior studies (Ajzen, 1991; Sparks, Hedderly, & Shepherd, 1992). Figure 3.9 shows TPB model.

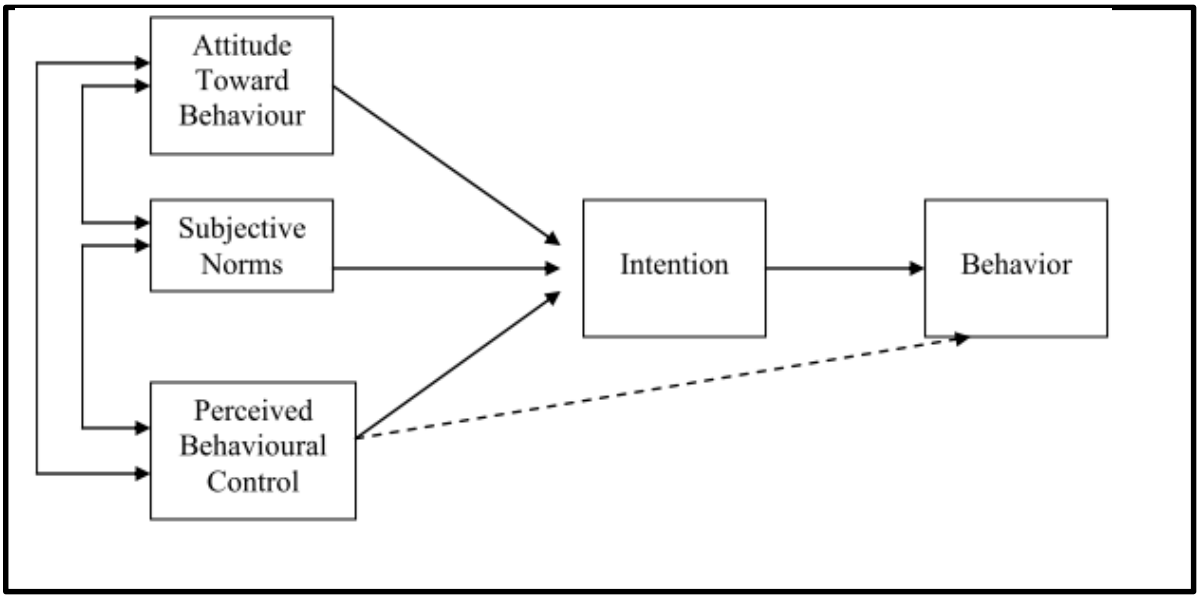

Figure 3.9
Theory of Planned Behavior.
Source: Ajzen (1991)

Theory planned behavior has been employed in numerous studies. In the area of technology acceptance, perceived behavioral control indicated to be related to perceived complexity in doing transactions by using a new technology (Ajzen, 1991; Bandura, 1977) by taking into account time, money and resources restrictions. Roca, Chiu, and Martínez (2006) revealed that customer tendency to keep on practicing a technology was affected by satisfaction and satisfaction in turn was impacted by perceived usability and quality. Hsu *et al.* (2006) examined users' persistence intention and found that satisfaction was significant in predicting one to keep on using a technology. Pavlou (2002) found that attitude is positively associated with all the three intentions to transact online.

Shih and Fang (2004) examined components that affect internet banking service adoption in Taiwan. The results demonstrated that even though attitude is significantly related to intention, subjective norm and perceived behavioral control were not. Ok and Shon (2006) used theory of planned behavior in Korea. They study found that

behavioral intention is not influenced by subjective norm. However, they demonstrated that attitude, subjective norm, and perceived behavioral control are affected by attitudinal belief structures, normative belief structures, and control belief structures.

Shih, and Fang (2006) expanded theory planned behavior to describe factors that affect behavioral intention towards the use of internet banking. The finding showed that information quality, transaction speed, and security play an essential role to customer's attitude. Moreover, this study found that attitudinal, normative structure and control beliefs are significant determining factors of attitude, subjective norm and perceived behavioral control. Moreover, attitude and perceived behavioral control are significant determinants of behavioral intention, but subjective norm is not.

Researchers have noted some limitations in theory planned behavior. For instance, Taylor and Todd (1995) suggest that the theory should include other factors like habit, perceived moral obligation and self-identity, which are believed to predict behavioral intentions and actual behavior. Even though the theory considers an additional variable of perceived behavioral control as a response to uncontrollable elements of behavior, it still could not explain why individuals are motivated to perform a specific behavior such as customer behavior adoption.

3.7.3 Technology Acceptance Model (TAM)

Technology acceptance model is improved by Davis *et al.* (1989). This model is to measure customer acceptance of a specific innovation. Perceived usefulness and perceived ease of use are the key variables proposed to influence acceptance. Perceived usefulness according to Davis *et al.* (1989) view is "an individual's

perception that adopting a technology would improve career accomplishment" while perceived ease of use is "an individual's perception that it requires minimum effort to use a technology." TAM asserts that perceived usefulness and perceived ease of use are the predictors of behavioral intention while behavioral intention directly influences the system actual usage. It is argued that perceived usefulness and perceive ease of use are strong factors that stimulate favorable inclination to use technology, therefore influence customer acceptance (Davis *et al.*, 1989).

As an extension of theory of reasoned action, TAM extends attitude with a set of two factors namely perceived ease of use and perceived usefulness. Both are valid predictors of behavioral intention and usage behavior. Koufaris and Sosa (2002) found that the salient beliefs of perceived usefulness and perceived ease of use of the website are able to affect customer's trust on the online company. TAM is commonly used to forecast end-user behavioral acceptance of internet (Shergill & Chen, 2005).

TAM captures the views of customers that an innovation is more effective in performing designated missions (Agarwal & Prasad, 1998). In TAM, a customer's readiness to utilize a technology is influenced by his/her attitude (Fishbein & Aizen, 1975). This model has a better predictive power to explicate attitudes in the use of information system than TRA or TPB (Mathieson, 1991).

King and He (2006) showed that TAM is a distinct and properly defined research model and essentially been used in various studies to test customer acceptance of diverse technologies by considering various factors. For instance, Wang *et al.* (2003) applied TAM to test software acceptance based on performance and effort expectation. Schepers and Wetzels (2007) carried out a study using TAM to examine the role of

subjective norm in information system acceptance. Achanvanich, Okada, and Sonehara (2007) studied the important determinants of customers' choice to adopt an internet commission services. They found that perceived usefulness is a significant factor which affects customers' decision to adopt. Figure 3.10 shows TAM.

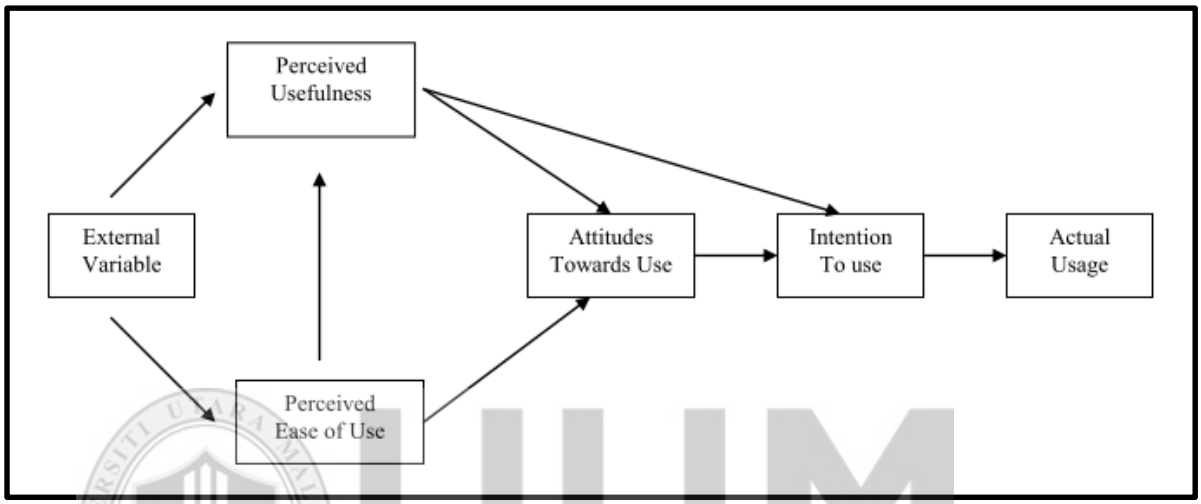

Figure 3.10
Technology Acceptance Model (TAM)
Source: Davis et al. (1989)

Various studies in Malaysia used TAM to determine the relationships between perceived ease of use, perceived usefulness, attitude, internet usage. Ramayah, Jantan and Aafaqi (2003) investigated student acceptance of a course on website towards electronic-learning in Malaysia. Yuliharsi (2004) examined the variables that impact customers' purchase intention among students in public universities. Ramayah and Ignatius (2005) studied the influence of perceived usefulness, perceived ease of use and perceived enjoyment on the intention to shop online.

A theoretical extension of the technology acceptance model (TAM2) was developed by Venkatesh and Davis (2000). In TAM2, Venkatesh and Davis (2000) excluded the attitude component and focused mainly on user perception of technology. They

proposed that users of systems make usage decisions based on the perception of how user-friendly the system is and the benefits to be derived from using it Figure 3.11.

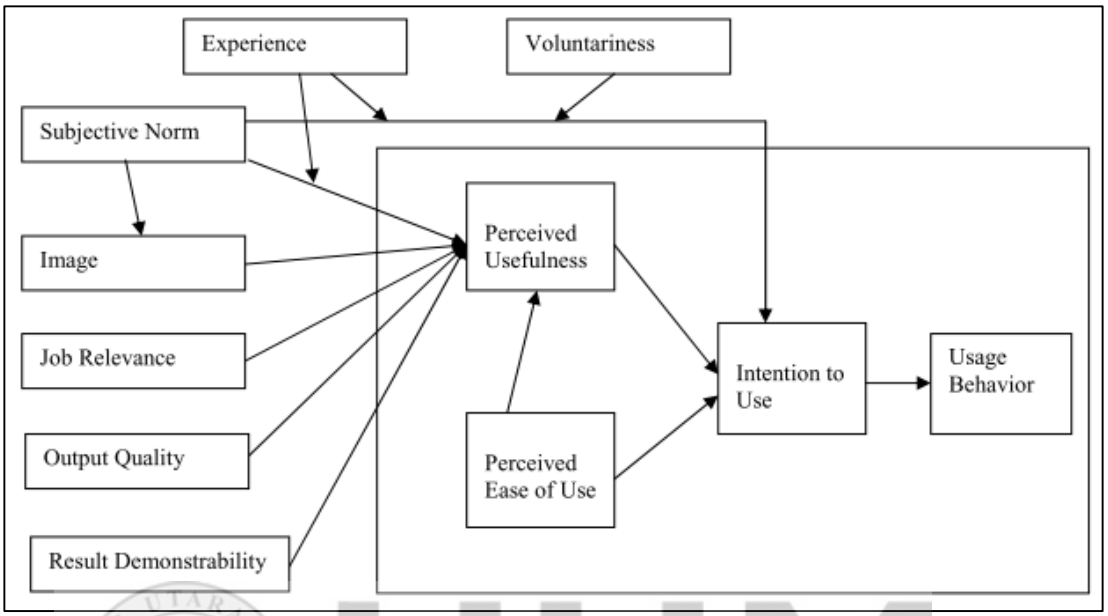

Figure 3.11
Technology Acceptance Model 2 (TAM2).
Source: Venkatesh & Davis, 2000. P188).

In this model, Venkatesh and Davis (2000) examined the causal effects of mandatory versus voluntary usage of computer systems which was theorized as compliance on intention to use the system. The first two determinants of perceived usefulness in this model, i.e. subjective norm and image, represent social influence, while job relevance, output quality and result demonstrability represent system characteristics. Experience and voluntariness are two moderators that affect the system.

This model postulates two theoretical processes, which are social influence and cognitive instrumental processes; these explain the effects of external variables on perceived usefulness and behavioral intention of individuals when making decisions to adopt or use computer technology.

The TAM2 framework has been widely tested over the years by researchers by variance scholars (Venkatesh & Brown, 2001; Chen *et al.*, 2002; Shang *et al.*, 2005; Sun & Zhang, 2008; Lee *et al.*, 2006). Their findings have validated a correlation between external variables and behavioral intentions to use technology as originally proposed by Venkatesh and Davis (2000).

Furthermore, a theoretical extension of the technology acceptance model was developed by Venkatesh and Bala (2008) and is referred to as TAM 3 model. In TAM3, the determinants of perceived ease of use (PU) include subjective norm, image, job relevance, and output quality and result demonstrability as shown in Figure 3.12. As in many other areas of life, an individual's perception of IT can be influenced by social factors distinct from the objective characteristics of the technology being considered. In TAM 3, these social influences are represented by subjective norm and image.

Subjective norm is defined as "the degree to which an individual perceives that most people who are important to him think he should or should not use the proposed IT" and image is "the degree to which an individual perceives that use of an innovation will enhance his or her status in a social system" (Venkatesh & Bala, 2008).

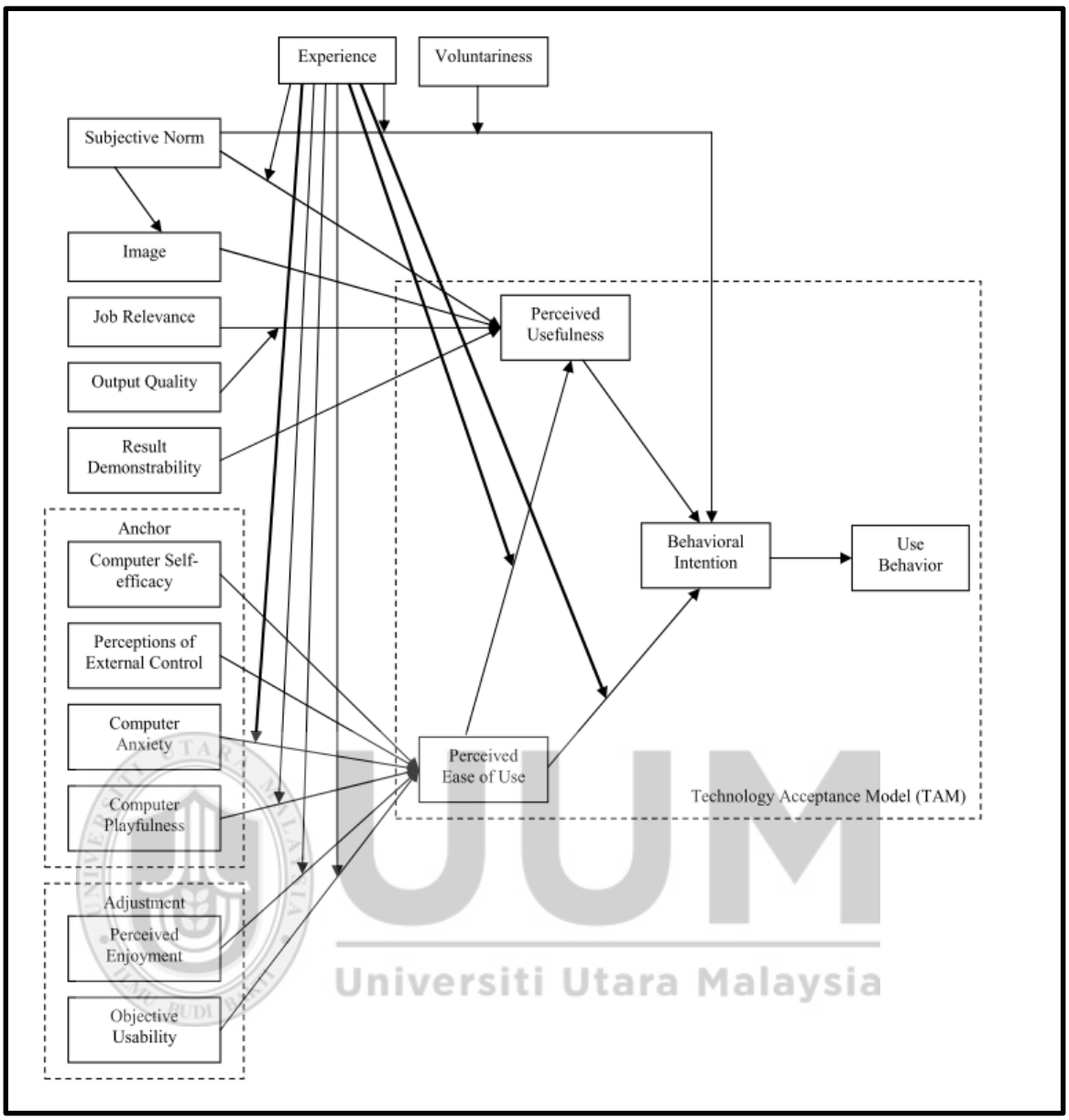

Figure 3.12
Technology Acceptance Model 3 (TAM3)
Source: (Venkatesh & Bala, 2000)

The other four determinants of perceived usefulness are system characteristics, referred to by the authors as cognitive instrumental processes which focus on the characteristics of the IT and its potential to positively impact work processes and outcomes. Job relevance is the degree to which an individual believes that the target system is applicable to his or her job. Output quality is "the degree to which an individual believes that the system performs his or her job tasks well". Result demonstrability reflects the degree to which an individual believes that the results of

using the IT are tangible, observable, and communicable (Moore & Benbasat, 1991). Perceived usefulness is the only determinant in this category whose effect on perceived usefulness is moderated by experience.

Results of studies suggest that perceived ease of use, subjective norm, image, and result demonstrability are all significant and consistent predictors of perceived usefulness. Job relevance and output quality were found to have an interactive effect on perceived usefulness, with the effect of job relevance on perceived usefulness increasing with increases in output quality. Also important to note in the finding is that experience moderated the relationship between subjective norm and perceived usefulness , with subjective norm's impact diminishing as one gains experience with the new technology (Venkatesh, 2000; Venkatesh & Bala, 2008).

The determinants of perceived usefulness in TAM 3 were developed using the anchoring and adjustment framing of human decision making. This suggests that individuals will form early perceptions of ease of use based on anchors related to individuals' general beliefs regarding the technology of interest and its use. These early perceptions are then adjusted after hands-on experience with the new technology (Vankatesh, 2000; Venkatesh & Bala, 2008). Venkatesh (2000) suggests four anchors associated with perceived usefulness three of which reflect individual differences (computer self-efficacy, computer anxiety, and computer playfulness), the last is facilitating condition (perception of external control). The system characteristics-related adjustments are in the form of perceived enjoyment and objective usability.

Computer self-efficacy is "the degree to which an individual believes that he or she has the ability to perform a specific task/job using a computer". Computer anxiety is the degree of "an individual's apprehension, or even fear, when she/he is faced with the possibility of using computers", while computer playfulness is "the degree of cognitive spontaneity in microcomputer interactions (Webster & Martocchio, 1992, p. 204). Perception of external control is "the degree to which an individual believes that organizational and technical resources exist to support the use of the new system (Vankatesh *et al.*, 2003).

Perceived enjoyment is the degree to which using the new system or technology is perceived to be enjoyable in its own right, aside from any performance consequences resulting from its use (Venkatesh, 2000) and finally, objective usability is a comparison of the new system versus other systems based on the actual (rather than perceived) level of effort required to complete specific task (Venkatesh, 2000).

Consistent with TAM 3 expectations, results indicate that the anchors: computer self-efficacy, perception of external control, computer anxiety, and computer playfulness are consistent predictors of perceived ease of use. On the other hand, the effect of the adjustments, perceived enjoyment and objective usability on perceived ease of use are shown to grow as experience with the technology increases. Conversely, the effect of computer anxiety on perceived ease of use diminishes with increasing experience (Venkatesh, 2000; Venkatesh & Bala, 2008).

Despite its validity, TAM has been found to have a number of constraints. Studies on technology acceptance model discovered that it is not only perceived usefulness and perceived ease that predict technology acceptance (Legris, Ingham, & Collerette, 2003). Others observed that several studies on technology acceptance model are inconsistent or vague and did not consider other significant factors that could influence adoption such as past experience and education to increase the explanatory ability of the model (Al-Sukkar, 2005; Davis, 1993; Davis *et al.*, 1989).

Additionally, there is limited consideration on the effect of design and implementation on usage in TAM (Taylor & Todd, 1995). Moreover, TAM considerably ignores external and situational influences such as culture (Al-Sukkar, 2005). Although TAM delivers feedback on usefulness and ease of use, it however fails to give feedback when it comes to enhancement which might heighten the adoption; other aspects such as flexibility, integration, completeness of information, and information currency need to be addressed. Finally, the most vital limitation of TAM relates to the relationships between the major concepts that explain a conflicting pattern; in some researches the relations were empirically significant, suggesting that TAM is a solid framework, while other studies found the opposite. In particular, the effect of perceived ease of use on attitude, behavioral intention and usage were inconsistent. In addition, while the relationship between perceived usefulness and perceived ease of use were significant in most studies, the relationship could be attributable to the type of customers or their experience (i.e. professional users have different academic capacities, and the more experienced the users are the less likely the effect of perceived usefulness and perceived ease of use) (Legris *et al.*, 2003).

Consequently, the trends from TAM 1 through TAM3 have shown significant differences in the TAM models. For instance, TAM 1 was developed in the content of organization where usage of computer was compulsory. The outcome from TAM 1 shows that its core constructs (Perceived Usefulness and Perceived Ease of Use) are predictors of actual usage through attitude and intention. The two core variables are influenced by the external factors of social, cultural and political factors. However, TAM 2 was developed with audience from voluntary and mandatory settings in mind. Additionally, the major difference between TAM 1 and TAM 2 is the influence of external variables (such as subjective norm, image, job relevance, output quality and result demonstrability) on perceived usefulness while experience and voluntariness moderated the relationship between subjective norm, perceived usefulness and intention to use. Due to the limitations of TAM 1, and TAM 2, TAM 3 was developed. In TAM 3, Venkatesh and Bala (2008) comprehensively detailed out the determinants of perceived usefulness and perceived ease of use with experience and voluntariness as moderators. Though TAM 3 aligns with TAM 2 in terms of content and context, its ability to introduce external variables or antecedents which explain perceived ease of use in details makes it to be distinct from other TAMs. Even though all the TAMs have been proved to be robust, simple and parsimonious by previous researchers, its limitation has however made several other researchers to advocate its further extension to suit the content and context purpose of the research. This is obvious as other external variables apart from what is contained in all the TAMs have been introduced by other researchers. These justifications made this study to consider DTPB (Taylor & Todd, 1995) that has condensed all the TAM and TPB variables together in the same model as the model is more robust than TAM and suitable to solve the internet banking adoption resistance issue that is existing in Yemen.

3.7.4 Diffusion of Innovation Model

Diffusion of innovation model was formulated by Rogers in 1962 (Rogers, 2003). It describes how an innovation or service possibly penetrates inside a society (Agarwal & Prasad, 1998; Karahanna, Straub, & Chervany, 1999; Rogers, 2003). Based on diffusion of innovation model, technology acceptance succeeds when the advantages of utilizing a technology are well communicated (Rogers, 2003). According to the model, customers are actively conscious of a technology and search for information about the technology that could fulfill their existing desires (Rogers, 2003). New adopters would avoid to use new information that is against their opinions and attitudes (Rogers, 2003).

Rogers (1962) proposes a framework of the diffusion of innovations that integrates five characteristics of products or services that are purported to affect customer acceptance. They are relative advantage, compatibility, complexity, trialability, and observability. Relative advantage is defined as the degree to which an innovation is perceived as being better than its precursor (Moore & Benbasat, 1991). Compatibility is described as the extent to which innovation is observed to be consistent with existing values, needs, and past experiences of potential adopters (Moore & Benbasat, 1991). Complexity is explained as the degree to which an innovation is perceived as being difficult to use (Moore & Benbasat, 1991). Trialability is viewed as the degree to which an innovation could be experimented with on a limited foundation (Moore & Benbasat, 1991). Observability is defined as the degree to which one can see others using the system in the organization (Moore & Benbasat, 1991).

Diffusion of innovation model represents four levels of technology acceptance (Rogers, 2003). The first level is the persuasion level, whereby the potential adopters

construct beliefs about a new product/service, and keenly seek information in connection to the new product/service (Rogers, 2003). At the second level, known as the decision level, the customers are involved in activities that move toward technology acceptance (Rogers, 2003). At this level, non-adopters may able to adopt the new product/service after they are convinced of the evidence that encourage them to adopt the new product/service (Rogers, 2003). At the third level, the implementation level, the adaptors begin to apply the new product/service (Rogers, 2003). At the fourth level, the confirmation level, the users may review their decisions to adopt the new product/service if they receive negative information of the product/service (Rogers, 2003). They may keep on adopting the new product/service or reject to adopt it (Rogers, 1995, 2003).

A number of studies have used the model to investigate study user acceptance of a different technology. Sathye (1999) for example used the model to examine why customers reject to utilize internet banking services even though they understand the benefits of internet banking. Nor and Pearson (2007) applied the model study indicators that influence customers to utilize internet banking services in Malaysia. The findings showed that relative advantage influences customer's attitude towards using internet banking while attitude significantly influences user readiness to adopt the technology.

Gerrard, Cunningham, and Develin (2006) applied diffusion of innovation model to have better understanding of what influences an individual's decision not to use internet banking. They identified eight perceptions about risk; perceived need; lack of knowledge, inertia inaccessibility human touch; pricing, and IT exhaustion. They

found that perceptions about the risks and the lack of perceived need are more significantly connected to internet banking than the other variables.

Ndubisi and Sinti (2006) looked at what determines the structure of customers' attitude system's characteristics on adoption of internet banking in Malaysia. Using diffusion of innovation model, they linked it with attitudinal constructs like importance of internet banking service to customers' banking needs, compatibility, complexity, trialability, and risk. Findings of their research indicated that attitudinal disposition and webpage features can predict internet banking. Four attitudinal factors were found to influence adoption namely importance to banking needs, compatibility, complexity, and trialability, whereas perceived risk has a weak influence. Importance of internet banking significantly predicts internet banking adoption. Eriksson, Kerem, and Nilsson (2008) also used diffusion of innovation model to internet banking in Estonia. They considered four factors: relative advantage; complexity; perceived risk; and compatibility. They found that relative advantage and complexity have the strongest impact on internet banking adoption. They also discovered that perceived risk has a significant but weak and negative effect on internet banking adoption. Finally, compatibility has a significant but weak impact on internet banking.

There are two main limitations of diffusion of innovation model. Firstly, this model does propose that attitude develops into accept/reject decisions, and that innovation qualities could fit into this process (Chen, Gillenson, & Sherrell, 2002; Karahanna & Straub, 1999). Secondly, even though TAM and diffusion of innovation model developed using different approaches, both models have strong resemblances; the comparative advantage attribute in innovation is often considered as the perceived usefulness construct in TAM. The complexity attribute is related to that of perceived

ease of use in TAM. Hence, some have recommended combining TAM and diffusion of innovation model to validate them (Chen, Gillenson, & Sherrell, 2002).

3.7.5 Motivational Model

Motivational model was developed by Davis *et al.* (1989) by considering motivational factors like intrinsic and extrinsic motivation to examine the impact of computer acceptance in the workplace. Motivation is illustrated as a support linked with objective orientation (Zuckerman, 1979). Customer motivation relates to the desire to participate in learning or career pursuit (Davis *et al.*, 1989). Motivation can enhance awareness towards a new technology, with the goal of understanding and applying a specific technology to achieve particular objectives. For instance, internet banking acceptance can accelerate banking transactions in everyday life (Davis *et al.*, 1989).

Biggs and Moore (1993) examined the motivational variables that influence a new technology acceptance to complete a mission: (a) extrinsic motivation, which was measured by reward or punishment; (b) social motivation, refers to the desire to satisfy friends or teachers; (c) achievement motivation, which refers to the users' yearn for self-enhancement by accepting the new technology; and (d) intrinsic motivation, which refers to interest-driven acceptance.

Weiner (1984) used motivational model to investigate the significance of internal and external motivation in a classroom whereas Lawrence (1996) used motivational model to investigate the significance of motivation in the office setting. In the classroom setting, it was found that learning via new technology is enhanced as a result of teacher support (Weiner, 1984). Similar result was obtained by Lawrence (1996) where users were found to be more willing to use a technology when some forms of rewards are

given, for example, in the form of money or praises. In an office or school context, encouragement from a colleague or a positive evaluation following the technology acceptance increases self-esteem of a student or working adult, thereby increasing the possibility of continual usage (Lawrence, 1996). However, motivational model does little to examine differences among groups of respondents since human behavior evolves over time (Wheldall & Glynn, 1988).

3.7.6 Model of Personal Computer Utilization

Personal computer utilization Model was developed by Thompson, Higgins, and Howell (1991) to predict personal computer utilization. This model was developed from findings of Triandi (1980) on customer acceptance of information technology. Complexity, attitude towards use, job-fit, and enabling environments are the main factors in this framework (Thompson *et al.*, 1991). Essentially, this theory measures feeling of pleasure in relation to technology acceptance (Thompson *et al.*, 1991).

Several researchers have used the model to investigate customer adoption of a computer system but mixed results were reported. For instance, Adebowale, Adediwura, and Bada (2009) showed that students in commerce were more curious in applying computers than students in sciences and arts. Chau (1996) found that ease of use and long-term use are critical variables that affect customer adoption of computer system. However, Jiang *et al.* (2000) found that past experience and facilitating conditions significantly affect customer adoption of a personal computer. Teo (2008) found significant diversity in attitudes towards applying computers between pre-service teachers that had been trained in teaching different subjects. Straub (2009) revealed that customer acceptance towards a computer system will decrease when the complexity to understand and use the technology increase.

3.7.7 Social Cognitive Theory (SCT)

Social cognitive theory was led by Bandura (1977, 1986) as a model to predict human behavior. The theory proposes that interactions between customers and surrounding inhabitants can affect their beliefs and actions since the customers tend to improve and adjust their opinions to fit with the social influences and physical environment such as temperature or the availability of certain resources (Bandura, 1977, 1986; Glanz, Rimer, & Lewis, 2002). Based on Jones (1989), a situation is seen in different ways by each inhabitant, therefore different inhabitants can respond to a specific situation differently at different periods of time.

Numerous studies have applied SCT to investigate customer adoption of a computer, but mixed findings have been found. For example, Igbaria, Guimaraes, and Davis (1995) found that less anxious users are more effective in utilizing a computer. McElroy, James, Hendrickson, Townsend, and Samuel (2007) discovered that customers are anxious to apply a computer program when they are not experienced. Customers who are anxious are less attracted to interact with computers than customers who are less anxious (Fagan, Neill, & Wooldridge, 2004). Kang and Lee (2006) discovered that both self-efficacy and computer anxiety influence customers to employ a computer system.

3.7.8 Decomposed Theory of Planned Behaviour (DTPB)

As an extension to TPB (Ajzen, 1991), which was a development of TRA, Taylor &Todd (1995a, 1995b) proposed decomposing the constructs of TPB into detailed components. DTPB expands the TPB by counting constructs from DOI perspective (Rogers, 1983, 1995). This theory postulates that attitude, subjective norms and perceived behavioral control will influence the behavior intention to

use a technology. Taylor and Todd (1995) extended TPB one step further by decomposing the attitudinal belief, normative belief, and control beliefs into several-dimensional constructs to provide higher descriptive power and a more accurate understanding of the antecedents of behavior.

According to TPB (Ajzen, 1985, 1991), actual behavior is a direct function of behavior intention which is formed by individual's attitude, subjective norm and perceived behavior control, attitude which reflect the individual's feeling of favorableness or un favorableness toward performing a behavior, subjective norm which reflect perception that significant referents desire the individual to perform or not perform a behavior, perceived behavior control which reflect perception of internal and external constrains on behavior (Ajzen, 1991). TPB postulates that the determinants of behavior intention, attitude, subjective norm and perceived behavior control are in turn, determined by underlying belief structures, these beliefs are referred to attitudinal belief, normative belief and control belief, which are related to attitude, subjective norm and perceived behavior control respectively.

Ajzen (1991) showed that the relationship between the belief structure and the determinants of behavior intention attitude, subjective norm and perceived behavior control were not particularly well understood; because some of that belief set may not be consistently related to attitude, subjective norm and perceived behavior control. In addition, the belief set, especially those that are related to attitude, are idiosyncratic to the empirical setting, making it difficult to generalize the TPB. These are two limitation of the TPB that lead to the need to decompose those belief structures of TPB.

Taylor and Todd (1995) suggested a set of attitudinal beliefs which are derived from the literature describing DOI (Rogers, 1983, 1995); an approach that had been used explicitly and implicitly in previous studies of new technology adoption. This theory found that five perceived characteristics of an innovation that influence adoption are relative advantages, compatibility, complexity, trialability, observability (Rogers, 1983). Three out of five perceived characteristics were found to be consistently related to adoption decision in general are, relative advantages, complexity and compatibility (Moore & Benbasat, 1991). Relative advantages refer to the degree to which an innovation provides benefits which supersede those of it precursor and may incorporate factors such as economic benefits, image enhancement, convenience and satisfaction (Rogers, 1983). This construct was found to be similar to perceived usefulness construct in TAM (Davis, 1989) which was defined as "the degree to which a person believes that using a particular system would enhance his or her job performance". Both constructs relative advantages and perceived usefulness were found to have similar definition and related to two things (improvement in performance). In addition, both constructs were found to have been operationalized in terms of their relative impact on performance (Davis, 1989, Moore & Benbasat, 1991).

According to Rogers (1983) complexity represents the degree to which an innovation is perceived to be difficult to understand, learn or operate. This construct was found to be in opposite direction to the perceived ease of use construct in TAM (Davis, 1989). Compatibility is the degree to which the innovation fits with the potential adopters existing values, previous experiences and current needs (Rogers, 1983). Taylor and Todd (1995) suggest that the relative advantages and compatibility constructs contribute to increase the customer's attitude toward

information technology adoption or usage, while complexity decreases the customer's attitude. They suggest that the attitude toward information technology should become more positive. Such an outcome would be consistent with the general diffusion of innovation literature and with specific result observed for information technology adoption (Davis, 1989, Moore & Benbasat, 1991).

Taylor and Todd (1995) suggest that the importance of decomposition of subjective norm is related to the possible divergence of opinion among the referent groups. According to DTPB there are three important referent groups in an organizational setting which are peers, superiors and subordinates. And each of these groups has differing views on the IT usage. The researchers indicate that because the expectations of peer, superiors and subordinates may be expected to differ; they suggest decomposition into these referent groups. So they have selected two groups namely peers (students) and superiors (professors).

The decomposition of control belief refers to both the internal nature of individual (self-efficacy) and external resource constraints, similar to (facilitating condition). Self- efficacy was defined as the *"Judgment of one's ability to use a technology"* (e.g., computer) to accomplish a particular job or task, or Self-efficacy refers to the perceived ability with respect to IT usage (Compeau & Higgins, 1995). Taylor and Todd (1995) suggest that higher levels of self-efficacy will lead to higher levels of behavior intention and higher levels of IT usage. Facilitating condition is defined as the "objective factors in the environment that observers agree make an act easy to accomplish". For example, returning items purchased online is facilitated when no fee is charged to return the item.

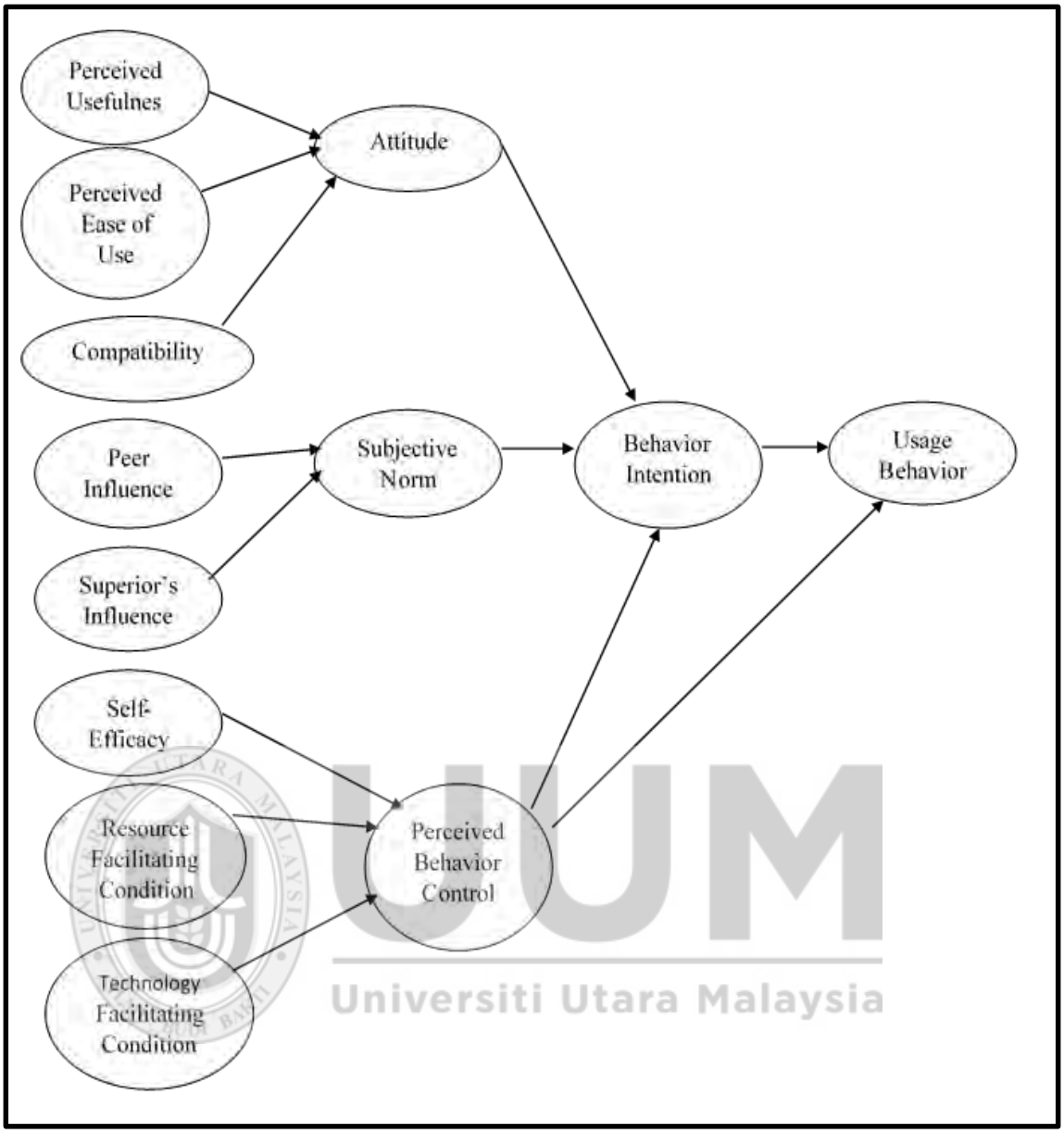

Figure 3.13
Decomposed Theory of Planned Behavior.
Source (Taylor & Todd, 1995; p.163)

In an IS context, *"provision of support for users of PCs may be one type of facilitating condition that can influence system utilization"* (Thompson, Higgins & Howell. 1991, p. 129). The facilitating condition as external resource constrains provides two diminutions for control belief, the first refer to the resource factors such as time money; the second refers to the technology compatibility issues that may constrain usage.

At the end, this study use decomposed theory of planned behavior because it expands theory of planned behavior, technology acceptance model, and diffusion of innovation which make this study more effective and bring new knowledge to other researchers.

3.8 Excluded Predictors of Customer Resistance

There are several factors that influence customer resistance to information system adoption (Laukkanen & Kiviniemi, 2010). So the next paragraphs below explain those factors and the reasons that made the researcher not include them in this study. Many studies have been investigated the relationships between the antecedents such as (ease of use, usefulness, perceived risk and awareness) and usage internet banking services.

In terms of cost, Lee and Lee (2000) proved that internet banking permits customers access to their bank accounts easily, minimizes service charges, and saves time. Chang (2003) opined that internet banking reduces transaction cost and allows services to be provided at a high speed when compared to other banking services. For instance, while the cost of transaction for money transfer was 95¢ for checking and 27¢ for ATM, on the other hand, it is only 1¢ for internet (Chang, 2003). This study demonstrates that customers' benefit and cost associated with attitude can be considered when deciding on the determinants of internet banking adoption. In the area of m-commerce, there are three components which are imperative; they are equipment costs, access cost and transaction fees. These are said by the reasons why m-commerce use is more expensive than wired e-commerce (Khalifa & Shen, 2008). They found Price charge to be the most critical result of m-commerce adoption. The price of m-commerce services appears to be of greater importance to potential adopters.

In terms of ease of use and usefulness there some studies like (Juwaheer, Pudaruth & Ramdin, 2013). Juwaheer *et al.* (2013) investigated the relationship between ease of use and usefulness on internet banking adoption and they found perceived ease of use and perceived usefulness have a direct influence on the adoption of internet banking in Mauritius. Moreover, Al-Majali and Nik Mat (2011) identified the antecedents of internet banking adoption in Jordan. They found ease of use and usefulness have significant relationship with actual internet banking adoption. In other study, gender was used as a moderating variable and it was observed that ease of use has a stronger influence on female respondents, whereas usefulness is a stronger influence amongst male respondents on adopting mobile banking (Riquelme & Rios, 2010). Plewa, Troshan, Francis and Rampersad (2012) studied the relationship between ease of use, usefulness towards attitudes to use the innovation management applications. Their result found that usefulness towards customer's attitude is significant while ease of use is not significant in the relationship towards customer's attitude.

Another factor which influences attitude is awareness; the use of internet is fairly a novel practice to most of the customers; additionally, inadequate knowledge on internet banking is a vital aspect which makes customers not to have interest in adopting. Customers' level of awareness regarding knowing, being sure, or not being sure whether their banks offer internet banking was also found to have affected adoption in some countries. This relates to availability or lack of effective communication/information from financial firms internet banking (Sathye, 1999). He also confirmed that customers have inadequate knowledge on the advantages and disadvantages accompanying internet banking adoption. Juwaheer *et al.* (2013) investigated the relationship between the level of awareness on internet banking adoption in Mauritius and they found it to be significant. Moreover, Al-Majali and Nik

Mat (2011) identified the antecedents of internet banking adoption in Jordan. They found that awareness has a significant relationship with actual internet banking adoption. According to them it might be because banks need to practice more promotion and awareness campaign through media advertising and pamphlets. This will encourage the customers to adopt internet banking services efficiently and more frequently in Jordan. This finding is compatible with Howcroft *et al.* (2002), confirming that absence of awareness on internet banking and the benefit were established to cause customers' unwillingness in patronizing internet banking services.

On another hand, many studies have investigated the relationship between the antecedents such as (mass media and the word-of-mouth communication, normative beliefs, and family) and subjective norms in the area of internet banking services. This section illustrates several studies which show factors that influence towards subjective norms in internet banking field.

In terms of word-of- mouth, Zolait *et al.* (2008a) found that learning through word-of-mouth communication implies that, internet banking is not considered by most respondents as a tool to stimulate innovation. Therefore, learning through word-of-mouth and communicating internet banking is supposed to have increased the adoption rate of internet banking. Moreover, in marketing, Sarel and Marmorstein (2003) stressed that poor word-of-mouth communication is referred to the weak adoption rate when it comes to online banking services. This field displays one of the most crucial barriers to adoption. Zolait *et al.* (2008a) also considered the word-of-mouth by tackling it from the angle of how it influences peer, family, friend and bank's staff on an individual's overall Subjective Norm. Furthermore, Rogers (2003) accentuated

that interpersonal communications (word-of-mouth) offers a more valuable way of encouraging people to realize the benefits of a new innovation.

Another factor that influences the subjective norms is mass media. This has been referred to as a medium of communication through which the large public audience can be reached (Zolait et al, 2008a). Al-Ajam and Nor (2015) investigated the influences of using internet banking to subjective norm in Yemen. The respondents tend to seek information from their reference groups. Without a doubt that the mass media via TV, radio, newspapers, internet, etc., have played a significant role in influencing individuals' subjective norm. The effect of mass media on individuals' subjective norm has been supported by some studies (e.g. Agarwal *et al.*, 2009; Al-Majali & Nik-Mat, 2010). According to the previous studies, it can be seen that mass media plays a significant role in influencing subjective norm.

Kreps and Thornton (1992) elucidated that communication media extends one's capability to transfer information to a large audience in faraway places and they in turn hear and view images that otherwise will not be available where there is no media. In addition, Rogers (2003) opined that mass media are essentially the best fastest specialized tools of enlightening prospective customers on innovation. However, most overriding effect of media on diffusion is that it dispenses knowledge on innovations to larger audience in a very fast manner (Rogers, 1995; p.285).

However, subjective norm is also influenced by an individual's normative beliefs and motivation to obey the important others' beliefs. Normative beliefs are the understanding of important others' favorites about whether an individual should do or not do the behavior (Ajzen & Fishbein, 1980). The motivations to obey are the

individual's tendency to match with the beliefs of the important others. It is the stage of an individual's readiness to act in the habits which referents want them to act.

In terms of normative beliefs, the customer-relevant groups like the family may influence the individual's adoption. Based on this, Rouibah (2008) indicates that Arabic culture is inclined by both Islamic habits and traditions. So, culture has necessary values and behaviors mandated by Islamic teachings upon the family which in turn may control the individual's behaviors. The study revealed that family members with all the connections can influence customer's behaviors in some areas.

Subjective norm is also influenced by family, friends, and colleagues. Nor and Pearson (2008) pointed out that friends, members and colleagues or peers may affect people's perceived social pressure (i.e., subjective norm) on whether to accept or not to accept the internet banking Services. From above, it might be seen that the antecedents of subjective norm have been examined in fragmented and varied ways. On the contrary, Chu and Wu (2004) confirmed that the family influence upon the subjective norms might not be positive. The result of this research, which was conducted on a numeral of insurance institutions' staff in Taiwan, exposed that family insignificantly and positively influences the subjective norms.

In terms of perceived behavior control, many studies have investigated the relationship between the antecedents such as (technology support, facilitating condition) and perceived behavior control in the area of internet banking services. This section illustrates how the studies revealed different factors that influence perceived behavior control in internet banking setting.

From above, technology support absolutely encompasses the flexibility of the technology and internet banking; this invariably makes the customer to be able to use and adopt the internet banking (Al-Majali & Nik-Mat, 2010). The technology support performs an important function in enabling the customers use technology services without difficulty and dealing with the e-commerce processes in a more flexible manner (Shih & Fang, 2004).

Due to the important influence which this factor has upon the usage of online services, a number of researchers investigated the influence of it upon the clients' behavior when it comes to the internet banking Service. For example, Tan and Teo (2000) conducted a study in Singapore that pointed out that the technology support did not influence the internet users' usage of the internet banking Services. The investigators further found that the relationship between the technology support and the perceived behavior control is non-influential.

Hernandez and Mazzon (2007) reveal that the technology support has insignificant influence on the perceived behavior control of a number of internet banking Service users in Brazil. In addition, Taylor and Todd (1995) argued the relationship between the technology support and perceived behavior control. Their result indicated technology support has insignificant effect on perceived behavior control of computer centers' potential users in Canada having discussed the Decompose Theory Planned Behavior model for the first time. In contrast in Malaysia, Ndubisi *et al.* (2004) discovered how the association between support for technology and perceived behavior control has significant and positive effect on students in government universities, as the accessibility of the technology support would influence those students' adoption of the education online services.

Another antecedent which influences the perceived behavior control according to Triandis (1979) is facilitating conditions. This from his opinion explains the accessibility of resources a person needs to perform a specific behavior which may include access resources such as time, money and other specified resources. Certainly, as supporting technological infrastructures become effortlessly and easily accessible, e-commerce applications like the services of the bank will become more practicable (Al-Majali & Nik Mat 2010). Yu (2012) determined the factors affecting individuals to adopt mobile banking. He found facilitating conditions significantly affect individual behavior of using mobile banking. Moreover, Zolait (2014) examined the relationship between facilitating conditions and perceived behavior control to use internet banking in Yemen. The study found a significant relationship in that content.

Based on the previous discussions in this section it can therefore be concluded that many internet banking resistant factors have been considered by previous studies. However, evidence has shown that the findings from these studies are have been unable to accurately predict reasons why customers resist usage of internet banking because key factors that can be used for accurate prediction are either omitted or have not been discussed in holistic manner. This has therefore called further studies in this view and as discussed in the following section.

In the next section therefore, this study determined antecedents such as trust, compatibility, self-efficacy, government support, attitude, subjective norm, perceived behavior control, and credibility as an important factors to customer resistance to internet banking.

3.9 Antecedents of Customer Resistance to Internet Banking

A number of studies have examined antecedents of resistance (Laukkanen & Kiviniem 2010; Kleijnen *et al.*, 2009). However, studies indicate that the antecedents are fragmented, and tend to differ across different innovation environments in terms of their impact on customer resistance behavior (Laukkanen *et al.*, 2008). There have been many calls for the need to identify the factors of customer resistance behavior (Joseph, 2010; Kuisma *et al.*, 2007; Laukkanen & Kiviniem 2010). As a response to these calls for research, this study investigates the factors of customer resistance behavior. Furthermore, findings of the previous research on antecedents of customer resistance to internet banking are inconsistent. An empirical research is therefore required to validate further the findings.

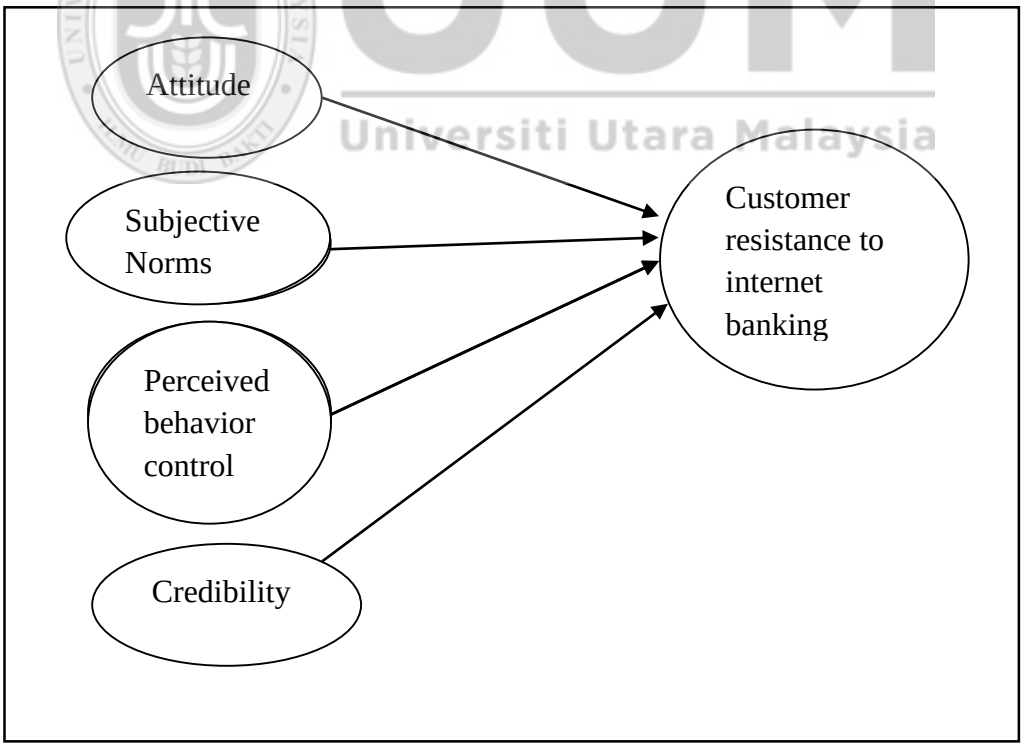

Figure 3.14
Antecedents of Customer Resistance to Internet Banking

In this research, there are four proposed antecedents of customer resistance to internet banking, as presented in Figure 3.12. They are attitude, subjective norms, perceived behavior control and credibility. The next sections discuss these antecedents in addition to the antecedents in the DTPB model (Taylor & Todd, 1995a, 1995b).

3.9.1 Attitude

In theory of reasoned action, attitude is denoted *as "An individual's positive or negative feelings (evaluative affect) about performing the target behavior*" (Fishbein & Ajzen, 1975, p. 216). In theory of planned behavior, attitude is explained as "*feelings of favorableness or unfavourableness towards performing a behavior the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question.*" (Taylor & Todd, 1995, p. 149).

Ajzen (2002) described attitude of an individual as a manner, approach, disposition, or style. It is a combination of belief and affection that an individual can develop according to information obtained or experience happen and resulted negative or position attitude (Venkatesh *et al.*2003). In other words, Attitude maybe negative or positive depending on the first impression a person gets which will be reflected in future occurrences, Fishbein (2008) points out to the positive attitude that warrants a future visit of such positive events. Academic research is focusing on studying human attitudes which are related to certain event. Some beliefs persist, others are gone and new ones may be formed. Customers' attitude influences their intentions and behaviors strongly (Bogozzi & Dabholkar, 2000). Del Aguila-Obra and Padilla-Melendez (2006) reported the influence of customer's attitude in the selection or process of obtaining services and goods, which attitude forms the basis for the measurement of behavior.

3.9.1.1 Relationship between Attitude and Actual Behavior

Several studies have found that attitude can affect behavior directly, and predicts behavior more strongly than behavioral intention (Al-Majali, 2012; Hashjin, Roaia, & Hemati, 2014; Peng *et al.*, 2012). On the other hand, some prior researches have shown that attitude do not show any direct significant impact on behavior (Bagozzi, 1981; Fredricks & Dossett, 1983; Shimp & Kavas, 1984). Furthermore, several past research works have indicated that attitude is one of the strongest significant antecedents of banking on the internet (Al-Majali & Nik Mat 2010). Others have corroborated that attitude is correlated with internet banking in diverse and different frameworks (Guerrero, Egea, & Gonzalez, 2007; Ndubisi & Sinti, 2006; Shi, Shambare, & Wang, 2008; Juwaheer *et al.*, 2013; Hashjin *et al.*, 2014).

A quantitative study conducted by Hashjin *et al.* (2014) in one Iranian bank was conducted to examining any relationship that exists between internet banking adoption and attitude. They investigated the relationship between the attitude and adoption internet banking in Iran. This study is qualitative study on only Sepah Bank in Alborz Province of Iranian customers. The result revealed that attitude plays a substantial role between attitude and adoption of internet banking by clients. This result is in accordance with a study by Grabner-Kräuter & Faullant (2008). Juwaheer *et al.* (2013) investigated the factors influencing the adoption of internet banking services in Mauritius. Their results demonstrate the theoretical relevance of conceptualizing attitudes as an important construct for actual adoption of internet banking services. Wang (2013) examined the relationship between customer's attitudes and adoption of mobile business in China. The result of the study shows a significant relationship between attitude and adoption.

Additionally, Karjaluoto *et al.* (2002a) found that attitude among bank customers' is significant and relate positively to adoption of internet banking in Finland. Moreover, Ndubisi and Sinti (2006) showed that Malaysian banks customers' attitude towards system characteristics have a substantial role to play in adoption of internet banking in Malaysia. Guerrero *et al.* (2007) discovered a significant and positive association between attitude and internet banking adoption in European Union. George (2004) performed a research among US students to determine the influence of numerous factors upon their adoption of e-purchase services. His findings indicated that the students' attitudes significantly and positively influence their usage of such services. In addition, Shih (2007) investigated the relationship between attitude and enterprise resource planning usage. The outcome revealed a significant relationship while the result of the hypothesis was supported.

Nevertheless, there appears to be diverse opinions about the outcome of technology readiness on customer behavior; some studies have reported significant or no impact on customer attitudes or adoption behavior (Liljander, Gillberg, Gummerus, & van Riel, 2006) while others report significant influence on customers' behavioral intentions to use the technologies (Lin & Hsieh, 2006). In different area of internet banking, O'Cass and Fenech (2003) examine the relationship between customer attitude and examining internet user's adoption of the Web for retail usage in Australia and they found a significant relationship that is supported.

However, the previous studies show that attitude has been examined in a different manner and the findings of the relationship between attitude and behavior are not consistent. Although most studies established that attitude has a significant influence on behavior (Terry & O'Leary 1995; Guerrero *et al.*, 2007; Shi *et al.*, 2008), few

studies however indicated an insignificant effect (Fredricks & Dossett, 1983; Shimp & Kavas, 1984).

3.9.2 Subjective Norms

In TRA, subjective norm is seen by Fishbein and Ajzen (1975, p. 302) as "*a person's perception that most people who are important to him think he should or should not perform the behavior in question"*. In TPB, subjective norm describes "*the perceived social pressure to perform or not to perform the behavior*" (Ajzen, 1991, p. 188). Similarly, Taylor and Todd (1995, p. 149) in decomposed theory of planned behavior define subjective norm as "*perception that significant referents desire the individual to perform or not to perform a behavior*".

Currently, Fishbein and Ajzen (2011) gave the definition of subjective norm as *"individual's perception that most people who are important to her think she should (or should not) perform a particular behavior"*. Another definition was given by (Fishbein, 2008; as cited by Agwu, 2013) of subjective norms, as presented by normative beliefs, "are located within, but not identical to, the broader construct of social norms". Moreover, Social influence, described by from resistance view as the behavior of individual's perception is changed as a result of interaction with others (Agwu, 2013).

An individual's social norms denote the assessment of environmental referents who are fundamental and think they should or should not perform a given behavior. Ajzen and Fishbein (1980) opined that social pressure or expectations from people in general (subjective norm) or specific groups or individuals (normative beliefs), form social norms. Ajzen (1991) avowed that social norms is assessed by asking respondents to

rate the level of "significant others" who will approve or disapprove their performing a certain behavior.

Social norms can also be regarded as personalities that relate to the influence of significant others like the family, relatives, or friends, in the person's decision to use a product or service. Pedersen and Ling (2002) submitted that external and social influence cannot be overlooked in any adoption model because of their crucial contribution to adoption of behavior. Social norms have been validated in other studies; for instance in e-mail usage (Karahanna & Limayem, 2000), wireless finance adoption (Kleijnen *et al.*, 2004) and internet banking (Chan & Lu, 2004). Although, the pervious theories conducted subjective norm with intention rather than actual behavior, some other researchers found subjective norm to be related with actual behavior.

3.9.2.1 Relationship between Subjective Norms and Actual Behavior

The original theory of reasoned action, theory of planned behavior, and decomposed theory of planned behavior propose subjective norm as one of the antecedents of behavioral intention (Ajzen, 1991; Fishben, & Ajzen 1975; Taylor & Todd, 1995). Many studies conducted to prove the influence and relevance of social norms in different areas for adoption behavior and usage such as: wireless finance adoption validated by (Kleijnen *et al.*, 2004), e-mail usage studied by (Karahanna & Limayem, 2000).

Some past studies that have used a single model revealed subjective norm to be directly affecting actual behavior (Dauda *et al.*, 2007; Hernandez & Mazoon, 2007; Shi *et al.*, 2008). For example, Shi *et al.* (2008) showed that subjective norm has direct and

significant influence on internet banking adoption. The study also indicated that bankers can benefit from the influence of social factors (i.e. subjective norm) that could result in potential customers jumping onto the adoption of internet banking trend. In addition, Hernandez and Mazoon (2007) revealed that subjective norm impacts adoption of internet banking in a significant and positive way. Also, Rouibah's (2008) study in Kuwait found the influence of subjective norms on adoption of instant messages services online. Hashjin, Vakila, Roaia & Hemati (2014) conducted a study on one Iranian bank and one of the factors under focus was subjective norms in which the findings revealed that subjective norms have the possibility that customer will use the internet banking services. Riquelme and Rios (2010) conducted a study on factors influencing adoption of mobile banking in Singapore and specified gender as a moderator for the relationship. Findings revealed that social norms on females are stronger influencer for the adoption of internet banking than on males.

Social norms affect taking ones decision to use or adopt a technology or a service, as they are influential factors that contribute to adoption behavior of any model and cannot be neglected as suggested by Pedersen and Ling (2002). Riquelme and Rios (2010) revealed that effect of friends, relatives, and colleagues (social norms) have the influence on the intention to adopt, and was clearer for male more than females.

As opined by Al-Qeisi (2009) the relationship between subjective norm and adoption of internet banking in Jordan is not significant. Similar result was reported among banking customers in Malaysia and Singapore (Dauda *et al.*, 2007). Kim *et al.* (2007) observed also that subjective norm and actual internet acceptance in Korea do not have a significant relationship. George (2004) conducted a study on US students to measure

the influence of a number of factors upon their adoption of e-purchase services. The study found that the relationship between subjective norm and internet purchasing is insignificant. Additionally, Juwaheer *et al.* (2013) investigated those factors that are influencing adoption of internet banking services in Mauritius. Their results reveal that subjective norm among other factors is not a predictor of actual adoption of internet banking services. In the same line, Yoon and Steege (2013) found an insignificant relationship between subjective norm and internet banking adoption.

In short, earlier studies on adoption of internet banking antecedents have presented dissimilar results and these have led to so much problem in articulating the drivers of internet banking adoption. Additionally, review of few existing literatures depicted that there are contradictory outcomes regarding the relative importance of the factors which describe adoption of internet banking. Moreover, it has been suggested by Daneshgadeh and Ozkan (2013) to further investigate the relationship between subjective norm and actual internet banking usage since most studies concentrated on the relationship between subjective norm and intention instead of actual behavior.

3.9.3 Perceived Behavioral Control

Ajzen (1991, p. 188) asserted that perceived behavioral control is referred to "*the perceived ease or difficulty of performing the behavior or people's perceptions of their ability to perform a given behavior*". Demonstrating a definite behavior is related to the self-confidence of the individual in performing that behavior. In other words, perceived behavioral control can be explained as the perception of how well one can control issues that may expedite or restrain the acts needed to deal with a particular situation. Perceived behavioral control is important in explaining customer's behavior.

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In theory of planned behavior, perceived behavioral control is portrayed as the variable that deals with the presence or absence of necessary resources and opportunities; expounding further, that those control beliefs could be based on past experience with the behavior. This however could be recurrently affected by second-hand information about the behavior, the experiences of associates and friends, and also by other actors that increase or decrease the perceived difficulty of performing the behavior in question. Putting this in a nutshell, the more resources and opportunities the individuals believe they have and the less difficulties they expect, the greater their perceived control over such behavior (Ajzen, 1991).

Theory of planned behavior holds that behavioral intention and perceived behavioral control are direct determinants of actual behavior (Teo & Pok, 2003). Behavioral intention is formed by one's attitude, subjective norm and perceived behavioral control, which reflect internal and external constraints on behavior (Ajzen, 1991). Both subjective norm and perceived behavioral control have been found to be significant factors that influence IT usage behavior (Teo & Pok, 2003).

Perceived behavior control is directly related with behavior and has an indirect relationship with intention as a mediator as declared by Ajzen & Madden (1986) in the second version of the theory. This direct relation is clarified as being effective when behavior is not under control of the person and when it is a reflection of the actual control over behavior (Terry& O'Leary, 1995).

3.9.3.1 Relationship between Perceived Behavioral Control and Actual Behavior

Perceived behavioral control is one of the antecedents of actual behavior and it has a direct effect on behavior (Taylor & Todd, 1995). Previous research works have

employed several models tested the direct influence of perceived behavioral control on actual behavior (Fusilier & Durlabhji, 2005; George, 2004; Gopi & Ramayah, 2007; Pedersen & Nysveen 2002). But these studies were not conducted to examine customer resistance of internet banking. Studies on the effect of perceived behavioral control on internet banking have been few, with some exceptions (e.g. Al-Majali & Nik Mat 2010; Tan & Teo, 2000; Shih & Fang, 2004).

Nevertheless, few past studies looked at the relationship between perceived behavioral control and actual behavior in different IT fields. For example, Gopi and Ramayah (2007) observed that perceived behavior control affects the actual usage of an amount of stock market visitors in Malaysia when it comes to using online stock trading services. George (2004) found that perceived behavioral control and students' actual usage of online purchase services is significant and positive. Also, Fusilier and Durlabhji (2005) showed that the association between perceived behavior control and the actual usage of the internet services by students is significant and positive in the Indian context. On the contrary, Pedersen and Nysveen (2002) revealed that the relationship between perceived behavioral control and the actual usage of online message services amongst students is not significant. In sum, perceived behavioral control and actual behavior received inconsistent findings concerning their relationship. Kothe, Mullan, Butow (2012) found insignificant relationship between perceived behavioral control and actual behavior.

However, Daneshgadeh and Ozkan (2013) suggested that further studies should be carried out between perceived behavior control and actual internet banking usage. They further explained that scholars examined the relationship between perceived behavior control and intention rather than actual behavior.

3.9.4 Credibility

Amin (2007) is of the opinion that perceived credibility is a determinant of behavioral intention in information system usage. Perceived credibility is made up of two important elements, they are privacy and security. Security denotes the protection of information or systems from unauthorized intrusions (Oghenerukevbe, 2008). Fear of insufficient security is one of the main reasons acknowledged as barriers to the growth and development of the adoption of e-commerce and electronic banking (Ezeoha, 2005). In this research, perceived credibility is seen as "*users' perception of protection of their transaction details and personal data against unauthorized access"* (Aderonke & Charles, 2010, p.6). Perceived credibility is all about personal belief which the user has in the system to carry out a transaction securely and also to maintain the privacy of personal information during and after the transaction. Perceived credibility is *"one's judgment on the privacy and security issues of the mobile banking"* (Amin, Hamid, Lada, & Anis, 2008, p. 46). Perceived credibility has also been tested and confirmed to have a significant effect on perceived ease of use and perceived usefulness (Karjaluoto 2002; Lallmahamood, 2007).

3.9.4.1 Relationship between credibility and actual behavior

Another variable that affects internet banking acceptance is perceived credibility (Liao & Cheung, 2002; Yousafzai *et al.*, 2009). Perceived credibility explains the user's enthusiasm to depend on internet banking services provider (Moorman, Zaltman, & Deshpande, 1992; Yousafzai *et al.*, 2009) by taking into consideration the bank's reliability (Morgan & Hunt, 1994; Yousafzai *et al.*, 2009). This study therefore describes perceived credibility as trust in providing sensitive information while using internet banking services.

Perceived credibility is an important predictor of customer satisfaction (Schaupp & Belanger, 2005). The lack of physical interactions between bank personnel and customers render internet banking a unique environment in which perceived credibility is of supreme importance (Chow & Angie, 2006; Mukherjee & Nath, 2003; Yousafzai *et al.*, 2009). An increase in the perceived credibility will subsequently improve users' internet banking acceptance.

Perceived credibility has two important dimensions; these are security and privacy. These factors have been identified across many studies as some of the fundamental factors affecting intention by users in adopting online-based transaction systems (Wang *et al.*, 2003). In deed the importance of security and privacy to the acceptance of online banking cannot be overemphasized and thus, noted in many banking studies (e.g. Howcroft *et al.*, 2002; Pikkarainen *et al.*, 2004; Polatoglu & Ekin, 2001; Sathye, 1999). The perceived credibility of an internet banking website correlates with the confidence in the bank's ability to protect personal information (Yee, 2011; Bryant & Colledge, 2002; Floh & Treiblmaier, 2006). Credibility is an important component of trust, and encompasses an expectancy held by an individual that an information source can be relied upon (Ganesan, 1994). Forming trust influences internet banking acceptance since customers will not visit an internet bank they do not trust (Kim & Ahn, 2006; Reichheld & Schefter, 2000; Suh & Han, 2003; Yousafzai *et al.*, 2009). Therefore, creating customer trust is essential to retain existing bank customers (Bandyopadhyay, 2010; Morgan & Hunt, 1994).

Research in the online context has found that customers' purchase decisions may often be influenced by their perceptions of information credibility at the web site (Janda, Trocchia, & Gwinner, 2002). Recent research has found that many message and

structural features of a web site may affect its perceived credibility (Hong, 2006). Customers may be particularly wary of online information because the contents of a web site may not have been screened or approved by a credible organization, unless the web site belongs to an organization the individual is quite familiar with. Despite this seemingly obvious importance of credibility in the online context, current empirical research has largely ignored this issue and there are only a very few studies addressing the credibility antecedent issue. One major study looking at this issue revealed that credibility is the most important attribute affecting customer choice of rating web sites, that is, web sites that provide ratings for products and/or services (Dabholkar, 2006). Similarly, it has been found that design characteristics of the web interface can affect trust in the web site (Wang & Emurian, 2005), and that credibility can shape customers' attitudes toward web sites (Long & Chiagouris, 2006). In situations in which the credibility of online information is doubted, a customer will be less willing to trust the site. This lack of trust may translate into a higher degree of perceived risk and thus lower willingness to engage in a purchase transaction.

A recent online financial management survey conducted in September 2008 revealed that American people demanded for a reliable web site to view their accounts and pay their bills (Finance Works, 2008). Only one percent of the American internet banking users were willing to trust a web site hosted by a new company to manage their bank transactions online (Finance Works, 2008). Since many customers had common perceptions that the internet enables easy access to information (Bandyopadhyay, 2010; Gattiker, Perlusz, & Bohmann, 2000; Gerrard & Cunningham, 2003; Jones, Wilikens, Morris, & Masera, 2000; Yousafzai *et al.*, 2009), they preferred to choose to stay with banks they trust more, such as banks that provide a detailed privacy policy because they disliked unauthorized people to misuse their personal information over

the internet (Bandyopadhyay, 2010; Doney & Cannon, 1997; Goles, Lee, Rao, & Waren, 2009; Turban, King, & Chung, 2002). Non-internet banking users in Australia, for example, rejected internet banking providers that failed to provide adequate security and privacy information (Kim & Ahn, 2006; Bandyopadhyay, 2010).

Credibility was found to be an influencer to adopt internet banking in a study conducted by Hashjin *et al.* (2014) on Iranian Bank. In order to adopt E-banking by clients security and privacy should be perceived by the clients and these issues are key elements and of main concern that client's focus about. This is also in line with the findings of (Chong & Ooi, 2008). Aderonke and Charles (2010), stated that trust is minor from the perspective of users of e-banking services and that is due to low security measures in banks and privacy protection of clients. Hernandez and Mazzon (2007) found that security and privacy has influence on behavior of using internet banking in both users and non-users of the services in Brazil. Mansumitrchai and Al-Malkawi (2011) found that the greatest concern expressed by most non-adopters and adopters was security in Mexico. In the same line, Yoon and Steege (2013) found insignificant relationship between subjective norm and internet banking adoption.

However, Jeong and Yoon (2013) investigated the factors affecting the adopters and non-adopters of internet banking acceptance. They found that credibility has insignificant relationship with adopters and non-adopters of mobile banking.

Vaithilingam, Nair, and Samudram (2006) revealed that internet banking activities were exposed to the risk of fraud and breach, especially in the developing and under-developed countries. In developing countries such as Malaysia, there were approximately 10,000 cases a year in which hackers from United States, South Korea,

China, and Taiwan hacked the internet banking system of local banks (National Electronics and Computer Technology Centre [NECTEC], 2005). In Thailand, another developing country, 200 cases of internet hacking activities were reported (NECTEC, 2005). Security breaches could cause vulnerability to information access (Min & Gale, 1999) and it was one of the most important factors that inhibited users from adopting internet banking services (Bhattacherjee, 2001; Gefen, Karahanna, & Straub, 2003; Nor & Pearson, 2007; Sohail & Shanmugham, 2003; Suh & Han, 2003; Yousafzai *et al.*, 2009).

On top of that, currently, there is a lack of internet banking customer protection law to protect customers against unfair and misleading internet banking transactions, unauthorized access, hackers and system failures (Bandyopadhyay, 2010; Larpsiri *et al.*, 2002). Internet banks also fail to provide a full set of written documents as court evidence (Larpsiri *et al.*, 2002). These lead to insufficient customer trust towards the ability of existing law to resolve cases fairly to protect them against financial loss via internet banking (Larpsiri *et al.*, 2002). Many financial institutions are also worried to conduct transactions involving a large sum of money over the internet due to insufficient documents that can be presented in courts (Farhoomand, Tuunainen, & Yee, 2000). Privacy and security have been found to be significant obstacles to the adoption of online banking in Australia (Sathye, 1999). What is more, Tan and Teo (2000) found risk to be a very significant factor affecting online banking acceptance among Singaporeans. People believe that money they placed in banks should be handled properly by the bank management or they would withdraw their investment.

However, the study by Pikkarainen *et al.* (2004) showed contradicting result. Their study showed that perceived credibility is not a significant predictor of online banking

acceptance. They argued that security and privacy might be no longer a threat for bank customers to accept online banking. In Malaysia, Ndubisi *et al.* (2004) investigated internet banking adoption among Malaysians. The study found that perceived credibility has no significant relationship with acceptance of internet banking. They argued that a comprehensive promotional strategy adopted by Malaysian internet bankers could have enhanced the security system of internet banking.

Most of studies examine credibility with intention rather than actual behavior also been shown to be able to explain why people intended to use online banking. Wang *et al.* (2003) found a significant and positive effect of perceived credibility on behavioral intention over online banking. Conversely, Pikkarainen *et al.* (2004) indicated that perceived credibility is insignificant in influencing behavioral intention. Furthermore, Howcroft *et al.* (2002) confirmed that even though customers' confidence in their bank was strong; their confidence in technology was weak. Thus, to further improve this, informative marketing efforts can enhance customers' confidence on online banking use.

3.10 Antecedents of Attitude

Theory of reasoned action and its extension theory of planned behavior have been used to predict a broad variety of behaviors (Ajzen, 1991). In those theories, salient beliefs are accorded an important role. Salient behavioral beliefs (beliefs about the results of performing the behavior) are said to determine attitude toward the behavior (Ajzen, 1991). Therefore, attitude is an individual's salient belief as to whether the consequences of his/her behavior will be positive or negative. Therefore, when a customer has positive/negative salient beliefs about his/her behavior, he/she will have positive or negative attitude to perform the behavior (Ajzen & Fishbein, 2000).

Because this study adopts theory of planned behavior (Ajzen, 1991) attitudinal belief toward an innovation can be measured using the two dimensions of perceived attributes i.e. compatibility and trust. This study will add government support as a new antecedent of attitude. Figure 3.13 shows the research model.

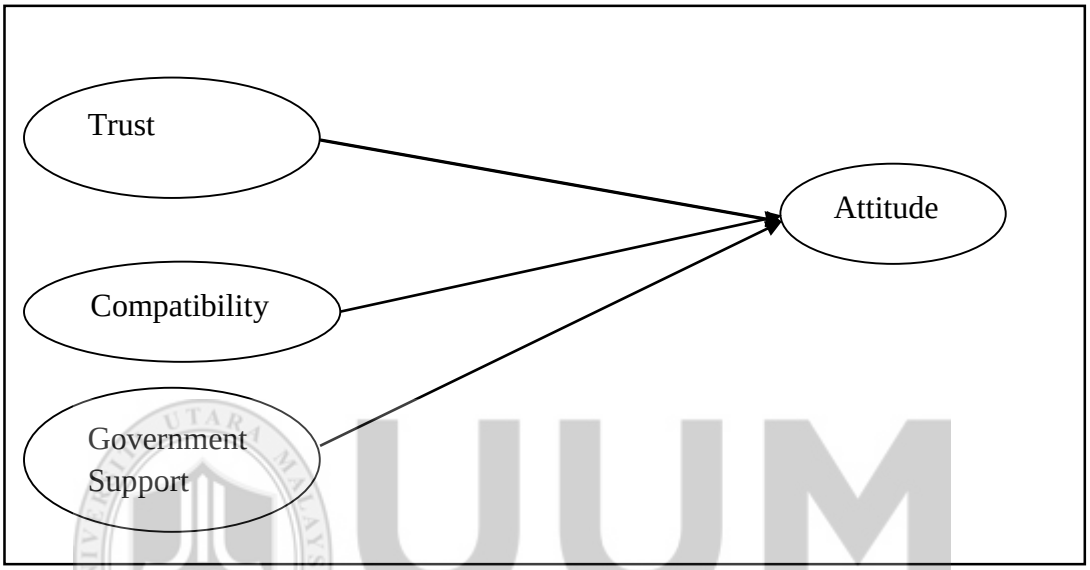

Figure 3.15
Antecedents of Attitude

Previous studies have focused on trust, compatibility, and government support which are initially proposed in the diffusion of innovation model as behavior belief, and additional factors to explain human behavior. Subsequently, the research models on attitude antecedents have been expanded and no consensus has been achieved. This explains why several models were used by past studies from simple to complex attitude models (AlSajjan & Dennis, 2010; Curran & Meuter, 2007; Suh & Han, 2003; Lee, 2009). Thus, the following discusses the effects of seven antecedents of customer's attitude toward acceptance and adoption of the new innovation. The antecedents are compatibility and trust.

3.10.1 Relationship between Trust and Attitude

Describing the concept of trust, Zaltman and Moorman (1988) asserted that it is a *"belief that one party can rely on a word or promise given by another party, and it can also help to develop or maintain a relationship between the two parties"*. According to Moorman, Deshpande, and Zaltman (1992) it can be explained as *"the perceived credibility and benevolence of a target of trust"* (p. 83). Furthermore, Doney, Cannon, and Mullen (1998) opined that trust is the "willingness *to rely on exchange partners in whom one is confident in"*. Trust is the core of all kinds of relationships (p. 604). Rousseau, Sitkin, Burt, and Camerer (1998) define trust as *"perceptions about others' attributes and a related willingness to become vulnerable to others"* (p. 394). Chong, Ooi, Lin, and Tan (2010) define e-trust as the extent to which a person rely on the information that using online banking is secured and has no privacy threats. In sum, different scholars have defined trust in different ways.

Trust is a central component which influences customer behavior and ascertains the success of technology adoption such as e-commerce (Chen & Barnes, 2007; Goles *et al.*, 2009; Holsapple & Sasidharan, 2005; Yang, Chandlrees, Lin, & Chao, 2009). In addition, trust is essential in many social activities, encompassing insecurity and reliance (Chong *et al.*, 2010; Pavlou & Fygenson, 2006). Also, trust can be crucial to any economic activity done in a retail outlet and the actual offline but is still more vital in an online situation (Gefen *et al.*, 2003; Gefen & Straub, 2004). Basically, one of the main reason for the prominence of trust in e-commerce activities is that in a computer-generated background the level of uncertainty on economic transactions is greater than the traditional settings (Rotchanakitumnuai & Speece 2004).

Trust is beneficial to businesses in that it reduces their transaction costs, increase, their flexibility and productivity, and helps in structuring the future marketing plans or strategies more precisely (Gambetta, 2000; Nooteboom, 2003; Zaheer *et al.*, 1998). Generally speaking, trust connotes a dependence on the integrity, ability, or character of a person or organization. In other words, expresses the fact that the individual (truster) has confidence that the trustee will care about his or her benefits, and that the truster is willing to depend on the trustee's decision even when the result is not evident instantly (Kini and Choobineh, 1998). Since customers may be anxious about buying something they cannot see, touch taste, trust is basis to overcome such inherent barriers of internet shopping (Shek, Sia, & Lim, 2003). Lee and Turban (2001) asserted that these days, trusted relationships are not just created between people or people and organizations but that it exists between people and computing systems, or people and shopping agents.

Many researchers infer that trust has an influential role in the attitude of using e-commerce that is internet-based service and is consequently drives the adoption of e-commerce by customers (Liébana-Cabanillas, Sánchez-Fernández, & Muñoz-Leiva, 2014; Palmer, Bailey, & Faraj, 2000; Pavlou & Chai 2002; Pavlou, 2003). Similarly, trust is a key influencer in internet banking as e-commerce because it uses internet and e-services in the same way as e-commerce. This is in line with the findings of studies conducted by Gefen (2002); Pavlou (2001); and Pavlou and Chai (2002), in which they found trust is a main predictor influencing adopting of e-commerce by customers. Furthermore, trust was found to be critical component in deriving the attitude and behavior of customers, as indicated by Schurr and Ozanne (1985). In a study performed by Jarvenpaa, Tractinsky and Saarinen (1999), it was found that trust either hinders or encourages customers to adopt internet banking.

Liébana-Cabanillas *et al.* (2014) found stronger and significant impact of perceived trust on the attitude towards new mobile payment among younger users. Based on theory of planned behavior, trust is regarded as a behavioral belief because there is an implied relationship between it and attitude (Pavlou & Chai, 2002).

Further, Bashir and Madhavaiah (2015) conducted a study to determine those factors that affect customer's attitude to adopt internet banking in India. Their study found that trust has immediate direct influence on customers' attitude towards using internet banking. Alsajjan and Dennis (2010) conducted a study on 618 university students in the UK and Saudi Arabia to investigate what influences customers to adopt internet banking service. They found that the UK customers perceive bank's trustworthiness as more influential than their counterparts in Saudi Arabia. Also, Al-Somali *et al.* (2009) conducted a study on 400 customers in Saudi Arabia to identify the factors that encourage customers to adopt online banking by using theory acceptance model. Their result indicated that trust has a significant impact on the attitude towards the likelihood of adopting internet banking service in Saudi Arabia.

Nor and Pearson (2007) examined the link between trust and customer's attitude towards the acceptance of internet banking in Malaysia. Their finding was significant and supported. Grabner-Krauter and Faullant (2008) demonstrated that the bank clients' trust in the internet banking service significantly and positively affects their attitudes towards adopting the online technology services. In addition, Jahangir and Begum (2008) found that trust significantly and positively affects the attitudes of private bank clients in Bangladesh toward adopting the internet banking service. Moreover, Suhand Han (2003) explored the relationship between trust and customer's

attitude on acceptance of internet banking in South Korea. The outcome proved that there is a significant relationship between trust and customer's attitude.

Contrarily, Cho and Cheung (2003) tackled the relationship between trust and customer's attitude towards on-line legal service adoption in Hong Kong, unlike the others, the result was unsupported. Hoffman (2000) opined that lack of trust is of the major drawbacks to the dispersal of e-commerce adoption, this supports the view of (McKnight, Choudhury, & Kacmar, 2000).Furthermore, Hsu and Lin (2008) considered the relationship between trust and customer's attitude on intention to the acceptance of technology in Taiwan; in the same vein, the result was found to be insignificant; this also is line with the finding of Van der Heijden *et al.*, (2003). They held the view that it is possible for trust to be a beginning variable. This implies that when an assured evaluation level is achieved by the customers the variable no longer enhances a favor able attitude (Van der Heijden *et al.*, 2003). Consequently, trust impacts attitudes only on low evaluation levels, portrayingwhen customers evaluate them as being poor. A customer will or refuse buying at a trustworthy website, but he/she will definitely not buy at an erratic site (Van der Heijden *et al.*, 2003).Yu *et al.* (2005) also investigated the relationship between trust and customer's attitude towards intention in the domain of T-commerce. Their end result was insignificant; this was attributed to the fact that the respondents considered other media such as internet, radio, and newspaper as more dependable than television.

Those who do not adopt internet banking invariably show that they have no trust in internet-based service channel and some customers still favor face-to-face contact with banks (Abbad, Abbad, & Saleh, 2011; Chong et al, 2010; Rotchanakitumnuai & Speece, 2003, 2004). Additionally, the lack of trust in online is an important obstacle

to the market penetration of e-channels (Al-Majali & Nik Mat 2010; Grabner-Krauter & Faullant 2008; Nor & Pearson, 2007; Rotchanakitumnuai & Speece 2003; Yousafzai *et al.*, 2010). Trust barrier is useful in predicting adoption, and it does seem to distinguish between adopters and resistors (Rotchanakitumnuai & Speece 2003). Customers who distrust the technology, the security, or the business practices are less likely to adopt internet banking (Grewal *et al.*, 2004). Therefore, Wong, Loh, Yap, and Bak (2009) suggest that banks mainly need to improve their internet banking from their current customer base.

For banks to overcome customer distrust of the system, they need to obviously exhibit concern for security, dependability and responsibility with tangible solutions to lessen or eradicate costs to customers in case transactions fail or are processed erroneously (Dixit & Datta, 2010). Habitually, these are not only technical issues, but rather, related to process design and sometimes, partly due to customer psychology and beliefs, which may or may not be persistent with the actual technology and system. Most customers believe that problems will certainly occur and are concerned with what the bank will do when such problems ensue (Rotchanakitumnuai & Speece 2003). Based on these fears exercised by the customers, the internet channel must be well integrated into other channels to enable customers interact easily with people who have acquired the skills to deal with such problems competently; furthermore, the banks must implement robust customer orientations (Rotchanakitumnuai & Speece 2004). Moreover, the adoption of internet banking entails that individuals instill the spirits of trust; as the type of services involves financial matters and there is need for more cautiousness in dealing with them (AbuShanab *et al.*, 2010). The banks also need to have a safe and reliable environment to operate and by doing so they can get the needed level of trust from their clients (Al-Somali, Gholami, & Clegg, 2009).

Pavlou and Fygenson (2006) postulated trust as a strong antecedent of attitude, perceived behavioral control and subjective norm using the theory of planned behavior. For the attitude construct, trust in e-vendor is observed as a salient behavioral belief which impacts customer's attitude directly towards purchase behavior. When an e-vendor is reliable, it is most likely too that the customer will gain benefits and escape possible risks associated with on-line service (McKnight & Chervany, 2001; Pavlou, 2003).

Previous discussion explained the relationship between trust and customers' attitude toward adoption of the new technology as being a significant and positive one. The findings exposed the importance of trust especially when customers are dealing with online transaction to carry out some activities via the internet. However, while majority of studies previous studies examine the effect of trust on customer's attitude in different parts of the world, none was carried out in Yemen. Furthermore, even though the literatures propose that trust is an important factor in successful online transactions (Al-Majali& Nik-Mat, 2010; Eastlick, Lotz, & Warrington, 2006), literatures on online trust is thus still fragmented and come from many different disciplines. Thus there is a need for a study to analyze how trust influences end-users' intentions to engage in online transactions. Understanding of the factors that affect the formation of online end-user trust is important as it is expected to enhance online companies' ability to attract new customers and serve the existing ones.

3.10.2 Relationship between Compatibility and Attitude

Compatibility is regarded as one of the main determinants of adoption of any new ideas or technologies (Rogers, 1983, 1995). According to Rogers (1983, p. 224), compatibility is defined as *"the degree to which an innovation is perceived as being*

consistent with the existing values, needs, and past experiences of potential adopters". McQuail (2005) defines compatibility as the consistency between the new innovations and the user's values, beliefs, ideas and needs. Tornatzky and Klein (1982) indicate that innovation is not likely to be adopted when it is not compatible with the job responsibilities, value system and belief of the individual. Therefore, it may be deduced that compatibility relates significantly to adoption.

Research works on the role of compatibility or compatible experiences in technology adoption (e.g. Taylor & Todd, 1995; Karahanna *et al.*, 1999; Venkatesh & Davis, 2000; Chau & Hu, 2001) have shown that attitude is becoming increasingly important over time in determining technology usage behavior. Thus, this research uses attitude as the dependent variable. It also seeks to identify factors that affect attitude.

Al-Majali and Nik Mat (2010) mentioned that several investigators have added compatibility factor into their models due to its significance. For instance, Chen *et al.* (2002) included compatibility in their model when they examined e-legal services in their study. By way of definition, compatibility is the uniformity between the e-legal services and the user's ethics and philosophies (Chen *et al.* 2002). Also, Chau and Hu (2001) included compatibility in their study by using decomposed theory of planned behavior and hypothesized that compatibility affects perceived usefulness and perceived ease of use. However the effect of compatibility was significant only on perceived usefulness. Compatibility was also considered in a study on the adoption of internet banking (Tan & Teo, 2000).

Susanto and Goodwin (2013) found out in their research that compatibility significantly influence attitude of (non-adopters) towards use of e-government in

Indonesia and Australia. This direct and strong determinant of perceived compatibility on attitude towards users was also consistent with prior findings on user acceptance of e-government services (Carter & Belanger, 2005; Hung*et al.*, 2006; Suki & Ramayah, 2011).Kim and Qu (2014) examined the relationship between compatibility and travelers attitude in the use of hotel self-service kiosks. Their result is strongly supported, indicating that travelers are morelikely to have a favorable attitude toward hotel self-service kiosks if theyperceive that it is compatible with their lifestyle.

Lin (2011) identified the relationship between compatibility and customer attitude to adopt mobile banking in Taiwan. They found it significant too. Their respondents views about the compatibility of m-banking with their values, experiences, and needs appear to be a predictor of attitude. That result suggested that customers who enjoy conducting e-banking may find m-banking compatible with their lifestyle and preferences. Thus, to attract and keep customers, it is vital that m-banking firms to pay attention to the compatibility of m-banking with individual model and favorites.

In light of the foregoing research, many previous studies have addressed the relationship between compatibility and attitude towards adopting a new innovation especially in the IT fields (Chen, *et al.*, 2002; Chakravarty & Dubinsky, 2005; Eriksson *et al.*, 2008). Also, series of previous studies examined the influence of compatibility on users' attitudes towards adoption of internet banking. For instance, Liao *et al.* (1999) applied theory of planned behavior and diffusion of innovation to verify the adoption of internet banking intention in Hong Kong. The findings showed that the customers' attitude towards the use of internet banking would be dependent on its compatibility with the internet banking and their job performance, value and beliefs

as well with other factors like ease of use and relative advantage (perceived usefulness). In a different study, Eriksson *et al.* (2008) investigated the influence of the compatibility factor upon the bank clients' attitudes in Estonia. The results showed that the relationship between the compatibility factor and the clients' attitudes towards the adoption of internet banking is significant and positive. Ndubisi and Sinti (2006) revealed that compatibility is a significant determinant of customer's attitude toward adoption of internet banking. Also, researchers have proved the high compatibility of internet banking service to customers' banking norms and lifestyle will make greater diffusion of Internet banking service in Malaysia. In Hong Kong an, Cho and Cheung (2003) found that the compatibility factor and the attitudes of Chinese users is significantly and positively related. Moreover, Sun and Zhang (2006) revealed that the relationship between the compatibility factor and the attitudes of the multimedia online services users is significant.

However, other researchers found different results. In Taiwan, Shih and Fang (2004) conducted a study to compare three models of IT technology acceptance (i.e. theory acceptance model, theory of planned behavior, and decomposed theory of planned behavior). In their study, decomposed theory of planned behavior showed that the relationship between the compatibility factor and the bank clients' attitudes to adopt internet banking service is not significant. Nor and Pearson (2007) also revealed that the compatibility factor insignificantly affects students' attitudes towards the adoption of internet banking in Malaysia. Beiginia, Besheli, Soluklu, and Ahmadi (2011) investigated mobile banking adoption in Iran and found compatibility not significant with attitude toward behavior. Chakravarty and Dubinsky (2005) demonstrated that compatibility has an insignificant influence upon the attitude towards adopting the online stock services.

3.10.3 Relationship between Government Support and Attitude

According to decomposed theory planned behavior, government support replace facilitating condition and directly influence perceived behavior control (Taylor & Todd, 1995). Meanwhile, this study found a relationship between government support and attitude. Government institution provides internet services. This construct is referred to as trust in government (Carter & Weerakkody, 2008). Trust in government plays a role in the attitudes of the citizens by enhancing their expectations of the outcomes (Ozkan & Kanat, 2011). Moreover, Government protection in terms of law and regulation in internet transaction affect consumers' attitude toward internet transaction because it will increase the perceive benefit and trust of such technology (AlGhamdi, Drew, & Alhussain, 2012). González (2004) conducted a research on eBay in the United States found that consumers would be reluctant to make transaction if they do not get protection from the government. It means that regulation influence perceived risk and attitudes towards regulation. Due to the limited knowledge on the law and regulation regarding fraud and claiming procedure in m-banking, consumers feel that there is no protection against fraud in m-banking. Based on these findings, banks should aim their marketing communications to increase the perceived benefit of m-banking. As the party with direct contact with the m-banking users, banks should inform consumers about the law and regulations, including claiming procedures, when fraud occurs (Purwanegara, Apriningsih, & Andika, 2014).

However, fewer studies have been conducted to study this relationship such as: Ozkan and Kanat (2011) that examined trust and government support towards customer attitudes to intention to adopt e-government in Turkey. They have proven this relationship, which is in line with e-government models in literature that supported

this result. Harrison, Onyia and Tagg (2014) also examined the relationship between government support and customer's attitude to use internet banking in Scotland. They found a significant and positive relationship between government support and customer attitude. Moreover, they stated that when clear regulatory and supervisory frameworks are instituted, the people will probably have more assurance to accept and keep using internet banking than otherwise. In the same line Purwanegara *et al.* (2014) also investigated how customer perceptions about regulation influence the consumer attitude toward internet banking in Indonesia. The study found a significant relationship between the perceptions and attitude.

On the other hand, A-Qader and Zainuddin (2010) investigated the direct and mediating relationship between government policies and Intention to Purchase Green Electronic Products by using attitude as a mediating variable in University Science Malaysia (USM). Interestingly, they found no significant relationship between government policies and attitude. Furthermore no mediating effect between government policies and Intention to Purchase Green Electronic Products via customer's attitude. From this discussion, studies which examined government support and attitude in the internet banking area is limited especially on customer resistance.

In the case of Yemen, there is a lack of government policy which could enhance the use internet banking in Yemen (Zolait, 2010). Moreover, the Electronic Transaction Law in Yemen (CBY, available at: http://www.centralbank.gov.ye/) was implemented in 2006, but it is inadequate to check against internet scam. Furthermore, customers recognize that the courts still lack the capacity to protect bank users in cases of financial loss through internet banking, to draw online confirmation, and to determine cases fairly (Al-Hariry, 2007). Certainly, Willems (2009) reported that the main

hindrance for the complex transfers in the banking sector in Yemen is legal support to protect customers and banks that use the service.

3.11 Antecedent of Subjective Norms

Subjective norms are perceptions on whether an individual's behavior is expected by friends, family, mass media, referent group, and/or society. Theory of planned behavior and decomposed theory of planned behavior consider social influences such as social norms and normative beliefs as collectivistic culture-related variables (Ajzen, 1991; Taylor & Todd 1995). The normative beliefs are related to the probability that key referent individuals or groups will support or disapprove of their performing a given behavior. The power of normative belief is increased by the individual's motivation to conform to the referent in question and the subjective norm is directly proportional to the sum of the resulting products across the salient referents (Ajzen, 1980). A global degree of subjective norm is usually achieved by asking the respondents to rate the degree to which "important others" would support or disapprove of their performing a given behavior. Evidence revealed that the most excellent correspondence between such global measures of subjective norm and belief-based measures is usually attained with biracial scoring of normative beliefs to conform (Ajzen & Fishbein, 1980).

As mentioned above, norm represents the individual's perceptions of the social pressures to adopt or not to adopt an innovation. Social influence causes a normative influence that happens when individuals conform to the beliefs of others (Bearden, Calcich, Netemeyer, & Teel, 1986). Past studies have acknowledged several referent groups (peers and superiors) that can wield social pressure on individuals to perform specific behavior (Taylor & Todd, 1995).

Parthasarathy and Bhattacherjee (1998) showed that friends, colleagues, and relatives influence users in forming their initial adoption decisions. Nor and Pearson (2008) indicated that friends, family members, and colleagues or peers may affect individuals' perceived social pressure (i.e.subjective) on whether to adopt or not to adopt the internet banking service. This study identifies three social factors i.e. trust, self-efficacy and government support influence on the resistance of internet banking. In Yemen, there is lack of promotion on the use of internet banking and hence this may be one of the reasons why people resist adopting the internet banking service. With regards to antecedent of subjective norms, this study examines the role of trust, as shown in Figure 3.14

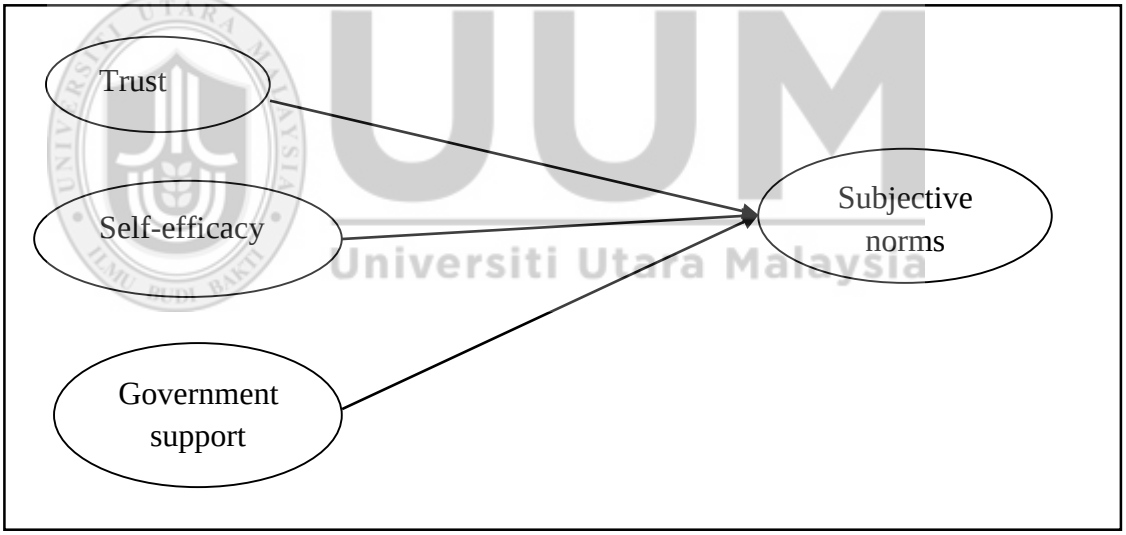

Figure 3.16
Antecedents of Subjective Norm

3.11.1 Relationship between Trust and Subjective Norm

Considering the subjective norm construct, scholars found that mutual trust and mutual influence between users and information system (IS) units are highly correlated with each other; this finding was presented by Nelson and Cooprider (1996) on their study on the performance of information system groups. Furthermore, Taylor and Todd

(1995) in their proposed decomposed theory of planned behavior stated that both peer and superior influence users in IS usage evidence provided by an online tax adoption study expressed that trust positively influenced subjective norm to adopt online tax (Wu & Chen, 2005). From the above discussion it is expected that trust in superiors and peers views on information system usage plays a significant role in individual's decision. Likewise, trust in e-vendors' reputation, brand name and service could positively influence subjective norm of customers on transacting on-line. Equally, this may identify certain relationship on trust in peers and superiors and trust in vendors. As the opinions from the referent others like peers and superiors are positive for certain e-vendors in the market, trust in peers and superiors in this situation can enhance user beliefs in trusting the e-vendors and can lead to subjective norm toward the behavior of transacting on-line. Therefore, whatever type of trust are with direct and indirect influences on subjective norm, they are all the significant precursors of subjective norm in on-line service.

In addition, Hoffman *et al* (1999) advocated that the prime purpose why most people do not embark on online shopping or make available personal information to online vendors, this is demonstrated in their concern that online vendors will expose their personal information to others without their knowledge or permission. Consumers will undoubtedly hesitate to shop online if they do not feel confident that their credit card information is secured and protected from probable hackers (Collier & Bienstock, 2006). Prior studies on online shopping context confirmed that consumers' perceptions of privacy has a notable and affirmative effect on their trust in the online vendor (Bart *et al.*, 2005; Roman, 2006).

Tseng *et al.* (2011) tested the relationship between trust and subjective norms on adoption of online shopping in Taiwan. They found the relationship to be significant and supported. This result was obtained either because the customers established the initial trust in on-line shopping, to improve the users' normative beliefs on the expectations of referents group such as friends, peers, and superiors who are concerned with the initial adoption of the on-line shopping, or it might be because there are a lot of possible influencers to subjective norm remaining to be identified to account for the rest of the total variance explained. Nevertheless, Chow and Chen (2008) considered the relationship between trust and subjective norms on organization knowledge sharing and found insignificant relationship that was not supported.

3.11.2 Relationship between Self-Efficacy and Subjective Norm

According to decomposed theory planned behavior, self-efficacy has only directly influence perceived behavior control (Taylor & Todd, 1995). Meanwhile, this study found a relationship between self-efficacy and subjective norm. Computer self-efficacy is "*an individual's judgment of their capability to use a computer*" (Compeau & Higgins, 1995). Customers with higher levels of computer self-efficacy show higher levels of skills and self-reliance when operating a computer, and are more closer to find it easier than their colleagues (Venkatesh & Davis, 1996).

As declared by Lent, Brown, and Hackett (1994) and Bandura (1997), Social cognitive theory assumes that the differences can be attributed to socialization developments; emphasizing that male are more inclined to using computers than females. Therefore, there is the possibility to develop more skill on technology as a consequence (Kim, 2010). In addition, It was discovered that people with computer awareness and experience are less likely to be inclined by others' views as mentioned by Taylor, Todd

(1995); but evaluate usage based on their own experience (Karahanna, Straub, & Chervany, 1999). Male adopters are also more independent decision makers than their counterparts (Venkatesh *et al.*, 2004). However, adopters who have less experience are more prone to be swayed by subjective norm usage of innovation (Schillewaert, *et al.*, 2005). Similarly adopters feel more comfortable with face to face interaction when the computer concern level is high (Gopal, Miranda, Robichaux, & Bostrom, 1997). This attribute is more likely to be established among female adopters because of their higher levels of computer concern and poorer computer self-efficacy. As a result, female adopters may be inclined and more ready to consider the views of others when adopting innovation, and may be more friendly to subjective norm than their equivalents (Kim, 2010).

Kim (2010) investigated the connection between self-efficacy and subjective norm on the use of universities' library website resources in USA. He found gender moderated the relationship between computer self-efficacy and subjective norm such that the relationship is stronger for female adopters than for their male equivalents. Male users perceive the utilization of universities' library website resources to be easier and are less likely to be influenced by subjective norm than their counterparts because of their higher levels of computer self-efficacy. The findings in this study have implications for academia. Gender differences for subjective norm are investigated in a performance-related context. Where subjective norm is not associated with performance, it was found to have a higher impact on females but, when it is assessed in relation to performance, male users are more approachable to such pressure; subsequently, two seemingly conflicting constructs are addressed in one study. Also, since computer self-efficacy and performance-oriented behaviors are

socially constructed and may impact universities' library website resources utilization, class instructors may consider those elements in instructional design.

Kim *et al.* (2007) investigated the linkage between self-efficacy and subjective norm to use internet acceptance in Korea. Their result found a strong and significant relationship. Kim *et al.* (2007) explored that an individual with high self-assurance in the use of internet involves higher expectation from the society around her or him. Essentially, society has high expectation from a person with high self-confidence in the use of the technology.

Studying these linkages is necessary since there is a limited study has examined this relation before on internet banking in Middle East with respect to internet banking resistance in Yemen.

3.11.3 Relationship between Government Support and Subjective Norm

According to decomposed theory planned behavior, government support replaces facilitating condition and directly influence perceived behavior control (Taylor & Todd, 1995). Meanwhile, this study found a relationship between government support and subjective norm. Government policies concentrate on improving a level of telecommunication infrastructure and a legislative model, promoting and supporting the adoption of e-commerce and giving information technology training and education for society and business segments, like other countries do (Gilbert et al., 2004). The direct benefits for SMEs in these strategies contain the telecommunication infrastructure and legislative model to operate their e-commerce business, and the information technology capability to improve competitive e-commerce applications (Lau & Kwok, 2007). The indirect advantages involve the

promotion of societal knowledge and awareness of e-commerce in publics and businesses, and cultivation of the local e-commerce market, for which the government provided advisory services, information technology education and training and financial support to SMEs (Lau & Kwok, 2007).

Under the new government strategies, the local information technology business can strengthen innovative e-business applications and limit the period of growth of applications, so that SMEs can organize them without large investment. Alternatively, SMEs can get funding to develop e-business applications with local IT experts. Thus, these policies are expected to overcome the SMEs' concerns about human and money resources (Lau & Kwok, 2007). As a conclusion, the main reason to study this linkage is that there is limited study that has examined this relationship before on internet banking in Middle East with respect to internet banking resistance in Yemen.

3.12 Antecedents of Perceived Behavioral Control

According to Ajzen (1985, 1991), perceived behavioral control refers to individuals' beliefs of their ability to perform a behavior. This belief is influenced by internal and external factors. The internal factors of behavioral control reveal one's self-confidence in the ability to perform the behavior. This is in line with Bandura's (1991) concept of self-efficacy which suggests an individual's behavior is strongly influenced by their confidence to perform. The external factors of behavioral control, which Triandis and Draguns (1980) called 'government support' reflects one's beliefs regarding the availability of resources such as money, time, and other resources needed to be invested in the behavior.

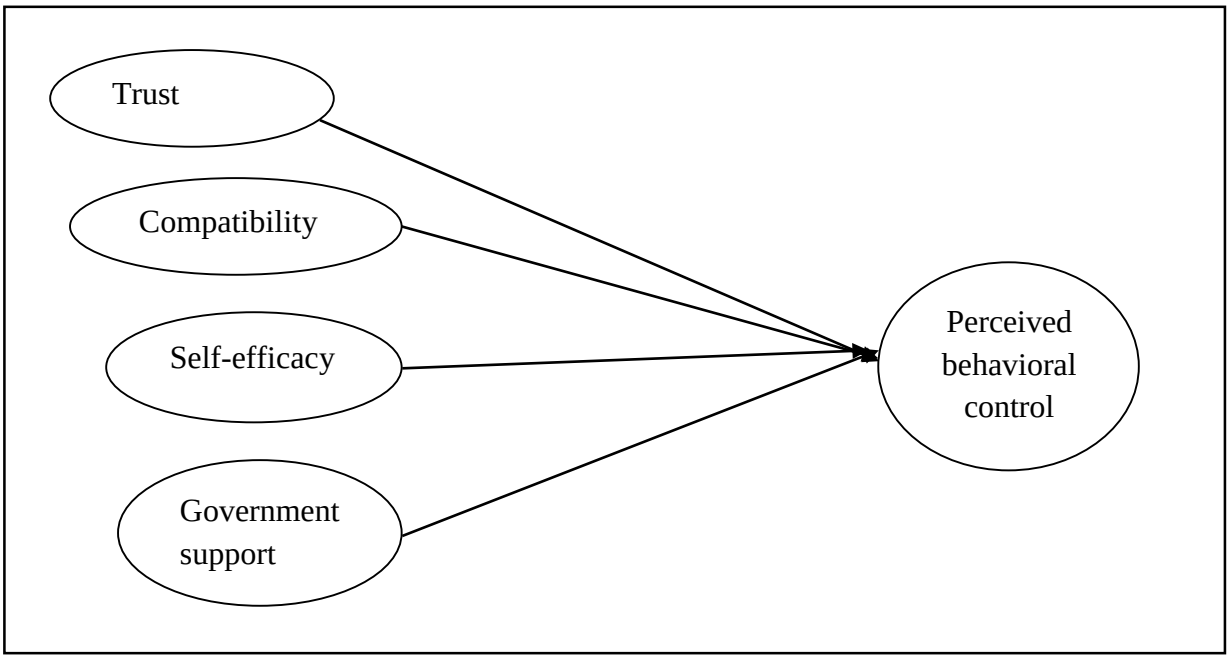

Figure 3.17
Antecedents of Perceived Behavioral Control

Accordingly, an individual who has the self-assured expertise to use a computer and the internet is inclined to adopt internet banking service (Ndubisi *et al.*, 2004). This component refers to comfort with using the innovation; as an external factor that requires the government to intervene and lead in the diffusion of innovation model (Goh, 1995). Also, to support technological infrastructures becomes ease and more readily obtainable, internet commerce applications such as banking services will also become more feasible (Tan & Teo, 2000).

In this study, self-efficacy, government support and trust are proposed to cause the low adoption of internet banking service in Yemen, as shown in Figure 3.15. The following discusses these antecedents of perceived behavioral control.

3.12.1 Relationship between Trust and Perceived Behavioral Control

Trust is posited in theory of planned behavior, as a strong antecedent of perceived behavioral control and subjective norm. Concerning the perceived behavioral control construct, trust can enhance perceived behavioral control over online transactions since the computer-generated interactions between customers and e-vendors become more expectable (Pavlou, 2002). Shih and Fang (2004) declared that perceived behavioral control comprises of main two components. The first component is "facilitating conditions" (Triandis, 1979), which reflects the accessibility of resources desired for accomplishing a specific behavior. The second part is self-efficacy (Ajzen, 1991), that is, one's confidence of the capability to behave meritoriously in a given position. Obviously, trust affects perceived behavioral control through the controlling factors of self-efficacy and the enabling of favorable circumstances (Wu & Chen, 2005). According to psychological reports, self-efficacy in personal relationships is built from self-confidence and reciprocal trust in friendships. Hence, mutual trust in the relationship between customers and e-vendors should increase customer self-efficacy and, in turn, increase perceived behavioral control. Trust also can be viewed as a perceptual resource that expedites customers' ability to gain control over online transactions (Wu & Chen, 2005).While customers trust an e-vendor who behaves in coherence with their expectations, the trust beliefs are likely to increase customer's perceived behavioral control over online transactions (Pavlou, 2003).

Pavlou and Chai (2002; 2003) studied the relationship between trust and perceived behavior control in e-commerce in the United States (U.S.) and China; this relationship is significantly supported. Moreover, Lee (2009) looked at the relationship between trust and perceived behavior control to adopt online trading in Taiwan. And they found it supported. Furthermore, Tseng *et al.* (2011) considered the relationship between

trust and perceived behavior control to adopt online shopping in Taiwan, the findings proved to be significant and supported. Based on these researchers results, this study noticed that most authors do not examine the relationship with customer resistance especially internet banking area. Thus this study is valuable in finding out the relationship between customer's trust and perceived behavior control.

3.12.2 Relationship between Compatibility and Perceived Behavioral Control

Scannell, Calantone and Melnyk (2011) investigated the relationship between compatibility and decision-makers' perceived behavior control of adopting shop floor manufacturing technology behavior in USA. They found the relationship is significant and supported as self-efficacy significantly affects the perceived ease or difficulty of doing any specific behavior. Additionally, (Rogers, 1983; Robinson, 1988) disclose that prior experience of future success of technology adoption is strengthened by confidence. In accordance with the above, Scannell *et al.* (2011) declares that the perception compatibility issues from customers suggest the continual process of innovation strategies by suppliers of shop floor manufacturing technology. This is in the line with this study that banks should continue developing and enhancing their diffusion of internet banking strategies to lessen compatibility issues and to reduce the resistance and accelerate adoption of internet banking.

Consequently, this study examined this relationship due to limited study that has been conducted on internet banking in Middle East with respect to internet banking resistance in Yemen in particular.

3.12.3 Relationship between Self-Efficacy and Perceived Behavioral Control

Self-efficacy is described as *"a person's perception of his or her skill can exercised on technology product"* (Compeau & Higgins, 1995, p. 193). Self-efficacy is a determinant of apparent user-friendliness and the usability of an item (Davis, 1996). It is also considered as "a person's self-confidence in his or her ability to carry out a behavior" (Bandura, 1982). Self-efficacy explains the self-assurance in one's competence and expertise to handle and make the paths of performances imperative to achieve a desired outcome (Bandura, 1982). Self-efficacy is developed from routine accomplishments, skills, personal interests, etc. (Ellen *et al.*, 1991).

Various scholars empirically tested the relationship between PC use and self-efficacy (Eastin, 2002; Monsuwe *et al.*, 2004; Wang &Newlin, 2002; Wang *et al.*, 2003). Davis *et al.* (1989) and Wang *et al.* (2003) found there exist an association between computer self-efficacy and apparent accessibility. Researchers found a positive association between awareness of expediency and the utilization of online banking (Gerrard & Cunningham, 2003; Lassar, Manolis, & Lassar, 2005; Polatoglu & Ekin, 2001; Wang *et al.*, 2003). Likewise, Polatoglu and Ekin (2001) revealed that users who are familiar with the internet and electronic mail do not discover internet banking as being difficult. In general, the literatures indicate that the higher the person's self-efficacy beliefs, the more likely he or she attempts toward attaining the necessary result such as using the new innovation.

Ellen *et al.* (1991) argue that self-efficacy is a main threat to the adoption of innovations. They argue that when the individual is highly unable to handle choices, he/she may oppose the substitute because he/she lacks sufficient information about the choices or because he/she feels uneasy about the new choice. In the area of mobile

banking, because of the lack of self-confidence concerning the service provided a person may exercise caution in handling his/her bank transactions by a cell phone (Laukkanen *et al.*, 2007; Laukkanen & Lauronen, 2005).

Self-efficacy is chosen as one of the variables to be considered in this study as prior research have acknowledged that self-efficacy has a substantial influence on customers' perceptions and their ability to use the new technological product and on their decision to accept the product (Park & Chen, 2007). It is argued that without skill, performance cannot be accomplished (Compeau & Higgins, 1995). Hence, customers' self-efficacy is related to the adoption of technological innovation (Khan & Hyunwoo, 2009). Therefore, this study includes self-efficacy in the conceptual model of this current research.

Furthermore, despite the theoretical argument, findings are inconsistent on this issue. Different researchers have found that self-efficacy ether negatively affects customer resistance or positively affect customers' adoption of innovative products (Chen, 2007; Ellen *et al.*, 1991; Khan & Hyunwoo, 2009; Park & Chen, 2007; Tan &Toe, 2000). Ellen *et al.* (1991), and Tan and Teo (2000) found that self-efficacy is a major factor that affects resistance to technological innovations. Moreover, Curran and Meuter (2007) have recommended that future researchers investigate factors that would influence the intention to change behaviors from non-adoption to adoption of self-service technologies (SSTs). The extension of SSTs has positively altered customer behaviors in banking. However, Khan and Hyunwoo (2009) found an insignificant relationship between self-efficacy and customers' resistance.

Apparently, the internet banking service is a kind of on-line technology services, hence, this study stresses the significance of the effect of the self-efficacy factor upon customers' behavior. Shih and Fang (2004) assessed the influence of the self-efficacy factor upon the perceived behavioral control for internet banking service usage by a number of bank clients in Taiwan. The results indicated that the self-efficacy factor positively affects perceived behavioral control. Furthermore, Nor and Pearson (2007) revealed that the influence of self-efficacy factor on the perceived behavior control is significant and positive when it comes to the internet banking service usage in Malaysia. Nasri and Charfeddine (2011) found that self-efficacy has a positive and significant effect on perceived behavior control in internet banking adoption in Tunisia. They mentioned that individuals who feel less capable of handling a situation may resist it because of their feelings of inadequacy or discomfort. Nor and Pearson (2008) found that the relationship between self-efficacy and perceived behavior control is positive and significant. In contrast, Dauda *et al.* (2007) depicts the relationship between the self-efficacy factor and the perceived behavioral control is insignificant for a number of bank clients in Malaysia

The above discussion has shown that self-efficacy as one of the antecedents of perceived behavioral control remains inconclusive due conflicting findings. In addition, a study that looks at the influence of an individual's ability to decide to adopt internet banking has not been conducted in Yemen. Hence, this study investigates the role of self-efficacy on the adoption of internet banking services.

3.12.4 Relationship between Government Support and Perceived Behavioral Control

The second component of perceived behavioral control is facilitating conditions, and this refers to the ease of accessing technological resources and infrastructure. According to Goh (1995), government can play an intervention and leadership role in the diffusion of innovation. Goh (1995) proposes that government support plays a significant role in the innovations spread process and the technology existence. He defines government support as *"Creation of a suitable environment to encourage the clients and the organizations to use the technology and adopt the technological developments"*. Government can enact effective policies that will encourage the use of technology, as this will definitely contribute to secure a good environment which encourages clients to adopt internet technology projects (Shih & Fang, 2004).

The success of the internet banking service depends on the updates carried out by the banks together with the government support to these developments. The government plays a fundamental role in securing the internet services, allowing the banks' improve their websites and provide them with benefits and motivations (Eriksson *et al.*, 2005). Tan and Teo (2000) maintain that government support for the internet banking adoption service and e-commerce increase awareness of customers on the use of new technology by accentuating the benefits and advantages.

The discussion on the literature above confirms the relationship between government support and perceived behavior control as erratic. For instance, some scholars indicated that government policy is a major barrier to innovation particularly in the European countries (Madrid-Guijarro, Garcia, & Van Auken, 2009; Piatier, 1984) while Galia and Legros (2004) assert that government policy programs could enable

internet banking to be more innovative. In a similar vein, Trappey and Trappey (2001) argue that government support play a role in the ability of private firms and individuals to use and contribute to the internet infrastructure.

A number of studies (e.g. Hewitt-Dundas, 2006; Greis, Bidner, & Bean, 1995; Mohnen & Roller, 2005) observed that the lack of government support to the commercial business is preventing innovation. Li and Atuahene-Gima (2001) noticed that government plays a major role to encourage innovation of a firm. Thus a clearer understanding of barriers to innovation can help in the development of firm strategies and government policies which contributes to economic growth, job creation and increased wealth (Madrid-Guijarro *et al.*, 2009). In Hong Kong and Finland, economic issues and support were found to be the third main obstacles slowing the adoption and dispersal of Global Electronic Commerce (GEC) (Farhoomand *et al.*, 2000). Governments do not observe the conclusion of GEC since there is a protectionist attitude as is the case in India and Japan.

A number of studies in the past investigated the influence of government support on customers' adoption of internet banking. Tan and Teo (2000) attempted to explore the bond between government support and perceived behavioral control. They found that government support influences perceived behavioral control of internet users significantly and positively with regard to the adoption of internet banking in Singapore. Teo and Pok (2003) revealed that government facilitation is significant among the newsgroup/forum sample in Singapore. Nasri and Charfeddine (2011) found government support has a positive and significant effect on perceived behavior control in adoption internet banking in Tunisia.

On another hand, Hernandez and Mazzon (2007) found government facilitating condition does not influence internet banking adoption in Brazil. Similarity, Dauda, Santhapparaj, Asirvatham, and Raman (2007) found that government support does not significantly influence the adoption of internet banking in Malaysia and Singapore. But, Al-Majali and Nik Mat (2010) found that government support significantly and positively influences internet banking adoption in Jordan. Similarly, Tan and Teo (2000) found that government support has a significant and positive influence on internet banking in Singapore. Government support refers to government facilities and restrictions to internet banking adoption.

The legal support in the internet technology business acts a main function in generating confidence among customers to adopt internet technology (Baker, 1999; Zugelder., 2000). Customers and commercial companies using online services are generally worried when there is incomplete legal support to defend their online transactions (Gunasekaran & Ngai, 2005). Shalhoub (2006) argues that one main difference between making internet and physical transactions is the lack of document for the former especially when problems occur. So if the legal support does not exist, companies and customers will not use internet banking transactions (Aljifri, Pons, & Collins, 2003; Gunasekaran & Ngai, 2005). In this context, banks need to stay abreast of fast changes in the laws and appropriate regulations to internet banking, and seek legal advice when it is necessary (Cate, 1998).

Customers also raise concerns about their protection such as illegal entry by hackers, unfair and misleading dealings performed by suppliers, or system malfunction that concerns customers to use the internet (Rotchanakitmnuai & Speece, 2003). Customer security is the main legal issue linked with internet marketing (Zugelder *et al.*, 2000).

Customer safety is vital for developing online customer trust because there is no person-to-person transaction and there is a high likelihood for difficulties to happen especially when customers lack awareness (Rotchanakitmnuai & Speece, 2003, 2004).

Many firms and customers resist the net because of lack of legal support for online credentials as lawful confirmation (Farhoomand *et al.*, 2000). Furthermore, it is uncertain whether e-credentials and accounts are enough as adequate verification of dealings (Giannakoudi, 1999). Several customers reject internet transaction records because of the obstacles associated with verifications of e-transmissions. Many customers are uncertain of the legality of utilizing the internet in business dealings in terms of the jurisdiction of the courts and disagreement on dealings (Hamid, Amin, Lada, & Ahmad, 2007; Rotchanakitumnuai & Speece, 2004). These concerns can cause bank's customers to be uncertain in using internet banking services (Rotchanakitumnuai *et al.*, 2003).

Another legal issue is concerned with legal responsibility (Thomas, Forcht, & Counts, 1998). Legal responsibility has to be determined once monetary losses occurred in internet transactions, and losses have to be carried by the customer, the bank, or even other associated parties in the internet banking system, for instance the internet service supplier (Rotchanakitmnuai & Speece, 2003; 2004). Basically, banks usually give internet banking contracts within boundaries of their legal responsibility, implying that the bank is not responsible for any losses caused by the internet banking service or customer use of the service (Attaran, 2000; Giannakoudi, 1999). Obviously, clients might not be very eager to use internet banking as a result of this practice (Rotchanakitmnuai & Speece, 2003, 2004). Giannakoudi (1999) states that user security laws have to settle on the maximum degree of customer legal responsibility

or cause the stipulations to be unfair and unenforceable. Customers also expect that the bank can support them in case of errors in transaction. Hence, the bank needs to document and record all transactions with the clients, which can help to resolve any impending problems. Customers also expect that banks should be accountable for mistakes arising from the usage by the client or as a result of malfunction by the system (Rotchanakitmnuai & Speece, 2003). When these issues are resolved, legal support will be a main obstacle to internet banking adoption (Hashim & Chaker 2009).

An additional legal difficulty in the case of online transaction is related to the authority of the courts. When problems occur, banks and other online service providers may say that the website is not a division of the bank, which makes it difficult for courts to decide the site of the bank and whether they have authority over it. Web barriers can be resulting from numerous factors such as doubt of the web system, and lack of legal support issues. Electronic markets generate new transaction danger for electronic market participants, and safety is the significant aspect that depresses the thriving adoption of electronic services (Ratnasingham, 1998). These issues are serious concerns between business clients in Thailand (Rotchanakitumnuai *et al.*, 2003).

In the case of Yemen, Zolait (2010) found that there is a lack of government policies to online activities compared to other countries around the world. Therefore, the need to include government support in the conceptual model of this study is inevitable. Additionally, the Electronic Transaction Law in Yemen (CBY, available at: http://www.centralbank.gov.ye/) was implemented in 2006, but it is inadequate to check against internet scam. Furthermore, customers recognize that the courts still lack the capacity to protect bank users in cases of financial loss through internet banking, to draw online confirmation, and to determine cases fairly (Al-Hariry, 2007).

Certainly, Willems (2009) reported that the main hindrance for the complex transfers in the banking sector in Yemen is legal support to protect customers and banks that use the service.

Based on the result of literature review on factors of customer resistance, the following conclusion can be made: The majority of research on customer resistance behaviour has focused on psychological and functional factors that may influence resistance behavior among customers. The findings of these studies indicate that the antecedents of customer resistance behaviour may not be consistent across different types of resistance (postponement, opposition, and rejection) and therefore further empirical research is needed, particularly in a resistance environment where the customers act independently or semi autonomously. This is because limited studies have been done on the customer resistance.

3.13 Antecedents of Credibility

According to Ajzen (1985, 1991), perceived behavioral control refers to individuals' beliefs of their ability to perform a behavior. The beliefs are influenced by internal and external factors. The internal factors of behavioral control reflect one's self-confidence in the ability to conduct the behavior. This is compatible with Bandura's (1991) concept of self-efficacy that suggests an individual's behavior is strongly influenced by one's confidence to perform it. The external factors of behavioral control, which Triandis and Draguns (1980) called 'government support' reflects one's beliefs regarding the availability of resources such as money, time, and other resources needed to be invested in the behavior.

Accordingly, an individual with the self-confidence about the skill to use a computer and the internet is more inclined to adopt internet banking service (Ndubisi *et al.*, 2004). This component refers to comfort with using the innovation; as an external factor that requires the government to intervene and lead in the diffusion of innovation model (Goh, 1995). As supporting technological infrastructures become easily and readily available, internet commerce applications such as banking services will also become more feasible (Tan & Teo, 2000).

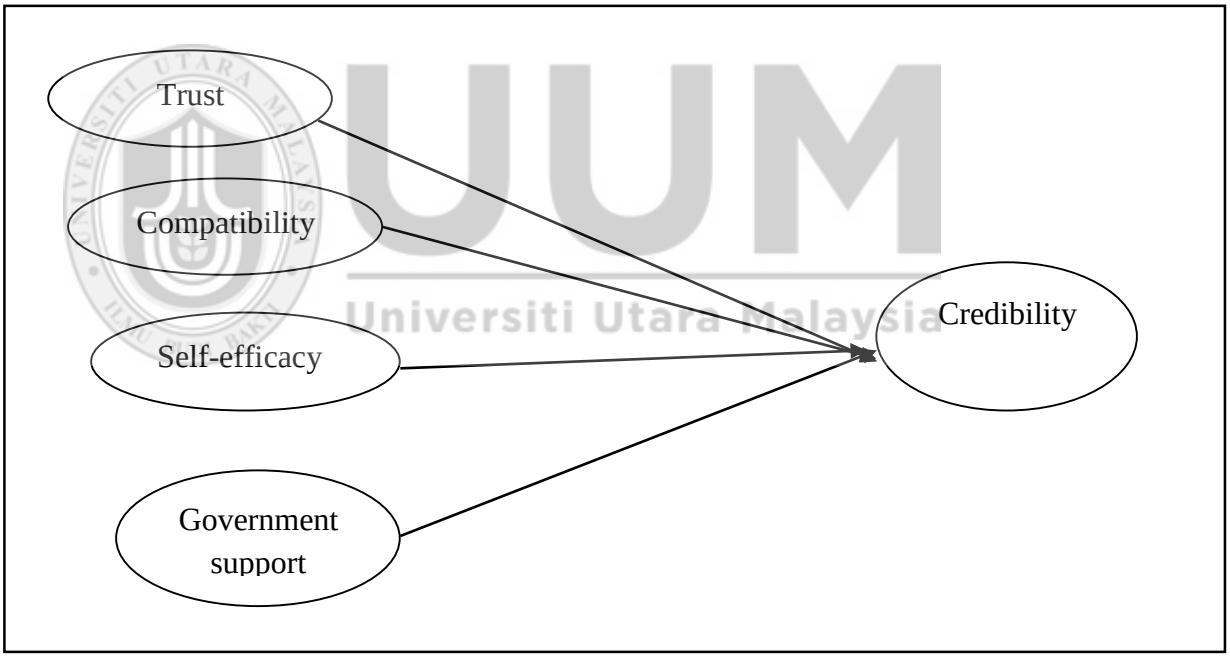

Figure 3.18
Antecedents of Credibility

In this study, self-efficacy, government support and trust are proposed to be responsible for low adoption of internet banking service in Yemen, as shown in Figure 3.14. The following discusses these antecedents of perceived behavioral control.

3.13.1 Relationship between Trust and Credibility

There is an inadequate research on the linkage between trust and credibility such as (Shareef *et al.*, 2011; Koenig-Lewis *et al.*, 2010). The notions that trust and credibility are most profound obstacles in consumer purchase decision process (Koenig-Lewis, Palmer, & Moll, 2010). Shareef *et al.* (2011) stated that Perceived trust of citizens is related to the credibility of e-Gov; however, trust and credibility are strengthened if the services of e-Government are perceived by the users of these internet based services. They also verified the correlation between these items and found moderate to strong correlations. This also justifies the convergence of these items under a single factor. Koenig-Lewis, Palmer, and Moll (2010) inferred that fear of fraud and hacking of accounts of personal information to any third party is becoming a crucial point that customers have concern of it and surface to influence the credibility . They added also that trust significantly affected security and privacy, i.e. credibility, in the m-banking that was conducted Germany to study youth consumers of this service. Therefore, the main reason to study this relationship is as a result of scarcity of previous literature on internet banking in Middle East. With special reference to internet banking resistance in Yemen.

3.13.2 Relationship between Compatibility and Credibility

The definition of Compatibility: "is the extent to which a new service is consistent with users' existing values, beliefs, previous experiences, habits" as defined by (Chen *et al.*, 2002). Conforming innovations to an individual user's lifestyle will lead to in a faster rate of adoption (Rogers, 1995). In literature as in Agarwal and Karahanna (1998); Wu and Wang (2005) affirmed that with compatibility, the perception of users

to use technology would be increased especially when it takes less effort from them to use it. Hence, its credibility will increase because of this perception of compatibility.

Koenig-Lewis, Palmer, and Moll (2010) studied the relationship between compatibility and credibility of m-banking among Youth people in Germany. They found a significant relationship between compatibility and credibility. That is to say, when users perceive the usefulness of the service and its easiness in their lifestyle, they would consequently find it trustworthy and adopt it. This is also in line with the findings of Giovanis *et al.* (2012) where compatibility has a negative impact on perceived security and privacy risk regarding internet banking adoption. Sohail and Shanmugham (2003) suggested that the lower the requirement to change existing customer habits, such as current methods of banking, the higher the likelihood that these customers will use internet banking.

3.13.3 Relationship between Self-Efficacy and Credibility

The validated relationship between computer self-efficacy and perceived credibility is based on the theoretical argument of Guriting and Ndubisi (2006) and Wang *et al.* (2003). Guriting and Ndubisi (2006) in their study, avowed that computer self-efficacy significantly affect perceived usefulness and perceived ease of use. Furthermore, Wang *et al.* (2003) hypothesized that computer self-efficacy will have a negative effect on perceived credibility of the internet banking. However, their hypothesis did not receive empirical support. Computer self-efficacy was not found to be significant in relationship with credibility in internet banking systems.

Apparently, the relationship between computer self-efficacy and perceived credibility have not been empirically validated, in prior research. In any case, Hoffman (1999)

analyzed data from the 1997 Commerce Net/Nielsen internet Demographic Survey and discovered that negative perceptions on privacy and security increased with the levels of online proficiency (computer self-efficacy). He further explained that the more experience an individual acquires on online skills, the more crucial becomes the issue of control over personal information; doubtfully, this signifies that computer self-efficacy will certainly have a negative influence on perceived credibility in e-learning context.

Wang, Wang, Lin, and Tang (2003) conducted a study on the effect of self-efficacy to credibility to adopt internet banking in Taiwan. Their results demonstrated that computer self-efficacy negatively affected the credibility. It is due to worries of security issues and privacy of transaction through internet is believed to be as a result of experience in computer usage and knowledge, i.e. self-efficacy that in turn would impact the perceived credibility of the internet banking negatively. Wang *et al.* (2003) posit that proper training on internet applications for customers to use the internet banking will eventually increase their familiarity with using it, thus develops positive credibility beliefs on the systems of internet banking.

On other hand, Ariff *et al.*, (2012; 2013) studied the internet banking acceptance by young mangers at Malaysian Universities and found a positive relation from self-efficacy on credibility on using the systems. They concluded that the higher skills in the knowledge computer, the higher will be the perceived privacy and security, eventually, the concerns on credibility will be considered with utmost seriousness. Nevertheless, their findings did not support the findings in the study of Wang *et al.* (2003) in internet banking setting.

3.13.4 Relationship between Government Support and Credibility

Using internet in Vietnam still low compared to ASEAN countries and government has the control over the business transactions over the internet by means of the government regulations as indicated by (Hoang, 2003). In the same way, the internet in Yemen is still slow, limited to some areas and people, and fully controlled by the government. This situation is different with the surrounding countries that have internet facilities covering all over their countries and offering the internet services to all categories of the society. Many parts of Vietnam are not having a proper telecommunication infrastructure to facilitate the usage of the internet and business transactions through it (Hoang, 2003). The situation is almost alike in Yemen and development in internet is lagging. The laws and regulations with full control of the government of Vietnam made the customers and the majority using the business facilities over the internet reluctant and lack of credibility of the services provided by banking sector, as inferred by (Hoang, 2003; Chong & Ooi, 2008; Chong *et al.*, 2010). In the context of Yemen, if the government is paying a focused and concrete step in building the telecommunication infrastructure all over the country, it would facilitate the positive perception of users of the technology, i.e. credibility, and thus stimulate the growth of internet based services such as internet banking.

3.14 Chapter Summary

This chapter gives brief detail of the overview of internet banking such as (development, diffusion, and adoption) of internet banking. It also covers the importance of internet banking from bank perspective, customer perspective and financial perspective. In addition, the chapter contains a brief detail of the underpinning theories used in internet banking setting, these are TRA, TPB, TAM,

DOI, DTPB, UTAUT and mixed theories (integrated theories). In addition, the section addressed antecedents of customer resistance to internet banking with respect to attitude, subjective norm, perceived behavior control and credibility. All the discussions were made possible through detailed review of literature.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

This segment of the study discusses research design and the antecedents that affect customer resistance to internet banking. The justification for the approach used by the present research is also presented in this chapter. Mainly, the chapter discusses preliminary study conducted earlier. Moreover, this study explains the framework and the hypothesis. Specific details such as population and sampling frame, adequacy of the sample size, development of the research variables, translation issue of the survey questionnaires, data collection methods and the use of structural equation modeling (SEM) as the main technique of data analysis.

4.2 Research Design

This is described as *"the framework or a guide in collecting and analyzing data for a study"* (Churchill, Brown, &Suter, 2010). This study is quantitative in nature with the aim of investigating the association between the dependent and independent variable. Casebeer and Verhoef (1997) define quantitative research as *"the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena those observations reflect"* (p. 537). This research is a cross-sectional survey research as data was collected at one point in time from a selected sample to represent the entire population.

Quantitative design is used in this study for the following reasons:

(1) To test hypotheses on how independent variables have affected dependent variable (Rust & Donthu, 1995)

(2) It is most often associated with a deductive approach, which begins with testing a known theory and usually attempts to offer proof for or against a pre-specified assumption (Casebeer &Verhoef, 1997).

(3) The study covers more than 100 respondents, a requirement for descriptive studies to provide acceptable confidence intervals (guarantee statistical consequence) for small effects to occur (Hopkins, 2000).

In addition, the study utilizes the quantitative method where sampling used and self-administrated survey questionnaires sent to resistors that, use internet, have accounts or both in Yemeni banks. The measurement of customer resistance employed was based on the previous literature on internet banking. A seven-point Likert scale with responses starting from (1) "totally disagrees" to (7) "totally agree" was used. Subsequently, analysis of variance was employed to analyze the statistical differences to opposition in internet banking among the three categories of respondents. Finally, the units of analysis for this study are employees of public universities in Yemen.

4.3 Theoretical Framework

A theoretical framework is a pool of integrated concepts which guides the researcher on what to measure and what relationship is sought in the data (Borgatti, 1999). Additionally, a framework represents theoretically linked relationship and describes in dramatic detail those aspects (variables) of the real world the scientist considers relevant to the problem investigated and clarifies the significant relationship among them (Nachmias & Nachmias, 1996).

In this study the researcher proposes a theoretical framework model based on decomposed theory planned behavior (DTPB), presented in the third chapter of this study. The theoretical model consists of one dependent variable of customer resistance. This topic was chosen as a result of scarcity of literature in this perspective (Kuisma, *et al.*, 2007; Laukkanen, *et al.*, 2008; 2009; Laukkanen & Kiviniemi, 2010; Yousafzai, 2012). Customer resistance is measured by five dimension: usage barrier, value barrier, risk barrier, tradition barrier, and image barrier (Laukkanen, *et al.*, 2008; Laukkanen & Kiviniemi, 2010). The model measures the effect of exogenous variables (independent variables), of (1) trust, (2) self-efficacy, (3) compatibility, and (4) government support on customer resistance.

The endogenous variables are attitude, subjective norm, perceived behavior control, credibility as mediator, while the dependent variable is customer resistance to internet banking as shown in Figure 3.11. This research is mainly based on decomposed theory of planned behavior(DTPB) in which attitude, subjective norm, perceived behavioral control, and actual behavior are the main factors in DTPB.

This research structure hinges on the underpinning theory of DTPB (Taylor & Todd, 1995), which includes thirteen components. These components are: (1) actual behavior,(2) behavior intention, (3) attitude, (4) subjective norm, (5) perceived behavior control, (6) perceived usefulness, (7) perceived ease of use, (8) compatibility, (9) peer influence, (10) superior influence, (11) self-efficacy, (12) facilitating condition sources, and (13) facilitating technology sources. The main reason for choosing the DTPB, is because it gives a clearer understanding of actual usage by concentrating on the aspects that are likely to influence systems usage in general and offer a number of advantages such as transparency (Taylor

& Todd, 1995). Moreover, it is much easier to ascertain relationships among beliefs, attitudes, and intentions and equally enables the use of the model in different circumstances which is pertinent and would help to specify factors leading to acceptance and use of new technology (Taylor & Todd, 1995). Additionally, it identifies precise outstanding beliefs that might affect usage in information technology. Specifically, it possesses stronger predictive control than traditional TAM and TPB (Taylor & Todd, 1995).

DTPB model is modified to include eight main components as antecedents of customer resistance to internet banking as shown in Figure 4.1. The new components in the framework are (1) trust, (2) government support as independent variables and (3) credibility as a mediator. In addition, two components from DTPB (resource facilitating conditions and technology facilitating conditions, behavior) are replaced with government support, customer resistance to use internet banking. The remaining components of DTPB (relative advantage, peer influence, superior's influence, and intention) are deleted. This represents a new contribution to the field of research.

The conceptual framework was modified for several reasons. Firstly according to literature ease of use is similar with usage barrier and usefulness and relative advantage are equivalent with value barrier (Ram and Sheth, 1989; Laukkanen *et al.*, 2008). Secondly, this study focuses on actual behavior as a resistance rather than intention (Yousafzai, 2012; Laukkanen &Kiviniemi, 2010). In addition, it is not logical to study intention to resist using internet banking because the customers are non-users of internet banking (Yousafzai, 2012; Laukkanen &Kiviniemi, 2010). Thirdly, factors such as trust, self-efficacy, and government support might be equivalent with peer influence and superior's influence which are supported by earlier discussion in chapter

3 (Kim, 2010; Lau & Kwok 2007). Fourthly, based on previous studies most of independent variables have been examined with fragmented models and inconsistence results for examples trust has been examined with the mediations of DTPB (attitude, subjective norms, and perceived behavior control) (Tseng *et al.*, 2011; Chow & Chen, 2008).

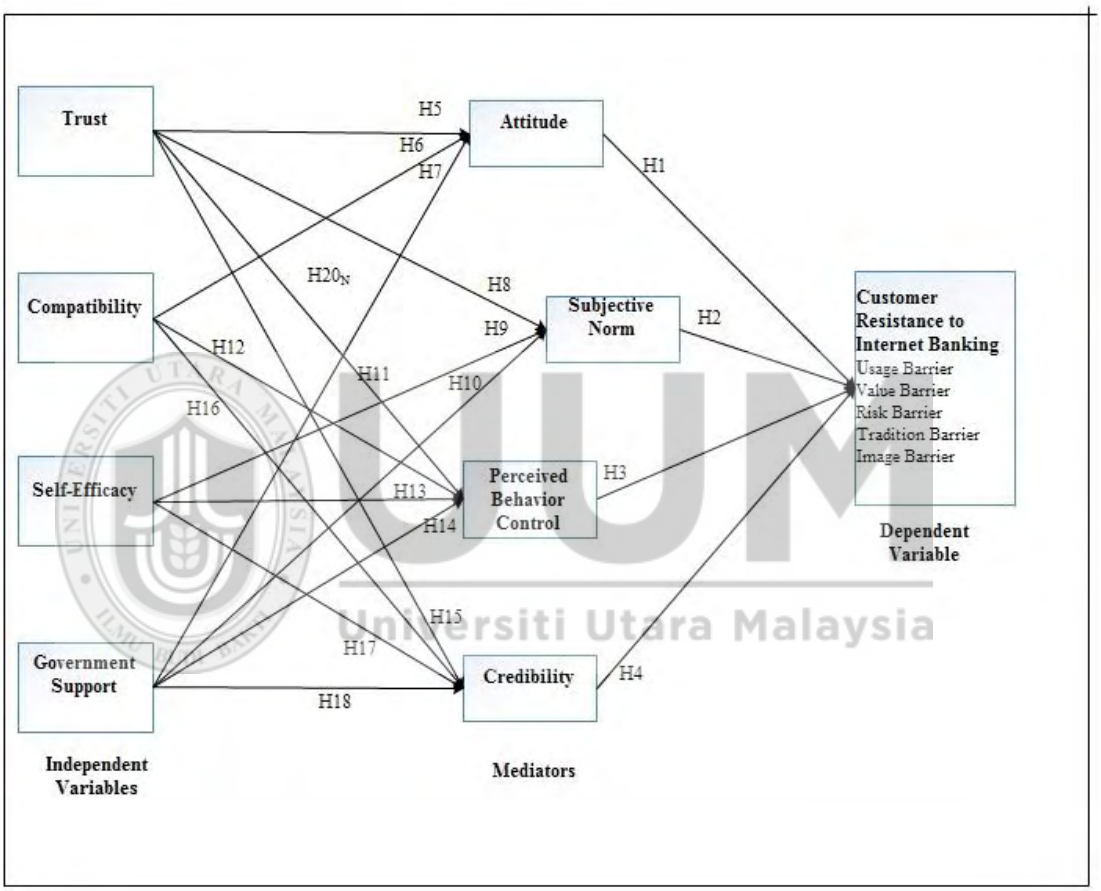

Figure 4.1
Theoretical Framework

In chapter one of this study, the problem statement indicates that there are several factors which are responsible for resistance to internet banking in Yemen. Therefore, this study intends to examine these antecedents (trust, compatibility, self-efficacy, government support, attitude, subjective norm, perceived behavior control and

credibility) in Yemen. Moreover, these antecedents have proved to have direct effect on mediators toward resistance to internet banking (see chapters three).

4.4 Hypothesis Development

The theoretical framework produces 18 direct relationships and 14 indirect relationships. Justification for each hypothesis is discussed next.

4.4.1 Attitude to Customer Resistance to Internet Banking (H1)

The first hypothesis is the linkage between an individual's attitude and customer resistance to internet banking. The Decomposed Theory of Planned Behavior, expounds that attitude is the best predictor of behavioral intention and subsequent actual behavior. Only few studies confirmed attitude as a more accurate predictor of behavior than behavioral intention (Al-Majali & Nik-Mat, 2010; Shih, 2006; Peng *et al.*, 2012). Especially in internet banking setting (Kaijaluoto *et al.*, 2002a; Chau & lai, 2003; Ndubisi & Sinti, 2006; Shi *et al.*, 2008; Guerrero *et al.*, 2007), one study qualitative (Hashjin *et al.*, 2014) and among adopters and non-adopters on internet users web retailing behavior(O'Cass & Fenech, 2003). Since this study, replaced actual behavior with resistance to internet banking, the study assumes the relationship will be negatively significant. (Shih, 2006) investigated the relationship between attitude and enterprise resource planning usage. They found the relationship to be significant and supported. More importantly, to date, a study is yet to be conducted to examine the relationship between attitude and resistance. Therefore, this study fills this gap by examining customers' attitude toward resistance to internet banking using Decomposed Theory of Planned in Yemen. As discussed in chapter three, the conceptual relationship between attitude and internet banking service adoption is

positive. Alternatively, attitude is also expected to determine customer resistance to internet banking.

H1: There is a negative relationship between attitude and customer resistance to internet banking.

4.4.2 Subjective Norm to Customer Resistance to Internet Banking (H2)

The hypothesis two looks at the linkage between subjective norm and customer resistance to internet banking. Very scanty empirical studies examined the relationship between subjective norm and internet banking service (Dauda, *et al.*, 2007; Hernandez & Mazoon, 2007; Shi *et al.*, 2008). And in comparison, little has been done in the Middle East on internet banking adoption (Al-Majali, 2012; Al-Qeisi, 2009). One of the studies carried out in Jordan by Al-Qeisi (2009) was to look at the relationship between subjective norm and internet banking service adoption. The study revealed an insignificant relationship. Meanwhile in same context of Jordan, Al-Majali (2012) found a positive and significant relationship.

Even with the limited studies available, the results found are mixed and inconsistent. Some acknowledged that a significant relationship exist between subjective norm and internet banking (Al-Majali & Nik-Mat, 2010;Hashjin *et al.*, 2014; Hernandez & Mazoon, 2007; Riquelme & Rios 2010;Shi *et al.*, 2008), others found an insignificant relationship (Al-Qeisi, 2009; Dauda *et al.*, 2007). As this study, replace actual behavior to customer resistance to internet banking. Up to date, only a hand full of scholars empirically tested the connection between subjective norm and customer resistance to internet banking in Yemen.

Based on the discussion in chapter three, this study includes a direct path from subjective norm to customer resistance to internet banking, as the theoretical relationship between them is still vague. Given that, the researcher hypothesizes that:

H2: There is a negative relationship between subjective norm and customer resistance to internet banking.

4.4.3 Perceived Behavior control to Customer Resistance to Internet Banking (H3)

The third hypothesis is the relationship between perceived behavioral control and customer resistance to internet banking. According to decomposed theory planned behavior, perceived behavior control may directly influence the actual usage by intensifying the efforts to help with the achievement of goals (Taylor & Todd, 1995).

Studies in the past investigated the relationship between perceived behavioral control and actual behavior in different areas (Fusilier & Durlabhji, 2005; George, 2004; Gopi & Ramayah, 2007; Nysveen & Pedersen, 2004). In addition, few studies looked for the influence of perceived behavioral control and actual internet banking (Al-Majali & Nik-Mat, 2010). Furthermore, there is irregularity in the results revealed in previous studies in perceived behavioral control and actual behavior relationship; some past studies argued there is significant relationship between perceived behavior control and actual behavior (Fusilier & Durlabhji, 2005; George, 2004; Gopi & Ramayah, 2007) while others found an insignificant relationship (Nysveen & Pedersen, 2005). On another hand, this study replaces the actual behavior with customer resistance to internet baking. Until now, there is no study that examined the relationship between perceived behavior control and customer resistance in Yemen internet banking. Following the earlier discussion, the following hypothesis is proposed:

H3: There is a negative relationship between perceived behavioral control and customer resistance to internet banking.

4.4.4 Credibility to Customer Resistance to Internet Banking (H4)

The fourth hypothesis is the relationship between credibility and customer resistance to internet banking. A number of research works have used Technology Acceptance Model in which behavioral intention was the focus (Amin, 2007) In an empirical investigation by, Hashjin *et al.*(2014) they indicated that credibility has a significant influence on the adoption of internet banking in Iran; this confirms the result of (Chong & Ooi, 2008). Moreover, the only study by Hernandez and Mazzon (2007) discovered that the relationship between advantage of security and privacy and actual behavior is significant for both users and non-users of internet banking in Brazil. Moreover, Fan *et al.* (2013) found credibility to be significantly and positively related with actual Adoption of Electronic Word-of-Mouth. Since this study deals with actual behavior of non-adopters, it assumes there is negative and significant relationship between credibility and resistance. Based on earlier discussion in chapter three, this study replaces actual behavior with customer resistance to internet banking in Yemen. Up till now, there is no study which has focused on credibility and customer resistance to internet banking in Yemen. Therefore, this study examines the direct relationship between credibility and actual behavior by using decomposed theory of planned behavior. Based on the above discussions, the following hypothesis is proposed:

H4: There is a negative relationship between credibility and customer resistance to internet banking.

4.4.5 Trust to Attitude (H5)

The fifth hypothesis is the linkage between trust and customers' attitude. Studies in the past attested that trust is most important in influencing customer's attitude in several field (Pavlou & Chai, 2002; Pavlou, 2003) and toward using the internet banking (Nor & Pearson, 2007; Suh& Han, 2003). However, some studies found trust had no direct expected relationships on attitude in several fields of adoption (Cho & Cheung, 2003; Hsu & Lin, 2008; Van der Heijden *et al.*, 2003; Yu *et al.*, 2005).The main reason for including this linkage is that limited studies have been done in Yemen. Furthermore, the inconsistency in the result of previous studies also justifies the inclusion of this variable. Thus, the researcher hypothesizes the relationship as follows:

H5: There is a positive relationship between trust and attitude.

4.4.6 Compatibility to Attitude (H6)

The sixth hypothesis represents the relationship between compatibility and customer's attitude toward customer resistance to internet banking. The inclusion of compatibility in this study is based on the fact very few studies have been conducted in the Middle East on internet banking even though many have been carried out in different countries (Eriksson *et al.*, 2008; Lin 2011; Nor& Pearson, 2007; Nudbisi & Sinti, 2006; Shih & Fang, 2004; Tan & Teo 2000). However, earlier studies have produced inconsistent findings as some of them found significant impacts (Eriksson *et al.*, 2008; Kim & Qu, 2014; Lin, 2011; Nudbisi & Sinti, 2006; Tan & Teo, 2000; Susanto & Goodwin, 2013; Suki & Ramayah, 2011) while others found an insignificant relationship (Chakravarty & Dubinsky 2005; Nor & Pearson, 2007; Shih & Fang, 2004; Taylor & Todd, 1995).Since this study focus on non-adopters as resistors do not use internet banking, hence, previous studies did not take into account compatibility with customer

resistance to internet banking in Yemen as an antecedent of customer's attitude. The researcher hypothesizes this relationship:

H6: There is a positive relationship between compatibility and attitude.

4.4.7 Government Support to Attitude (H7)

The seventh hypothesis is the relationship between government support and customers' attitude toward resistance to use internet banking. According to decomposed theory planned behavior, government support replaces facilitating condition and directly influences perceived behavior control (Taylor & Todd, 1995). Meanwhile, this study found a relationship between government support and customer's attitude. There are limited studies that found a positive and significant relationship between government support and customer's attitude (Ozkan & Kanat, 2011). However, A-Qader and Zainuddin (2010) presented in their study that there is no relationship between government policies and customer's attitude to Purchase Green Electronic Products University Science Malaysia (USM).

As this study mentioned in chapter three, there is a lack of government policy to sway Yemen customers towards banking on internet (Zoliat *et al.*, 2010). The main reason to study this linkage is that there is no study that has examined this relation before with internet banking especially in resistance and the context of Yemen. Thus, the researcher hypothesizes the relationship as follows:

H7: There is a negative relationship between government support and attitude.

4.4.8 Trust to Subjective Norm (H8)

The eighth hypothesis is the relationship between trust and subjective norm toward customer resistance to use internet banking. According to decomposed theory planned behavior, trust has direct influence on customer attitude (Taylor & Todd, 1995). Meanwhile, this study found a relationship between trust and subjective norm. There are several studies that found significant positive relationship between trust and subjective norm but not in internet banking field (Lee, 2009; Tseng *et al.*, 2011; Wu and Chen, 2005). Meanwhile, Chow and Chan (2008) investigated the relationship between trust, and subjective norm to intent to share knowledge among managers of Hong Kong firms. They confirmed that insignificant relationship exists between trust and subjective norm. The main reason to study this linkage, is that there is no study that has examined this relationship before on internet banking in Middle East and especially internet banking resistance in Yemen. Thus, the researcher hypothesizes this relationship:

H8: There is a positive relationship between trust and subjective norms.

4.4.9 Self-efficacy to Subjective Norm (H9)

The ninth hypothesis is the relationship between self-efficacy and subjective norm toward customer resistance to internet banking. According to decomposed theory planned behavior, self-efficacy has only direct on influence perceived behavior control (Taylor & Todd, 1995). Meanwhile, this study found a relationship between self-efficacy and subjective norm. However, there are limited studies that have examined self-efficacy and subjective norm while several of these studies found significant positive relationship between self-efficacy and subjective norm but in different field (Kim, 2010; Kim *et al.*, 2007). The main reason to study this linkage, there is no study

has examined this relationship before in Middle East especially internet banking resistance in Yemen. Thus, the researcher hypothesizes the relationship that:

H9: There is a positive relationship between self-efficacy and subjective norms.

4.4.10 Government Support to Subjective Norm (H10)

The tenth hypothesis is the relationship between government support and subjective norm toward resistance to use internet banking. According to decomposed theory planned behavior, government support replaces facilitating condition and directly influence perceived behavior control (Taylor & Todd, 1995). Meanwhile, this study found a relationship between government support and subjective norm.

There is a scarcity of research on the relationship between government support and subjective norm such as (Lau & Kwok, 2007). They investigated the relationship between government policy and subjective norm on SME in Hong Kong and found positive and significant relationship. Therefore, the main reason for studying this linkage is that there is no study that has examined this relationship before on internet banking in Middle East and with particular reference to internet banking resistance in Yemen. Thus, this hypothesizes states:

H10: There is a negative relationship between government support and subjective norms.

4.4.11 Trust to Perceived Behavior Control (H11)

The eleventh hypothesis is the linkage between trust and perceived behavior control. According to decomposed theory planned behavior, trust has directly influence

customer's attitude (Taylor & Todd, 1995). Meanwhile, this study found a relationship between trust and perceived behavior control.

There are several studies that found significant positive relationship between trust and perceived behavior control but not in internet banking field (Lee 2009; Tseng *et al.*, 2011; Pavlou & Chai, 2002). The main reason to study this linkage is that there is no study that has examined this relation before in the context of internet banking in Middle East and in internet banking resistance in Yemen in particular. Thus, the researcher hypothesizes the relationship as follows:

H11: There is a positive relationship between trust and perceived behavior control.

4.4.12 Compatibility to Perceived Behavior Control (H12)

The twelve hypothesis is the relationship between compatibility and perceived behavior control toward customer resistance to use internet banking. According to decomposed theory planned behavior, compatibility has only influenced customer attitude directly (Taylor & Todd, 1995). Meanwhile, this study found a relationship between trust and perceived behavior controls.

There is a scarcity research on the relationship between compatibility and subjective norm (Scannell *et al.*, 2011; 2012). The scholars investigated the relationship between compatibility influences of decision-makers and perceived behavior control of adopting shop of floor manufacturing technology behavior in USA. The result was supported and significant. Therefore, the main reason for studying this linkage is that there is no study that has examined this relationship before in Middle East with a particular reference to internet banking resistance in Yemen. Thus, the researcher hypothesizes the relationship as follows:

H12: There is a positive relationship between compatibility and perceived behavior control.

4.4.13 Self-efficacy and Perceived Behavior Control (H13)

The thirteen hypothesis shows the linkage between self-efficacy and perceived behavioral control. Numerous studies found significant and positive relationship in different field (Hung *et al.*, 2012; To *et al.*, 2007). In addition, several past studies found a significant effect on internet banking (Nor & Pearson, 2008; Shih & Fang, 2004; Tan & Teo, 2000), while others did not find any significant relationship (Dauda *et al.*, 2007). Furthermore, the inclusion of self-efficacy is justified because past studies on internet banking have presented inconsistent results. Moreover, there are limited studies on this linkage in the Middle East in general and particularly in Yemen. The conceptual relationship between self-efficacy and perceived behavior control is proposed have a positive effect. Thus, the researcher hypothesizes that:

H13: There is a positive relationship between self-efficacy and perceived behavioral control.

4.4.14 Government Support to Perceived Behavior Control (H14)

The fourteenth hypothesis indicates the relationship between government support and perceived behavioral control. This linkage is added based on the erratic findings produced by researchers as some studies have found a positive and significant impact (Al-Majali & Nik-Mat, 2010; Teo & Pok, 2003; Tan & Teo, 2000) while others found an insignificant relationship (Hernandez & Mazzon, 2007; Dauda *et al.* 2007). Additionally, limited past studies were conducted in Arab countries on internet banking.

This study includes government support, an essential antecedent of perceived behavior control for internet Banking Service Adoption transformation, as past studies indicated that the government support and perceived behavioral control is positively related (Lee, 2009). Given that, the researcher hypothesizes that:

H14: There is a negative relationship between government support and perceived behavioral control.

4.4.15 Trust to Credibility (H15)

The fifteen hypothesis reflects the relationship between trust and credibility. There is an inadequate study on the relationship between trust and credibility such as (Shareef *et al.*, 2011; Koenig-Lewis *et al.*, 2010). Shareef *et al* (2011) stated that Perceived trust of citizens had a significant positive relationship with credibility of e-Gov. Moreover, Koenig-Lewis,Palmer and Moll (2010) observed a significant and positive relationship of m-banking among Youth in Germany. Therefore, the main reason to study this linkage is that there is no study that has examined this relationship before on internet banking in Middle East with special reference to internet banking resistance in Yemen. Thus, the researcher hypothesizes the relationship as follows:

H15: There is a positive relationship between trust and credibility.

4.4.16 Compatibility to Credibility (H16)

The sixteen hypothesis reflects the relationship between compatibility and credibility. Few empirical studies exist on the relationship between compatibility and credibility (Koenig-Lewis *et al.*, 2010; Giovanis *et al.*, 2012). Even with the limited studies available, the results found are diverse and inconsistent. Some found a significant

relationship between compatibility and credibility (Koenig-Lewis *et al.*, 2010), others found significant but negative relationship (Giovanis *et al.*, 2012). Therefore, the main reason to study this linkage is that there is no study that has examined this relationship before on internet banking in Middle East with special reference to internet banking resistance in Yemen. Thus, the researcher hypothesizes the relationship that:

H16: There is a positive relationship between compatibility and credibility.

4.4.17 Self-Efficacy to Credibility (H17)

The sixteenth hypothesis reflects the relationship between self-efficacy and credibility. Empirical studies on the relationship between self-efficacy and credibility are very few (Wang *et al.*, 2003; Ariff *et al.*, 2012; 2013).Even with the limited studies available, the results are mixed and inconsistent. Some found a significant relationship between self-efficacy and credibility on internet banking adoption (Ariff *et al.*, 2012; 2013), while others found a significant but negative relationship (Wang *et al.*, 2003). Therefore, the main reason to studying this linkage is there is no study has examined this relationship before in Middle East with special reference to internet banking resistance in Yemen. Thus, the researcher hypothesizes the relationship as follows:

H17: There is a positive relationship between self-efficacy and credibility.

4.4.18 Government Support to Credibility (H18)

The eighteenth hypothesis reflects the relationship between government support and credibility. There are very few empirical studies that have studied the relationship between government support and credibility such as (Hoang, 2003; Chong and Ooi, 2008; Chong *et al.*, 2010). In the context of Yemen, if the government is paying a

focused and concrete attention on building the telecommunication infrastructure all over the country, it would facilitate the positive perception of users of the technology, i.e. credibility, and thus stimulate the growth of internet based services such as internet banking. Thus, the researcher hypothesizes the relationship as follows:

H18: There is a positive relationship between government support and credibility.

4.5 Mediating Effects of Attitude

There are scarcity of studies on customer resistance (Kuisma, *et al.*, 2007; Laukkanen, *et al.*, 2008; 2009; Laukkanen & Kiviniemi, 2010; Yousafzai, 2012). This study assumes customer resistance is equivalent with actual behavior (Ram & Sheth, 1989; Yousafzai, 2012). Most studies investigated attitude with intention as dependent variable rather than actual behavior (Al-Majali & Nik-Mat, 2010; Ho & Ko, 2008). Additionally, some studies found and suggested that attitude can accurately predict actual behavior rather than intention (Bagozzi & Yi, 1989; Peng *et al.*, 2012). Thus, it appears there are limited researches which used attitude as a mediating variable with these predictors (trust, compatibility, and government support) and customer resistance in literature. The direct predictors of attitude examined in academic literature such as: trust (Cho & Cheung, 2003; Nor & Pearson, 2007; Jahangir & Begum, 2008; Suh & Han, 2003; Hsu & Lin, 2008; Van der Heijden *et al.*, 2003; Yu *et al.*, 2005), compatibility (Eriksson *et al.*, 2008; Kim & Qu, 2014; Lin 2011; Nudbisi & Sinti, 2006; Tan & Teo, 2000; Nor& Pearson, 2007; Shih & Fang, 2004; Susanto & Goodwin, 2013), government support (Ozkan & Kanat, 2011; A-Qader & Zainuddin, 2010). Their direct relationships with customer attitude are equivocal or mixed.

On other hands, there are some previous studies that examined the linkage from attitude to customer resistance of internet banking on actual behavior (adoption side or non-adoption side) such as (Kaijaluoto *et al.*, 2002; Chau & Lai, 2003; Ndubisi & Sinti, 2006; Shi *et al.*, 2008, Guerrero *et al.*, 2007; Hashjin *et al.*, 2014; O'Cass & Fenech, 2003). Their direct relationships with customer attitude are equivocal or mixed. Figure 4.2 shows the mediating effect of attitude.

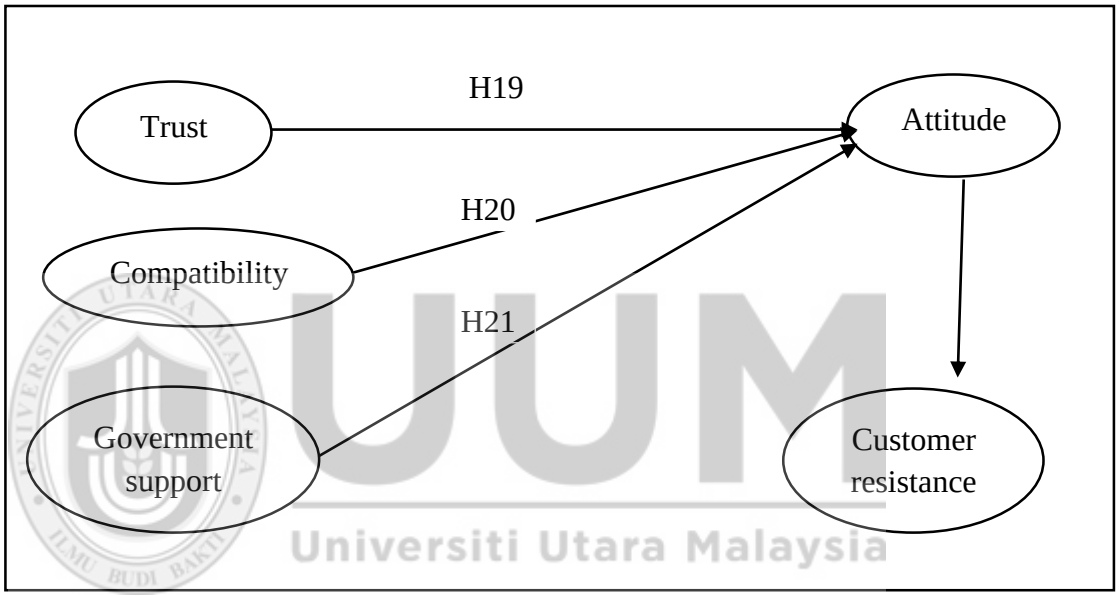

Figure 4.2
Conceptual Relationship of Mediating Effect of Attitude

Subsequently, prior comprehensive customer resistance models have not used attitude as a mediator in internet banking. As this study mentioned above, there is scarcity of literature on customer resistance while few studies that are available used it as a dependent variable (Laukkanen & Kiviniemi, 2010), whereby this study investigate attitude as mediator between predictors (trust, compatibility, government support) and customer resistance. This study choose attitude as a mediator because of the theory of decomposed planned behavior, which contains attitude as a mediator by (Taylor & Todd, 1995). Thus, this study tries to fill the gap by investigating the attitude as a

mediator between (trust, compatibility, & government support) and customer resistance. Based on the above, the hypotheses postulated are as follows:

H19: Attitude mediates the relationship between trust and customer resistance.

H20: Attitude mediates the relationship between compatibility and customer resistance.

H21: Attitude mediates the relationship between government support and customer resistance.

4.6 Mediating Effects of Subjective Norm

This study assumes customer resistance is equal with actual behavior (Ram & Sheth, 1989; Yousafzai, 2012). Moreover, there is a lack of study on customer resistance itself (Kuisma *et al.*, 2007; Laukkanen *et al.*, 2008; 2009; Laukkanen & Kiviniemi, 2010; Yousafzai, 2012). Several studies examined the relationship between subjective norm and intention rather than actual behavior (Dauda, *et al.*, 2007; Hernandez & Mazoon, 2007; Shi *et al.*, 2008; Al-Majali & Nik-Mat, 2010; Al-Qeisi, 2009). There is a limited study on subjective norm as a mediator between self-efficacy and actual usage of internet acceptance except for the study of (Kim *et al.*, 2006). They found subjective norm not meditating between self-efficacy and actual usage of internet acceptance.

The direct predictors of subjective norm examined in academic literature are trust (Lee 2009; Tseng *et al.*, 2011; Wu & Chen, 2005; Chow & Chan, 2008), self-efficacy (Kim, 2010; Kim *et al.*, 2007), government support (Lau & Kwok, 2007). Their direct relationships with subjective norm are equivocal or mixed. Figure 4.3 shows the mediating effect of subjective norm. Based on the above discussion, the following

hypotheses are formulated:

H22: Subjective norm mediates the relationship between trust and customer resistance.

H23: Subjective norm mediates the relationship between self-efficacy and customer resistance.

H24: Subjective norm mediates the relationship between government support and customer resistance.

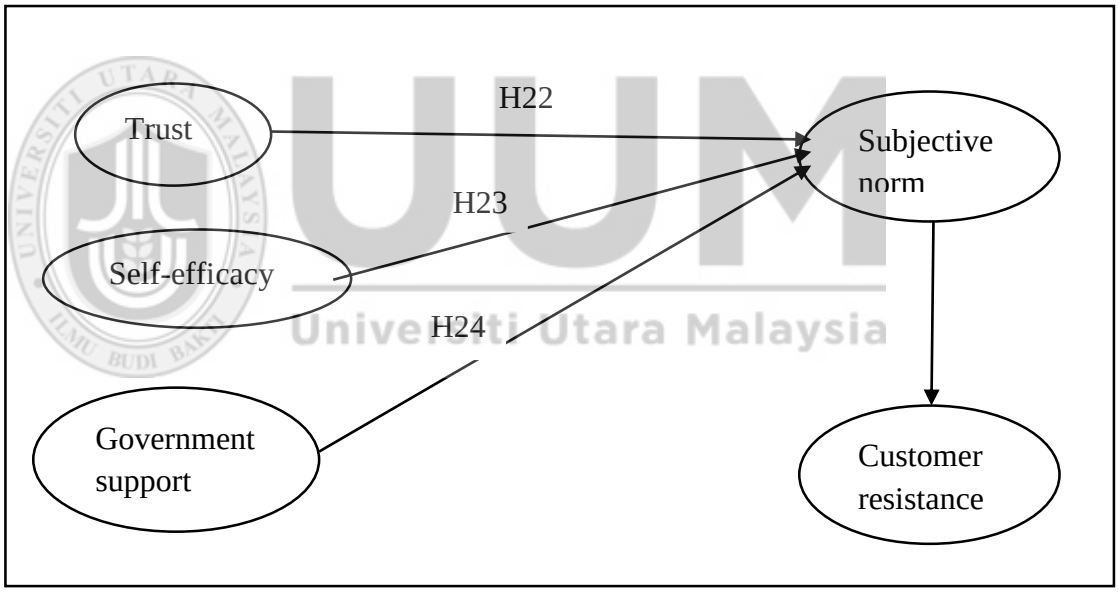

Figure 4.3
Conceptual Relationship of Mediating Effect of Subjective Norm

This study choose subjective norm as a mediator because of the theory of decomposed planned behavior, which contains subjective norm as a mediator by (Taylor & Todd 1995). Thus, this study tries to fill the gap by investigating the attitude as a mediator between (trust, self-efficacy, and government support) and customer resistance.

4.7 Mediating Effects of Perceived Behavior Control

The third mediator is on the linkage between perceived behavioral control and actual usage. According to decomposed theory planned behavior, perceived behavior control may directly influence the actual usage by intensifying the efforts to help with the achievement of goals (Taylor & Todd, 1995). On the other hand, there is lack of study that examined the relationship between perceived behavioral control and customer resistance to internet banking. Some authors acknowledged the relationship between perceived behavioral control and customer resistance; however, their findings are inconsistent and mixed (Fusilier & Durlabhji, 2005; George, 2004; Gopi & Ramayah, 2007; Nysveen & Pedersen, 2004). Figure 4.4 shows the mediating effect of perceived behavior control. On the basis of the above discussion, the following hypotheses are formulated:

H25: Perceived behavior control mediates the relationship between trust and customer resistance.

H26: Perceived behavior control mediates the relationship between compatibility and customer resistance.

H27: Perceived behavior control mediates the relationship between self-efficacy and customer resistance.

H28: Perceived behavior control mediates the relationship between government support and customer resistance.

The direct predictors of perceived behavioral control examined in academic literature are: trust (Lee 2009; Tseng *et al.*, 2011; Pavlou & Chai, 2002), compatibility (Scannell

et al., 2011), self-efficacy (Hung *et al.*, 2012; To *et al.*, 2007; Nor & Pearson, 2008; Shih & Fang, 2004; Tan & Teo, 2000; Dauda *et al.*, 2007), and government support (Teo & Pok, 2003; Tan & Teo, 2000; Hernandez & Mazzon, 2007; Dauda *et al.* 2007; Lee, 2009). Their direct relationships with perceived behavioral control are equivocal or mixed. Even though, past literatures examined perceived behavioral control as a mediator to actual behavior, there is scarcity of research of the direct and indirect effect, especially on internet banking resistance setting.

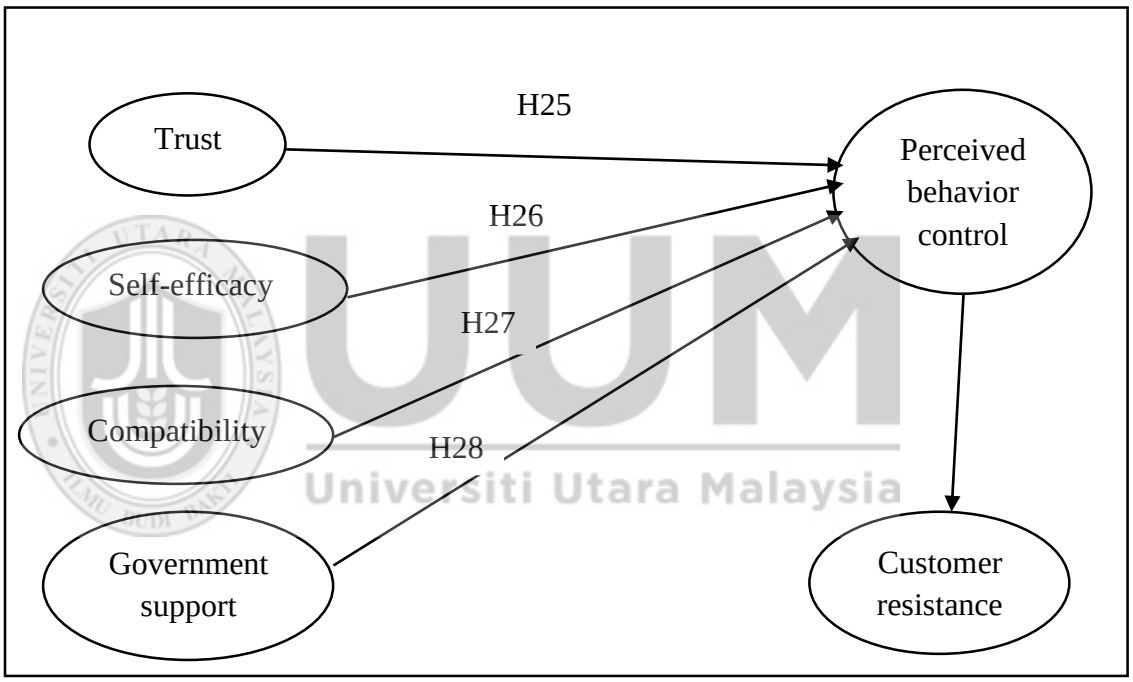

Figure 4.4
Conceptual Relationship of Mediating Effect of Perceive Behavior Control

4.8 Mediating Effects of Credibility

There are scarcity of studies on customer resistance (Kuisma, *et al.*, 2007; Laukkanen, *et al.*, 2008; 2009; Laukkanen & Kiviniemi, 2010; Yousafzai, 2012). This study assumes customer resistance is equivalent with actual behavior like (Ram & Sheth, 1989; Yousafzai, 2012). Most of the studies on credibility were in relation to intention as dependent variable rather than actual behavior (Amin, 2007; Hashjin *et al.*, 2014; Chong& Ooi, 2008; Hernandez & Mazzon 2007).

The common direct predictors of credibility examined in academic literature are: trust (Shareef *et al.*, 2011; Koenig-Lewis *et al.*, 2010), compatibility (Koenig-Lewis *et al.*, 2010; Giovanis *et al.*, 2012), self-efficacy (Wang *et al.*, 2003; Ariff *et al.*, 2012; 2013), government support (Hoang, 2003). Their direct relationships with credibility are equivocal or mixed. Figure 4.5 shows the mediating effect of credibility.

Subsequently, prior comprehensive customer resistance models have not used credibility as a mediator in internet banking resistance. As this study mentioned above, there is a scarcity literature on customer resistance shows a few studies as a dependent variable (Laukkanen & Kiviniemi, 2010), whereas this study investigates credibility as mediator between predictors (trust, compatibility, self-efficacy, government support) and customer resistance. This study chooses credibility as a mediator because most of studies examined credibility with intention (Wang *et al.*, 2003; Ariff *et al.*, 2012; 2013). Thus, this study tries to fill the gap by investigating the credibility as a mediator between (trust, compatibility, self-efficacy and government support) and customer resistance. The following hypotheses are postulated:

H29: Credibility mediates the relationship between trust and customer resistance.

H30: Credibility mediates the relationship between compatibility and customer resistance.

H31: Credibility mediates the relationship between self-efficacy and customer resistance.

H32: Credibility mediates the relationship between government support and customer resistance.

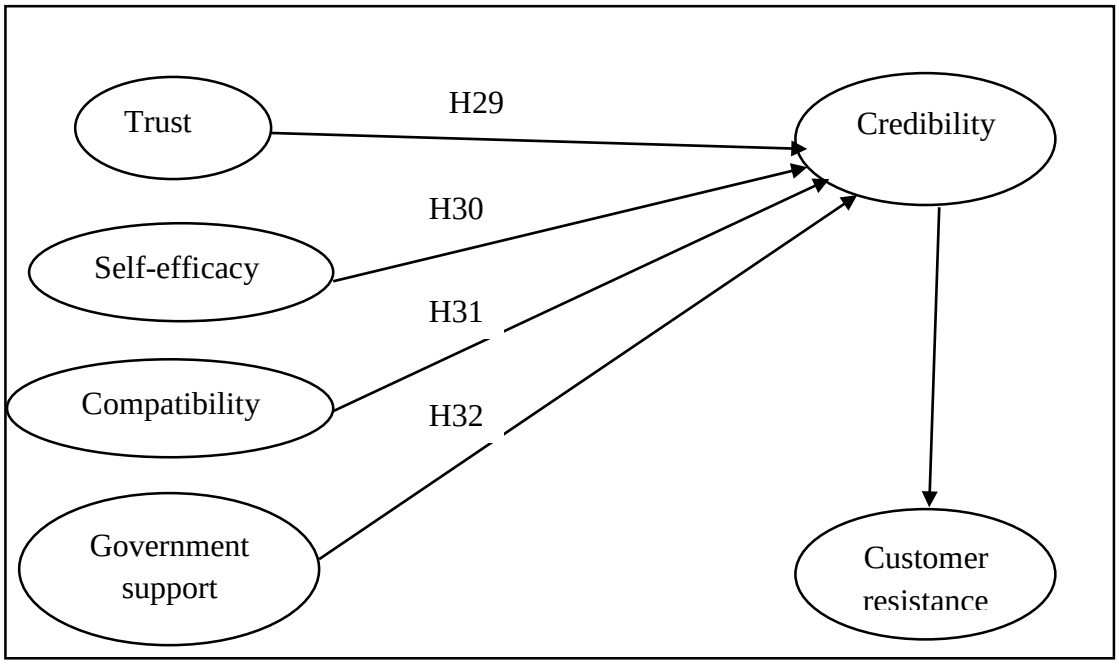

Figure 4.5
Conceptual Relationship of Mediating Effect of Credibility

4.9 Sampling

This study applies proportionate systematic random sampling to determine the number of sampled employees. The unit of analysis for this study is individual employee in public universities in Yemen. This study towed the path of (Al-Majali & Nik-Mat, 2010), who selected employees of universities as their sample in their study in Jordan.

4.9.1 Population

Population has been described as *"all the individuals or objects that meet certain requirements for membership in the overall group"* (Churchill, Brown, & Suter, 2010). The main respondents in this study are public universities employees in Yemen who have bank accounts but not using the internet banking service (Akinic et al., 2004). The sample is selected for the following reasons:

1. According to the Ministry of Finance (2012), the public universities are distributed geographically in the regions of the Republic and cover three regions only (South, Middle, and North).
2. The public universities' employees are classified into three groups of (high education with high salary, educated with medium salary, and low education with low salary) (Ministry of Finance, 2012). This enables the researcher to cover all the respondents. Al-Khasawneh, (2010) confirmed that universities are the direction for internet adoption in Jordan and they have provided the ideal sample for investigating e-commerce usage pattern. In addition, lecturers usually belong to the consumer groups which possess good computer skills as well as being well-educated. Furthermore, university lecturers have a higher level of knowledge and access internet more frequently with curiosity and willingness to accept new things (Hongfeng el al., 2008).
3. Al-Majali & Nik Mat (2010) postulated that universities as a target population would be a truly representative sample for studying internet banking acceptance. Moreover, Ndubisi and Sinti (2006) revealed that the respondents with higher income and better education like lecturers are more likely to use online shopping than other groups of customers.
4. Most public universities employees in Yemen have bank accounts because their salaries are paid directly into their accounts (Ministry of Finance, 2012).
5. By using the universities as the sampling frame, the population list of the staff is readily available. Based on this, this study selects the academicians in Jordan to examine research hypothesis

4.9.2 Sampling Frame

Sampling frame is defined as *"the list of population elements from which a sample will be drawn; the list could consist of geographic areas, institutions, individual, or other units"* (Churchill, Brown, & Suter, 2010). Sampling involves government universities in three areas in Yemen (South, Central, and North). There are ten government universities in Yemen (Ministry of Finance, 2012), as shown in Table 4.1.This sampling frame is adopted due to the fact that other studies in the past used universities (Al-Majali & Nik Mat 2010).

Furthermore, the public universities are divided into three main categories based on the geographic regions (Central, South, and North) as shown in Table 4.2. This division is called stratified sampling, which is the most probable sampling design because the stratification provides the researchers more information with a given sample size (Sekaran, 2003).

Table 4.1
Number of Employees in Public Universities in Yemen

No	University Name	Region	Lecturer	Staff	No Employees
1	Sanaa University	North	2352	1658	4010
2	Amran University	North	265	274	539
3	Hajjah University	North	193	362	555
4	Albidha University	North	175	114	289
5	Dhmar University	North	747	765	1512
6	Taiz University	Central	933	755	1688
7	Hodidah University	Central	692	583	1275
8	Ibb University	Central	610	413	1023
9	Aden University	South	2242	1427	3669
10	Hadhramot University	South	755	671	1426
	Total				15986

Source: Ministry of Finance (2012)

Table 4.2
Number of University Employees in Each Region

Region	Name of university	No. of universities	No. of employees
North	Sanaa University, Amran University, Hajjah University, Albidha University, Dhmar University	5	6905
Central	Taiz University, Ibb University, Hodaidah University	3	3986
South	Aden University, Hadhramout University	2	5095
	Total	10	15986

Source: Ministry of Finance (2012)

Then, proportionate random sampling is applied to determine the number of universities and number of sampled employees (refer Table 4.3). The universities in the northern and southern regions have the highest number of employees. Based on Table 4.3, 43% of university employees are from the northern region, while 39% from the southern region, and 18% from the central region.

Table 4.3
Proportion of the Sampled Universities

Area	Number of universities	Probability sampling of universities	Number of employees	% percentage of sample
North	5	1	4010	43%
Central	3	1	1688	18%
South	2	1	3669	39%
Total	10	3	9367	100%

According to Table 4.3, one university was selected from each region, out of 5 universities in north, out of three in central, and out of two in the south. The sample size was conducted based on the university that has highest number of employee from

each region. As a result, Sana'a University, Taiz University, and Aden University are selected, each representing the specific region as indicated in Table 4.2 and Table 4.3.

4.9.3 Sample Size

As mentioned earlier, the Ministry of Finance (2012) indicates that there are around 15986 employees in all public universities in Yemen. Therefore, for a population between 15,000 and 20,000, 375-377 employees are suitable as a sample size (refer Table 4.4) (Sekaran, 2003, Krejcie & Morgan, 1970; Cohen, 1969).

However, because the response rate of resistance in the past studies was between 40-70% (Karjaluoto *et al.*, 2002b; Elbadrawy & Abdel Aziz, 2011; Gerrard *et al.*, 2006; Agwu, 2013), and to enhance generalizability to the whole population (Hair *et al.*, 2006), the researcher decides to consider 900 which is in line with Karjaluoto *et al.* (2002b) which had response rate of 40%. Since this study needs 375 sample size, so the study distributed 900 questionnaires among universities employees. Thus, nine hundred questionnaires were distributed to three public universities employees in three regions in Yemen. Prior to that, the determination of the probability sampling of employees for each university was carried out in line with previous studies (e.g, Al-Majali & Nik-Mat, 2011). The probability sampling is calculated using the following formula:

Probability sampling of employee = NP * NS / T

Where: NP= Number of employees in each region; NS= Number of sample to be distributed; T= the total of the employees in all universities

Table 4.4
Determining Sample Size of a Given Population

N	S
15000	375
20000	377
30000	379
40000	380
50000	381
75000	382
100000	384

N= is population size S= is sample size
Source: Sekaran (2003.p, 278)

Table 4.5
The Probability Sampling of Employees for each University

Area	**Number of employees**	**% percentage of sample**	**Probability sampling of employee**
North (Sana'a)	4010	43%	387
Central (Taiz)	1688	18%	162
South (Aden)	3669	39%	351
Total	9367	100%	900

From Table 4.5, the number of questionnaires distributed for each region is displayed. In the northern region, 387 questionnaires were distributed in Sana'a University. In the central region, 162 questionnaires were distributed in Taiz University. In the southern region, 351 questionnaires were distributed in Aden University.

4.9.4 Systematic Random Sampling

The researcher chooses a random sample in which 900 employee respondents were systematically identified from three universities in three regions of Yemen as shown in Table 4.5. Table 4.6 shows how this study distributed the questionnaire based on position held (lecturer, manager, and staff) from (Sana'a University, Taiz University, Aden University). Once the complete respondents were identified, the next procedure involves distribution of the questionnaires. Questionnaires were distributed to the

respondents personally. In order to facilitate quick response, the researcher has collected a cover letter requesting their assistance to respond promptly while the researcher promised complete anonymity. The respondents were given two weeks to complete the questionnaires and a follow-up was made on those who do not respond via letters of reminder.

Table 4.6
The Probability Sampling of Employees for Each University

Area	Lecturer	Staff	Number of employees and % of sample	Lecturer	Staff	Probability sampling of employee	Systematic random sampling every 10th
North (Sana'a)	1429 (35%)	2581 (65%)	4010 (43%)	135	252	387	10th
Central (Taiz)	362 (21%)	1226 (79%)	1688 (18%)	34	128	162	10th
South (Aden)	978 (27%)	2691 (73%)	3669 (39%)	95	256	351	10th
Total			9367 (100%)	264	636	900	

4.9.5 Sample Selections

Based on the literatures, many studies consider respondents as adopters (Ndubisi, 2004; Shih & Fang, 2004) while the study of Laukkanen, and Kiviniemi (2010) concentrated on resistors of mobile banking. Some other studies considered respondents of adopters and resistors (Mashadi, Tofighi, Nasserzadah, & Mashadi, 2007; Mattila *et al.*, 2003). However, this research select resistors as the respondents following the study of Laukkanen, and Kiviniemi (2010) to detect the customers' actual behavior. Hence, in this study the university employees who do not use internet banking were selected in the quest to explain resistance to internet banking services.

4.10 Questionnaire Design

The questionnaire is composed of three parts: The first part consists of a cover letter, explaining the title of the study, reason for the questionnaire and a general statement

which guarantees the confidentiality of respondents. The questionnaire also asks an important question designed to filter resistors from non-resistors by asking whether they are an internet banking service user. If they answer "no", then they are expected to proceed with the study but if they answer "yes" they return back the questionnaire.

The second part consists of 17 questions on the respondents' demographic profile and other pertinent questions related to internet banking. These questions are about gender, nationality, age, marital status, academic qualification, position, month salary, work experience, banking services experience, from where do you access the internet, how often do you access the internet, have you heard of internet banking, how many bank accounts do you have, do you use a credit card, what are the e-banking services that you know your bank provided at the bank site, and lastly, why you do not use internet banking. Part three consists of factors that influence customer resistance in Yemen. There are nine variables considered which are trust, compatibility, attitude, subjective norms, government support, and self-efficacy, perceived behavioral control, credibility, and customer resistance to internet banking. On the last page of the questionnaire, the researcher thanked the respondents for their contribution (Appendix A shows the full content of the questionnaire).

4.10.1 Questionnaire language

The questionnaire is first developed in English because most of the scales are originally in English. However, it is necessary to translate the questionnaire into the Arabic language to ease communication and overcome the language barrier and the Arabic version was translated to English for content validity. Cooper and Schindler (1998) suggest question transformation whereby participants do not necessarily process every word in the question. When this happens, participants modify the

question to make it fit with their own frame of reference or simply change it so that it is logical to them.

4.11 Instrumentation

Customer resistance to internet banking contains measurements developed by (Kuisma *et al*., 2007; Laukkanen *et al*., 2008). Five dimensions used i.e. call usage, value, risk, tradition, and image barriers. Each dimension has its own items: usage barrier has five items (Kuisma *et al*., 2007; Laukkanen *et al*., 2008); value barrier has four items ((Kuisma *et al*., 2007; Laukkanen *et al*., 2008); risk barrier has four items (Kuisma *et al*., 2007; Laukkanen *et al*., 2008); tradition barrier has four items (Kuisma *et al*., 2007; Laukkanen *et al*., 2008); and image barrier has seven items (Kuisma *et al*., 2007; Laukkanen *et al*., 2008). The items are measured on seven-point Likert scale (1 = strongly disagree; 7 = strongly agree). Some of the items are "In my opinion, internet banking services are not difficult to use," "The use of internet banking services is not economical," and "I fear that while I am using internet banking services, the connection will be lost".

Attitude is measured using by five items adopted from (Nor & Pearson, 2008). The instrument has a reliability coefficient alpha of 0.94. Subjective norm is measured by five items adopted from Nor and Pearson (2008). The instrument also showed an alpha coefficient of 0.94. Perceived behavioral control is measured by four items adopted from Shih and Fang (2004). The instrument showed an alpha coefficient of 0.86. Credibility is measured by nine items adopted from Yee (2011). Trust is measured by five items adopted from Suh and Han (2003) which produced an alpha coefficient 0.93. Compatibility is measured by five items adopted from Nor and Pearson (2008), which produced an alpha coefficient of 0.87. Self-efficacy is measured by six items adopted

from (Compeau & Higgins, 1995), which the coefficient alpha from their previous study for this measure was 0.87. Finally, Government support is measured by nine items also adopted from Tan and Teo (2000) and the alpha coefficient is 0.92.

With the exception of demographic factors and annual income, nine variables included in this study have been identified by several literatures as a possible reason why bank customers resist internet banking. The items used to measure them are modified to suit the sample and the local setting. To ensure consistency among variables and to avoid confusion among respondents, all items are measured using a seven-point Likert scale.

The selection of the instruments for the present study is based on a number of factors:

1. They have high internal reliability (coefficient alpha) as indicated from prior works of researchers.
2. They are most often used by previous researchers especially in an internet banking setting. They also were confirmed to be applicable across other areas of practice.
3. They are also easy to administer; the Likert-scale measurement is used while complex measures are excluded. Table 4.7 shows all the items used in the present study.

Table 4.7
Items Used in the Present Study

Items	Statements	Sources
Customer resistance		
Usage barrier	1. In my opinion, internet banking services are difficult to use. 2. In my opinion, the use of internet banking services is inconvenient 3. In my opinion, internet banking services are slow to use. 4. In my opinion, progress in internet banking services is not clear. 5. The use of changing PIN codes in internet banking services is inconvenient.	Kuisma *et al.* (2007), Laukkanen *et al.* (2008)
Value barrier	6. The use of internet banking services is not economical. 7. In my opinion, the use of internet banking services do not increases my ability to control my financial matters by myself. 8. In my opinion, internet banking does not offer any advantage compared to handling my financial matters in other ways. 9. Internet banking transactions do not save more time.	Kuisma *et al.* (2007), Laukkanen *et al.* (2008)
Risk barrier	10. I fear that while I am using internet banking services, the connection will be lost. 11. I feel fear that while I am using an internet banking service, I might tap out the information of the bill wrongly. 12. I fear that the PIN codes may be lost and end up in the wrong hands. 13. I fear that while I am paying a bill by internet banking, I might make mistakes since the correctness of the inputted information is difficult to check from the screen.	Kuisma *et al.* (2007), Laukkanen *et al.* (2008)
Tradition barrier	14. Visiting the bank branch and chatting with the teller is not a nice occasion on a weekday. 15. I do not find self-service alternatives more pleasant than personal customer service. 16. Internet banking services are not offering good option next to other banking services. 17. Internet banking services are not the way customer accustomed to paying bills, etc.	Kuisma *et al.* (2007), Laukkanen *et al.* (2008)

Table 4.7 (Continued)

Image barrier	18. In my opinion, new technology is often too complicated to be useful. 19. I have such an image that internet banking services are difficult to us. 20. I do not have a very positive image of internet banking services. 21. Using internet banking services do not improve my image. 22. People who do not use internet banking are not IT savvy. internet 23. People who do not use internet banking are not trendy. 24. Only young people use internet banking.	Kuisma *et al.* (2007), Laukkanen *et al.* (2008)
Attitude	25. Using internet banking is a good idea. 26. I like the idea of using internet banking. 27. Using internet banking is a pleasant idea. 28. Using internet banking is an appealing idea. 29. Using internet banking is an exciting idea.	Nor and Pearson (2008) α = 0.94
Subjective norms	30. People who influence my behavior think that I should use internet banking. 31. People who are important to me think that I should use internet banking. 32. People whose opinions I value think I should use internet banking. 33. People who are close to me think that I should use internet banking. 34. People who influence my decisions think that I should use internet banking.	Nor and Pearson (2008) α = 0.94
Perceived behavioral control	35. I would be able to operate internet banking. 36. I have the resources to use internet banking. 37. I have the knowledge to use internet banking. 38. I have the ability to use internet banking.	Shih and Fang (2004) α = 0.86
Credibility	39. Using an internet bank is financially secure. 40. Internet bank will not sell my personal details. 41. Unauthorized people cannot access my account information. 42. Specialists are available to identify online fraud. 43. I am not worried that perpetrators would steal my username and password. 44. Current password generation and distribution process is secure. 45. Bank will protect my personal details from being stolen by hackers. 46. There is an adequate instruction on password choice. 47. I am automatically logged out after unsuccessful login attempts.	Yee (2011)

Table 4.7 (Continued)

Trust	48. This internet banking site is trustworthy. 49. I trust in the benefits of the decisions of this internet banking site. 50. This internet banking site keep its promises and commitments. 51. This internet banking site would do the job right even if not monitored. 52. I do trust this internet banking site.	Suh and Han (2003) α = 0.93
Compatibility	53. I think internet banking services are compatible with my lifestyle. 54. I think internet banking services are compatible with the way I like to do banking activities. 55. I think using internet banking fits with my banking preferences. 56. I think internet banking services fit well with all aspect of my banking activities. 57. I am familiar with internet banking.	Nor and Pearson (2008) α = 0.87
Self-efficacy	58. I use internet banking even if there was some one around to show me how to do it. 59. I use internet banking with only the online help function for assistance. 60. I could to use internet banking even if the system was changed. 61. I am confident of using Internet banking even if there is no one around to show me how to do it. 62. I am confident of using internet banking even if I have never used such a system before. 63. I am confident of using internet banking because I have just seen someone using it before trying it myself.	Compeau and Higgins (1995)
Government support	64. Government support e-commerce in Yemen. 65. The government endorse internet commerce in Yemen. 66. The Yemeni government is active in setting up the facilities to enable internet commerce. 67. The Yemeni government promote the use of the internet for commerce. 68. There is clear government support for conducting online business transactions. 69. Yemeni law sufficiently protect bank customers with fair liability in the case of financial loss via internet banking. 70. Yemeni law protect customer privacy sufficiently. 71. Yemeni courts have the ability to trace for evidence and to resolve fraudulent electronic transaction cases efficiently. 72. Yemeni courts capable to solve internet banking.	Rotchanakitumnuai and Speece (2003), Tan and Teo (2000) α = 0.92

4.12 Data Collection Procedure

Data collection exercise was carried out in 3 universities located in the country's three regions of North Yemen (Sana'a university), South Yemen (Aden university), and Middle Yemen (Taiz university). The researcher with 4 assistants distributed and retrieved the questionnaire from the respondents within the specified time of five months starting from 26th Oct 2012 to 19th March 2013. In order to achieve efficiency in the distribution, the research assistants administered the questionnaire to the respondents (general staff, lecturers, and magers) working in the univeristy while the researcher equally did necessary follow up using phone calls in order to know the progress. The research assistants have been trained to expalin and clarify any issues that may be raised in the course of the distribution and collection of the questionnaire. As stated earlier, the whole data collection exercise was completed in five months after which the required numbers of questionnaire have been collected.

This study had to use research assistants because each university is located in a different region, and there was a need to see how well the respondent in different region within the same time has any effect on study measurement. Furthermore, the research assistants' method for data collection was used by a previous study (Lanseng & Andreassen, 2007). However, the researcher expected problems and barriers in the course of data collection. For one, the revolution in Yemen disturbed the universties employees' regular attendance at work and caused distruption during the data collection exercise. It was a frustrating but inevitable hindrance. Also, the data collection procedure was pricey as the cost of questionnaire distribution is high in terms of high cost of printing questionnaires, and the long distance between the regions, in addition to the revolution going on at that time.

As mentioned earlier, Minsitry of finance in Yemen (2012) indicates that there are around 15,986 employees in all public universities in Yemen. Therefore, for a population between 15,000 and 20,000, 375-377 employees are suitable as a sample size (refer Table 4.8) (Krejcie & Morgan, 1970; Cohen, 1969). Thus, this study used proportionate stratified sampling and conducted with a sample size of 900 employee respondents was identified according to region from three universities in three regions of Yemen as shown in Table 4.8. This sampling design is more efficient because each important segment of the population is adequately sampled, more valuable and comparisons among groups are possible (Sekaran & Bougie, 2010). Stratified random sampling design is based on position (lecturers and staff) and has been used to select the sample. This is due to the fact that postion level has significantly influenced the usage among non-users of internet banking (DeBaillon & Rockwell, 2005; Poon, 2008).Simple random sampling was conducted by picking out the names and numbers from employees telephone directory as the names have been written on pieces of paper from numbers one to ten after which the names were then chosen from a cup randomly. This indicates that the first name and number to be picked is 3rd after which number 13th is picked and so on and so forth.This type of sampling was also applied for south and north regions. The results of the random sampling are shown in Table 4.6.

Table 4.8
The Probability Sampling of Employees for Each University

Area	**Number of employees**	**% percentage of sample**	**Probability sampling of employee**
North (Sana'a)	4010	43%	387
Central (Taiz)	1688	18%	162
South (Aden)	3669	39%	351
Total	9367	100%	900

4.13 Data Analysis Procedure

Analysis of data entails steps such as coding the responses, screening the data and selecting the appropriate data analysis strategy (Lacobucci & Churchill 2009; Sekaran, 2003). Data screening was performed to spot data entry errors and examine how appropriately data meets the statistical assumptions which involve descriptive statistics of variables, missing data, and treatment of outlier, response bias, normality, homoscedasticity, multicollinearity, and reliability. For the purpose of data analysis and hypotheses testing, several statistical tools and methods were employed from SPSS software. Lastly, the third stage was analysing data by Structural Equation Modeling (SEM) AMOS software which also includes construct validity.

4.13.1 Data Editing and Coding

The returned questionnaires were entered for analysis into the SPSS software version 22.0 for data editing and coding. Based on the study by Zikmund *et al.* (2012), the aim behind data coding is the systematic storage and identification. In the current study, data coding is conducted to make it convenient for data entry in SPSS software version 22.0. Data coding, on the other hand, is carried out through the appropriation of character symbols (mostly numerical symbols) on the data. For appropriateness, it was edited prior to entering into the software.

4.13.2 Overall Response Rate

A total of nine hundred (900) respondents from the three universites in three regions in Yemen were given questionnaires. The researcher managed to retrieve the questionnaires with the exception of four hundred and fourty nine (449). Hence, only the remaining four hundred and fifty one (451) questionnaires were obtained. All the (451) questionnaires were manually tested. (31) questionnaires were incomplete, (13)

questionnaires were excluded because of the respondents answer "yes" which means they are internet banking users. There were (407) useful questionnaires for the actual data analysis. Out of this number, 147 respondents were from Sana'a univeristy in North Yemen with a response rate of 36%, 175 respondents were from Aden university of South Yemen having response rate of 43% and 85 respondents were from Taiz univrsity, Middle Yemen and their response rate is 21%. The overall response rate is 50.11%. This can be seen in Table 4.9; the data collection period was within six months. The acceptable response rate was calculated at N=407.

Table 4.9
Summary of Response Rates

Description	Total
The distributed questionnaire	900
Unreturned questionnaires	449
Returned and entered questionnaires	451
Response rate	50.11
Uncompleted questionnaires (missing data with > 50%)	31
Internet banking users	13
Collected data for analysis	407
Outliers	35
Data after screening	372

4.13.3 Descriptive Statistics

Descriptive statistics provide an abstract description of the main summary statistics. This analysis was used to determine the characteristics' of Yemeni customers. Descriptive analysis is the transformation of raw data into a form which provides information to describe a set of factors in a situation that makes them easy to understand and interpretby the researcher (Kassim, 2001; Sakaran, 2003). Analysis gives a clear understanding of data through frequency distribution, mean and standard

deviation, which are useful to identify differences among groups for all the variables of interest. The main descriptive statistics for the respondents in the present study included mean and standard deviation.

4.13.3.1 Data Screening

The data screening is neccessary to ensure that no ambiguous data characteristics negatively impact the results. Thus, the main concern of data screening concerns the accuracy of the data for analysis process. The data screening creates suitable data to portray the relationship based on statistical research result (Hair *et al.*, 2010). Therefore, the accuracy of data should be ascertained in data screening as the first step before the analysis. The reason for data screening is to avoid the bias of data (Hair *et al.*, 2010). Data screening consists of missing data, outlier, normality, linearity, reliability, and homoscedasticity.

4.13.3.2 Missing Data

There are many ways to treat missing data, they can be deleted, distributed or replaced (Kline, 2011; Tsikriktsis, 2005). The first important step in data screening process is identifying the missing data. Respondents may reject to answer personal questions pertaining to their income, age or others. Likewise, some respondents may not be competent to respond because of lack of knowledge towards a particular topic. Besides deleting them, the researcher may also replace them with the mean value in case the missing data is not over 50% of the total data required (Hair *et al.*, 2010). In his study, data which are more than 50% missing are deleted as incomplete data (31 dataset) (refer Table 4.9).

The detection of missing value for the respondents which use less than 50% was conducted through SPSS using EXPLORE method. This step is in line with the process of replacing missing data recommended by to Kinnear, Paul, and Gray (2004).

4.13.3.3 Outlier

The next step after treating the missing responses is examining outliers. Coney, Best andHawkins (2001) assert that outlier is *"an observation that deviates so much from other observations as to arouse suspicion that it was generated by a different mechanism"*. Outliers can manifest in data as a result of incorrect data entry. The other reason is when observations are extreme in their combination of values across the variables within the intended population (Hair *et al.*, 2006).

Basically, outlier can be detected by calculating Mahalanobis distance (D^2) which is the estimation of the parameters; after that it is compared with a critical value of the chi-square distribution. If values of D^2 is larger than the critical value, then that case or variable is considered as having outlier. Researchers suggested that it is better to delete the offending case since it could affect normality of data (Rousseeuw, Van Zomeran, 1990). Mahalanobis distance measures cases that are farthest away from the centriod (Coney *et al.*, 2001). It was used in this study to determine the outliers in the data collected for this study. Each case was evaluated using the chi-square distribution with an alpha level of 0.001 and the degree of freedom of the number of items (i.e. 72). The score was compared to χ^2 value. If $D^2 > \chi^2$. then that case was considered as an outlier and deleted from the dataset.

4.13.3.4 Normality

Normality test is used to evaluate whether the data are normally distributed or not. If the variation of the data is sufficiently large, all resulting statistical tests are invalid (Hair *et al.*, 2010). For most analyses to work correctly, the data should follow a normal distribution. If normality exists, even in conditions that do not necessitate normality, it makes a stronger assessment (Hair *et al*., 2010). After the test for outlier an assessment of normality was performed. To assess normality, skewness and kurtosis were used.

According to Tabachnick and Fidell (2001), skewness is the irregularity of a distribution; implying that a variable's mean is not in the center of the distribution. On the other hand, kurtosis relates to the peakedness of a distribution. A distribution is said to be normal when values of skewness and kurtosis are equal to zero (Tabachnick & Fidell, 2001). There are few clear guidelines about how much non-normality is problematic. Many authors such as Chou and Bentler (1995); and Hu, Bentlerand, and Kano (1992) suggested that the absolute values of univariate skewness indices greater than ±3.0 describesan extreme case of skewed data sets.

4.13.3.5 Data Transformations Detract

Data transformation is needed if a variable has an undesirable characteristic, such as non-normality, that detracts from its use in a multivariate technique. A transformation, such as taking the logarithm or square root of the variable, creates a transformed variable that is more suitable in portraying a relationship among the set of variables to be tested. Transformation of data could be done on both dependent and independent variables or just one, depending on which set needs the transformation (Hair *et al*.,

2010). The non-normal items were detected through z-skewness using descriptive function "standardized values as variables". After the detection of non-normal in each observed variable was made, transformation was conducted through Cdfnorm function on values > ± 3 (Hair *et al.*, 2010). This was done by selecting "Transform" and then " Compute", "t" for transformation was used in the new name of the items transformed.

4.13.3.6 Linearity

The assumption of multivariate techniques is dependent on correlation measures of association that includes multiple regression, factor analysis and structural equation modeling, this also is the concept of linearity. The purpose of testing for the linearity in data is to check the relationship between individual variables and to measure the ability of the correlation coefficient to perform the relationship. Whether nonlinear relationships are indicated, the achieving linearity has been created additionally for one of the variables to represent the nonlinear components (Hair *et al.*, 2010).

4.13.3.7 Homoscedasticity

Another assumption of regression is also conditional estimation errors that have equal variable for all independent values. The homoscedasticity is necessary because "*the variance of the dependent variable being explained in the dependence relationship should not be concentrated in only a limited range of the independent values"* (Hair *et al.*, 2010). However, The homoscedasticity is much more important than the normality assumption because this approach performs the test of hypotheses to describe the correlation between dependent variable and independent variables.

According to Ghozali *et al.* (2005) cited by Al-Ekam (2013) when the error terms variance (e) shows constancy throughout a variety of predictor variables, the collected data is claimed to be homoscedasicity. In other words, it draws attention to the dependent variables that show equal variance transversely level within the predictor variables range. It presents a cloud of dots, in case non- homoscedasicity model can be discussed accurately by a pattern such as a funnel shape, indicating greater error as the dependent variables increase. The test for homoscedasticity is conducted by plotting the residuals against the indicated independent value; the outcome is useful in detecting the Pearson correlation. The homoscedasticity is supported when it has substantial effects on test of the null hypothesis (Hayes, 1996; Long & Erwin, 2000).

4.14 Response Bias

Response bias assists the researcher to detect if respondents answered questions based on the researcher idea in which it may affect the findings as a type of cognitive bias. Response bias happens when people may not respond as in mail survey or due to lag of responses, whereby the earlier batch could give different answers as the second batch due to time difference (Salkind, 2006). T-test was conducted to examine if there was any significant difference between the early and the late response (Pallant, 2005). In this study the researcher used t-test to see if there was a statistically significant difference in the mean scores for two groups of respondents.

4.15 Reliability and Composite Reliability

According to Nunnally (1978) reliability is *"the consistency of your measurement orthe degree to which an instrument measures in the same way each time it is used under the same condition with the same subjects"*. Also Sekaran and Bougie (2010) defines the reliability of a measure as *"the extent to which the measure is without bias*

(error free) and hence offers consistent measurement across time and the various items in the instrument.Reliability of the instrument reveals the range where the treatment variables confine the construct that is needed to be measured". To achieve the reliability of the instrument employed in this research, two types of reliability were assessed.

The first is the Cronbach's Alpha by SPSS. The reliability was confirmed to be above 0.60; acceptable value according to Sekaran (2003) and Hair *et al.* (2006). Also, these values were used to ascertain the internal consistency of the measurement instrument and determine the degree of reliability (Hair *et al*., 2010). In addition, construct reliabilities were also run, achieving satisfactory scores of higher than 0.50 (Hair *et al.*, 2006). In order to establish the reliability of the antecedents of customer resistance to internet banking measurement, the researcher used the reliability coefficient.

The second is the composite reliability (CR), even though Cronbach's Alpha is commonly utilized as a reliability indicator, it has been reported to underestimate (Bollen, 1989; Raykov, 1997; Chin, 1998). The issue stems from the underlying assumption for Cronbach's Alpha measuring all items should equally be weighted and the path coefficients from the latent factor to the measured items are expected to be equal.mIf the value fails to meet the assumption, the Cronbach's Alpha underestimates the reliability.

The composite reliability developed by Werts el al. (1974) was used to measure reliability of construct in the measurement model. The value ranges from 0 to 1. The value of the construct validity was more than 0.60, which indicates an

acceptable convergent validity (Hair, Black, Babin, & Anderson, 2010). It was calculated by using the following formula:

$$\text{Composite reliability (CR)} = \frac{(\Sigma \text{Standardized factor loading})^2}{(\Sigma \text{ Standardized factor loading})^2 + \Sigma \varepsilon j}$$

Where CR = composite reliability, Σ =Summation, and εj = standardized error

In addition, a composite reliability index above 0.70 suggests good reliability and high construct reliability indicates there is internal consistency of items (Hair el al., 2010).

4.15.1 Construct Validity

Construct validity is the extent to which itemsreally reflect the theoretical latent construct they suppose to measure (Hair el al., 2010). According to Malhotra and Stanton (2004), the more construct validity employed, the more validity can be established. Construct validity is made up of two basic types namely multicollinearity and discriminant validity. This research made use of both types.

4.15.2 Content (Face) Validity

The content validity is "*the assessment of the correspondence of the variables to be included in a summated scale and its conceptual definition"* (Hair *et al.*, 2010). Content validity presents the level of connections between the chosen items to result in a summated scale and conceptual definition. The content validity indicates that the potential for achieving result in the study has to relate the theoretical construct to represent adequacy of measurement (as questionnaire, sampling, and modifying the past study), which appears to concepts being investigated and reflects how well the dimension is (Burns, 1994 cited by Phatthana, 2011). The aim of content validity is to

confirm the selection of scale items based on the past empirical study and theoretical consideration (Hair *et al.*, 2010).

The current study's measurement scale items were examined by 5 experts; five lecturers with PhD in Sana'a university, Taiz university, and Aden university who are also marketing experts. Modifications obtained from the feedback of the above experts were applied to the questionnaires. Some questions regarding demographic profile and number of questions were changed. Hence, it can be stated that content validity of the research is confirmed and backed by comprehensive and extensive literature review. According to Campbell and Fiske (1959) there are other two types of construct validity, these are explained subsequently.

4.15.3 Convergent Validity

Convergent validity describes items of certain construct that covers or shares high proportion of variance (Hair *et al.*, 2010). It is also a way of checking the degree to which two measures that have the same concept are correlated. Convergent validity is an important aspect that researchers should consider when conducting research. Convergent validity can be analyzed through confirmatory factor analysis (CFA); factor loading, average variance extracted (AVE) and reliability (Hair *et al.*, 2010).

4.15.4 Discriminant Validity

Discriminant Validity elucidates *"the extent to which a construct is truly distinctfrom other construct"* (Hair *et al.*, 2010). This is another main type of construct validity that describes the degree to which a construct really differs from another construct (Hair *et al.*, 2010). This type of test is assessed by checking the correlations square

between the observed potentially overlapping constructs. If the discriminant validity value is high, it indicates that a construct is unique and possesses some phenomena other measures do not have. Rigorous test to substantiate discriminant validity is compared with the average variance extracted values for any two constructs with the square of the correlation estimate between the two constructs (Hair *et al.*, 2010).

To substantiate discriminant validity, variance extracted (VE) is *"amount of (shared) or common variance among the indicators or manifest variables for a construct"* (Hair *et al.*, 2006, p. 584). VE should be more than 0.50, average variance extracted (AVE) is compared to correlation square of the interrelated variables (Fornell and Larcker, 1981). Average variance extracted (AVE) relates to the quantity of variance confined by the construct versus the amount due to the error of measurement (Hair *et al.*, 2006). The AVE ranges between 0 and 1, where the value exceeds 0.50 suggests adequate convergent validity (Bagozzi & Yi, 1988; Fomell & Larcker, 1981). According to Malhotra and Stanton (2004), AVE should be greater than 0.50 to validate employment of a construct. Mathematically, it is computed using the formula as below:

$$\text{Variance Extracted (VE)} = \frac{\Sigma(\text{Standardized Square Multiple Correlation SMC})}{\Sigma(\text{Standardized Square Multiple Correlation SMC}) + \Sigma\varepsilon j}$$

Where SMC = squared multiple correlation, Σ = summation, $\Sigma\varepsilon j$ = standardized error

(Source: Hair *et al.*, 1998: p.624)

4.16 Multicollinearity

Multicollinearity refers to the condition in which the dependent variables are extremely correlated (Pallant, 2005). According to Hair *et al.* (2010) correlation values

of any research should be less than the recommended value < 0.80. Whilst, any correlation values that is more than 0.80 is considered as multicollinearity. Multicollinearity is noticed when there is high correlated among two or more variables (Hair *et al.*, 2010). Ingeneral,there should be less correlation or non correlationamong sets of variables for them to be void of multicollinearity. However, Cohen *et al.*(2003) suggested that high correlation can be gotten rid of from analysis, but should nonetheless be done with caution. Multicollinearity is either variable group confound the ability of the technique to separate the affect of any single variable; it makes interpretation less reliable in variable sets (Hair *et al.*, 2010). In services research, there are two common measures for testing multicollinearity, one by tolerance (R^2) value and the variance inflation factor (VIF) value and the reecommended value for tolerance is 0.10 and for VIF is 10. Additionally, through correlation matrix between two variables through Amos the value of correlation between two variables should be less than .80 (Hair *et al.*, 2010).

4.17 Correlation

Pallant (2005) mentioned that analysis of correlation is a statistical technique which explains the strength and direction of the linear relationship between two variables. The correlation isconcerned with assessing the strength and significance of a relationship between variables. The ideal correlation of 1 or -1 indicates that the value of one variable can be determined accurately by knowing the value of other variables. Meanwhile, the correlation value of 0 indicates the absence of the relationship between these two variables. Cohen (1988) offers a rule to clarify the strength of the relationship between two variables (r) as shown in Table 4.10.

Table 4.10
Cohen's Guideline of Correlation Strength

r values	Strength of relationship
r = +.10 to .29 or r = -.10 to -.29	Small
r = +.30 to .49 or r = -.30 to -.49	Medium
r = +.50 to 1.0 or r = -.50 to -.1.0	Large

4.18 Convergent Validity Test (Exploratory Factor Analysis)

To test convergent validity, exploratory factor analysis (EFA) was conducted using principal component with Varimax rotation on all items measuring the independent, mediating, and dependent variables. The results of each factor analysis conducted are summarized in the following sections. See Appendix B fin- full factor analysis output.

4.18.1 Factor Analysis of InDependent Variables

The factor analysis conducted on mediating variables showed Kaiser-Meyer-Okin value of 0.846, which exceeded the recommended value of 0.5 (Hair *et al.*, 1998) or above 0.6 (Pallant, 2005) and the Barlett's test of sphericity was highly significant (p = .000), supporting the factorability of the correlation matrix (see Table 4.11).

This indicates that the assumptions of factor analysis were met. Principal component analysis revealed the presence of three components with an eigen value exceeding one. These factors captured 68.157 percent of the total variance in the items. In fact, if the KMO measure is greater than 0.60 and the Bartlett's test of Sphericity is large and significant, then factorability is assumed (Pallant, 2005; Tabachnick & Fidell, 2001). The measure of sampling adequacy (MSA) of this study, the results

presented all constructs of independent variables have an overall MSA value of above 0.800 (between 0.877-0.971) that have an acceptable MSA value (see Appendix B).

Table 4.11
Pilot Factor Analysis Results (Independent Variables)

statements 1	Code	1(GS)	2(SE)	3(COM)	4(TR)
Government support (GS)	GS5	.883			
	GS6	.861			
	GS8	.849			
	GS7	.843			
	GS9	.816			
	GS2	.804			
	GS3	.802			
	GS1	.786			
	GS4	.767			
Variance 25.936%					
Self-efficacy (SE)	SE2		.833		
	SE1		.801		
	SE3		.797		
	SE4		.794		
	SE5		.668		
	SE6		.618		
Variance 16.108%					
Compatibility (COM)	COM3			.785	
	COM1			.745	
	COM2			.734	
	COM4			.721	
	COM5			.687	
Variance 13.069%					
Trust (TR)	TR4				.765
	TR5				.749
	TR3				.747
	TR1				.736
	TR2				.607
Variance 13.044%					

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .846
Approx. Chi-Square = 1869.774
DF = 300
SIG = 0.000
Variance = 68.157

4.18.2 Factor Analysis of Mediating Variables

The factor analysis conducted on mediating variables showed Kaiser-Meyer-Okin value of 0.791, which exceeded the recommended value of 0.5 (Hair *et al.*, 1998) or above 0.6 (Pallant, 2005) and the Barlett's test of sphericity was highly significant (p = .000), supporting the factorability of the correlation matrix (see Table 4.12).

Table 4.12

Pilot Factor Analysis Results (Mediating Variables)

statements	Code	1(CRD)	2(ATT)	3(SN)	4(PBC)
Credibility (CRD)					
	CRD2	.843			
	CRD3	.840			
	CRD1	.837			
	CRD6	.816			
	CRD5	.793			
	CRD4	.791			
	CRD7	.772			
	CRD8	.645			
Variance 24.418%					
Attitude (ATT)					
	ATT4		.813		
	ATT5		.802		
	ATT2		.784		
	ATT3		.770		
	ATT1		.758		
Variance 18.422%					
Subjective Norms (SN)					
	SN3			.869	
	SN2			.794	
	SN4			.784	
	SN1			.731	
Variance 14.091%					
Perceived Behavior Control (PBC)					
	PBC1		.586		
	PBC3				.888
	PBC4				.880
	PBC2				
Variance 9.365%					

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .791
Approx. Chi-Square = 1521.461
DF = 231
SIG = 0.000
Variance = 66.296%

This also indicates that the assumptions of factor analysis were met. Principal component analysis revealed the presence of three components with an eigen value exceeding one. These factors captured 66.296 percent of the total variance in the items. In fact, if the KMO measure is greater than 0.60 and the Bartlett's test of Sphericity is large and significant, then factorability is assumed (Pallant, 2005; Tabachnick & Fidell, 2001).

4.18.3 Factor Analysis of Dependent Variables

The factor analysis conducted on dependent variables showed Kaiser-Meyer-Okin value of 0.742, which exceeded the recommended value of 0.5 (Hair *et al.*, 1998) or above .6 (Pallant, 2005) and the Barlett's test of sphericity was highly significant (p = .000), supporting the factorability of the correlation matrix (see Table 4.13).

Table 4.13
Pilot Factor Analysis Results (Dependent Variables)

Statements	Code	1(RB)	2(TB)	3(IB)	4(VB)	5(UB)
Risk barrier (RB)						
	RB3	.843				
	RB1	.813				
	RB4	.792				
	RB2	.687				
Variance 14.212%						
Tradition Barrier (TB)						
	TB4		.828			
	TB3		-.785			
	TB2		-.713			
	TB1		.652			
Variance 13.383%						
Image Barrier (IB)						
	IB2			.765		
	IB1			-.764		
	IB3			-.696		
	IB4			.580		
	IB5			.573		
Variance 12.831%						
Value Barrier (VB)						
	VB3				-.851	
	VB4				.776	
	VB2				-.758	
	VB1				.512	
Variance 12.085%						
Usage Barrier (VB)						
	UB3					.775
	UB2					.622
	UB5					.576
	UB1					.510
	UB4					
Variance 10.479%						

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.742
Approx. Chi-Square = 1076.794
DF = 231
SIG = 0.000
Variance = 62.99%

This further indicates that the assumptions of factor analysis were met. Principal component analysis revealed the presence of three components with an eigen value

exceeding one. These factors captured 62.99 percent of the total variance in the items. In fact, if the KMO measure is greater than 0.60 and the Bartlett's test of Sphericity is large and significant, then factorability is assumed (Pallant, 2005; Tabachnick & Fidell, 2001).

4.19 Structural Equation Modeling (SEM)

Hair *et al.* (2010) described Structure Equation Modeling as *"Multivariate technique combination aspects of factor analysis and multiple regression that enable the researcher to simultaneously examine a series of interrelated dependence relationship among the measured variables and latent constructs (variates) as well as between several latent construct"*. Structural equation modeling (SEM) is a statistical methodology that takes a confirmatory (i.e. hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon (Byrne, 2009). It is one of the family of statistical models that seem to explain the relationship amongst multiple variables (Hair *et al.*, 2010). SEM is also referred toas covariance structural analysis and latent variable analysis. All structural equation models are identified by three characteristics:

- The estimation of multiple and interrelated dependence relationships.
- The ability to represent unobserved concepts in these relationships.
- The capability to define a model to explain the entire set of relationships.

The present study use SEM because the main research model of this study needs mediating effects analysis as well as it is able to generate new paths in the revised model. Since SEM uses variance-covariance analysis method, it is able to analyze causal relationships between and amongst latent constructs. SEM is often used to analyze causal relationships between latent variables; relationships explaining the

dynamism of variables (exogenous constructs) and their impacts on other variables (endogenous constructs).

Moreover, SEM uses variance-covariance analysis method, it is able to analyze causal relationships between and amongst latent constructs. SEM is commonly utilized in various fields of disciplines. Extant literature reveals that SEM is an effective second generation multivariate method that is suitable for analyzing results which involve several variables and allows the assessment of measurement properties and theoretical relations with multiple relations at the same time in the same analysis (Byrne, 2009; Hair *et al.*, 2010; Hau & Marsh, 2004). SEM is both factor and path analysis for a simultaneous estimate of measure and lays down the relationships between several related constructs known as latent variables (Bryne, 2009; Hair *et al.*, 2010).

Additionally, SEM is among the criteria considered in selecting research methodologies especially in the studies which affect the issues of social and behavioral sciences (Baumgartner & Steenkamp, 1996). It comprises of two main functions; the measurement, i.e. the things that requires measurement, the measurement method, and how to meet the reliability and validity condition and casual relationships among variables; it further explains the underlying complex and unobserved variables (Hair *et al.*, 2010).

4.19.1 Justification for using SEM

The structural equation modeling is described as a statistical methodology whic uses a confirmatory method to investigate a structural theory, bringing to attention the presence of a specific phenomenon. Generally, the theory comprises of causal processes that make observations on multiple variables (Bentler, 1988).

This method of analysis serves the same purpose with multiple regressions but it has a more powerful analysis and modeling of interactions is considered as well as issues related to non-linearity, correlated independents, measurement errors, correlated error terms, multiple latent independents (measured through multiple indicators) and latent dependents with multiple indicators. A confirmatory method to data analysis is preferred as opposed to using exploratory factor analysis that uses multivariate procedure. Through the use of multiariate procedures, it is challenging to carry out hypothesis testing (Byrne, 2009).

There are several reasons why this study adopted SEM and not multiple regressions. First, advanced multivariate analysis method such as structural equation modeling (SEM) was seldom used in past studies. The use of SEM in analysis is accessioned by what the study entails; the measurement of multiple latent predictor variables, indirect effects and path analysis and when a questionnaire is designed to accommodate interval and ratio scales. Additionally, a study can adopt SEM for analysis in the case where the researcher is measuring something that is highly hypothetical and conceptual.

Secondly, when the component that is needed to be measured and evaluated is extremely hypothetical and conceptual such as social science research (perceptive measures such as satisfaction, happiness, and tiredness), the use of SEM is mostly appropriate. This contrasts with multiple regressions that are designed to measure metric scales (such as price, cost, and temperature).

Thirdly, SEM takes a confirmatory rather than an exploratory approach to data analysis. In addition, by demanding that the pattern of intervariable relations should

be specified prior to estimation, SEM lends itself well to the analysis of data for inferential purposes. By contrast, other forms of multivariate procedures are basically descriptive in nature (e.g. Exploratory factor analysis), thereby making hypothesis testing difficult, if not impossible (Byrne, 2009).

Fourthly, SEM is further divided into sub-models; a measurement and structural model. The former determines relationships between the observed and unobserved variables while the latter defines relationships among the unobserved (latent) variables, through the specification of which latent variables influence directly or indirectly the changes in other latent variables present in the model (Byrne, 2009). Basically, SEM is made up of two models: the measurement and structural model (Hair, *et al.*, 2006). Precisely, the measurement model deals with the relationships between the measured and latent variables, specifing indicators/items/scales for each construct and the evaluation of construct validity.

Accordingly, SEM is also related to two kinds of errors which emanates from the measurement and structural model and are refered to as measurement error and structural error, respectively. The structural error is usually considered and included in the structural model because of the inability of the independent/dependent latent variables to predict the dependent variables perfectly. Nonetheless, the use of confirmatory factor analysis (CFA) help to lessen the effect of the error on each of the latent variable with multiple indicatorsby taking all the constructs contained in the model as stimulus testing instead of individual coefficients. Similarly, CFA is vital in testing models which have multiple dependents (to model mediating variables and to deal with complicated data (such as non-normal data and incomplete data). Linear regression analysis assumes that variables are evaluated with no errors. Invariably,

SEM involves multiple regression and factor analyses. Hair *et al.* (1998), asserts that SEM is an effective estimation instrument for a number of separate multiple regression equations evaluated simultaneously.

Fifthly,even though analyzing data with the other methods is based on observed measurements only, SEM procedure incorporates both unobserved (i.e. Latent) and observed variables.

Sixtly, there is no widely and easily applied alternative methods for modeling multivariate relations, or for estimating point and/or interval indirect effects; these important features are available using SEM methodology. Given these highly desirable characteristics, SEM has become a popular methodology for non-experimental research where methods for testing theories are not well developed and ethical considerations make experimental design unfeasible (Bentler & Bonett, 1980).

Finally, SEM involves the description of an underpinning model like the Oliver loyalty model used in the study of (MacLean & Gray, 1998). SEM in its totality provides a suitable and most proficient assessment technique for sequence of separate multiple regression equations estimated simultaneously (Hair *et al.*, 2010).

4.19.2 Types of Variables in SEM

Components of SEM are two; latent variable and observed/measured variable. Latent variable/unobserved/construct/factor is one of the key variables, as an abstract construct, it can only be observed by the effect of the observed variable. Observed / measured / manifest / reference variable is an empirically measurable variable, and is called an indicator; it is an effect of the latent variable. Observed

variable is the actual answers to the questions or items in the questionnaire. Latent variables consist of exogenous latent and endogenous dependent latent variable. Exogenous latent variable refers to independent (latent). Dependent latent variable in one model equation plays as independent variable known as endogenous latent variable. These include mediating and pure dependent variable. The latent variables in SEM are continuous variables. And theoretically could have an infinite number of values (Hair *et al.*, 2010). In this study, there are four (4) exogenous latent variables (trust, self-efficacy, compatibility, and government support), a mediating (attitude, subjective norm, perceived behavior control, and credibility) and an endogenous variable (customer resistance which has 5 dimensions: usage barrier, value barrier, tradition barrier, risk barrier, image barrier).

4.19.3 Types of Error

SEM relates to two types of errors as a result of measurement and structural model. Namely, they are the measurement error and structural error. As observed variables cannot give a perfect reflection of specific latent variable, so the measurement error is added into the model. There are two math symbols, delta and epsilon; delta deals with observed exogenous variable (X) while epsilon is for observed endogenous variable (Y). Apparently, the unique error in structural error taken into consideration and included as value to the structural model since independent/dependent latent variables cannot perfectly predict the dependent variables.

4.20 SEM Procedure

Hair *et al.* (2010) opined that SEM is a very common multivariate approach and attractive since it provides a conceptually attractive way to test theory. Six stages are involved in structural equation modeling:

1. It entails defining individual constructs.

2. One of the steps involve developing the overall measurement model.

3. It includes designing a study to produce empirical results.

4. SEM produces and also demands that the measurement model validity be assessed.

5. The structural model needs to be specified.

6. The structural model validity also must be assessed.

The initial stage in model conceptualization handles constructed hypothesis (based on theory) which is the foremost facet of relationships between latent variables and other indicators. At this stage, the model is developed based on the theory and empirical findings. The model should reflect the latent variables through any measured indicator. The second step is path diagram where each latent construct included in the model is identified and measured indicator variables are assigned to latent construct.

The third step is the model specification which tackles the development of the measurement and structural design of the research problem. Causal relationship obtained from the variables should be discussed during this stage. The fourth step relates to model identification. The data is absolutely tested to ensure that information

collected is of quality and contains effective parameters for the model. The goal is to validate the specification model is not under-identified, or just-identified or over-identified. The Step five involves specifying the structural model by assigning relationships from one construct to another based on the proposed theoretical model.

The final step discusses the model fit testing, the purpose of the model fit testing is to investigate the appropriateness (Goodness-of-fit or GOF) between the information collected and model. A GOF criterion relates to whether or not a model-based covariance matrix is similar to the observed covariance matrix. The GOF as a particular construct validity is an essential component in SEM process since it determines validity of the measurement model (Hair et al, 2010).

In connection with the present research, the theoretical model as displayed in Figure 4.1 was transformed into a hypothesized model of SEM. According to Hair *el al*. (2010), this is mainly done to identify the model into more formal terms through a series of equations that are useful in specifying research ideas about the relationships among variables. As exhibited in Figure 4.1, nine constructs can be found. These are: (1) trust; (2) self-efficacy; (3) compatibility; (4) government support (5) attitude; (6) subjective norm; (7) perceived behavior control; (8) credibility; and (9) customer resistance. The structural model is the linkage of all unobserved (latent) variables with each other as in the dotted box. The structural model is also a set of one or more dependent relationship linkages with the hypothesized models construct (Hair *et al.*, 2010).

4.20.1 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) examines the number of factors and the loading of items on them to conform to what is expected based on the pre-established theory of scale assessment that was conducted on every constructs and measurement models. Confirmatory Factor Analysis CFA is used to reduce the measurement of instrument error. SEM techniques were deployed to perform the CFA. The AMOS software was used to calculate whether the proposed factor solutions fit the data and show whether the model fits the data very well or not

Structural equation modeling allows separate relationships of a set of dependent variables. SEM provides the appropriate and most efficient estimation technique for a series of separate multiple regression equations which is estimated simultaneously. It is characterized by two basic components: the structural and measurement model (Hair el al., 2010). The structural model is the path model, which relates independent to dependent variables based on theory or prior experience. The measurement model represents the degree to which the indicator (item) variables capture the essence of the latent factor. Moreover, a valid measurement model is the model which meets the requirements of psychometric soundness of both reliability and validity of measures and constructs. The purpose of testing reliability and validity of measurement is to assure multiple items measuring the hypothesized latent variables but not others. It is accomplished primarily through CFA (Byrne, 2009).

Based on Anderson and Gerbing's (1988) two-step approach, a measurement model was first estimated using Confirmatory Factor Analysis (CFA). After the appraisal

of the adequacy of the measurement model, Structural Equation Modeling (SEM) was utilized to find the best-fitting model and to test causal relationships.

Multivariate technique is predominantly useful for modeling tests including several independent/dependent variables and mediators/moderators (Hair *et al.*, 1998). Modification indices are "the values calculated for each unestimated relationship possible in a specified model" (Hair *et al*., 2006, p.581). Arbuckle (2005) emphasizes that the indices of each model modified fits pretty badly so we might look at modification indices (MI) to achieve p-value. Additional fit statistics from AMOSs recommends the model's fit to be able to be enhanced by using MI. Firstly, the MI for each item needs to be ascertained and the highest value needs to be deleted. After deleting the highest value, the text output of the second model needs to be examined. With the change the model and the repeated analysis, the model fit Chi-square decreases to achieve the p-value and to fit the model. In addition, GFI, CFI have to be increased and RMSEA has to be dropped.

4.20.2 Goodness of Fit Index

Goodness of fit demonstrates *"the degree to which the actual or observed input matrix (covariance or correlations) is predicted by the estimated model"* (Hair *et al.*, 2006, p. 580). Ghozali *et al.* (2005) cited by Al-Ekam (2013) and Hair *et al.* (2006) asserted that there are three types o f goodness-of-fit indicators and are classified as: (1) absolute fit measure; (2) incremental fit measure and (3) parsimonious fit measures. The following section explains each of the GOF in details prior to linking them to AMOS/GOF.

As opined by Bollen (1989) the χ^2 likelihood ratio tests, the Standardized Root Mean Residual (SRMR), the Goodness-of-Fit Index (GFI, CFI, and IFI) are the most frequently achieved measures. Overview of each of the achieved measures is depicted in the following section in oder to explain the decisions obtained with regards to the model.

The Chi-square (χ^2) likelihood ratio test is the fundamental measures of variance between the observed and estimated covariance matrices. It is the most specified and apparent measure correlated with CFA. The proposed model does not meet the requirements of the collected data very precisely if the p-value of χ^2 is significant (i.e. < 0.05), whereas it meets the demands of the collected data if p-value > 0.05 is achieved. Similarly, Byrne (2009), added that there is progressing debate on whether a model that has a significant χ^2 statistic should be considered as valid or not. Measuring data by using SEM actually takes place by deploying goodness-of-fit (GOF) measures. The CFA contains important functions that may be deployed. These functions entails the following:

i) Determining if the loading factors in every dimension/constructs forms a variance.

ii) Confirming that the instrument have some linkage with the latent variables.

iii) Estimating the measurement error in the framework, and

iv) Validate and generate framework.

CFA is most often deployed to determine whether the set of factors and the loading of construct items confirm to the expected requirements needed to measure what it should really measure. To measure the exogenous variables and

endogenous variables, Absolute Fit Index, Incremental Fit Level, and Parsimonious Fit Level are shown in Table 4.14 .

Table 4.14
Recommended Values of Measurement for all Exogenous and Endogenous variables

Indicators	Threshold value
Absolute Indices:	
Ratio/Comindf	Less than 2
RMSR	Less than 0.10
Incremental Indices:	
GFI	0.90 and above
IFI	0.90 and above
CFI	0.90 and above
TLI	0.90 and above
NFI	0.90 and above
AGFI	0.90 and above
Parsimonious Indices:	
RMSEA	Less than 0.08
P-value	More than 0.05

Source: (Hair et al., 2010)

Hair *et al*. (2010) pointed out the recommendation values of fit model as follows:

i) Absolute Fit Index (AFI) assesses whether a specific model leaves appreciable unexplained variance. Chi-square (χ^2) accompanied by the model's degree o f freedom and its probability, goodness-of-fit index (GFI), and the root mean square error of approximation (RMSEA) are usually utilized here where RMESA < 0.08, GFI > 0.90, p-value > 0.05.

ii) Incremental Fit Index (IFI) compares the generating model (GM) to possible baseline or null models estimated using the same data. Indices such as Tucker-Lewis index (TLI), comparative fit index (CFl), and the incremental fit index (IFI) are commonly used where GFI> 0.90, CFI > 0.90, TLI > 0.90, NFI > 0.90.

iii) Parsimonious Fit Index (PFI) also called adjusted measure, asks how well the model measures both fit and parsimony, taking into account the degree o f freedom used in the model specification. Indices such as Normed Fit Index (the adjusted chi -square by the degree o f freedom) can be used where CMIN/df < 3, SMC (RJ) > 0.00.

The motive of this section is to investigate and examine the relationships between exogenous and endogenous variables. Firstly, the researcher measured the individual variables related to measurement model.

4.21 Hypothesis Testing

This study is meant to test the 18 direct hypotheses, and 14 indirect hypotheses through mediating effect as mentioned earlier in chapter four.

4.21.1 Direct Effect

Hair *et al.* (2010) describes a direct relationship as the relationship which exists between two constructs having one path. Also, It is considered as the impact that variables have on one another . The present study in made up of eighteen direct effects and to guarantee that all the paths in the model are reinforced, the recommended values of Critical Ratio (CR) and p-value have to confirmto the approximate CR parameter divided by its approximate standard error. The rule is that CR reinforces the path if it is over 1.96 and it does not when it is less which results in the rejection of the hypothesis. The probability level (p-value) offers a cut-off beyond which the researcher can assert that the findings are statistically significant ($p < 0.05$). Moreover, if $p < 0.01$, it is considered as highly significant as they show that the observed difference occurs less than a single time in a hundred times if there was really no actual difference (Davies & Crombie, 2009, p. 4).

4.21.2 Indirect Effect (Mediating)

Indirect effects are those relationships which have a sequence of relationships with one or more intervening constructs (Baron & Kenny, 1986). According to Hair el al. (2010), a series of stages can be followed when using SEM to evaluate mediation. These steps are:

1. Ascertain if the necessary individual relationships have statistically significant correlation relationships first.
2. Estimate an initial model with the direct effect onlyand after estimate the second model by adding the mediating variable and the two additional path estimates. Assessment of the degree of mediation is as follows and as explained by Figure 4.2.

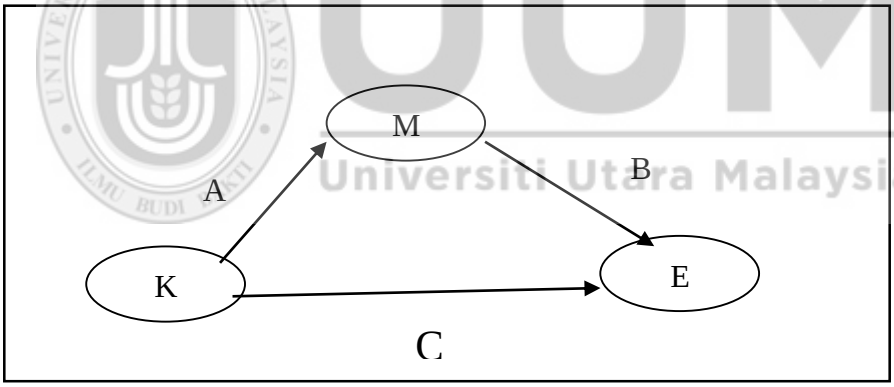

Figure 4.6
Mediating Effect

A. Where the relationship between K and E (path C) remains significant and does not change even when M is introduced in the model as additional predictor, then there is no mediation.

B. In the case where C is reduced and the outcome still remains significant when M is added as a new predictor, partial mediation is supported.

C. When C is reduced to a point that it becomes statistically non significant whenM is introduced as a mediating construct, then full mediation is supported.

In this study, attitude, subjective norm, perceived behavior control and crediblity were examined as mediators.

4.22 Chapter Summary

The chapter critically discusses the research method that was used in the data collection of this study. The present chapter also discusses the design of the research, which is based on the quantitative approach by using a structured questionnaire. In addition, the systematic random sampling technique is utilized consisting of a sample of 407 respondents a number which is based on the rule of thumb.

The chapter also dealt with the validity issues through the use of pre-test and a pilot study. It also discussed populations, sample size, and the survey procedures, along with the minimum sample size required and the organization of data collection. Moreover, the present chapter dealt with the statistical techniques used in the study; tests regarding the techniques and the details of the results are critical data useful for a multivariate analysis and the examination, discussion, justification and the validation for using Structural Equation Model SEM.

CHAPTER FIVE

RESEARCH FINDINGS

5. 1 Chapter Overview

The findings from the quantitative analysis which is based on the research design and methodology described previously is presented in this chapter. The findings include response rate, descriptive statistics, profile of the respondents, results of data screenings which consist of: missing data, outliers, normality, linearity, homoscedasticity and non-response bias. It also includes results of multicollinearity, discriminant validity, reliability and validity. This segment also presents the confirmatory factor results of individual latent construct, endogenous, exogenous, hypothesized structural model, generated structural model, direct effects, indirect effects and hypotheses testing.

5.2 Overall Response Rate

As discussed in chapter four, out of 900 questionnaires that were distributed, only 451 were returned, representing 50.11% response rate while 449 were not turned as shown in Table 4.9. This is in accordance to the norms of the other research (Mzoughi & M'Sallem, 2013; Gerrard *et al.*, 2006; Laukkanen *et al*., 2009; Agwu, 2013). Furthermore, among 451 questionnaires, 31 respondent's data sets were deleted due as a result of severe missing observations of more than 50%. Hair *et al.* (2010) is of the opinion that researchers delete the respondent if the missing data is above 50% with no sample size problem. Therefore, data from 407 questionnaires were keyed into SPSS, and the data were then carefully examined for further screening analysis.

5. 3 Descriptive statistics

In a bid to determine respondents' profile and descriptive statistics of constructs for further analysis, descriptive statistics and plots are made used of in the preliminary phase of this section.

5.3.1 Profile of the Respondents

For ease of understanding, a tabulation of the profiles of the respondents, their firm`s structure and the demographic information about the participants are listed in Table 5.1. It can be deduced that the majority of the respondents are internet users (83%) while (17%) are non-users. Since the goal of this study is to investigate resistance towards internet banking in Yemen, it was discovered that (100%) of the respondents have bank accounts. Therefore, (100%) of the respondents confirmed that they are not internet banking users based the screening question: "do you use internet banking". The level of resistance is categorized by the period of time they intend to use internet banking. The first category is the "less than one year". According to Laukkanen *et al.* (2008) and they refer to this group as the postponers, they account for (35%) of the respondents. Moreover, the second category is "more than one year", according to Laukkanen *et al.* (2008) this group call oppositors (36%). The last category is "not at all", according to Laukkanen *et al.* (2008) this category are described as the rejecters (29%).

In terms of gender, the respondents consist of men (65%), and women (35%). In connection with nationality, since this study focuses on Yemeni customers, the respondents are (100%) Yemeni. Regarding the Marital Status, most of the respondents are married (68%), singles (31%), and few others are divorced or engaged (2%). The academic qualification of the respondents are in four categories. The first

category is bachelor degree which make up (52%), and the second category is master degree with (25%), the third category is doctoral degree which make up (19%), and the last category are others such as the high school degree which is (4%) of the respondents.

As regards the position in the universities, some of the respondents are lecturers (38%), the majority of the respondents are staff (57%), and few are administrative staff (5%). In connection with banking services experience, the respondents who do not have experience with banking services are (16%), those with experience less 1 year (37%), the respondents with 2-4 years' experience in banking services (39%), Likewise, those experience with 5-7 years in e-banking, (6%). Furthermore, respondents who possess 8-10 years' working experience in banking services recorded only (1%); so also, those having 10 and above years' experience in e-banking (0.2%).

In terms of the place or location of using internet, (27%) of the respondents access the internet from work places, (51%) of respondents use internet at home, (15%) use the internet at university /college, (20%), indicated that they access the internet only at café shop and one respondent representing (0.2%) use internet in other places. Concerning how much time the respondents spend to browse on the internet, there are also five categorises, first category shows the respondents that cannot access internet at all (10%), the second category use internet daily (47%), the third category are those who use on weekly basis (31%), while the forth category use internet it on monthly basis (9%) and lastly, the category of respondents who seldom use the internet (others) (3%).

On another hand, majority of the respondents who hear about internet banking are (73%), while (27%) do not hear about it. The manner in which they heard about internet banking was also asked, (31%) of the respondent heard it from bank, Most of the respondent (37%), heard through advertisement, some of respondents (21%), knew about internet banking through word of mouth. Quite large percentage (30 %) of the respondents heard about internet banking through the internet. Additionally, few (6%), of the respondents became aware about internet banking through e-mails and the rest from others (3%).

In terms of how many accounts the respondents have, some of the respondents did not answer this question (26%), those who have one account are (52%), those with two accounts are (18%), and the respondents with three account are (3%). Others have four accounts are (1%) and some have five accounts are (1%), the remaining have more than 5 accounts (0.2%).

Relating to the respondents who have credit cards, the majority of the sample population have credit cards (67%) while the minority of the respondents do not have and this is denoted by (33%). About the respondents preferences for credit card, the respondents who did not answer are (46%), the respondents who have CAK bank accounts are (31%), the respondents that have TADHAMON bank accounts are (12%), the respondents having Yemen International bank are (6%), and other respondents have for other banks (6%). In relation to the place the respondents pay their monthly bills, the respondents without response are (13%), those who pay at post office (77%), and those who follow the traditional way go to the main government offices (10%). The last one about knowing banking services provided at the bank site, the majority know ATM (83%), and (17%) Mobile banking.

Finally, the mean age of the respondents is 37 years with standard deviation 9.532. Additionally, the mean salary of the respondents is Rial Yemen RY (114196) with standard deviation 105377.008 Table 5.2. Lastly, the mean of work experience among the respondents is 12 year with standard deviation of 6.985 (See Appendix C).

Table 5.1
Profiles of the Respondents

Variable	**Category**	**Number cases/ Frequency**	**Percentage**
Internet usage	Yes	337	82.8
	No	70	17.2
Bank account internet bank usage	Yes	407	100
	No	407	100
Level of resistance	Less than 1 year (Postponement)	144	35.4
	More than 1 year (Opposition)	147	36.1
	Not at all (Rejection)	116	28.5
Gender	Male	265	65.1
	Female	142	34.9
Nationality	Yemen	407	100
Marital Status	Married	277	68.1
	Single	124	30.5
	Others	6	1.5
Academic Qualification	Bachelor Degree	211	51.8
	Master	100	24.6
	Doctoral	78	19.2
	Others	18	4.4
Position	Lecturer	156	38.3
	Administrative Staff	231	56.8
	Manager	21	5.2
Banking Services Experience	NOT	66	16.2
	less 1 year	151	37.1
	2-4 years	159	39.1
	5-7 years	26	6.4
	8-10 years	4	1.0
	above 10 years	1	0.2
access the internet	Work	111	27.3
	Home	207	50.9
	University / college	60	14.7
	Internet cafe	81	19.9
	Others	1	0.2
How often do you access the internet	Not at all	42	10.3
	Daily	190	46.7
	Weekly	125	30.7
	Monthly	38	9.3
	Others	12	2.9
Have you heard of internet banking	Yes	295	72.5
	No	112	27.5

Table 5.1 (Continued)

where did you hear about internet banking	From bank	125	30.7
	Advertising	152	37.3
	Word of mouth	87	21.4
	Internet	122	30.0
	E-mail	26	6.4
	Others	14	3.4
How many bank's accounts do you have?	No response	105	25.8
	1	212	52.1
	2	72	17.7
	3	11	2.7
	4	4	1.0
	5	2	0.5
	more than 5	1	0.2
Do you use a credit card?	Yes	273	67.1
	No	134	32.9
what is the popular bank's credit card that you use?	NOT at all	185	45.5
	CAK bank	124	30.5
	TADHAMON bank	47	11.5
	YEMEN INTERNATIONAL bank	26	6.4
	Others	25	6.1
Where do you pay your monthly bills?	No response	52	12.8
	Post office	315	77.4
	Traditional way	40	9.8
What are the e-banking services that you know your bank provided at the bank site?	ATM	338	83.0
	Mobile banking	72	17.7

Table 5.2
Descriptive Statistics of Respondent Profile

Variable	**MEANS**	**S.D**
Age	37.11	9.532
Monthly Salary	114195.77	105377.008
Work experience	11.72	6.985

5.3.2 Descriptive Statistics of construct

Table 5.3 shows that the highest mean is attitude (ATT) with (5.22), while the variable with the lowest mean of (3.20) is value barrier (VB). Moreover, the standard deviation for the constructs ranges from 1.145 to 1.577 which demonstrates the presence of satisfactory variability within the data set. Range of scale between 1 to 7. N =407. The dependent variable, customer resistance (CRS) consists of five dimensions which are: usage barrier (UB), value barrier (VB), tradition barrier (TB), risk barrier (RB), and

image barrier (IB). The mediators for this study are attitude (ATT), subjective norms (SN), perceived behaviour control (PBC), and credibility (CRD). Finally the independent variables comprise of four variables which are trust (TR), self-efficacy (SE), compatibility (COM), and government support (GS).

Table 05.3
Descriptive Statistics of construct N=407

Variables	Code	Minimum	Maximum	Mean	Std. Deviation
Customer resistance	CRS				
Usage barrier	UB	1	7	3.270	1.145
Value barrier	VB	1	7	3.204	1.201
Risk barrier	RB	1	7	4.385	1.615
Image barrier	IB	1	7	3.589	1.417
Attitude	ATT	1	7	5.216	1.271
Subjective norms	SN	1	7	5.173	1.163
Perceived behavior control	PBC	1	7	4.841	1.137
Credibility	CRD	1	7	3.983	1.356
Government support	GS	1	7	3.254	1.577
Self-efficacy	SE	1	7	3.254	1.577
Trust	TR	1	7	4.638	1.194
Compatibility	COM	1	7	4.421	1.410

Table 5.4
Descriptive Statistic of Manifesting Variables

	N	Minimum	Maximum	Mean	Std. Deviation
UB1	407	1	7	3.05	1.557
UB2	407	1	7	3.57	1.774
UB3	407	1	7	3.24	1.551
UB4	407	1	7	3.12	1.634
UB5	407	1	7	3.36	1.472
VB1	407	1	7	3.31	1.567
VB2	407	1	7	3.36	1.487
VB3	407	1	7	3.19	1.545
VB4	407	1	7	2.95	1.505
RB1	407	1	7	4.41	1.903
RB2	407	1	7	4.14	1.816
RB3	407	1	7	4.60	1.833
RB4	407	1	7	4.39	1.779
TB1	407	1	7	3.69	1.756
TB2	407	1	7	3.63	1.716
TB3	407	1	7	3.38	1.580
TB4	407	1	7	3.65	1.974
IB1	407	1	7	3.46	1.575
IB2	407	1	7	3.47	1.602
IB3	407	1	7	3.58	1.721
IB4	407	1	7	3.42	1.553
IB5	407	1	7	3.71	1.833
IB6	407	1	7	3.08	1.727
IB7	407	1	7	3.03	1.721
ATT1	407	1	7	5.42	1.401
ATT2	407	1	7	5.12	1.594
ATT3	407	1	7	5.26	1.458
ATT4	407	1	7	5.15	1.518
ATT5	407	1	7	5.12	1.602
SN1	407	1	7	5.26	1.337
SN2	407	1	7	5.15	1.415
SN3	407	1	7	5.16	1.425
SN4	407	1	7	5.06	1.496
SN5	407	1	7	5.24	1.410
PBC1	407	1	7	5.57	1.402
PBC2	407	1	7	4.40	1.676
PBC3	407	1	7	4.68	1.666
PBC4	407	1	7	4.71	1.600
CRD1	407	1	7	4.18	1.706
CRD2	407	1	7	4.07	1.618
CRD3	407	1	7	3.91	1.701
CRD4	407	1	7	3.73	1.740
CRD5	407	1	7	3.70	1.787

Table 5.4 (Continued)

CRD6	407	1	7	3.81	1.635
CRD7	407	1	7	4.24	1.846
CRD8	407	1	7	4.22	1.511
CRD9	407	1	7	4.33	1.416
GS1	407	1	7	3.37	1.948
GS2	407	1	7	3.56	1.768
GS3	407	1	7	3.29	1.841
GS4	407	1	7	3.25	1.843
GS5	407	1	7	3.14	1.830
GS6	407	1	7	3.15	1.879
GS7	407	1	7	3.13	1.825
GS8	407	1	7	3.03	1.847
GS9	407	1	7	3.36	2.079
SE1	407	1	7	5.18	1.411
SE2	407	1	7	5.03	1.354
SE3	407	1	7	5.01	1.401
SE4	407	1	7	4.93	1.527
SE5	407	1	7	4.54	1.755
SE6	407	1	7	4.95	1.407
TR1	407	1	7	4.68	1.595
TR2	407	1	7	4.65	1.585
TR3	407	1	7	4.64	1.502
TR4	407	1	7	4.62	1.482
TR5	407	1	7	4.60	1.388
COM1	407	1	7	4.47	1.788
COM2	407	1	7	4.45	1.662
COM3	407	1	7	4.48	1.667
COM4	407	1	7	4.45	1.519
COM5	407	1	7	4.24	1.830

5.4 Data Screening

The data screening procedures was conducted; these are analysis of missing data, outlier detection, and normality, assessment of linearity and homoscedasticity status and multicollinearity. These steps are explained one after the other in the following sections:

5.4.1 Missing Data

Four hundred and seven (407) questionnaires were entered into SPSS as the final usable data. The detection of missing values indicate that 69 items have missing values (Appendix D). The treatment method of recording the same variables and replacing them with mean (4) was applied, because the missing data values were found to be missing in a totally random manner (Kinnear, Paul, & Gray, 2004), see Table 5.4 and Appendix D.

5.4.2 Outliers

As explained in chapter 4, the regression method was used to get the Mahalanobis (MAH) distance reading in Table 5.5. It shows that the minimum MAH is 3.948 and the maximum MAH is 200.018. The χ^2 value of 69 items is 111.06. The Mahalanobis (MAH) distance more than χ^2 value of 111.06 are considered outliers. After comparison of MAH values with χ^2, 35 cases are identified as outliers and subsequently deleted (4, 43, 92, 102, 116, 129, 137, 138, 166, 178, 214, 230, 234, 246, 247, 251, 254, 281, 294, 299, 303, 312, 317, 319, 321, 323, 326, 327, 331, 357, 361, 370, 380, 383, 384). In a nutshell, thirty five (35) cases identified were deleted out of the total of 407 respondents because of their MAH value (Hair *et al.*, 1998, 2006; Tabachnick & Fidell, 2001). The final data set after deletion of outliers became 372 Table 5.5 and (see Appendix E).

Table 5.5
Summary of Outlier

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-11.45	422.38	204.00	74.550	407
Std. Predicted Value	-2.890	2.929	.000	1.000	407
Standard Error of Predicted Value	11.073	70.593	41.291	10.029	407
Adjusted Predicted Value	-34.27	427.70	202.84	78.148	407
Residual	-246.135	225.435	.000	90.996	407
Std. Residual	-2.453	2.247	.000	.907	407
Stud. Residual	-2.686	2.443	.005	1.001	407
Deleted Residual	-308.570	274.699	1.160	111.424	407
Stud. Deleted Residual	-2.711	2.462	.005	1.004	407
Mahal. Distance	3.948	200.018	71.823	34.305	407
Cook's Distance	.000	.031	.003	.005	407
Centered Leverage Value	.010	.493	.177	.084	407

a. Dependent Variable: number
b. MAHAL DISTANCE > 111.06 WERE DELETED (35 CASES DELETED)

5.4.3 Assumption of Normality

The initial data showed that a few items were not normally distributed because the critical ratio (cr) of skewness (z-skwewness) are above ± 2, Table 5.6 (Hair *et al.*, 2010). For variables which were over the range (e.g.: UB1UB5), transformation process was conducted to normalize the data using cdfnorm function in SPSS, which produced normalized data as shown in Table 5.7. The transformed data was renamed "t" for example variable name UB3 become tUB3. The values below ± 2 were not transformed (e.g.: RB1 to RB4) in table 5.7. But except those above ± 2.

Table 5.6
Normality through AMOS before Transform

Variable	Items	Min	Max	skew	c.r.	kurtosis	c.r.
CRS							
UB	UB1	1	7	-0.896	-7.055	-0.207	-0.816
	UB2	1	7	-0.46	-3.623	-0.908	-3.575
	UB3	1	7	-0.542	-4.266	-0.344	-1.353
	UB4	1	7	-0.804	-6.332	-0.244	-0.959
	UB5	1	7	-0.461	-3.631	-0.342	-1.346
VB	VB1	1	7	-0.571	-4.493	-0.437	-1.722
	VB2	1	7	-0.616	-4.852	-0.229	-0.903
	VB3	1	7	-0.456	-3.594	-0.551	-2.17
	VB4	1	7	-0.704	-5.544	-0.05	-0.198

Table 5.6 (Continued)

RB	RB1	1	7	0.098	0.771	-1.254	-4.937
	RB2	1	7	0.021	0.165	-1.088	-4.282
	RB3	1	7	0.207	1.626	-1.136	-4.473
	RB4	1	7	-0.005	-0.041	-1.045	-4.113
TB	TB1	1	7	-0.207	-1.633	-1.017	-4.003
	TB2	1	7	-0.325	-2.558	-1.002	-3.946
	TB3	1	7	-0.412	-3.243	-0.631	-2.483
	TB4	1	7	-0.422	-3.325	-1.065	-4.192
IB	IB1	1	7	-0.327	-2.575	-0.84	-3.308
	IB2	1	7	-0.366	-2.879	-0.845	-3.325
	IB3	1	7	-0.257	-2.027	-1.099	-4.326
	IB4	1	7	-0.324	-2.551	-0.801	-3.155
	IB5	1	7	-0.365	-2.873	-1.028	-4.047
ATT	ATT1	1	7	1.024	8.061	0.582	2.291
	ATT2	1	7	0.788	6.208	-0.272	-1.07
	ATT3	1	7	0.832	6.548	0.183	0.722
	ATT4	1	7	0.706	5.555	-0.146	-0.573
	ATT5	1	7	0.811	6.384	-0.007	-0.027
SN	SN1	1	7	0.871	6.86	0.524	2.062
	SN2	1	7	0.69	5.434	-0.105	-0.413
	SN3	1	7	0.655	5.154	-0.132	-0.519
	SN4	1	7	0.664	5.232	-0.157	-0.618
	SN5	1	7	0.847	6.667	0.447	1.759
PBC	PBC1	1	7	1.105	8.704	0.95	3.741
	PBC2	1	7	0.369	2.902	-0.801	-3.152
	PBC3	1	7	0.512	4.031	-0.723	-2.848
	PBC4	1	7	0.491	3.868	-0.744	-2.927
CRD	CRD1	1	7	0.161	1.271	-0.909	-3.58
	CRD2	1	7	0.16	1.26	-0.99	-3.897
	CRD3	1	7	0.042	0.331	-0.942	-3.71
	CRD4	1	7	-0.091	-0.713	-0.961	-3.783
	CRD5	1	7	-0.096	-0.753	-0.988	-3.89
	CRD6	1	7	-0.117	-0.923	-0.682	-2.686
	CRD7	1	7	0.212	1.672	-1.035	-4.074
	CRD8	1	7	0.214	1.687	-0.539	-2.123
GS	GS1	1	7	0.194	1.53	-1.329	-5.231
	GS2	1	7	0.01	0.078	-1.126	-4.433
	GS3	1	7	0.339	2.67	-1.112	-4.376
	GS4	1	7	0.264	2.082	-1.187	-4.673
	GS5	1	7	0.45	3.545	-1.05	-4.133
	GS6	1	7	0.434	3.414	-1.056	-4.157
	GS7	1	7	0.407	3.207	-0.969	-3.814
	GS8	1	7	0.514	4.046	-0.936	-3.686
	GS9	1	7	0.326	2.564	-1.279	-5.034

Table 5.6 (Continued)

TR	TR1	1	7	-0.749	-5.896	-0.205	-0.808
	TR2	1	7	-0.568	-4.47	-0.465	-1.83
	TR3	1	7	-0.203	-1.602	-0.621	-2.444
	TR4	1	7	-0.263	-2.068	-0.627	-2.469
	TR5	1	7	-0.11	-0.863	-0.378	-1.488
SE	SE1	1	7	-0.846	-6.663	0.357	1.407
	SE2	1	7	-0.856	-6.74	0.534	2.104
	SE3	1	7	-0.539	-4.246	-0.156	-0.613
	SE4	1	7	-0.646	-5.087	-0.056	-0.221
	SE5	1	7	-0.48	-3.777	-0.885	-3.484
	SE6	1	7	-0.525	-4.136	-0.241	-0.949
COM	COM1	1	7	-0.416	-3.279	-0.96	-3.781
	COM2	1	7	-0.403	-3.174	-0.889	-3.502
	COM3	1	7	-0.384	-3.025	-0.73	-2.873
	COM4	1	7	-0.307	-2.42	-0.582	-2.293
	COM5	1	7	-0.334	-2.63	-1.07	-4.211

Table 5.7
Normality through AMOS after Transform

Variables	**Variable codes**	**Min**	**Max**	**skew**	**c.r.**	**kurtosis**	**c.r.**
CRS							
UB	tttttUB1	0.084	0.868	-0.227	-1.789	-1.751	-6.894
	tttUB2	0.073	0.895	-0.235	-1.848	-1.662	-6.545
	tUB3	0.006	0.932	-0.219	-1.721	-1.351	-5.32
	ttttUB4	0.079	0.88	-0.23	-1.81	-1.692	-6.663
	tUB5	0.005	0.949	-0.16	-1.261	-1.289	-5.077
VB	ttVB1	0.042	0.922	-0.188	-1.479	-1.545	-6.082
	ttVB2	0.039	0.928	-0.172	-1.356	-1.525	-6.005
	tVB3	0.004	0.926	-0.201	-1.58	-1.332	-5.246
	ttVB4	0.039	0.907	-0.226	-1.782	-1.59	-6.258
RB	RB1	1	7	0.098	0.771	-1.254	-4.937
	RB2	1	7	0.021	0.165	-1.088	-4.282
	RB3	1	7	0.207	1.626	-1.136	-4.473
	RB4	1	7	-0.005	-0.041	-1.045	-4.113
TB	tTB1	0.025	0.945	-0.134	-1.056	-1.437	-5.657
	tTB2	0.022	0.941	-0.213	-1.68	-1.425	-5.612
	tTB3	0.009	0.936	-0.2	-1.575	-1.301	-5.122
	tttTB4	0.076	0.89	-0.236	-1.858	-1.643	-6.469
IB	tIB1	0.01	0.949	-0.23	-1.813	-1.379	-5.43
	tIB2	0.012	0.941	-0.247	-1.947	-1.359	-5.351
	tIB3	0.021	0.934	-0.176	-1.384	-1.469	-5.783
	tIB4	0.009	0.943	-0.144	-1.13	-1.382	-5.442
	tIB5	0.033	0.931	-0.25	-1.966	-1.416	-5.574
ATT	tttttATT1	0.133	0.912	0.313	2.465	-1.801	-7.092
	ttttATT2	0.125	0.923	0.242	1.902	-1.739	-6.846
	tttATT3	0.112	0.938	0.234	1.84	-1.667	-6.561
	ttATT4	0.103	0.961	0.253	1.995	-1.538	-6.055
	ttttATT5	0.126	0.919	0.24	1.889	-1.768	-6.962

Table 5.7 (Continued)

SN	ttSN1	0.083	0.968	0.229	1.804	-1.471	-5.793
	ttSN2	0.089	0.963	0.236	1.858	-1.523	-5.996
	ttSN3	0.093	0.961	0.198	1.559	-1.535	-6.041
	ttSN4	0.092	0.962	0.194	1.531	-1.499	-5.901
	ttSN5	0.09	0.966	0.231	1.817	-1.497	-5.895
PBC	tttttPBC1	0.132	0.914	0.354	2.785	-1.672	-6.583
	ttPBC2	0.076	0.95	0.217	1.708	-1.514	-5.962
	ttPBC3	0.088	0.953	0.204	1.603	-1.586	-6.244
	ttPBC4	0.088	0.954	0.23	1.807	-1.56	-6.143
CRD	CRD1	1	7	0.161	1.271	-0.909	-3.58
	CRD2	1	7	0.16	1.26	-0.99	-3.897
	CRD3	1	7	0.042	0.331	-0.942	-3.71
	CRD4	1	7	-0.091	-0.713	-0.961	-3.783
	CRD5	1	7	-0.096	-0.753	-0.988	-3.89
	CRD6	1	7	-0.117	-0.923	-0.682	-2.686
	CRD7	1	7	0.212	1.672	-1.035	-4.074
	CRD8	1	7	0.214	1.687	-0.539	-2.123
GS	GS1	1	7	0.194	1.53	-1.329	-5.231
	GS2	1	7	0.01	0.078	-1.126	-4.433
	tGS3	0.021	0.895	-0.196	-1.547	-1.482	-5.835
	tGS4	0.019	0.892	-0.131	-1.028	-1.534	-6.04
	ttGS5	0.053	0.881	-0.22	-1.735	-1.645	-6.478
	tGS6	0.019	0.875	-0.243	-1.915	-1.479	-5.824
	tGS7	0.016	0.88	-0.176	-1.389	-1.502	-5.914
	ttGS8	0.05	0.874	-0.219	-1.727	-1.641	-6.461
	tGS9	0.037	0.872	-0.179	-1.413	-1.573	-6.194
TR	tttTR1	0.097	0.937	0.207	1.63	-1.624	-6.394
	ttTR2	0.08	0.957	0.172	1.356	-1.563	-6.155
	TR3	1	7	-0.203	-1.602	-0.621	-2.444
	tTR4	0.049	0.996	0.044	0.344	-1.361	-5.357
	TR5	1	7	-0.11	-0.863	-0.378	1.488
SE	tttSE1	0.103	0.937	0.225	1.774	-1.684	-6.628
	ttSE2	0.075	0.966	0.237	1.863	-1.519	-5.98
	tSE3	0.07	0.999	0.184	1.451	-1.396	-5.497
	tSE4	0.081	0.996	0.23	1.813	-1.295	-5.096
	tttSE5	0.107	0.928	0.227	1.785	-1.661	-6.541
	tSE6	0.062	0.999	0.165	1.297	-1.459	-5.746
COM	ttCOM1	0.091	0.946	0.25	1.972	-1.568	-6.172
	tCOM2	0.062	0.986	0.252	1.985	-1.409	-5.548
	tCOM3	0.064	0.983	0.191	1.506	-1.319	-5.194
	tCOM4	0.044	0.991	0.106	0.837	-1.278	-5.031
	tCOM5	0.061	0.967	0.231	1.822	-1.44	-5.67

5.4.4 Assumptions of Linearity Relationship

By examining the scatter plot residuals using SPSS, the results indicate a straight-line associated with predicted dependent variable scores with means of customer resistance to internet banking: (value, risk, usage, image, and tradition barriers) (VB, RB, UB, IB, and TB) in turn, did not show any support for non-linearity. Consequently, there

was no proof to challenge the linearity assumption of customer resistance to internet banking (VB, RB, UB, IB, and TB) as shown in figure 5.1.

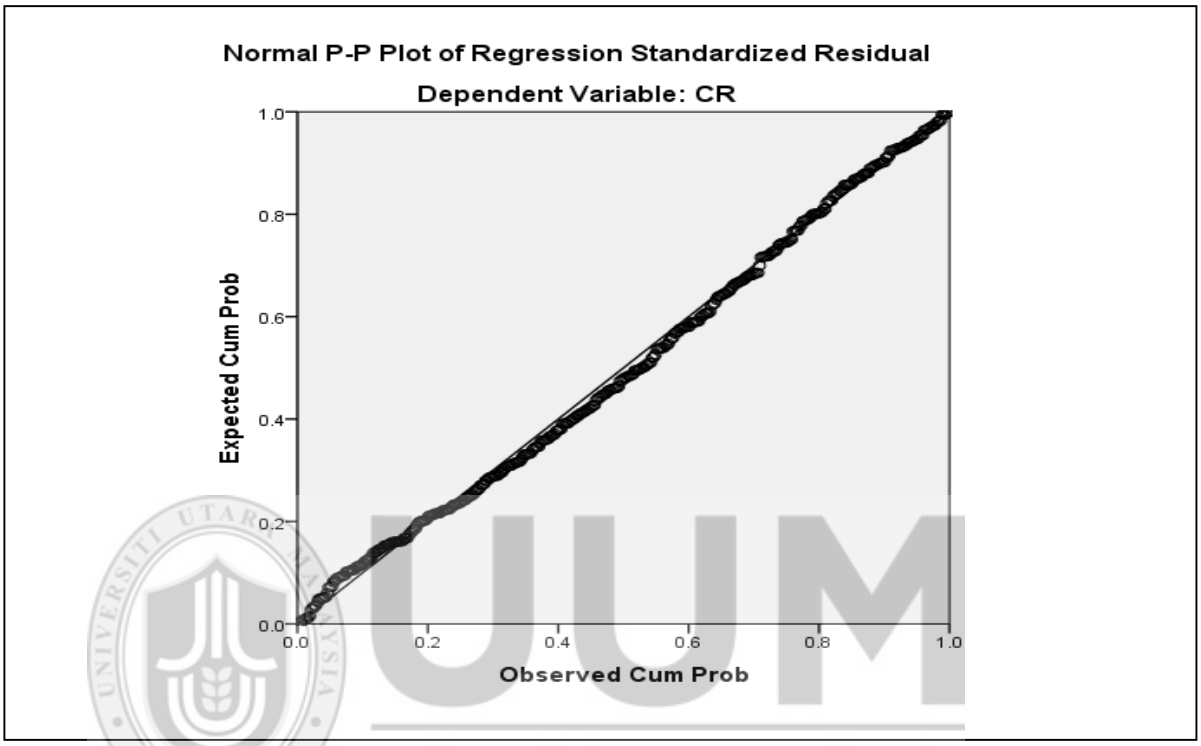

Figure 5.1
Linearity Assumption

5.4.5 Assumption of Homoscedasticity

The presence (existence) of homoscedasticity in a research means the variance of errors in the analysis is the same across all its levels in the independent (exogenous) variables (Hair *et al.*, 2006). There was no homoscedasticity obtained in the estimates of its correlation results as obtained in the structural analysis in the current study as shown in Figure 5.2. None of the independent (exogenous) variables have irregular estimates, therefore, confirming non-existence of any distortions or probability of committing Type 1 error. The result of homoscedasticity of other endogenous variables can be found in (Appendix F).

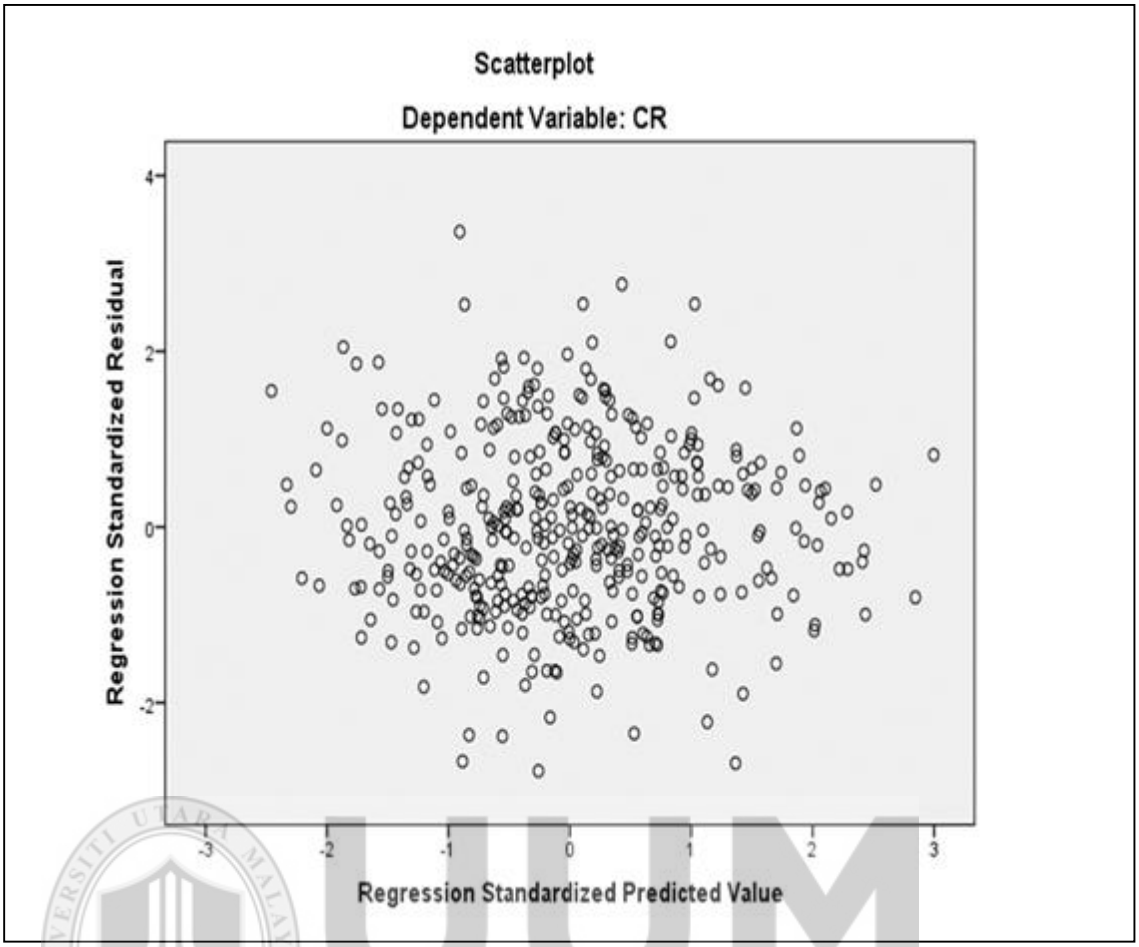

Figure 5.2
Homoscedasticity

5.5 Non-response Bias

Existing facts from previous studies indicated that non-response could differ systematically sometimes from the respondents attitudes, behaviors, personalities, motivations, and demographics; and this may in part or whole affect the results of a study (Malhotra, 2010). With the present study, non-response and the response bias were tested using the t-tests to make comparison between the mean, standard deviation and standard error mean of the early and late responses in gender, nationality, marital status, academic qualification, position, customer resistance, attitude, subjective norms, perceived behavior control, credibility, trust, self-efficacy, and government support. Basically, late respondents could be used in place of non-respondents since

they could not have probably responded without follow up (Churchill & Brown, 2004; Malhotra, 2010).

The results of t-test in Table 5.8 for response bias using t-test of 2 groups (Malhotra, 2010) revealed that there is no much difference in customer resistance (t= -1.128, sig= 0.260) statistically as it denotes that variations do not exist between the variable with the response groups (Sig T & Sig F). Therefore, the data is free from response bias. For detailed verifications of the descriptive test of non- response bias, please refer to Table 5.8.

Table 5.8
Test of Non-Respondent Bias

		Levene's Test for Equality of Variances		T-test for equality of means		
		F	Sig.	T	df	Sig.(2-tailed)
CRS	Equal variances assumed	.744	.389	-1.128	405	.260
	Equal variances not assumed			-1.139	341.709	.255
ATT	Equal variances assumed	.585	.445	-.925	405	.356
	Equal variances not assumed			-.917	321.982	.360

5.6 Reliability and Composite Reliability

As shown in the existing literatures, content reliability is to ascertain if the hypothesized items truly measures their constructs or not (John & Reve, 1982). The researcher critically assessed all the items` reliability and their loadings or the correlations with the construct' hypothesized path. Supposedly, a cronbach`s alpha of a loading 0.60 has been suggested by Hair *et al.* (2006).

However, some authors suggested a high conservative benchmark of 0.70 (Nunnally & Bernstein, 1991). Their points were argued based on the fact that the internal

consistency measures of a cronbach`s alpha primarily represent the extent to which the hypothesized items essentially converge to measure the variable of interest. Table 5.9 lists out the outcome of the cronbach`s alpha of the main study. The composite reliability was calculated based on the suggested formula of (Fornell & Larcker, 1981; Hair *et al.*, 2006).

$$\text{Composite reliability (CR)} = \frac{(\Sigma\text{Standardized factor loading})^2}{(\Sigma\text{Standardized factor loading})^2 + \Sigma\varepsilon j}$$

Where CR = composite reliability, Σ =Summation, and εj = standardized error.

As indicated in Table 5.9, all the constructs generally exhibited an acceptable level of composite reliability with values suggested values of 0.60. These results further confirm the fitness of the data for the measurements. Table 5.9 depicts the composite reliability and the descriptive statistics of indicators and their reliable results for all the constructs. The result shown in Table 5.9 indicated that the Cronbach`s alpha value ranges from 0.688 to 0.954 while composite reliability values ranged from 0.796 to 0.992, the values for all variables were higher than the cut-off point value of greater than 0.60 (See Appendix G).

As suggested by many authors, the reliability and internal consistency of an item can be judged by a setoff predetermined values: alpha level > 0.90 should be categorized as being excellent, while those ones that are > 0.80 are good, > 0.70 should be acceptable, > 0.60 should be categorized as questionable, > 0.50 are poor for scientific research, < 0.50 are generally unacceptable for academic purposes (John & Reve, 1982). Outcome from this study shows that the measurement items both for pilot and the main study are all good. Part of the existing literatures in support of these results is that well-structured items that are measuring any single construct would statistically

exhibit a higher and better Cronbach`s Alpha results, while those items that have low internal consistency measures of less than 0.60 in a construct might theoretically indicate a poor definition of the construct (Hair *et al.*, 2006).

Table 5.9
Reliability Cronbach Alpha and Composite Reliability for Actual Data

Variable	NO of Items	Cronbach`s Alpha	Composite Reliability (CR) $CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum Var(\varepsilon_i)}$
CRS	22	0.890	0.992
ATT	5	0.908	0.982
SN	5	0.893	0.971
PBC	4	0.688	0.796
CRD	8	0.928	0.988
GS	9	0.954	0.985
SE	6	0.884	0.978
TR	5	0.873	0.956
COM	5	0.905	0.979

Where: λ_i = factors loading , $\sum var(\varepsilon_i)$ = sderrors

5.7 Constructs Validity

This study uses two types of statistical validity tests, firstly by using SEM and SPSS analysis: convergent validity was conducted essentially in the measurement model as the first type of validity tests to determine the multicollinearity and whether or not the indicators converge together on a single construct. On the other hand, the discriminant validity was tested to validate if the items developed to measure constructs are indeed estimating those constructs.

5.7.1 Multicollinearity / Correlation Matrix of Constructs

From the correlation results, it shows non-existence of multicollinerity. Looking at the correlation matrix in Table 5.10, the correlation coefficient for the entire dependent (endogenous) and independent (exogenous) representing latent variables were below

the expected value of 0.80; for instance, several variables of CRS, PBC, CRD, GS, and TR exhibit reasonably low correlation coefficient of (p= 0.01 significance level). Moreover, the results were obtained from AMOS in estimating the hypothesized model. The correlation matrix shows that values are less than 0.80, which means there is no multicollinearity between all the exogenous variables (Cooper & Schindler, 2003; Sekaran, 2003). See details of AMOS, correlation matrix between the entire variables in (appendix H). The measurement model before fitting is listed in Table 5.10 from AMOS depicting the correlation matrix between the variables.

Table 5.10
Correlation Matrix between the all Variable

	CRS	**COM**	**SE**	**TR**	**GS**	**CRD**	**PBC**	**SN**	**ATT**
CRS	1	0.400	0.419	0.296	0.196	0.367	0.327	0.142	0.195
COM	-0.633	1	0.162	0.168	0.005	0.206	0.196	0.002	0.014
SE	-0.647	0.403	1	0.280	0.005	0.082	0.335	0.176	0.192
TR	0.544	-0.41	-0.529	1	0.084	0.169	0.139	0.016	0.054
GS	-0.443	0.486	0.071	-0.289	1	0.377	0.053	0.016	0.010
CRD	-0.606	0.454	0.286	-0.411	0.614	1	0.137	0.007	0.088
PBC	-0.572	0.443	0.579	-0.372	0.231	0.37	1	0.052	0.088
SN	-0.377	0.053	0.42	-0.241	-0.128	0.083	0.228	1	0.274
ATT	-0.442	0.12	0.438	-0.232	-0.155	0.101	0.296	0.523	1

(Correlation) [2are] in upper diagonals

5.7.2 Discriminant Validity (Average Variance Extracted)

To satisfy the basic requirement that is guiding discriminate validity, the average variance extracted (AVE) of any two constructs that is measured must be more than the square of correlations that exist among these constructs (Fonell & Larcker, 1981).

The formula for calculating the Variance Extracted (VE/ AVE) (Kearns & Lederer, 2003) is:

$$\text{Variance Extracted (VE)} = \frac{\Sigma(\text{Standardized Square Multiple Correlation SMC})}{\Sigma(\text{Standardized Square Multiple Correlation SMC}) + \Sigma\varepsilon j}$$

Where SMC = squared multiple correlation, Σ = summation, $\Sigma\varepsilon j$ = standardized error

Table 5.11 and Table 5.12 summarized the calculation of the variance extracted (VE/AVE) through the squared multiple correlation (SMC) and standard error (S.E). As indicated in Table 5.11; values of the variance extracted show the amount of variances that each construct can explain in the research framework. In this current study, these values range from 0.664 to 0.987 as calculated through the squared multiple correlations (SMC) and the standard error of variance (S.E). The result in Table 5.11 shows that the variance extracted for all the nine (9) constructs were greater than 0.5, thus meeting the suggested cut off line by Hair *et al.* (2010). The values for SMC and S.E were all extracted from the AMOS outputs. The Average Variance Extracted (AVE) value are more than the squared correlations for each set of construct as shown in Table 5.11 and Table 5.12; Moreover, from observations there is an indication that the square root of the AVE for a given construct is greater than the absolute values of the standardized correlation square of the construct with other constructs in the analysis (AVE > correlation square). Thus, discriminant validity is upheld; hence all constructs used support discriminant validity test. The results of the AVE test and the correlation square for latent variables can be found in (Appendix I).

Table 5.11
Summary of Variance Extracted (VE)

Variable name	Vatiance Extacted (VE)
CRS (1)	0.987
COM (2)	0.967
SE (3)	0.962
TR (4)	0.927
GS (5)	0.979
CRD (6)	0.981
PBC (7)	0.664
SN (8)	0.957
ATT (9)	0.973

Where:$\lambda_i = factors\ loading$, n= number of items

Table 5.12
AVE Table Matrix

Variable Name	1	2	3	4	5	6	7	8	9
CRS (1)	1								
COM (2)	0.977	1							
SE (3)	0.975	0.965	1						
TR (4)	0.957	0.947	0.945	1					
GS (5)	0.983	0.973	0.971	0.953	1				
CRD (6)	0.984	0.974	0.972	0.954	0.980	1			
PBC (7)	0.825	0.815	0.813	0.796	0.822	0.969	1		
SN (8)	0.972	0.962	0.960	0.942	0.968	0.969	0.811	1	
ATT (9)	0.980	0.970	0.968	0.950	0.976	0.977	0.965	0.965	1

In this study, AVE > (Correlations)^2 = no multicollinearity; discriminant validity is support.

The variance value extracted for the constructs explained 50 percent or more of the variance and are well above 0.60 (Table, 5.11). The values are in line with the threshold (VE/AVE value should be at least 0.50) as suggested (Thompson *et al.*, 1991; Bagozzi *et al.*, 1991; Holmes-Smith, 2001). Moreover, all research constructs had a correlation value less than the recommended cut off of 0.60 (Sekaran, 2003). The result of Average Variance Extracted (AVE) for latent variables can be found in (Appendix I).

5.8 Confirmatory Factor Analysis (CFA) of Measurement Model of Endogenous and Exogenous Variables

CFA analysis method was conducted to test the convergent validity for each variable individually as shown in this section. Furthermore, the following section explains CFA for the endogenous and exogenous constructs together. In addition, the researcher ensured that each exogenous and endogenous construct has the correct observed variable. Besides, the items of constructs theoretically should be close to each other with regard to the factor loading and good of fit (GOF) (Hair *et al.*, 2010).

5.8.1 Confirmatory Factor Analysis (CFA) of Measurement Model Endogenous Variables

In this study, endogenous variables consist of one variable call customer resistance with five dimensions (image barrier, value barrier, tradition barrier, risk barrier, image barrier) as 2 second order CFA. Additionally, attitude, subjective norm, perceived behavior control and credibility are the endogenous variables and are reflected as the mediators. Figure 5.3 and Figure 5.4 show the resulting statistical estimates before fit and after fit of five endogenous models. Moreover, Table 5.13 shows that the GOF results of the endogenous model which are; Chi-square = 114.730, DF = 92, Ratio = 1.247, CFI = 0.993, GFI = 0.965, AGFI = 0.948, NFI = 0.967, RMSEA = 0.026 and P- value = 0.054, indicating that the value of the overall model has achieved the recommended values by Hair *et al*. (2006). Table 5.13 shows the recommended values of GOF for models.

Table 5.13
GOF Index for Endogenous Measurement Model after Fit

Indicators	**Endo measurement model**	**Threshold value /Criteria value) (Hair *et al.*, 2010)**
Absolute indices:		
Chi-square χ	114.730	
DF	92	
Ratio	1.247	Less than 2
Incremental indices:		
CFI		
GFI	0.993	0.90 and above
AGFI	0.965	0.90 and above
NFI	0.948	0.90 and above
	0.767	0.90 and above
Parsimonious indices:		
RMSEA		
P-value	0.026	Less than 0.08
	0.054	More than 0.05

Source: (Hair *et al.*, 2010)

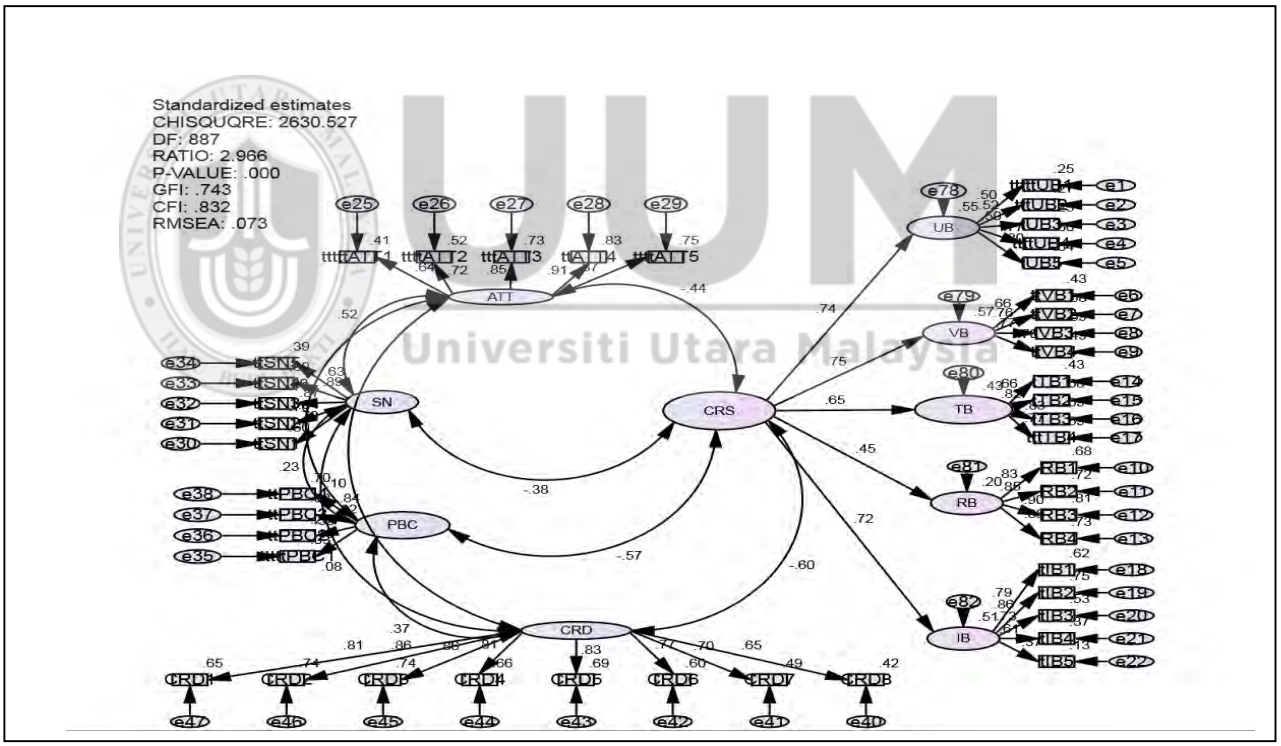

Figure 5.3
CFA For Endogenous Before Fit

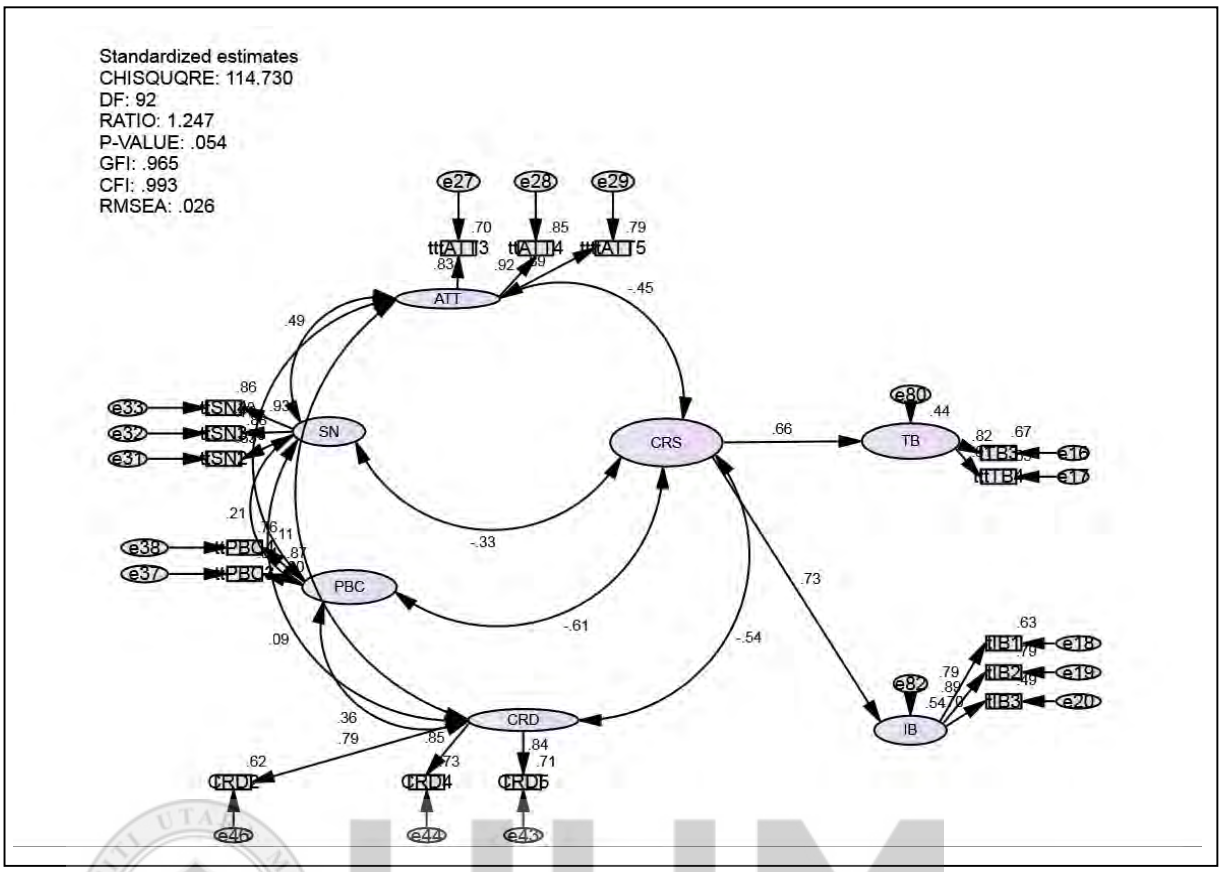

Figure 5.4
CFA Measurement Model for Endogenous After Fit

5.8.2 Confirmatory Factor Analysis (CFA) of Measurement Model for Exogenous Variables (Goodness-of –fit indices)

This study examines the set of exogenous variables: trust, self-efficacy, and government support. Figure 5.5 and Figures 5.6 show the resulting statistical estimates before fit and after fit of all dependent models. Most of the variables indicated achieved a good fit as per the recommended value (Hair *et al.*, 2010). Moreover, the final modified model for each exogenous variables model yields a good result of fit as advocated by Hair *et al.* (2010) as shown in Table 5.14.

Table 5.14
GOF Index for Exogenous Measurement Model after Fit

Indicators	**Exo measurement model**	**Threshold value /Criteria value) (Hair *et al.*, 2010)**
Absolute indices:		
Chi-square χ	65.071	
DF	48	
Ratio	1.356	Less than 2
Incremental indices:		
CFI		
GFI	0.994	0.90 and above
AGFI	0.973	0.90 and above
NFI	0.955	0.90 and above
	0.978	0.90 and above
Parsimonious indices:		
RMSEA		
P-value	0.031	Less than 0.08
	0.051	More than 0.05

Source: (Hair *et al.*, 2010)

Table 5.14 shows that the good of fit index for Chi-square χ^2, DF, Ratio, CFI, GFI, AGFI, NFI, RMSEA and P-value, statistical estimates achieve of goodness –of-fit for exogenous model including, trust, self-efficacy, compatibility and government support. Table 5.14 also shows the resulting statistical estimates of the exogenous model. Most of the indices indicated achieved a good fit as per recommended value (Hair *et al.*, 2010). Moreover, the final modified yields Ratio = 1.356 and p-value = 0.051, which is supported at the level of 0.05. Also other fit measures also indicate the goodness-of-fit of the model to the data (Chi-square = 65.071, DF = 48, Ratio = 1.356, CFI = 0.994, GFI = 0.973, AGFI = 0.955, NFI = 0.978, RMSEA = 0.031 and P- value = 0.051).

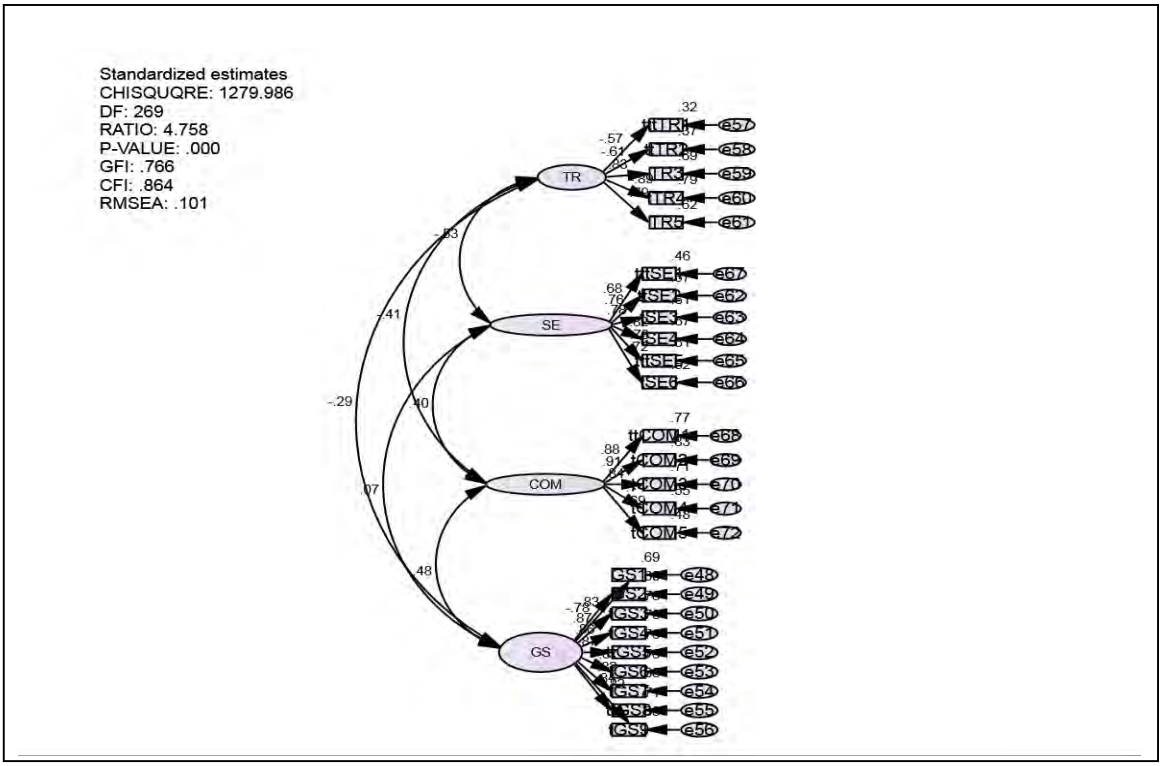

Figure 5.5
CFA of measurement model for exogenous before fit

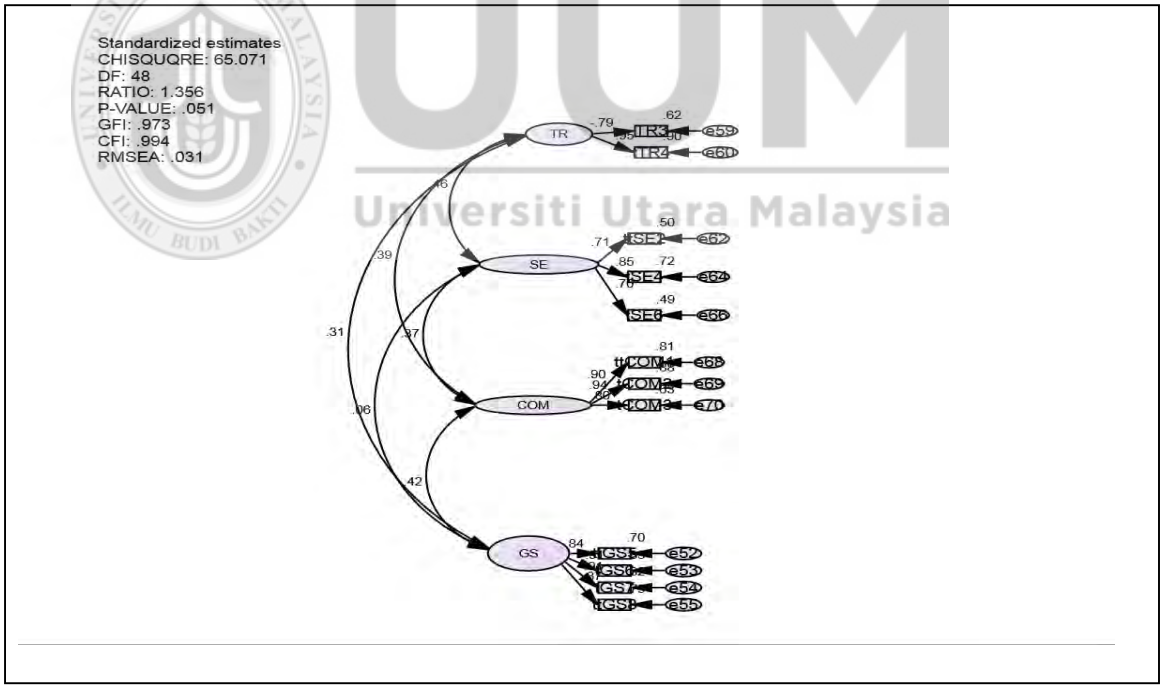

Figure 5.6
CFA of Measurement Model for Exogenous After Fit

5.8.3 Confirmatory Factor Analysis (CFA) of Measurement Model for All Variables

In this study there are five endogenous and four exogenous variables and these are customer resistance, attitude, subjective norm, perceived behavior control, credibility, trust, self-efficacy, compatibility, and government support. Figure 5.7 and Figure 5.8 show the resulting statistical estimates before fit and after fit of five endogenous models. Moreover, Table 5.15 shows that the GOFI results of the all measurement model which are; Chi-square = 184.936, DF = 171, Ratio = 1.081, CFI = 0.997, GFI = 0.957, AGFI = 0.938, NFI = 0.963, RMSEA = 0.015 and P- value = 0.221, indicating that the value of the overall model has achieved the recommended values of Hair et al. (2006). In addition, (Appendix J) displays the examinations of the goodness-of–fit indices that are based on the endogenous model.

Table 5.15
GOF Index for Measurement Model after Fit

Indicators	**Exo measurement model**	**Threshold value /Criteria value) (Hair *et al.*, 2010)**
Absolute indices:		
Chi-square χ	184.936	
DF	171	
Ratio	1.081	Less than 2
Incremental indices:		
CFI		
GFI	0.997	0.90 and above
AGFI	0.957	0.90 and above
NFI	0.938	0.90 and above
	0.963	0.90 and above
Parsimonious indices:		
RMSEA		
P-value	0.015	Less than 0.08
	0.221	More than 0.05

Source: (Hair *et al.*, 2010)

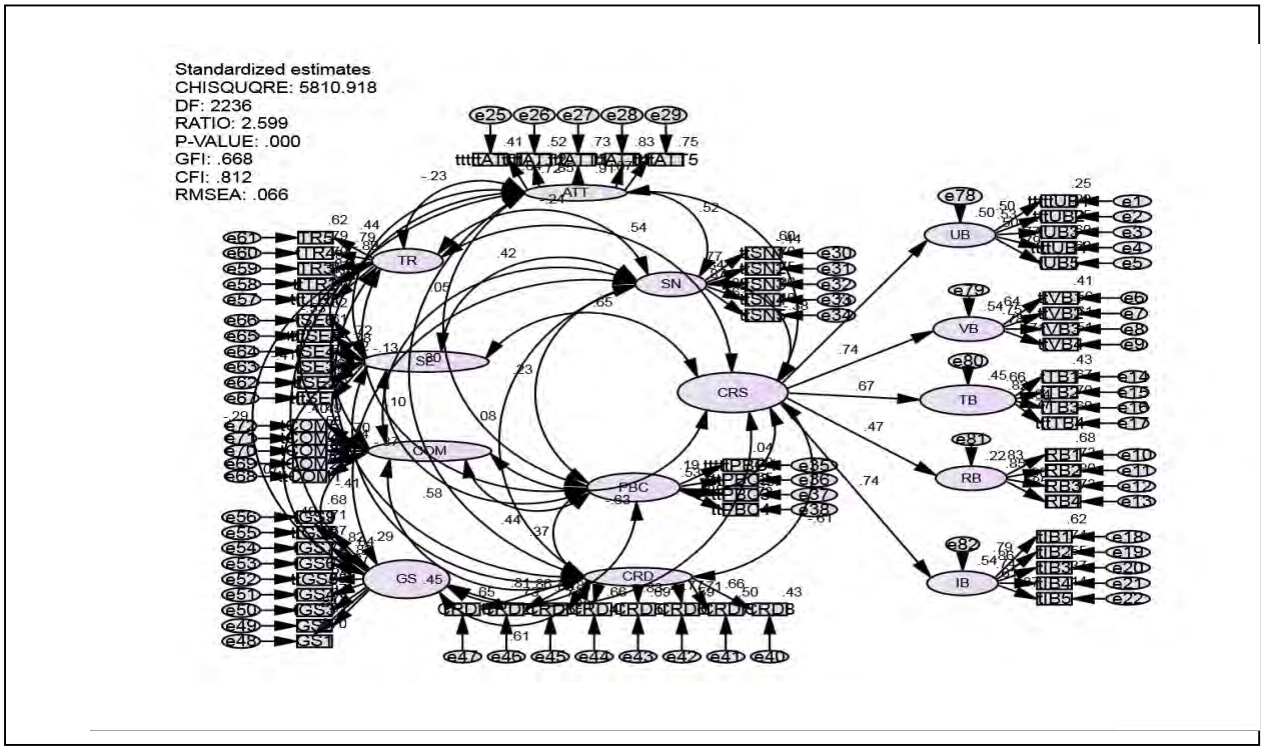

Figure 5.7
CFA Measurement Model for all Variables Model before Fit

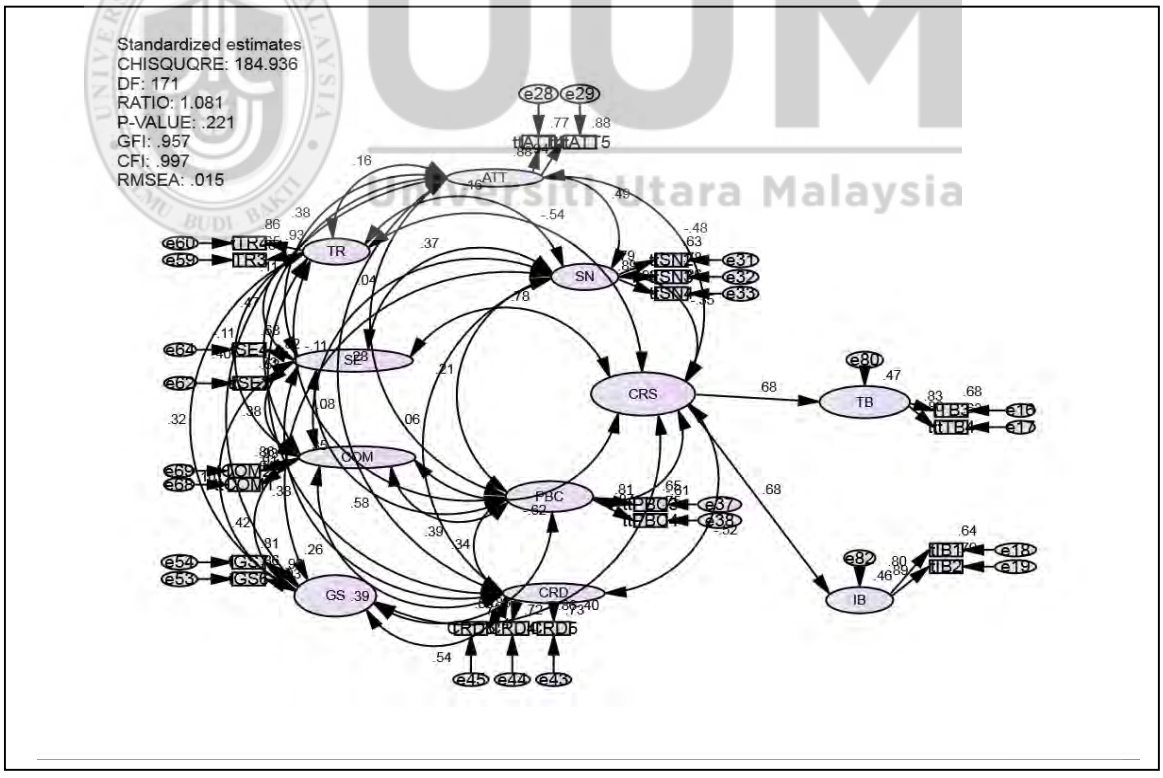

Figure 5.8
CFA Measurement Model for all Variables Model after Fit

5.8.4 Summary of Confirmatory Factor Analysis (CFA)

Table 5.16 shows the summary of GOF individual constructs, CFA measurement, hypothesised and generated model. It shows the goodness-of-fit indices based on 372 samples. Most individual constructs resulted in achieving P-value more than 0.05 except SN, ATT, SE, and COM. However, the hypothesized model is not achieved P-value.

Table 5.16
CFA of Individuals, Measurement and Structural Model (Goodness-Of –Fit Indices) (N =372)

V/COD	Items	Items remaining	Chi-square χ	DF	CMIN/DF	CFI	GFI	AGFI	NFI	RMSEA	P-value
CRS	22	11	9.421	6	1.570	0.995	0.992	0.971	0.987	0.039	0.151
GS	9	4	3.628	2	3.628	0.998	0.995	0.975	0.996	0.047	0.163
CRD	8	5	9.842	5	1.968	0.995	0.989	0.968	0.991	0.051	0.080
SN	5	4	7.321	2	3.660	0.993	0.991	0.954	0.990	0.085	0.026
ATT	5	4	9.032	2	4.516	0.993	0.989	0.943	0.991	0.097	0.011
PBC	4	4	0.580	2	0.748	1.000	0.999	0.996	0.998	0.000	0.748
TR	5	4	5.125	2	2.562	0.996	0.993	0.966	0.993	0.065	0.077
SE	6	4	7.264	2	3.632	0.991	0.990	0.950	0.988	0.084	0.026
COM	5	4	6.157	2	3.078	0.995	0.992	0.961	0.993	0.075	0.046
ENDO	44	16	114.730	92	1.247	0.993	0.965	0.948	0.967	0.026	0.054
EXO	25	12	65.071	48	1.356	0.994	0.973	0.955	0.978	0.031	0.051
MESUREMENT for	69	22	184.936	171	1.081	0.997	0.957	0.937	0.963	0.015	0.221

V/COD	Items	Items remaining	Chi-square χ	DF	CMIN/DF	CFI	GFI	AGFI	NFI	RMSEA	P-value
all Variables											
HYPOTHIZED MODEL	69	69	5975.013	2248	2.658	0.804	0.658	0.633	0.721	0.067	0.000
GENERATED MODEL	69	20	149.906	137	1.094	0.997	0.962	0.942	0.964	0.016	0.213

5.9 Hypothesized Model

In this study, the hypothesized model comprised of eighteen direct hypotheses; H1 attitude and customer resistance, H2 subjective norm and customer resistance, H3 perceived behavioural control and customer resistance, H4 credibility and customer resistance, H5 trust and attitude, H6 compatibility and attitude, H7 Government support and attitude, H8 trust and subjective norms , H9 self-efficacy and subjective norm, H10 government support and subjective norm, H11 trust and perceived behavior control, H12 compatibility and perceived behavior control, H13 Self-efficacy and perceived behaviour control, H14 government support and perceived behaviour control, H15 trust and credibility, H16 compatibility and credibility, H17 self-efficacy and credibility, and H18 government support and credibility.

The principal objective of the hypothesized model is to describe whether the relationship between the research paradigms fits the data significantly according to the absolute, incremental, and parsimonious model fit measure, which is assessed by goodness-of-fit indices (NFI ratio, IFI, TLI, CFI, RMSEA, AGFI, TLI, CFI, NFI, GFI) which were used to test if the research constructs fit the data significantly (refer figure 5.9). The AMOS output of the hypothesized model in Table 5.18 shows that a value

for the ratio that is more than 2 indicates an insufficient fit. Consequently, the ratio in the hypothesized model for this study had an insufficient fit. Because it is more than 2 (Ratio = 2.658), indicating that the data did not fit. Moreover Incremental indices: (CFI = 0.804, GFI = 0.658, AGFI = 0.633, NFI = 0.721) did not fit the data well, since the value that is in close proximity to 1 show a better fit. The parsimonious indices fit index (RMSEA) is considered as the best measure for the model fit. The AMOS output showed that (RMSEA = 0.067) was in the recommended range of 0.05 and 0.08 and was less than 0.10 (Hair *et al.*, 2010). Please refer to (Table 5.17).

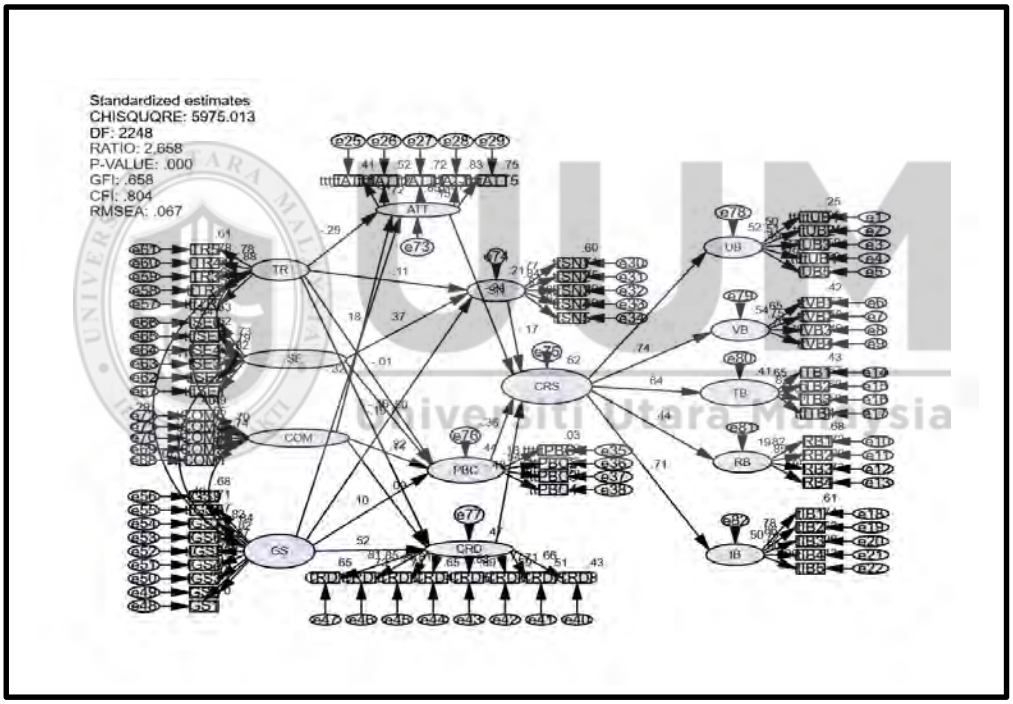

Figure 5.9
Hypothesized Model of Customer Resistance

In addition, the p-value indicator, which indicates the ability or the inability for the generalization of this study, was found in hypothesized model to be 0.000, which means that, the AMOS output cannot be generalized (Hair *et al.*, 2010). The AMOS output of the hypothesized model can be found in (Appendix K). From Table 5.17, the results of the hypothesized model indicates that the p-value has not been achieved but

all other criterion of the model achieved fit index ratios, NFI, IFI, TLI, CFI, AGFI, TLI, CFI, NFI, GFI did not perfectly fit the sample data except RMSEA which was in the recommended range of 0.05 and 0.08 and was less than 0.10 (Hair *et al.* 2003).

Table 5.17
Hypothesized Model / (Goodness-Of-Fit Indices)

Indicators	**Hypothesized model**	**Threshold value /Criteria value) (Hair *et al.*, 2010)**
Absolute indices:		
Chi-square χ	5975.013	
DF	2248	
Ratio	2.658	Less than 2
Incremental indices:		
CFI		
GFI	0.804	0.90 and above
AGFI	0.658	0.90 and above
NFI	0.633	0.90 and above
	0.721	0.90 and above
Parsimonious indices:		
RMSEA	0.067	Less than 0.08
P-value	0.000	More than 0.05

According to Hair *et al.* (2006), Modification Indices (MI) / covariance in the output of AMOS is the amount of the overall χ^2 value that would be reduced by freeing any single particular path that is not currently estimated. Looking at the modification indices for the error terms, the researcher discovered that the value for the covariance between some error terms were high, although the model does not recommend adding this relationship. The MI indicates a high covariance between these items but it is not captured by the model constructs. In other words, if modifications indices between the items and its loading are low, these items become suitable for deletion to achieve model fit improvement (Hair *et al*., 2006) for more details of Hypothesized Model refer to (Appendix K). Therefore, the next step is to improve these fit indices by careful deletions following suggestions by MI.

5.10 Generated Structural Model (GSM)

In order to achieve fit by improving the structural model, it became necessary to exclude the items with high error and the low factor loading using modification indices (MI). The results in Table 5.18 show that GOF, such as a ratio value is less than 2 (1.094), indicating sufficient data fit. Moreover, CFI = 0.997, GFI = 0.962, AGFI = 0.942 and NFI = 0.964 fit the data well, since the values that are in close proximity to 1 show better fit. In addition, the parsimonious fit index (RMSEA) is considered as the better measurement for the model fit as the results showed that RMSEA = 0.016, which was inside the recommended range of 0.05 and 0.08 and less than 0.10 (Hair *et al.*, 2006). The p-value indicator, which indicates the ability or inability for model generalization was found in the generated model to be equal 0.213, it means that this result can be generalized to the entire probable population for this study (Hair *et al.*, 2006). The generated model shows more output in (Appendix I).

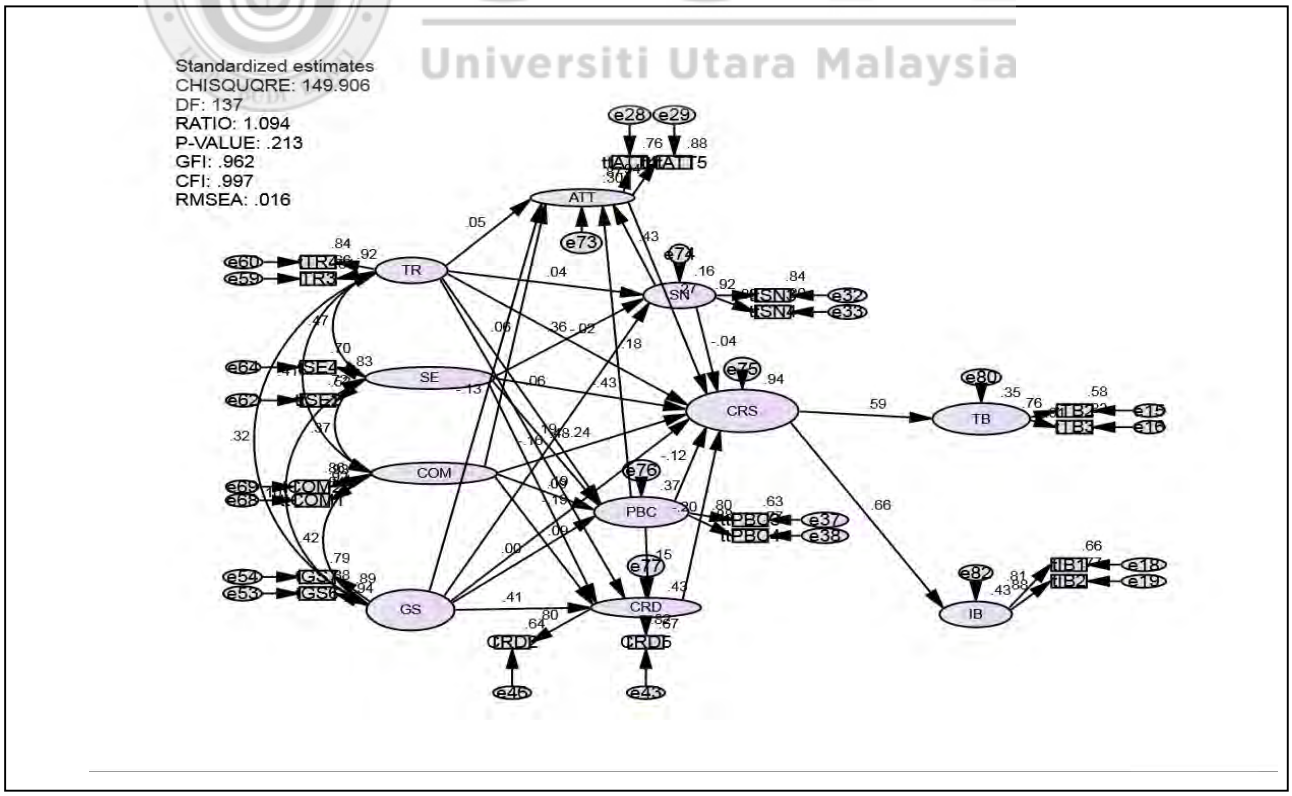

Figure 5.10
Generated Structural Model (GSM)

Table 5.18
Generated Model (GM) / (Goodness-Of-Fit Indices)

Indicators	**Generated Model (GM) Hypothesized model After fitting/**	**Threshold value /Criteria value) (Hair *et al.*, 2010)**
Absolute indices:		
Chi-square χ	149.906	
DF	137	
Ratio	1.094	Less than 2
Incremental indices:		
CFI	0.997	0.90 and above
GFI	0.962	0.90 and above
AGFI	0.942	0.90 and above
NFI	0.964	0.90 and above
Parsimonious indices:		
RMSEA	0.016	Less than 0.08
P-value	0.213	More than 0.05

When the entire model fit indices show a better fit to the data, it means the univariate normality and multicollinearity assumption also support the overall measurement. Moreover, reliability, convergent and discriminant validities test all met the threshold as recommended by renowned authors like (Hair *et al.*, 2006; Fonell & Larcker, 1981). Thus, measurement estimated is sufficient in testing the structural or path coefficient which assesses the hypothesized relationships between the latent variables of the present model (Anderson & Gerbing, 1992). However, in testing the Generated Model (GM), the statistical significance of the standardized regression weights (t-value) is investigate at 0.01, 0.05, and 0.001 level alongside the coefficient of determination (R^2) for the endogenous variables in the research model. In addition, estimation of Generated model is discussed.

5.11 Squared Multiple Correlation for Generated Model

The proposed research model (with path coefficients), was obtained alongside the coefficient of determinations of Squared Multiple Correlation (SMC) or (R^2) for the generated model. Table 5.19 shows that the five endogenous variables were significantly influenced by the corresponding independent variables. The R^2 values were 29.6% for Attitude, 15.5% for Subjective Norm, 37% for Perceived Behavior Control, 43.2% for credibility, and 93.6% for Customer Resistance. This indicates that the factors (IVs & MVs) explain 93.6% variance in customer resistance.

Table 5.19
Squared Multiple Correlation Results

Endogenous Variable	Squared Multiple Correlation (SMC) = R^2
Attitude	29.6%
Subjective Norm	15.5%
Perceived Behavior Control	40.4%
Credibility	43.2%
Customer Resistance	93.6%

5.12 Hypotheses Results

Having achieved all model fit indices and the reliability tests illustrated convergent and discriminant validities assumption being supported, the Generated model is considered adequate for testing the path coefficient that estimates the hypothesized relationships of the model studied (Anderson & Gerbing, 1992).

5.12.1 Direct Hypothesis Results/ Generated Model

The finding from the empirical study, as shown in this section, offered interesting results for discussion, which extended the earlier research in the areas of the customer resistance to internet banking (CRS). As noted in Table 5.20, twenty five direct hypotheses (18 existing hypo and 7 new generate hypo from AMOS).The new

relations are: $H33_N$ subjective norms and attitude, $H34_N$ perceived behaviour control and attitude, $H35_N$ perceived behavior control and credibility, $H36_N$ trust to customer resistance, $H37_N$ compatibility and customer resistance, $H38_N$ self-efficacy and customer resistance, and $H39_N$ government support and customer resistance. On the whole, the existing direct path between all the hypotheses, nine hypotheses were supported while six were unsupported from the new suggested lines from AMOS analysis as shown in (Table 5.20).

Table 5.20
Regression Weights for All Variables of Generated Model

H	**Exogenous**			**Estimate**	**S.E.**	**C.R.**	**P**	**Status**	**Support**
H1	ATT	→	CRS	-0.141	0.039	-3.619	***	SG	Yes
H2	SN	→	CRS	-0.021	0.043	-0.481	0.630	NS	No
H3	PBC	→	CRS	-0.071	0.051	-1.399	0.162	NS	No
H4	CRD	→	CRS	-0.025	0.012	-2.157	0.031	SG	Yes
H5	TR	→	ATT	0.057	0.068	0.840	0.401	NS	No
H6	COM	→	ATT	0.062	0.066	0.946	0.344	NS	No
H7	GS	→	ATT	-0.136	0.062	-2.196	0.028	SG	Yes
H8	TR	→	SN	0.043	0.072	0.599	0.549	NS	No
H9	SE	→	SN	0.412	0.085	4.867	***	SG	Yes
H10	GS	→	SN	-0.156	0.056	-2.770	0.006	SG	Yes
H11	TR	→	PBC	0.057	0.069	0.831	0.406	NS	No
H12	COM	→	PBC	0.178	0.062	2.882	0.004	SG	Yes
H13	SE	→	PBC	0.548	0.088	6.210	***	SG	Yes
H14	GS	→	PBC	-0.004	0.058	-0.061	0.951	NS	No
H15	TR	→	CRD	0.885	0.310	2.856	0.004	SG	Yes
H16	COM	→	CRD	0.379	0.278	1.362	0.173	NS	No
H17	SE	→	CRD	0.472	0.419	1.128	0.259	NS	No
H18	GS	→	CRD	1.776	0.275	6.462	***	SG	Yes
$H33_N$	SN	→	ATT	0.477	0.060	7.886	***	SG	Yes
$H34_N$	PBC	→	ATT	0.201	0.068	2.958	0.003	SG	Yes
$H35_N$	PBC	→	CRD	0.692	0.333	2.077	0.038	SG	Yes
$H36_N$	TR	→	CRS	-0.014	0.046	-0.309	0.758	NS	No
$H37_N$	COM	→	CRS	-0.134	0.042	-3.178	0.001	SG	Yes
$H38_N$	SE	→	CRS	-0.282	0.072	-3.908	***	SG	Yes
$H39_N$	GS	→	CRS	-0.106	0.045	-2.349	0.019	SG	Yes

Note: N= New

Based on the results in Table 5.20, the rest of this section briefly explains the research findings of the eighteen direct paths and seven new paths as mentioned earlier. The significant direct paths are H1, H4, H7, H9, H10, H12, H13, H15, and H18. The new direct paths which named as: H33N, $H34_N$, $H35_N$, $H37_N$, $H38_N$, $H39_N$.

Hence, the findings of customer resistance (CRS), show that attitude (ATT) shows significant and negative influence on customer resistance (CRS) (β = -0.141, C.R. =-3.619, P = P<. 001) H1 is supported. Moreover, credibility (CRD), has a significant and negative effect on customer resistance (CRS) (β = -0.025; C.R. = -2.157; p-value = 0.031) H4 is supported. Also, government support (GS) has a significant but negative relationship effect on attitude (ATT) (β = -0.136; C.R. = -2.196; p-value = 0.028) H7 is supported.

In addition, self-efficacy (SE) indicates a significant and positive effect on subjective norm (SN) (β = 0.412; C.R. = 4.867; p-value = P<. 001) H9 is supported. As well, government support (GS) has a significant and negative relationship effect on subjective norms (SN) (β = -0.156; C.R. = -2.770; p-value = 0.006) H10 is supported. Next to, compatibility (COM) showed that it has a significant and positive influence on perceivedbehavior control (PBC) (β = 0.178, C.R. = 2.882, p-value = 0.004) H12 is supported. Furthermore, self-efficacy (SE) affects perceived behavior control in a significant and positive manner (PBC) (β = 0.548; C.R. = 6.210; p-value = P<. 001) H13 is supported. Additionally, trust (TR) also impacts credibility in a significant and positive relationship (CRD) (β = 0.885, C.R. = 2.856, p-value=0.004) H15 is supported. Also, government support (GS) is significantly and positively associated with credibility (CRD) (β = 1.776, C.R. = 6.462, p-value = P<. 001) H18 is supported.

For new hypotheses as suggested by the path of AMOS were 6 supported: subjective norm (SN) having significant and positive effect on attitude (ATT) (β = 0.477; C.R. = 7.886; p-value = P<. 001) H33 (new) is supported. Moreover, perceived behavior control (PBC) also came out with a significant and positive relationship with Attitude (ATT) (β = 0.201; C.R. = 2.958; p-value = 0.038) H34 (new) is supported. Also, perceived behavior control (PBC) has a significant and positive relationship with credibility (CRD) (β = 0.692; C.R. = 2.077; p-value = 0.003) H35 (new) is supported.

In addition, compatibility (COM) has a significant and negative effect on customer resistance (CRS) (β = -0.134, C.R. = -3.192, p-value = 0.001) hence, H37 (new) is supported. Furthermore, self-efficacy (SE) has a significant and negative effect on customer resistance to in (CRS) (β = -0.282, C.R. = -3.908, p-value = P<. 001) making H38 (new) to be supported. Finally, government support (GS) has a significant and negative effect on customer resistance to in (CRS) (β = -0.106, C.R. = -2.349, p-value = 0.019) making H39 (new) is supported.

On other hand, this study indicates some relations which are not significant and do not support the hypothesis of the study such as: subjective norm (SN) has an insignificant and negative influence on the customer resistance (CRS) (β =. -0.021, C.R. = -0.481, P-value = 0.630) making H2 not to be supported. Moreover, perceived behavior control (PBC) was shown to have an insignificant and negative relationship with customer resistance (CRS) (Std. Estimate β = -0.071, C.R. = -1.399, p-value = 0.162) making H3 not to be supported. Additionally, trust (TR) has an insignificant and positive effect on attitude (ATT) (β = 0.057; C.R. = 0.840; p-value = 0.401) making H5 not to be supported. Likewise, compatibility (COM), has an insignificant and positive effect on attitude (ATT) (β = 0.062; C.R. = 0.946; p-value = 0.344) hence

making H6 not to be supported. Trust (TR) has an insignificant and positive effect on subjective norm (SN) (β = 0.043; C.R. = 0.599; p-value = 0.549) making H8 not to be supported.

Trust (TR) has an insignificant and positive effect on perceived behavior control (PBC) (β = 0.057; C.R. = 0.831; p-value = 0.406) making H11 not to be supported. Moreover, government support (GS) has an insignificant and positive influence on perceived behavior control (PBC) (β = -0.004; C.R. = -0.061; p-value = 0.951) making H14 not to be supported. Also, compatibility (COM) was shown to have an insignificant and positive influence on credibility (CRD) (β = 0.379, C.R. = 1.362, p-value = 0.173) making H16 not to be supported. Likewise, self-efficacy (SE) has an insignificant and positive influence on credibility (CRD) (β = 0.472; C.R. = 1.128; p-value = 0.259) making H17 not to be supported. Finally, trust (TR) has a significant and negative effect on customer resistance (CRS) (β = -0.014, C.R. = -0.309, p-value = 0.758) making H36 (new) not to be supported. Based on the hypotheses results, a simplified path model of the current study findings is presented in the following figure 5.11 which shows the old and new relationships.

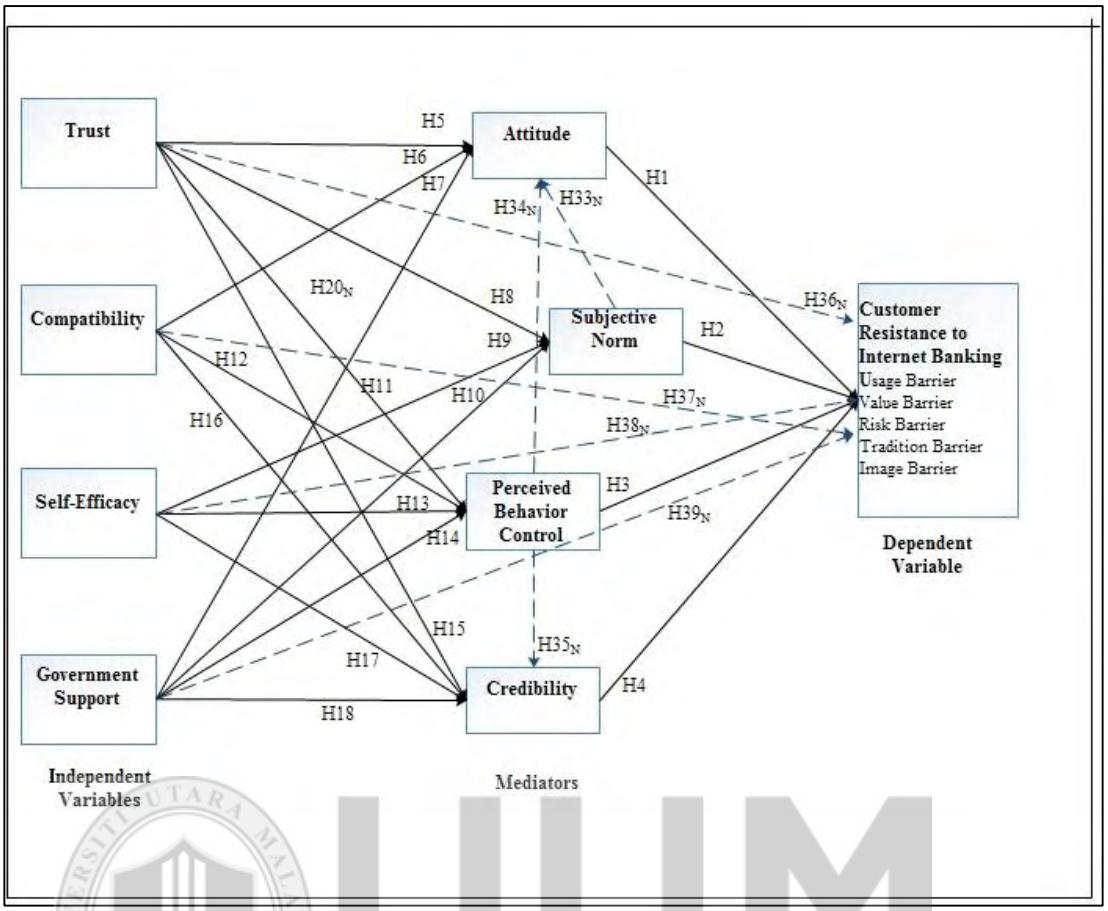

Figure 5.11
Old and New Paths between the Models Constructs/Generated Structural Model Suggested by AMOS

5.12.2 Mediating Effect/Indirect Effect of Variables Interaction and the Indirect Hypotheses Testing Results of Generated Model

The final Generated Model (GM)/hypothesized model after fit produced the indirect effect estimates which indicate whether or not the mediating effect is supported (Figure 5.12). This study consists of four mediators: attitude, subjective norm, perceived behavior control, credibility. Therefore, there are 14 mediating hypotheses and 3 new mediating hypotheses as presented diagrammatically Table 5.21. This table presents all the 17 mediating hypotheses. The hypothesis are discussed subsequently.

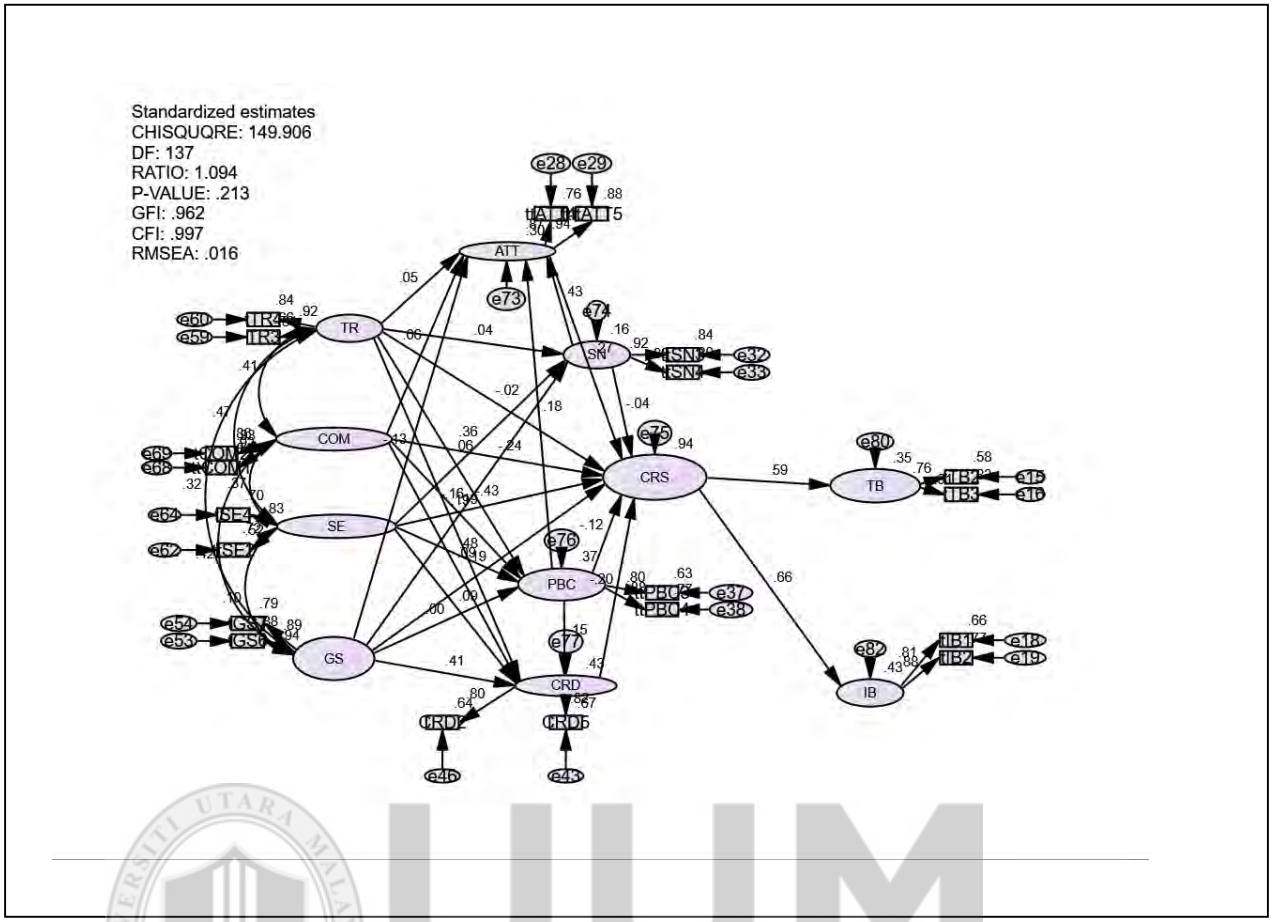

Figure 5.12
Generated Model

5.13 Mediating Effect Result

The finding of the mediating effect connecting hypotheses H19 to H32 are presented next. Also the generated model estimates new mediating effect from $H40_N$ to $H42_N$.This study find out four full mediations and two partial mediations. The result is hereby explained in this section. Table 5.21 shows the summary of mediating effect results.

Table 5.21

Summary Mediating Effect Result

H	Exogenous		Mediated By		Endogenous	direct Effects Estimate-No link	direct Effects Estimate-link	Mediating Hypothesis
H19	Trust	--->	Attitude	--->	Customer resistance	TR→ATT=0.051(NS) ATT→CRS=-0.270(SG)	0.051(NS) -0.270(SG)	NOT MEDIATOR
H20	Compatibility	--->	Attitude	--->	Customer resistance	COM→ATT=0.064(NS) ATT→CRS=-0.278(SG)	0.059(NS) -0.270(SG)	NOT MEDIATOR
H21	Government support	--->	Attitude	--->	Customer resistance	GS→ATT=-0.126(SG) ATT→CRS=-0.248(SG)	-0.128(SG) -0.270(SG)	PARTIAL MEDIATOR
H22	Trust	--->	Subjective norm	--->	Customer resistance	TR→SN=0.041(NS) SN→CRS=-0.035(NS)	0.042(NS) -0.036(NS)	NOT MEDIATOR
H23	Self-efficacy	--->	Subjective norm	--->	Customer resistance	SE→SN=0.364(SG) SN→CRS=-0.121(NS)	0.359(SG) -0.036(NS)	NOT MEDIATOR
H24	Government support	--->	Subjective norm	--->	Customer resistance	GS→SN=-0.166(SG) SN→CRS=-0.024(NS)	-0.162(SG) -0.036(NS)	NOT MEDIATOR
H25	Trust	--->	Perceived behavior control	--->	Customer resistance	TR→PBC=0.056(NS) PBC→CRS=-0.122(NS)	0.057(NS) -0.123(NS)	NOT MEDIATOR
H26	Compatibility	--->	Perceived behavior control	--->	Customer resistance	COM→PBC=0.185(SG) PBC→CRS=-0.166(NS)	0.187(SG) -0.123(SN)	NOT MEDIATOR

Table 5.21 (Continued)

H27	Self-efficacy	--->	Perceived behavior control	--->	Customer resistance	SE→PBC=0.502(SG)	0.481(SG)	NOT MEDIATOR
						PBC→CRS=-0.301(SG)	-0.123(NS)	
H28	Government support	--->	Perceived behavior control	--->	Customer resistance	GS→PBC=-0.008(NS)	-0.004(NS)	NOT MEDIATOR
						PBC→CRS=-0.109(NS)	-0.123(NS)	
H29	Trust	--->	Credibility	--->	Customer resistance	TR→CRD=0.197(SG)	0.194(SG)	FULL MEDIATOR
						CRD→CRS=-0.205(SG)	-0.199(SG)	
H30	Compatibility	--->	Credibility	--->	Customer resistance	COM→CRD=0.095(NS)	0.087(NS)	NOT MEDIATOR
						CRD→CRS=-0.219(SG)	-0.199(SG)	
H31	Self-efficacy	--->	Credibility	--->	Customer resistance	SE→CRD=0.102(NS)	0.091(NS)	NOT MEDIATOR
						CRD→CRS=-0.228(SG)	-0.199(SG)	
H32	Government support	--->	Credibility	--->	Customer resistance	GS→CRD=0.417(SG)	0.409(SG)	PARTIAL MEDIATOR
						CRD→CRS=-0.307(SG)	-0.199(SG)	
$H40_N$	Subjective norm	--->	Attitude	--->	Customer resistance	SN→ATT=0.432(SG)	0.432(SG)	FULL MEDIATOR
						ATT→CRS=-0.286(SG)	-0.270(SG)	
$H41_N$	Perceived behavior control	--->	Attitude	--->	Customer resistance	PBC→ATT=0.184(SG)	0.181(SG)	FULL MEDIATOR
						ATT→CRS=-0.283(SG)	-0.270(SG)	
$H42_N$	Perceived behavior control	--->	Credibility	--->	Customer resistance	PBC→CRD=0.163(SG)	0.152(SG)	FULL MEDIATOR
						CRD→CRS=-0.222(SG)	-0.199(SG)	

Note: Standardized path estimates are reported

5.13.1 Attitude Mediates Trust and Customer Resistance to Internet Banking (H19)

The hypothesis H19, which maintains that attitude, mediates between trust and customer resistance to internet banking is represented in Figure 5.13. From the comparison of direct and indirect effects of this relationship, the direct path trust (TR) to customer resistance (CRS) (TR —→ CRS) still remains insignificant (-0.024 ns) after the mediator attitude (ATT) is included. Furthermore, the indirect path estimate between trust (TR) and attitude (ATT) (TR —→ ATT) remains insignificant before and after the inclusion of the mediator attitude (ATT) (0.051 NS, 0.051 NS). Although the indirect path from attitude (ATT) to customer resistance (CRS) (ATT —→ CRS) is significant path before and after the inclusion of mediator attitude (ATT), it remains significant path. (-0.270***, -0.270***). The model therefore gives supports to the finding; implying that attitude does not mediate the relationship between trust and customer resistance. It denotes that hypothesis H19 be rejected.

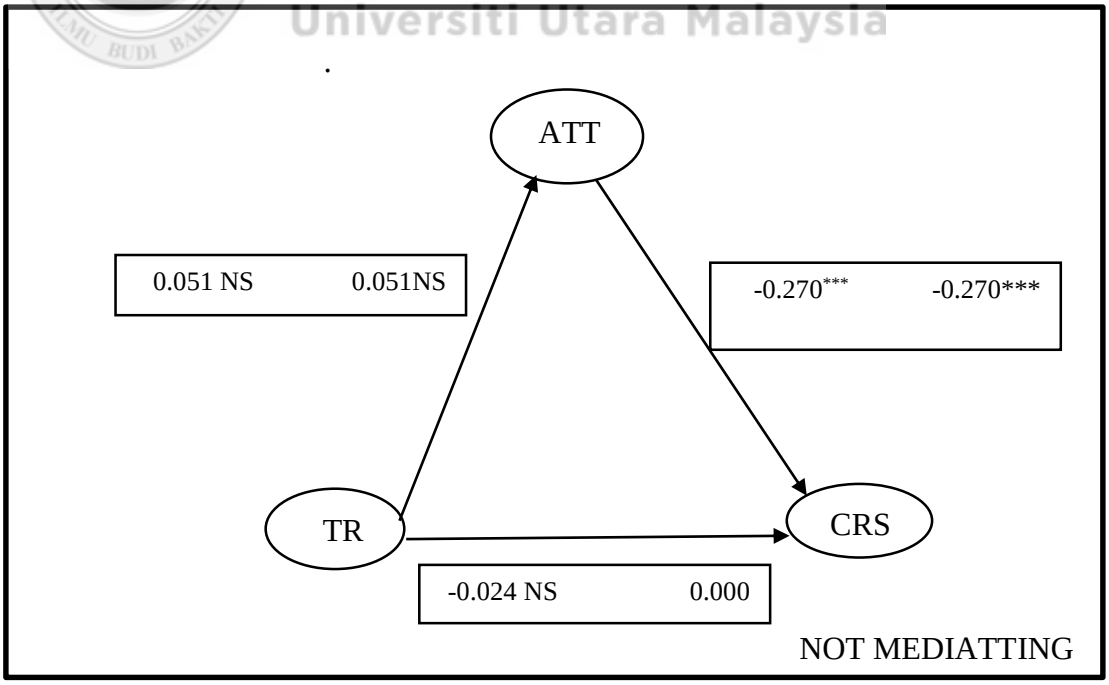

Figure 5.13
Attitude Mediates Trust and Customer Resistance

Table 5.22
Testing Attitude Mediates Trust and Customer Resistance

Model Elements	Model of Testing for Mediating in Customer Resistance	GeneratedModel with Direct Effect
Model fit		
Chi-square	149.997	149.906
Degree of freedom	138	137
p-value	0.229	0.213
RMSEA	0.015	0.016
CFI	0.997	0.997
Standardizedparameter estimates		
TR —→ ATT	0.051 (NS)	0.051 (NS)
ATT —→ CRS	-0.270***	-0.270***
TR —→ CRS	Not estimated	-.0.024 (NS)

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

The generated model with the direct relationship revealed a significant decrease in chi-square ($\Delta \chi^2 = 0.064$, Δ DF = l, Δ P = 0.016) a fundamental improvement in model fit and not significant path estimate for the trust and customer resistance relationship Table 5.22.

5.13.2 Attitude Mediates Compatibility and Customer Resistance to Internet Banking (H20)

The hypothesis 20, which maintains that attitude mediates between compatibility and customer resistance to internet banking is represented in Figure 5.14. From the comparison of direct and indirect effects for this relationship, the direct path from compatibility (COM) to customer resistance (CRS) (COM —→ CRS) is significant (-0.243***) after the mediator attitude (ATT) is included. Furthermore, the indirect path estimate between compatibility (COM) and attitude (ATT) (COM —→ ATT) remains insignificant and decreased before and after the inclusion of the mediator attitude (ATT) (0.064 NS, 0.059 NS). Although the indirect path from attitude (ATT) to

customer resistance (CRS) (ATT —→ CRS) is significant path before and after the inclusion of mediator attitude (ATT) (-0.278***,-0.270***). Thus, these results suggest that there is no mediation. It denotes that attitude does not mediate the relationship between compatibility and customer resistance, thus hypothesis H20 is rejected.

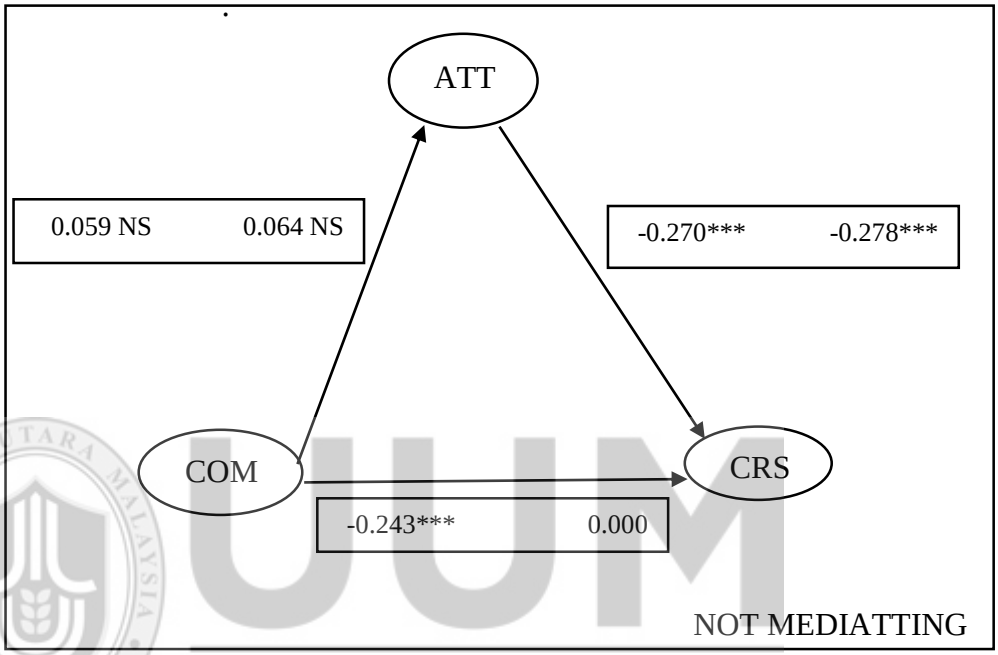

Figure 5.14
Attitude Mediates Compatibility and Customer Resistance

Table 5.23
Testing Attitude Mediates Compatibility and Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**Generated Model with Direct Effect**
Model fit		
Chi-square	159.584	149.906
Degree of freedom	138	137
p-value	0.101	0.213
RMSEA	0.021	0.016
CFI	0.995	0.997
Standardized parameter estimates		
COM —→ ATT	0.064 (NS)	0.059 (NS)
ATT —→ CRS	-0.278***	-0.270***
COM —→ CRS	Not estimated	-0.243***

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

The generated model with the direct relationship had a significant decrease in chi-square ($\Delta \chi^2 = 9.678$, Δ DF = l, Δ P = -0.112) a substantive improvement in model is not a fit or significant path estimate for the compatibility and customer resistance relationship Table 5.23.

5.13.3 Attitude Mediates Government Support and Customer Resistance to Internet Banking (H21)

Also, hypothesis 21, which maintains that attitude, mediates between government support and customer resistance to internet banking is represented in Figure 5.15. From the comparison of direct and indirect effects for this relationship, the direct path from government support (GS) to customer resistance (CRS) is significant (-0.191**) after the mediator attitude (ATT) is included. Furthermore, the in direct path estimate between government support (GS) and attitude (ATT) (GS —→ ATT) is still significant before and after the inclusion of the mediator (ATT) (-0.126**,-0.128**). Although the indirect path from attitude (ATT) to customer resistance (CRS) (ATT —→ CRS) is significant before and after the inclusion of the mediator attitude (ATT) (-0.248***, 0.270***). Thus, the model supports the finding; depicting that attitude only partially mediates the relationship between government support and customer resistance. It implies the hypothesis H21 is accepted.

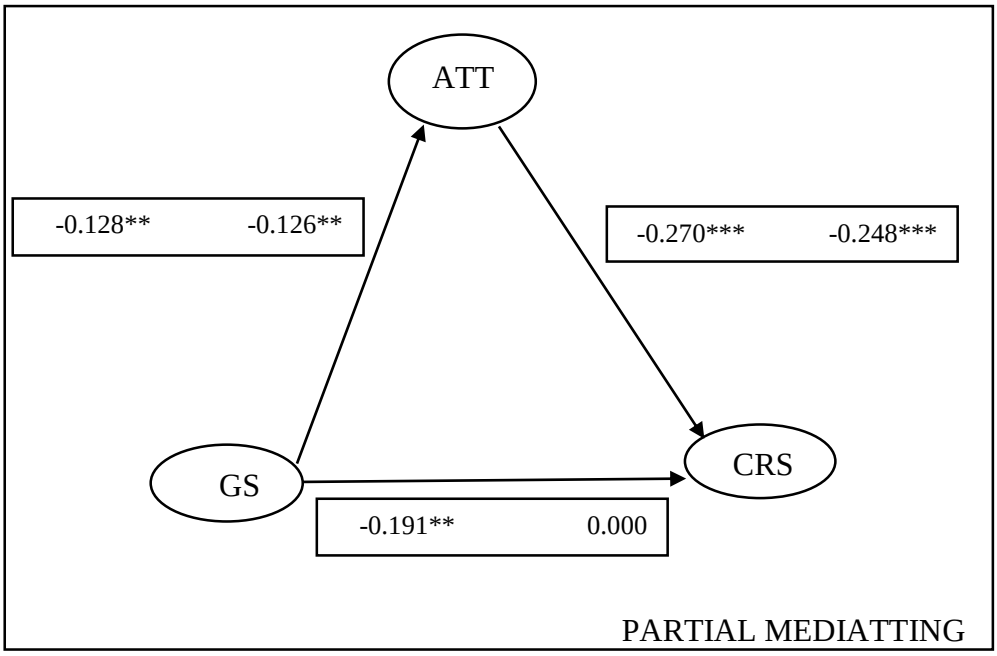

Figure 5.15
Attitude Mediates Government Support and Customer Resistance

Table 5.24
Testing Attitude Mediates Government Support and Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**Generated Model with Direct Effect**
Model fit		
Chi-square	155.411	149.906
Degree of freedom	138	137
p-value	0.148	0.213
RMSEA	0.018	0.016
CFI	0.996	0.997
Standardized parameter estimates		
GS —→ATT	-0.126**	-0.128**
ATT —→ CRS	-0.248***	-0.270***
GS —→ CRS	Not estimated	-0.191**

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

The generated model with the direct relationship showed significant decrease in chi-square ($\Delta \chi^2 = 5.505$, Δ DF= l, Δ P = -0.065) demonstrating an essential enhancement in the model fit but the path estimate for government support and customer resistance was not significant Table 5.24.

5.13.4 Subjective Norms Mediate Trust and Customer Resistance to Internet Banking (H22)

The hypothesis H22 tests mediation effect of subjective norm on the linkage between trust and customer resistance in Figure 5.16. From the comparison of direct and indirect effects for the relationship, the direct path from trust (TR) to customer resistance (CRS) (TR —→ CRS) still remains insignificant (-0.024 NS) after the mediator subjective norm (SN) is included. The result shows that the indirect path estimates between trust (TR) and subjective norm (SN) (TR —→ SN) still remains insignificant and increased before and after the inclusion of mediator subjective norm (SN) (0.041 NS, 0.042 NS). Moreover, the indirect path from subjective norm (SN) to customer resistance (CRS) (SN —→ CRS) remains insignificant path before and after the inclusion of mediator subjective norm (SN) (0.035 NS,-0.036NS). Thus, the finding does not support the stated hypothesis Thus, implying that the hypothesis H22 is rejected.

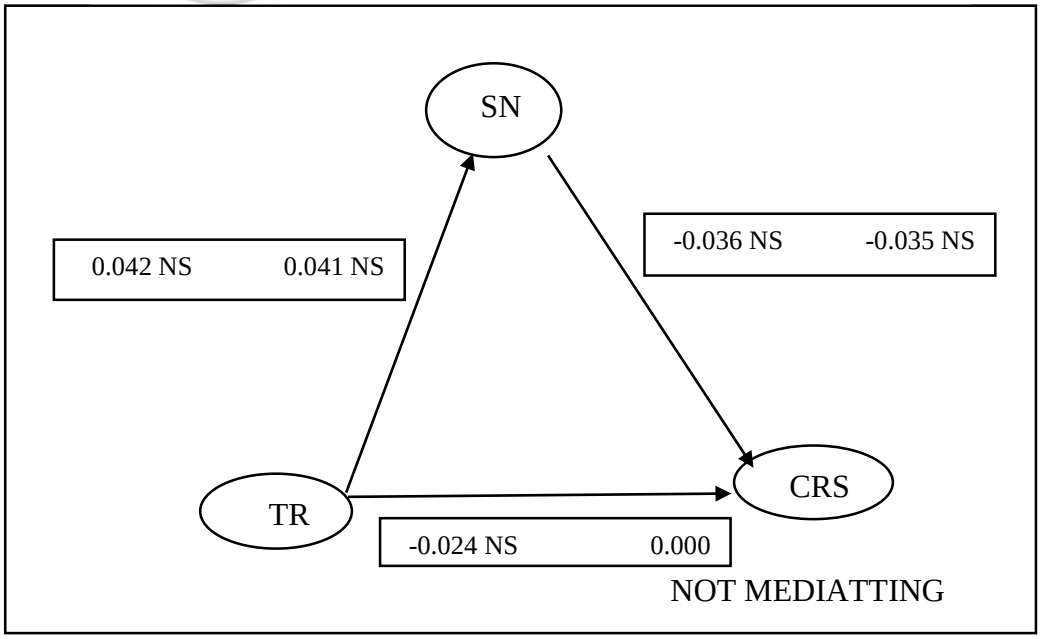

Figure 5.16
Subjective Norms Mediate Trust and Customer Resistance.

The generated model with the direct relationship had a significant decrease in chi-square ($\Delta \chi^2 = 0.091$, Δ DF = l, Δ P = 0.016) a substantive improvement in model fit and not significant path estimate for the trust and customer resistance relationship Table 5.25.

Table 5.25
Testing Subjective Norms Mediate Trust and Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**Generated Model with Direct Effect**
Model fit		
Chi-square	149.997	149.906
Degree of freedom	138	137
p-value	0.229	0.213
RMSEA	0.015	0.016
CFI	0.997	0.997
Standardized parameter estimates		
TR —→ SN	0.041 (NS)	0.042(NS)
SN —→ CRS	-0.035 (NS)	-0.036(NS)
TR —→ CRS	Not estimated	-.0.024 (NS)

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

5.13.5 Subjective Norm Mediates Self-Efficacy and Customer Resistance to Internet Banking (H23)

As implied from the test of mediation result as shown in Figure 5.17 on whether subjective norm mediates between self-efficacy and customer resistance, the comparison of direct and indirect effects of this relationship, the direct path from self-efficacy (SE) to customer resistance (CRS) (SE —→ CRS) is significant (-0.426^{***}) after the mediator subjective norm (SN) is included. The result shows that the relationship between self-efficacy (SE) and subjective norm (SN) (SE —→ SN) still remains significant before and after the inclusion of the mediator of subjective norm (SN) (0.364^{***}, 0.359^{***}). Meanwhile, the indirect path from subjective norm (SN) to

customer resistance (CRS) (SN —→ CRS) is insignificant before and after the inclusion of mediator subjective norm (SN) (-0.121 NS, -0.036 NS). Therefore, the hypothesis (H23) which states that subjective norm mediates the relationship between self-efficacy and customer resistance is rejected.

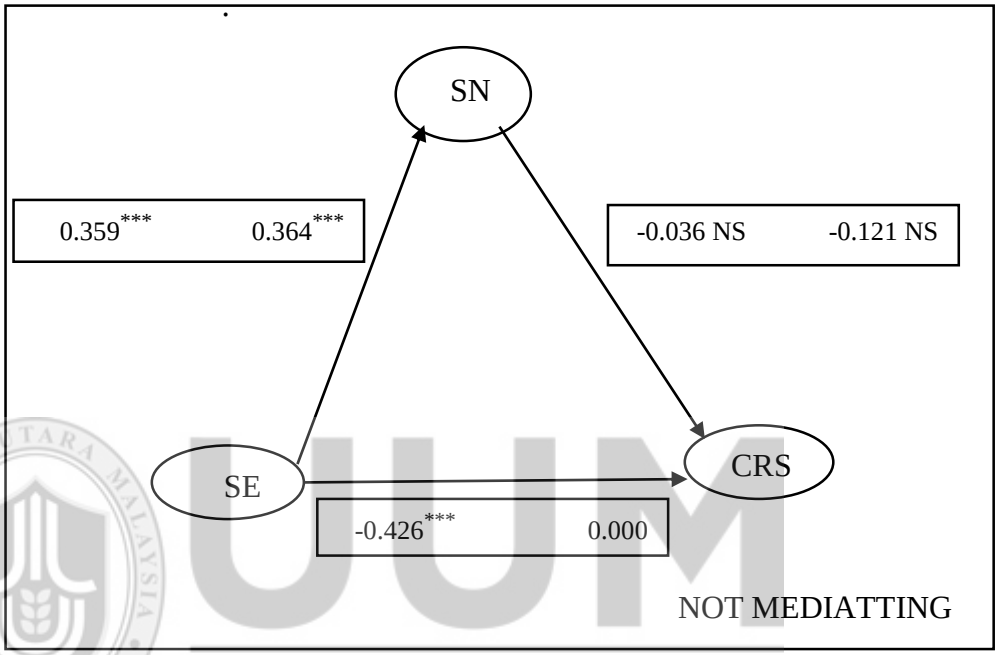

Figure 5.17
Subjective Norm Mediates Self-Efficacy and Customer Resistance

Table 5.26
Testing Subjective Norm Mediates Self-Efficacy and Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**Generated Model with Direct Effect**
Model fit		
Chi-square	167.797	149.906
Degree of freedom	138	137
p-value	0.043	0.213
RMSEA	0.024	0.016
CFI	0.993	0.997
Standardized parameter estimates		
SE —→ SN	0.364***	0.359***
SN —→ CRS	-0.121 (NS)	-0.036 (NS)
SE —→ CRS	Not estimated	-0.426***

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

The generated model with the direct relationship shows a significant decrease in chi-square ($\Delta \chi^2 = 17.891, \Delta DF = 1, \Delta P = -0.17$) though there was a practical improvement in model fit, the path estimate for self-efficacy and customer resistance was not significant Table 5.26.

5.13.6 Subjective Norms Mediate Government Support and Customer Resistance to Internet Banking (H24)

Figure 5.18 presents hypothesis H24 which examines subjective norm as a mediator between government support and customer resistance. From the comparison of the direct and indirect effects for this relationship, the direct path from government support (GS) to customer resistance (CRS) (GS —→ CRS) (-0.191**) is significant after the mediator subjective norm (SN) is included. The result shows that the indirect path estimates from government support (GS) to subjective norm (SN) is significant before and after the mediator subjective norm (SN) (-0.166**,-0.162**). Meanwhile, the indirect path from subjective norms (SN) to customer resistance (CRS) (SN —→ CRS) remains insignificant path before and after the inclusion of the mediation subjective norm (SN) (-0.024 NS; -0.036 NS). Thus, the finding of model does not support the hypothesis of subjective norm, indicating no mediation of the relationship between government support and customer resistance. Hence the hypothesis H24 is rejected.

The generated model with the direct relationship had a significant decrease in chi-square ($\Delta \chi^2 = 5.505, \Delta DF = 1, \Delta P = -0.065$) a substantive improvement in model fit and significant path estimate for the government support and customer resistance relationship Table 5.27.

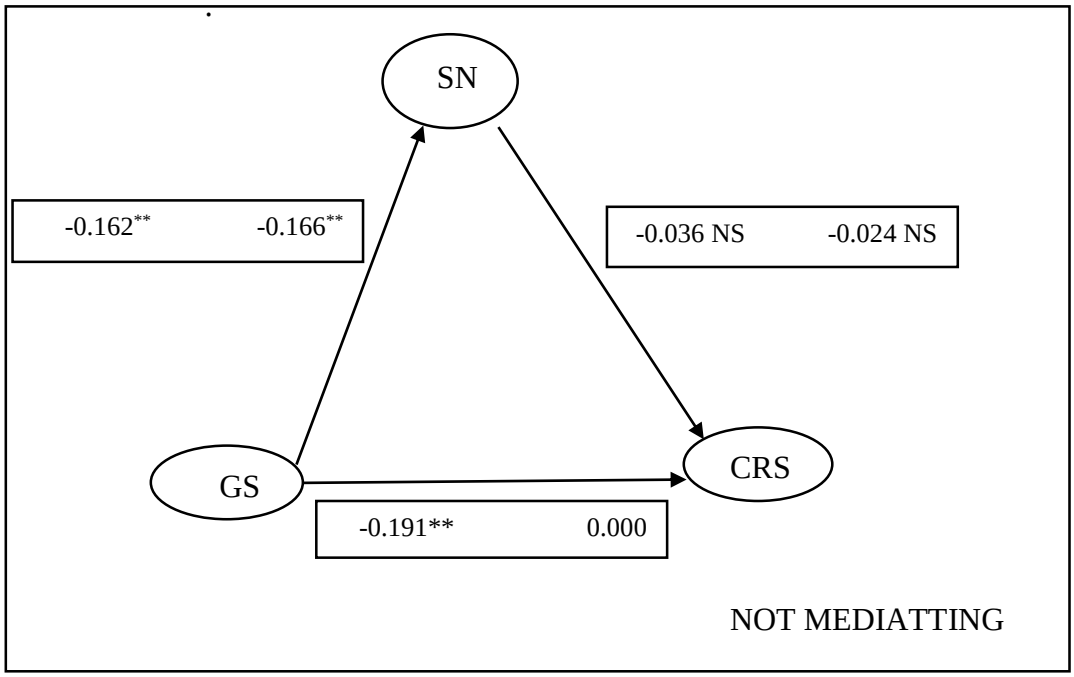

Figure 5.18
Subjective Norm Mediates Government Support and Customer Resistance

Table 5.27
Testing Subjective Norm Mediates Government Support and Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**Generated Model with Direct Effect**
Model fit		
Chi-square	155.411	149.906
Degree of freedom	138	137
p-value	0.148	0.213
RMSEA	0.018	0.016
CFI	0.996	0.997
Standardized parameter estimates		
GS —→ SN	-0.166**	-0.162**
SN —→ CRS	-0.024 (NS)	-0.036 (NS)
GS —→ CRS	Not estimated	-0.191**

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

5.13.7 Perceived Behavior Control Mediates Trust and Customer Resistance to Internet Banking (H25)

The result for the hypothesis H25 testing of mediation is presented in Figure 5.19. This examines perceived behavior control as a mediator between trust and customer

resistance. From the comparison of the direct and indirect effects of this relationship, in the direct path estimates from trust (TR) to customer resistance (CRS) still remains insignificant (-0.024 NS) after the mediator perceived behavior control (PBC) is included. The finding shows that the indirect path from trust (TR) to perceived behavior control (PBC) (TR —→ PBC) still remains insignificant before and after the inclusion of the mediator perceived behavior control (PBC) (0.056 NS, 0.057 NS). Moreover, the indirect path estimate from perceived behavior control (PBC) to customer resistance (CRS) (PBC —→ CRS) still remains insignificant before and after the inclusion of the mediator perceived behavior control (PBC) (-0.122 NS, -0.123 NS). Thus, the finding of model does not support Perceived behavior control as a mediator of the relationship between trust and customer resistance. It denotes the hypothesis H25 is rejected.

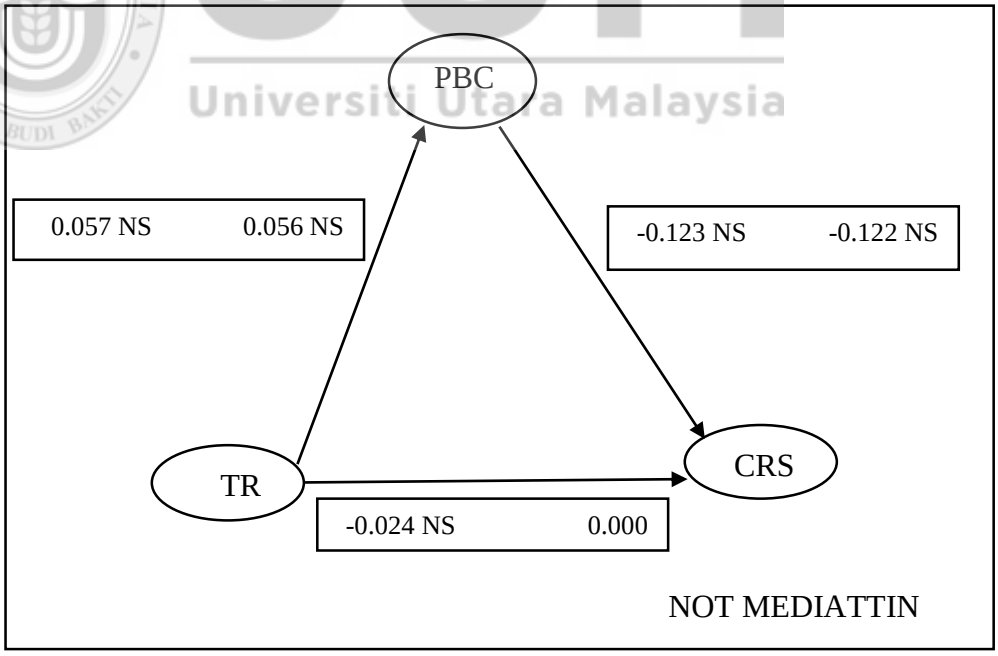

Figure 5.19
Perceived Behavior Control Mediates Trust and Customer Resistance

Table 5.28
Testing Perceived Behavior Control Mediates Trust and Customer Resistance

Model Elements	Model of Testing for Mediating in Customer Resistance	Generated Model with Direct Effect
Model fit		
Chi-square	149.997	149.906
Degree of freedom	138	137
p-value	0.229	0.213
RMSEA	0.015	0.016
CFI	0.997	0.997
Standardized parameter estimates		
TR —→ PBC	0.056 (NS)	0.057 (NS)
PBC —→ CRS	-0.122 (NS)	-0.123 (NS)
TR —→ CRS	Not estimated	-.0.024 (NS)

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

The generated model with the direct relationship indicated a substantial decrease in chi- square ($\Delta \chi^2 = 0.091$, Δ DF = l, Δ P = 0.016) and this proves that there is a substantive improvement in model fit but not significant path estimate for the trust and customer resistance relationship Table 5.28.

5.13.8 Perceived Behavior Control Mediates Compatibility and Customer Resistance to Internet Banking (H26)

The result of the hypothesis H26 testing for mediation is presented in Figure 5.20 as the hypothesis attempts to examine whether perceived behavior control mediates between compatibility and customer resistance. From the comparison of direct and indirect effects for the relationship, the direct path estimate from compatibility (COM) to customer resistance (CRS) is significant (COM —→ CRS) (-0.243***) after the mediator perceived behaviour control (PBC) is included. The finding shows that the indirect path from compatibility (COM) to perceived behaviour control (PBC) still remains significant before and after the inclusion of the mediator perceived behaviour

control (PBC) (COM —→ CRS) (0.185**, 0.187***). Though, the indirect path estimate from perceived behaviour control (PBC) to customer resistance (CRS) (PBC —→ CRS) is insignificant path before and after the inclusion of mediator perceived behaviour control (PBC) (-0.166 NS, -0.123 NS). Thus, the finding of model reveals that perceived behaviour control does not mediate the relationship between compatibility and customer resistance. It therefore denotes that the hypothesis H26 is rejected.

The generated model with the direct relationship had a significant decrease in chi-square ($\Delta \chi^2 = 9.678$, Δ DF = l, Δ P = -0.112) a substantive improvement in model fit and not significant path estimate for the compatibility and customer resistance relationship Table 5.29.

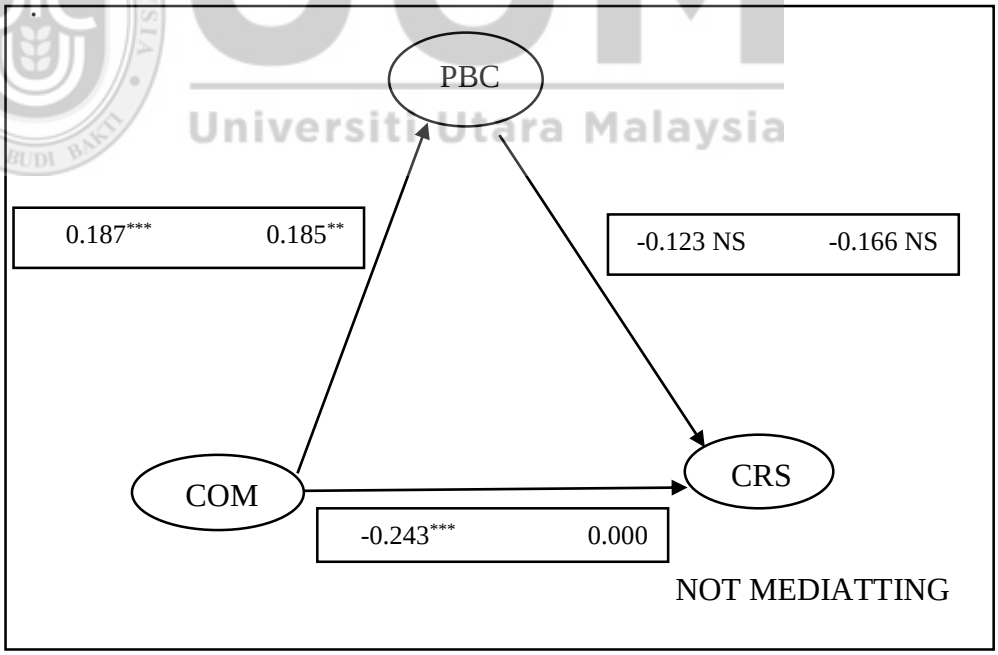

Figure 5.20
Perceived Behaviour Control Mediates Compatibility and Customer Resistance

Table 5.29
Testing Perceived Behaviour Control Mediates Compatibility and Customer Resistance

Model Elements	Model of Testing for Mediating in Customer Resistance	Generated Model with Direct Effect
Model fit		
Chi-square	159.584	149.906
Degree of freedom	138	137
p-value	0.101	0.213
RMSEA	0.021	0.016
CFI	0.995	0.997
Standardized parameter estimates		
COM —→ PBC	0.185***	0.187***
PBC —→ CRS	-0.166 (NS)	-0.123 (NS)
COM —→ CRS	Not estimated	-0.243***

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

5.13.9 Perceived Behaviour Control Mediates Self-Efficacy and Customer Resistance to Internet Banking (H27)

Figure 5.21 presents hypothesis H27 which examines perceived behaviour control (PBC) as a mediator between self-efficacy (SE) and customer resistance (CRS). From the comparison of direct and indirect effects for the relationship, the direct path estimate from self-efficacy (SE) to customer resistance (CRS) is significant (SE —→ CRS) (-0.426***) after the mediator perceived behaviour control (PBC) is included. The result shows that the indirect path estimates from self-efficacy (SE) to perceived behaviour control (PBC) (SE —→ PBC) still remains significant before and after the inclusion of the mediation perceived behaviour control (PBC) (0.502***, 0.481***). Whereas, the indirect path from Perceived behaviour control (PBC) to customer resistance (CRS) is significant before but became insignificant after the inclusion of the mediator (PBC) (PBC —→ CRS) (-0.301***, 0.123 NS). Thus, these results suggest

that there is no mediation. It denotes that perceived behaviour control is not mediator between the relationship of self-efficacy and customer resistance. Thus, the hypothesis H27 is rejected.

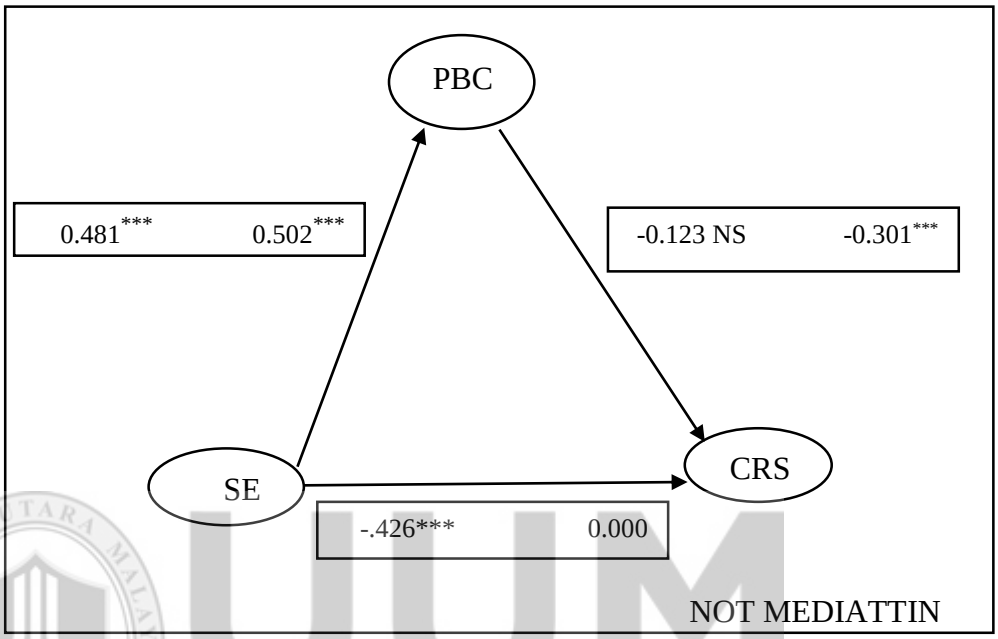

Figure 5.21
Perceived Behaviour Control Mediates Self-Efficacy and Customer Resistance

Table 5.30
Testing Perceived Behaviour Control Mediates Self-Efficacy and Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**GeneratedModel with Direct Effect**
Model fit		
Chi-square	167.797	149.906
Degree of freedom	138	137
p-value	0.043	0.213
RMSEA	0.024	0.016
CFI	0.993	0.997
Standardized parameter estimates		
SE —→ PBC	0.502***	0.481***
PBC —→ CRS	-0.301***	-0.123 (NS)
SE —→ CRS	Not estimated	-0.426***

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

The generated model with the direct relationship explains that a significant decrease occurred in the chi- square ($\Delta \chi^2 = 17.891$, Δ DF = l, Δ P = -0.17) and which indicates that there is a substantive improvement in model fit even though no significant path estimate for the self-efficacy and customer resistance relationship as shown in Table 5.30.

5.13.10 Perceived Behaviour Control Mediates Government Support and Customer Resistance to Internet Banking (H28)

The result for the hypothesis H28 testing of mediation presented in Figure 5.22 as the hypothesis states that perceived behaviour control mediates between government support and customer resistance. From the comparison of direct and indirect effects for the relationship, the direct path estimate from government support (GS) and customer resistance (CRS) is significant (GS —→ CRS) (-0.191**) after the mediator perceived behaviour control is included. The finding shows that the indirect path from government support (GS) to perceived behaviour control (PBC) still remains insignificant before and after the inclusion of the mediator perceived behaviour control (PBC) (GS —→ PBC) (-0.008 NS, -0.004 NS). Likewise, the indirect path estimate from Perceived behaviour control (PBC) to customer resistance (CRS) (PBC —→ CRS) is insignificant path before and after the inclusion of mediator perceived behaviour control (PBC) (-0.109 NS,-0.123 NS). Thus, the finding of model does not support that Perceived behaviour control is a mediator of the relationship between government support and customer resistance. It denotes the hypothesis H28 is rejected.

The generated model with the direct relationship had a significant decrease in chi-square ($\Delta \chi^2 = 5.505$, Δ DF = l, Δ P = -0.065) and indicates a substantive improvement

in model fit and no significant path estimate for the government support and customer resistance relationship Table 5.31.

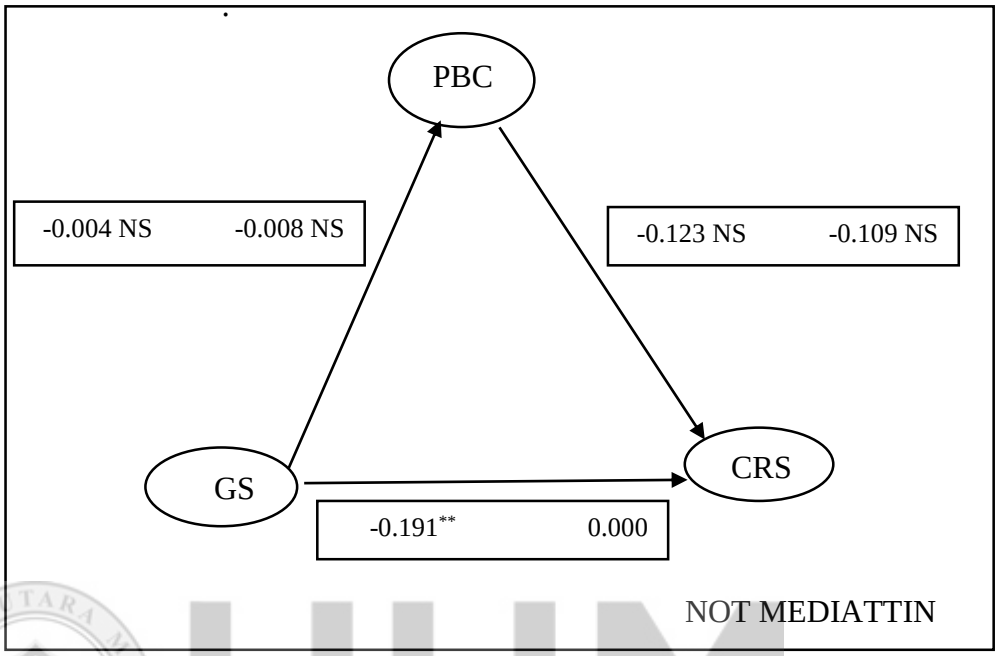

Figure 5.22
Perceived Behaviour Control Mediates Government Support and Customer Resistance

Table 5.31
Testing Perceived Behaviour Control Mediates Government Support and Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**Generated Model with Direct Effect**
Model fit		
Chi-square	155.411	149.906
Degree of freedom	138	137
p-value	0.148	0.213
RMSEA	0.018	0.016
CFI	0.996	0.997
Standardized parameter estimates		
GS —→ PBC	-0.008 (NS)	-0.004 (NS)
PBC —→ CRS	-0.109 (NS)	-0.123 (NS)
GS —→ CRS	Not estimated	-0.191 (SG)

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

5.13.11 Credibility Mediates Trust and Customer Resistance to Internet Banking (H29)

Based on the mediation result shown in Figure 5.23 that credibility mediates between trust and customer resistance, and looking at the comparison of direct and indirect effects for the relationship, the direct path estimate from trust (TR) to customer resistance (CRS) (TR —→ CRS) still insignificant (-0.024 NS) after the mediator credibility (CRD) is included. The result shows that the indirect path from trust (TR) to credibility (CRD) (TR —→ CRD) is significant path before and after the inclusion of the mediator (CRD) (0.197^{***}, 0.194^{***}). Similarly, the indirect path estimate from credibility (CRD) to customer resistance (CRS) (CRD —→ CRS) is also significant before and after the inclusion of the mediator credibility (CRD) (-0.205^{**}, 0.199^{**}). Hence, the finding of model suggests that the hypothesis H29, credibility provides fully mediation of the relationship between trust and customer resistance is accepted.

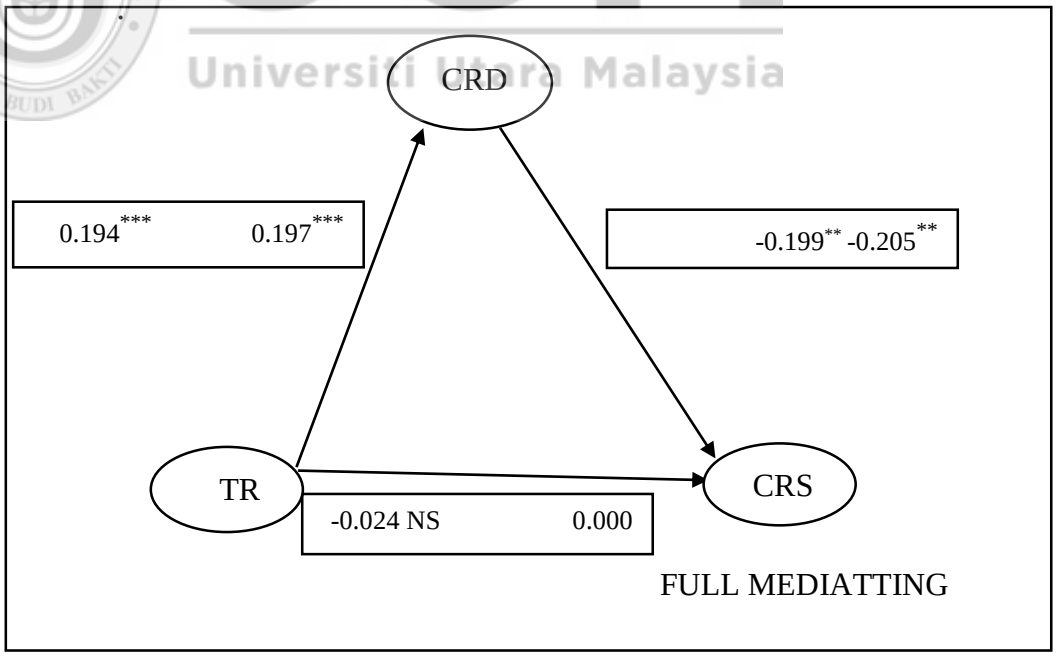

Figure 5.23
Credibility Mediates Trust and Customer Resistance

Table 5.32
Testing Credibility Mediates Trust and Customer Resistance

Model Elements	Model of Testing for Mediating in Customer Resistance	Generated Model with Direct Effect
Model fit		
Chi-square	149.997	149.906
Degree of freedom	138	137
p-value	0.229	0.213
RMSEA	0.015	0.016
CFI	0.997	0.997
Standardized parameter estimates		
TR —→ CRD	0.197***	0.194***
CRD —→ CRS	-0.205**	-0.199**
TR —→ CRS	Not estimated	-.0.024 (NS)

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

The generated model with the direct relationship had a significant decrease in chi-square ($\Delta \chi^2 = 0.091$, Δ DF = l, Δ P = 0.016) a substantive improvement in model fit and not significant path estimate for the trust and customer resistance relationship Table 5.32.

5.13.12 Credibility Mediates Compatibility and Customer Resistance to Internet Banking (H30)

Figure 5.24 shows testing of mediating finding on hypothesis H30; which states that credibility mediates between compatibility and customer resistance. From the comparison of direct and indirect effects for the relationship, the direct path estimate from compatibility (COM) and customer resistance (CRS) is significant (-0.243***) after the mediator credibility (CRD) is included. The result shows that the indirect path from compatibility (COM) to credibility (CRD) is insignificant before and after the inclusion of the mediator credibility (CRD) (COM —→ CRD) (-0.095 NS, 0.087 NS). Although, the indirect path estimate from credibility (CRD) to customer resistance

(CRS) is significant after the inclusion of the mediator credibility (CRD) (CRD ⟶ CRS) (-0.219**, -0.199**). Hence, the finding of model suggests that the hypothesis H30, credibility provides mediation of the relationship between compatibility and customer resistance is rejected.

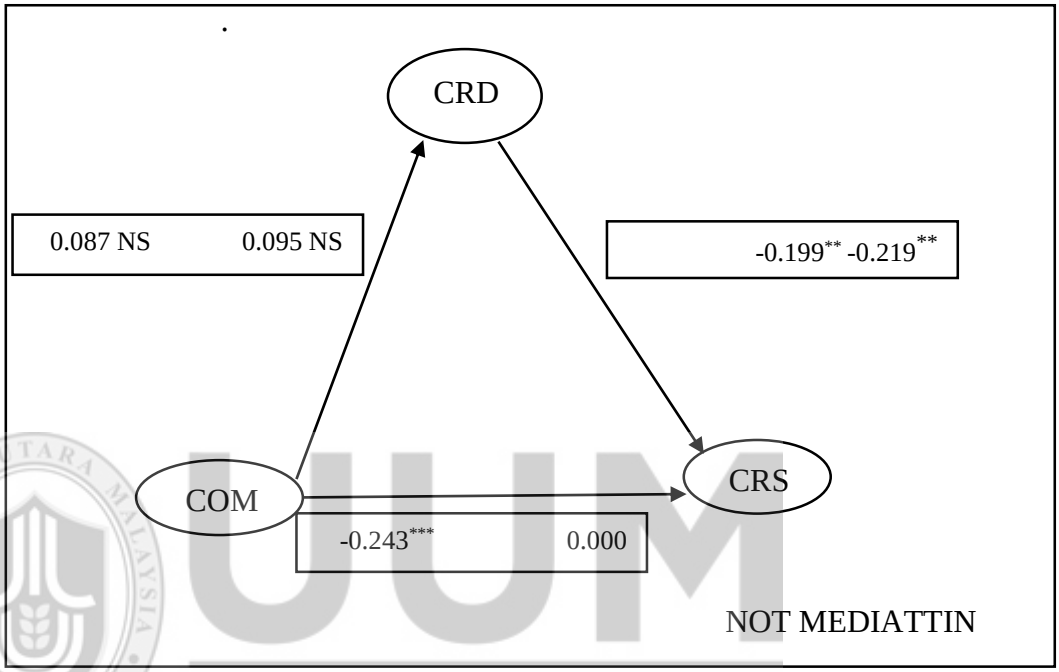

Figure 5.24
Credibility Mediates Compatibility and Customer Resistance

Table 5.33
Testing Credibility Mediates Compatibility and Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**Generated Model with Direct Effect**
Model fit		
Chi-square	159.584	149.906
Degree of freedom	138	137
p-value	0.101	0.213
RMSEA	0.021	0.016
CFI	0.995	0.997
Standardized parameter estimates		
COM ⟶ CRD	0.095 (NS)	0.087 (NS)
CRD ⟶ CRS	-0.219 **	-0.199**
COM ⟶ CRS	Not estimated	-0.243***

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

The generated model with the direct relationship had a significant decrease in chi-square ($\Delta \chi^2 = 9.678$, Δ DF = l, Δ P = -0.112) showing a substantive improvement in model fit and significant path estimate for the compatibility and customer resistance relationship Table 5.33.

5.13.13 Credibility Mediates Self-Efficacy and Customer Resistance to Internet Banking (H31)

Hypothesis (H31) examines the mediating effect of credibility on the relationship between self-efficacy and customer resistance as shown in Figure 5.25. From the comparison of direct and indirect effects for the relationship, the direct path estimate from self-efficacy (SE) to customer resistance (CRS) is significant (SE —→ CRS) (-0.426***) after the mediator credibility (CRD) is included. The result shows that the indirect path from self-efficacy (SE) to credibility (CRD) (SE —→ CRD) still remains insignificant before and after the inclusion of the mediator credibility (CRD) (-0.102 NS, -0.091 NS) even though the indirect path estimate from credibility (CRD) to customer resistance (CRS) (CRD —→ CRS) is significant before and after the inclusion of the mediator credibility (CRD) (-0.228**, -0.199**). Hence, the finding of model suggests that the hypothesis H31 which states that credibility mediates the relationship between self-efficacy and customer resistance is rejected.

The generated model with the direct relationship had a significant decrease in chi-square ($\Delta \chi^2 = 17.891$, Δ DF = l, Δ P = -0.17) showing a substantive improvement in model fit and significant path estimate for the compatibility and customer resistance relationship Table 5.34.

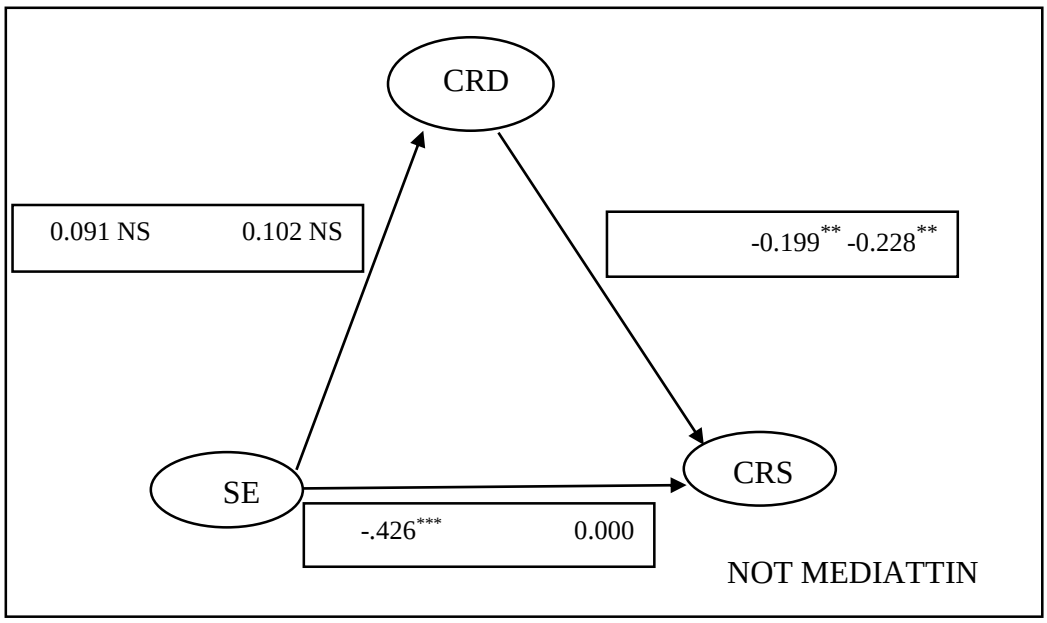

Figure 5.25
Credibility Mediates Self-Efficacy and Customer Resistance

Table 5.34
Testing Credibility Mediates Self-Efficacy and Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**Generated Model with Direct Effect**
Model fit		
Chi-square	167.797	149.906
Degree of freedom	138	137
p-value	0.043	0.213
RMSEA	0.024	0.016
CFI	0.993	0.997
Standardized parameter estimates		
SE ⟶ CRD	0.102 (NS)	0.091 (NS)
PBC ⟶ CRS	-0.228**	-0.199**
SE ⟶ CRS	Not estimated	-0.426***

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

5.13.14 Credibility Mediates Government Support and Customer Resistance to Internet Banking (H32)

Hypothesis (H32) examines the mediating effect of credibility on the relationship between government support and customer resistance. From the comparison of direct

and indirect effects for the relationship, the direct path estimate from government support (GS) to customer resistance (CRS) is significant (GS —→ CRS) (-0.191**) after the mediator is credibility (CRD) included. The result shows the indirect path from government support (GS) to credibility (CRD) (GS —→ CRD) remains significant before and after the inclusion of the mediator credibility (CRD) (0.417***, 0.409***). Similarly, the indirect path estimate from credibility (CRD) to customer resistance (CRS) (CRD —→ CRS) is significant before after the inclusion of the mediator credibility (CRS) (-0.307***, 0.199**). Hence, the finding of model suggests that the hypothesis H32 shows that that credibility partially mediates the relationship between government support and customer resistance and it is accepted.

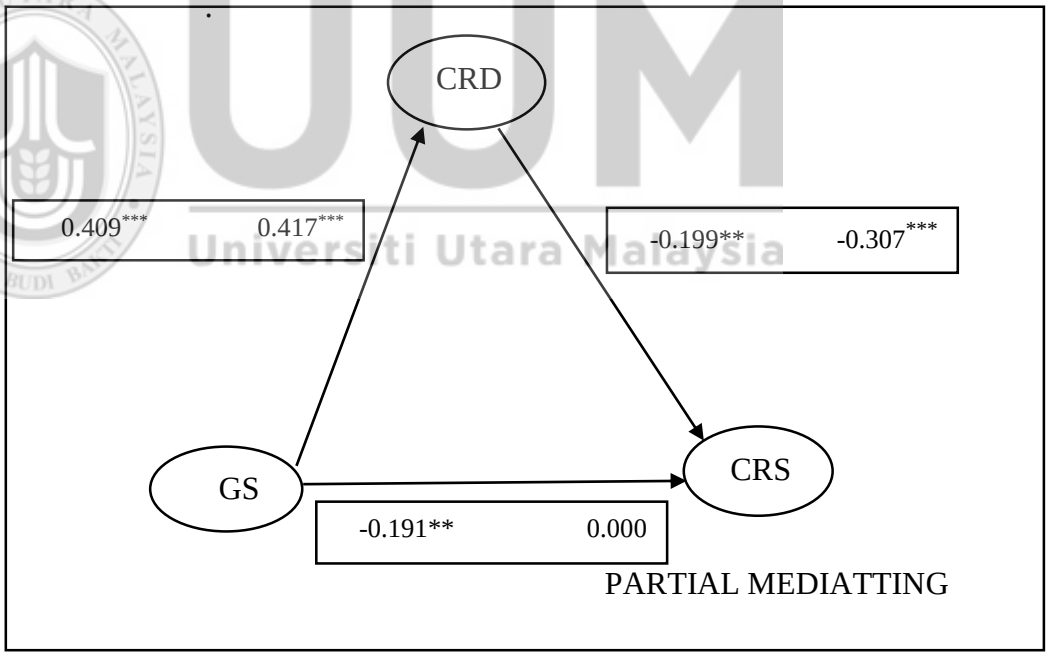

Figure 5.26
Credibility Mediates Government Support and Customer Resistance

The model with the direct relationship showed a considerable decrease in chi- square ($\Delta \chi^2 = 5.505$, Δ DF = l, Δ P = -0.065) and an essential improvement in model fit but

no significant path estimate for the relationship between government support and customer resistance as shown in Table 5.35.

Table 5.35
Testing Credibility Mediates Government Support and Customer Resistance

Model Elements	Model of Testing for Mediating in Customer Resistance	Generated Model with Direct Effect
Model fit		
Chi-square	155.411	149.906
Degree of freedom	138	137
p-value	0.148	0.213
RMSEA	0.018	0.016
CFI	0.996	0.997
Standardized parameter estimates		
GS —→ CRD	0.417***	0.409***
CRD —→ CRS	-0.207**	-0.199**
GS —→ CRS	Not estimated	-0.191**

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

5.13.15 Attitude Mediate Subjective Norms and Customer Resistance to Internet Banking ($H40_N$)

Hypothesis ($H40_N$) examines the mediating effect of attitude on the relationship between subjective norm and customer resistance. From the comparison of direct and indirect effects for the relationship, the direct path estimate from subjective norm (SN) to customer resistance (CRS) (SN —→ CRS) still remains insignificant (-0.036 NS) after the mediator attitude (ATT) is included. The result shows that the indirect path estimates from subjective norm (SN) to attitude (ATT) is significant before and after the inclusion of mediator attitude (ATT) (SN —→ ATT) (0.432***, 0.432***). Similarly, the indirect path from attitude (ATT) to customer resistance (CRS) (ATT —→ CRS) before and after the inclusion of the mediator attitude (ATT) (-0.286***, -

0.270***). Thus, model support attitude as a full mediator between subjective norms and customer resistance denoting that hypothesis H40 (new) is supported.

.

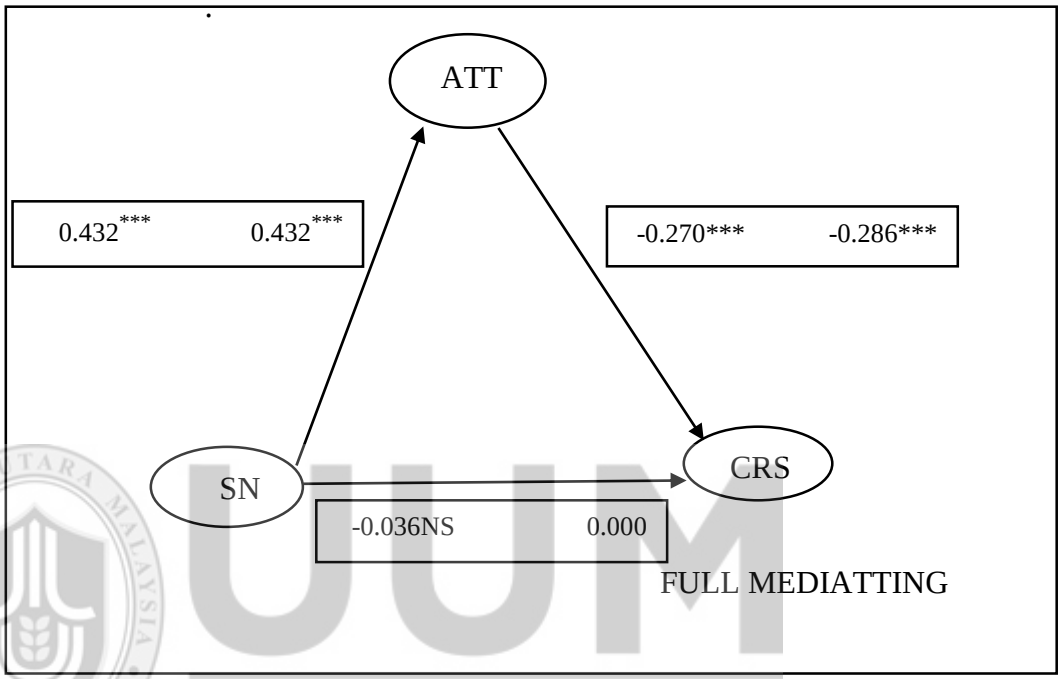

Figure 5.27
Attitude Mediate Subjective Norms and Customer Resistance

Table 5.36
Testing Attitude Mediate Subjective Norms And Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**Generated Model with Direct Effect**
Model fit		
Chi-square	150.134	149.906
Degree of freedom	138	137
p-value	0.227	0.213
RMSEA	0.015	0.016
CFI	0.997	0.997
Standardized parameter estimates		
SN ⟶ ATT	0.432***	0.432***
ATT ⟶ CRS	-0.286***	-0.270***
SN ⟶ CRS	Not estimated	-0.036 (NS)

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

The final fit model with the direct relationship had a significant decrease in chi- square ($\Delta \chi^2 = 0.228$, Δ DF = l, Δ P = 0.014) revealing a substantive improvement in model fit and significant path estimate for the subjective norm and customer resistance relationship Table 5.36

5.13.16 Attitude Mediates Perceived Behaviour Control and Customer Resistance to Internet Banking ($H41_N$)

Hypothesis ($H41_N$) examines the mediating effect of attitude on the relationship between perceived behavioural control and customer resistance. From the comparison of direct and indirect effects for this relationship, the direct path from perceived behaviour control (PBC) to customer resistance (CRS) (PBC ⟶ CRS) is insignificant (-0.123 NS) after the mediator attitude (ATT) is included. Furthermore, the indirect path estimate from perceived behaviour control (PBC) to attitude (ATT) (PBC ⟶ ATT) is significant before and after the inclusion of the mediator attitude (ATT) (0.184^{***}, 0.181^{***}). Likewise the indirect path from attitude (ATT) to customer resistance (ATT ⟶ CRS) is still significant before and after the inclusion of the mediator attitude (ATT) (-0.283^{***}, -0.270^{***}). Thus, the model supports the finding that attitude provides full mediation of the relationship between perceived behaviour control and customer resistance. It denotes the hypothesis H41 (new) is accepted.

The fit model with the direct relationship had a remarkable decrease in chi- square ($\Delta \chi^2 = 1.9$, Δ DF = l, Δ P = -0.014) revealing a basic improvement in the model even though no significant path estimate for the perceived behaviour control and customer resistance as shown in Table 5.37.

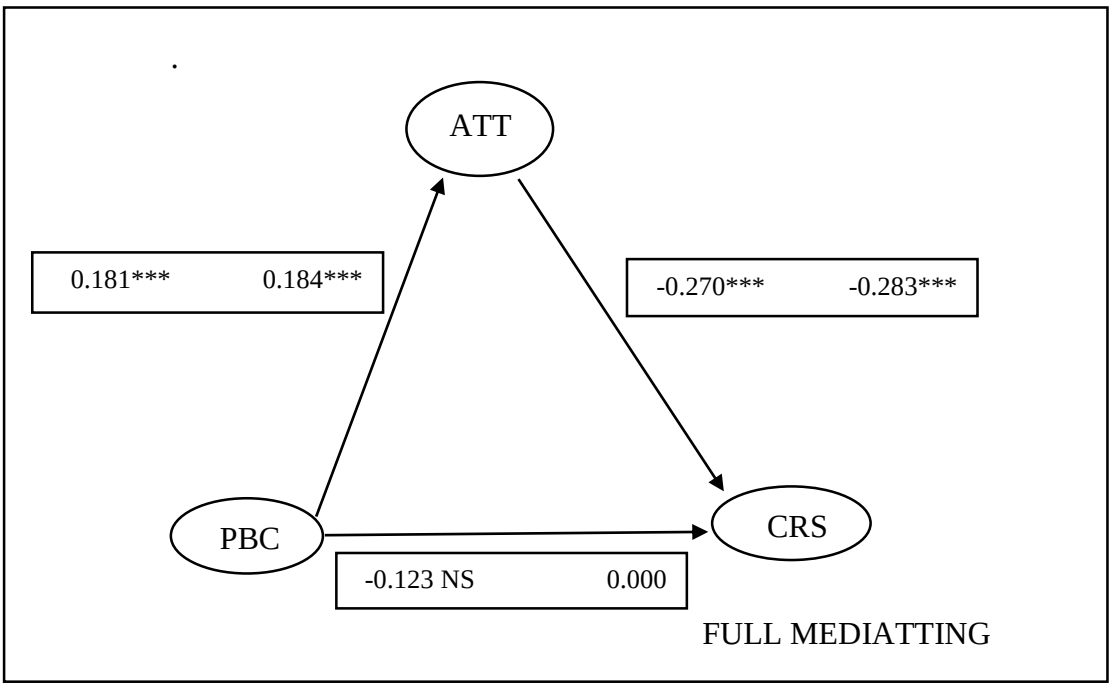

Figure 5.28
Attitude Mediates Perceived Behaviour Control and Customer Resistance

Table 5.37
Testing Attitude Mediates Perceived Behaviour Control and Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**Generated Model with Direct Effect**
Model fit		
Chi-square	151.806	149.906
Degree of freedom	138	137
p-value	0.199	0.213
RMSEA	0.016	0.016
CFI	0.997	0.997
Standardized parameter estimates		
PBC —→ ATT	0.184***	0.181***
ATT —→ CRS	-0.283***	-0.270***
PBC —→ CRS	Not estimated	-0.123 (NS)

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

5.13.17 Credibility Mediates Perceived Behaviour Control and Customer Resistance to Internet Banking ($H42_N$)

Hypothesis ($H42_N$) examines the mediating effect of credibility on the relationship between perceived behavioural control and customer resistance. From the comparison

of direct and indirect effects for this relationship, the direct path from perceived behaviour control (PBC) to customer resistance (CRS) (PBC —→ CRS) still insignificant (-0.123 NS) after the mediator credibility (CRD) is included. The result shows that indirect path from perceived behaviour control (PBC) to credibility (CRD) (PBC —→ CRD) is significant before and after the inclusion of the mediator credibility (CRD) (0.163^{**}, 0.152^{**}). Similarly, the indirect path estimate between credibility (CRD) and customer resistance (CRS) (CRD —→ CRS) still remains significant before and after the inclusion of the mediator credibility (CRD) (-0.222^{**},-0.199^{**}). Hence, the finding of model suggests that the credibility ($H42_N$) provides a fully mediates the relationship between perceived behaviour control and customer resistance and it is accepted.

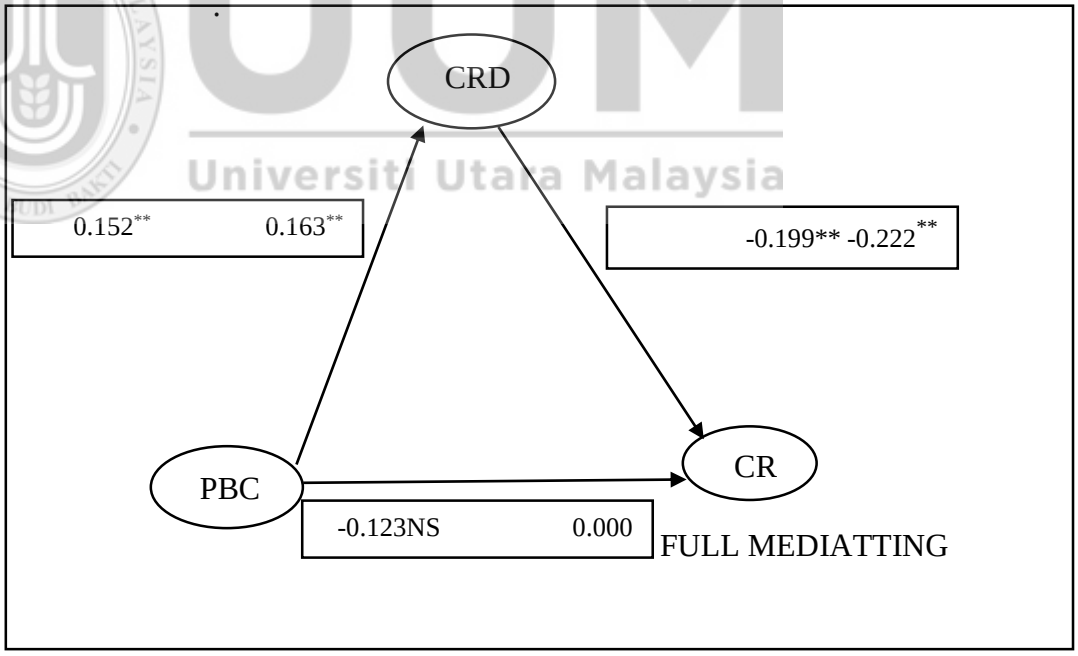

Figure 5.29
Credibility Mediates Perceived Behaviour Control and Customer Resistance

Table 5.38

Testing Credibility Mediates Perceived Behavior Control and Customer Resistance

Model Elements	**Model of Testing for Mediating in Customer Resistance**	**Generated Model with Direct Effect**
Model fit		
Chi-square	151.806	149.906
Degree of freedom	138	137
p-value	0.199	0.213
RMSEA	0.016	0.016
CFI	0.997	0.997
Standardized parameter estimates		
PBC —→ CRD	0.163**	0.152**
CRD —→ CRS	-0.222**	-0.199**
PBC —→ CRS	Not estimated	-0.123 (NS)

* Significant at .05 level; ** Significant at .005 level; *** Significant at .001 level

The fit model with the direct relationship depicted a significant decrease in chi- square ($\Delta \chi^2 = 1.9$, Δ DF = l, Δ P = -0.014) revealing an essential enhancement of model fit. However, no significant path estimate for the perceived behaviour control and customer resistance as shown in Table 5.38.

Table 5.39

Summary of Hypotheses Results of Mediating Relationships

H	Exogenous		Mediated By		Endogenous	Mediating
H19	Trust	→	Attitude	→	Customer resistance	Not mediator
H20	Compatibility	→	Attitude	→	Customer resistance	Not mediator
H21	Government support	→	Attitude	→	Customer resistance	Partial mediator
H22	Trust	→	Subjective norm	→	Customer resistance	Not mediator
H23	Self-efficacy	→	Subjective norm	→	Customer resistance	Not mediator
H24	Government support	→	Subjective norm	→	Customer resistance	Not mediator
H25	Trust	→	Perceived behaviour control	→	Customer resistance	Not mediator
H26	Compatibility	→	Perceived behaviour control	→	Customer resistance	Not mediator
H27	Self-efficacy	→	Perceived behaviour control	→	Customer resistance	Not mediator
H28	Government support	→	Perceived behaviour control	→	Customer resistance	Not mediator
H29	Trust	→	Credibility	→	Customer resistance	Full mediator
H30	Compatibility	→	Credibility	→	Customer resistance	Not mediator
H31	Self-efficacy	→	Credibility	→	Customer resistance	Not mediator
H32	Government support	→	Credibility	→	Customer resistance	Partial mediator
$H40_N$	Subjective norm	→	Attitude	→	Customer resistance	Full mediator
$H41_N$	Perceived behaviour control	→	Attitude	→	Customer resistance	Full mediator
$H42_N$	Perceived behaviour control	→	Credibility	→	Customer resistance	Full mediator

Note: N= New

5.14 Alternative Model Analysis

This study adopts Decomposed Theory of Planned Behavioural (DTPB) (Taylor & Todd, 1995). However, the conceptual framework of this research is supported by the theory as the theory was further tested.

5.14.1 Goodness-of-Fit Indices of Alternative Model (DTPB)

Figure 5.30 displays the examinations of the goodness-of-fit indices based on DTPB theory. Table 5.40 indicates the GFI results of DTPB with the following values, 0.965, where RMSEA was 0.018. Additionally, the p-value of TPB was 0.183, and the value of the overall model achieved the fit recommended value (Hair *el al*., 2010), in which the AGFI was 0.945, CFI was 0.996, and CMIN/DF was 1.122 (Hair *et al.*, 2010). Since the DTPB model achieved ad model fit, the data validated the usage of DTPB.

Table 5.40
Regression Weights for Hypotheses Testing Results of DTPB

H	Exogenous			Estimate	S.E.	C.R.	P	Status	Evidence
H1	ATT	→	CRS	-0.149	0.040	-3.718	***	SG	Yes
H2	SN	→	CRS	-0.028	0.043	-0.647	0.518	NS	No
H3	PBC	→	CRS	-0.084	0.050	-1.680	0.093	NS	No
H5	TR	→	ATT	0.055	0.063	0.876	0.381	NS	No
H6	COM	→	ATT	0.068	0.064	1.060	0.289	NS	No
H7	GS	→	ATT	-0.176	0.068	-2.589	0.010	SG	Yes
H8	TR	→	SN	0.043	0.068	0.638	0.523	NS	No
H9	SE	→	SN	0.404	0.085	4.748	***	SG	Yes
H10	GS	→	SN	-0.183	0.063	-2.909	0.004	SG	Yes
H11	TR	→	PBC	0.039	0.066	0.589	0.556	NS	No

Table 5.40 (Continued)

H12	COM	→	PBC	0.176	0.062	2.822	0.005	SG	Yes
H13	SE	→	PBC	0.567	0.091	6.211	***	SG	Yes
H14	GS	→	PBC	0.025	0.065	0.380	0.704	NS	No
$H33_N$	SN	→	ATT	0.469	0.060	7.751	***	SIG	Yes
$H34_N$	PBC	→	ATT	0.194	0.066	2.955	0.003	SIG	Yes
$H36_N$	TR	→	CRS	-0.026	0.043	-0.599	0.549	NS	No
$H37_N$	COM	→	CRS	-0.139	0.043	-3.273	0.001	SIG	Yes
$H38_N$	SE	→	CRS	-0.314	0.075	-4.162	***	SIG	Yes
$H39_N$	GS	→	CRS	-0.186	0.046	-4.042	***	SIG	Yes

Note: N= New

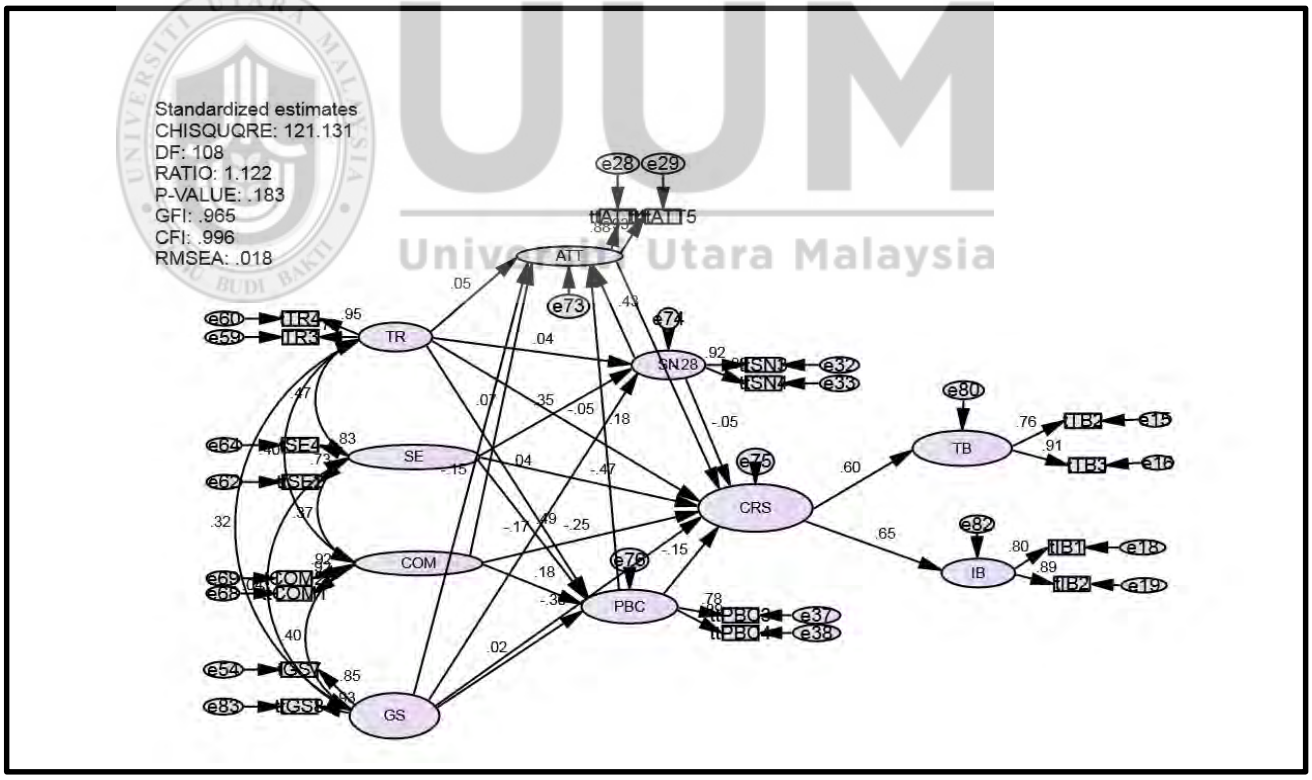

Figure 5.30
Alternative Model of TPB with Standardized Estimates

5.15 Overall Comparison between Structural Models

Table 5.41 reveals the complete comparison between six structural models (exogenous, endogenous, measurement of all variables hypothesized, generated and alternative) derived from the study. On another hand, Table 5.42 shows that the hypothesized model produced 16 significant direct impacts while the generated model produced 11 significant direct impacts. Even though there were more significant direct impacts in the hypothesized model, the results could not be generalized due to non-achievement of p-value ($p < 0.05$).

Table 5.41
(Goodness-of –Fit Indices) of Exogenous Model, Endogenous Model, Exogenous and Endogenous Model, Hypothesized Model, Hypothesized Model After Fit/Generated Model (RM) and Competing Models Underpinning Theory (DTPB)

Indicators	**Exogenous model**	**Endogenous model**	**Measurement all Model**	**Hypothesized model**	**Generated model (GM)**	**Alternative model underpinning theory (DTPB)**	**Threshold value /Criteria value) (Hair *et al.*, 2010)**
Absolute indices:							
Chi-square $\chi 2$	65.071	114.730	184.936	5975.013	149.906	117.265	
DF	48	92	171	2248	137	108	
Ratio	1.356	1.247	1.081	2.658	1.094	1.086	Less than 2
Incremental indices:							
CFI	0.994	0.993	0.997	0.804	0.997	0.997	0.90 and above
GFI	0.973	0.965	0.957	0.658	0.962	0.967	
AGFI	0.955	0.948	0.937	0.633	0.942	0.947	
NFI	0.978	0.967	0.963	0.721	0.964	0.969	
Parsimonious indices:							RMSEA Less than 0.08
RMSEA	0.031	0.026	0.015	0.067	0.016	0.015	
P-value	0.051	0.151	0.221	0.000	0.213	0.225	P-value More than 0.05

It seems that eleven significant direct impacts of 25; Attitude to customer resistance (H1), subject norm to customer resistance (H2), perceived behaviour control to customer resistance (H3), credibility to customer resistance (H4), trust to attitude (H5), compatibility to attitude (H6), government support to attitude (H7), trust to subjective norm (H8), self-efficacy to subjective norm (H9), government support to subjective norm (H10), trust to perceived behaviour control (H11), compatibility to perceived behaviour control (H12), self-efficacy to perceived behaviour control (H13), government support to perceived behaviour control (H14), trust to credibility (H15), compatibility to credibility (H16), Self-efficacy to credibility (H17), government support to credibility (H18), subjective norm to attitude ($H33_N$), perceived behaviour control to attitude ($H34_N$), perceived behaviour control to credibility($H35_N$), trust to customer resistance ($H36_N$), compatibility to customer resistance ($H37_N$), self-efficacy to customer resistance ($H38_N$), government support to customer resistance ($H39_N$), showed equivocal or inconsistent result (substantiated in the hypothesized model but not in the generated model).

Table 5.42

Comparison between Hypothesis Model and Generated Model

H	Exo		Endo	Hypo Model			Generated Model		
				Std. Estimate	P	Hypothesis Status	Std. Estimate	P	Hypothesis Status
H1	ATT	→	CRS	-0.139	***	Asserted	-0.141	***	Asserted
H2	SN	→	CRS	-0.144	0.001	Asserted	-0.021	0.630	Rejected
H3	PBC	→	CRS	-0.223	***	Rejected	-0.071	0.162	Rejected
H4	CRD	→	CRS	-0.060	***	Asserted	-0.025	0.031	Asserted
H5	TR	→	ATT	-0.078	***	Asserted	0.057	0.401	Rejected
H6	COM	→	ATT	0.232	0.008	Rejected	0.062	0.344	Rejected
H7	GS	→	ATT	-0.340	***	Asserted	-0.136	0.028	Asserted
H8	TR	→	SN	-0.021	0.099	Rejected	0.043	0.549	Rejected
H9	SE	→	SN	0.336	***	Asserted	0.412	***	Asserted
H10	GS	→	SN	-0.136	***	Asserted	-0.156	0.006	Asserted
H11	TR	→	PBC	-0.002	0.903	Rejected	0.057	0.406	Rejected
H12	COM	→	PBC	0.274	***	Asserted	0.178	0.004	Asserted
H13	SE	→	PBC	0.622	***	Asserted	0.548	***	Asserted

Table 5.42 Continued

H14	GS	→ PBC	0.104	0.074	Rejected	-0.004	0.951	Rejected
H15	TR	→ CRD	-0.201	0.006	Asserted	0.885	0.004	Asserted
H16	COM	→ CRD	0.572	0.098	Rejected	0.379	0.173	Rejected
H17	SE	→ CRD	0.873	0.014	Asserted	0.472	0.259	Rejected
H18	GS	→ CRD	2.553	***	Asserted	1.776	***	Asserted
$H33_N$	SN	→ ATT	+++	+++	+++	0.477	***	Asserted
$H34_N$	PBC	→ ATT	+++	+++	+++	0.201	0.003	Asserted
$H35_N$	PBC	→ CRD	+++	+++	+++	0.692	0.038	Asserted
$H36_N$	TR	→ CRS	+++	+++	+++	-0.014	0.758	Rejected
$H37_N$	COM	→ CRS	+++	+++	+++	-0.134	0.001	Asserted
$H38_N$	SE	→ CRS	+++	+++	+++	-0.282	***	Asserted
$H39_N$	GS	→ CRS	+++	+++	+++	-0.106	0.019	Asserted

Finally, Table 5.43 below summarizes the hypothesis development for all (old path, new path, old mediating effect, and new mediating effect).

Table 5.43
Hypotheses Summary

H	Hypothesis	Hypothesis direction	Finding	Support
H1	There is a negative relationship between attitude and customer resistance to internet banking.	-ve	-ve (SG)	Supported
H2	There is a negative relationship between subjective norm and customer resistance to internet banking.	-ve	-ve (NS)	Not supported
H3	There is a negative relationship between perceived behavioral control and customer resistance to internet banking.	-ve	-ve (NS)	Not supported
H4	There is a negative relationship between credibility and customer resistance to internet banking.	-ve	-ve (SG)	Supported
H5	There is a positive relationship between trust and attitude.	+ve	+ve (NS)	Not supported
H6	There is a positive relationship between compatibility and attitude.	+ve	+ve (NS)	Not supported
H7	There is a negative relationship between government support and attitude.	-ve	-ve (SG)	Supported
H8	There is a positive relationship between trust and subjective norms.	+ve	+ve (NS)	Not supported
H9	There is a positive relationship between self-efficacy and subjective norms.	+ve	+ve (SG)	Supported
H10	There is a negative relationship between government support and subjective norms.	-ve	-ve (SG)	Supported
H11	There is a positive relationship between trust and perceived behavior control.	+ve	+ve (NS)	Not supported
H12	There is a positive relationship between compatibility and perceived behavior control.	+ve	+ve (SG)	Supported

Table 5.43 (Continued)

H13	There is a positive relationship between self-efficacy and perceived behavioral control.	+ve	+ve (SG)	Supported
H14	There is a negative relationship between government support and perceived behavioral control.	-ve	-ve (NS)	Not supported
H15	There is a positive relationship between trust and credibility.	+ve	+ve (SG)	Supported
H16	There is a positive relationship between compatibility and credibility.	+ve	+ve (NS)	Not supported
H17	There is a positive relationship between self-efficacy and credibility.	+ve	+ve (NS)	Not supported
H18	There is a positive relationship between government support and credibility.	+ve	+ve (SG)	Supported
H19	Attitude mediates the relationship between trust and customer resistance.	+ve (NS) -ve (SG)	+ve (NS) -ve (SG)	Not supported
H20	Attitude mediates the relationship between compatibility and customer resistance.	+ve (NS) -ve (SG)	+ve (NS) -ve (SG)	Not supported
H21	Attitude mediates the relationship between government support and customer resistance.	-ve (SG) -ve (SG)	-ve (SG) -ve (SG)	Supported
H22	Subjective norm mediates the relationship between trust and customer resistance.	+ve (NS) -ve (NS)	+ve (NS) -ve (NS)	Not supported
H23	Subjective norm mediates the relationship between self-efficacy and customer resistance.	+ve (SG) -ve (NS)	+ve (SG) -ve (NS)	Not supported
H24	Subjective norm mediates the relationship between government support and customer resistance.	-ve (SG) -ve (NS)	-ve (SG) -ve (NS)	Not supported
H25	Perceived behavior control mediates the relationship between trust and customer resistance.	+ve (NS) -ve (NS)	+ve (NS) -ve (NS)	Not supported
H26	Perceived behavior control mediates the relationship between compatibility and customer resistance.	+ve (SG) -ve (NS)	+ve (SG) -ve (NS)	Not supported
H27	Perceived behavior control mediates the relationship between self-efficacy and customer resistance.	+ve (SG) -ve (SG)	+ve (SG) -ve (NS)	Not supported
H28	Perceived behavior control mediates the relationship between government support and customer resistance.	-ve (NS) -ve (NS)	-ve (NS) -ve (NS)	Not supported
H29	Credibility mediates the relationship between trust and customer resistance.	+ve (SG) -ve (SG)	+ve (SG) -ve (SG)	Supported
H30	Credibility mediates the relationship between compatibility and customer resistance.	+ve (NS) -ve (SG)	+ve (NS) -ve (SG)	Not supported
H31	Credibility mediates the relationship between self-efficacy and customer resistance.	+ve (NS) -ve (SG)	+ve (NS) -ve (SG)	Not supported
H32	Credibility mediates the relationship between government support and customer resistance.	+ve (SG) -ve (SG)	+ve (SG) -ve (SG)	Supported
$H33_N$	There is a positive relationship between subjective norm and attitude.	+ve	+ve (SG)	Supported
$H34_N$	There is a positive relationship between perceived behavior control and attitude.	+ve	+ve (SG)	Supported

Table 5.43 (Continued)

$H35_N$	There is a positive relationship between perceived behavior control and credibility.	+ve	+ve (SG)	Supported
$H36_N$	There is a negative relationship between trust and customer resistance to internet banking.	-ve	-ve	Not supported
$H37_N$	There is a negative relationship between compatibility and customer resistance to internet banking.	-ve	-ve (SG)	Supported
$H38_N$	There is a negative relationship between self-efficacy and customer resistance to internet banking.	-ve	-ve (SG)	Supported
$H39_N$	There is a negative relationship between government and customer resistance to internet banking.	-ve	-ve (SG)	Supported
$H40_N$	Attitude mediates the relationship between subjective norm and customer resistance.	+ve (SG) -ve (SG)	+ve (SG) -ve (SG)	Supported
$H41_N$	Attitude mediates the relationship between perceived behavior control and customer resistance.	+ve (SG) -ve (SG)	+ve (SG) -ve (SG)	Supported
$H42_N$	Attitude mediates the relationship between perceived behavior control and customer resistance.	+ve (SG) -ve (SG)	+ve (SG) -ve (SG)	Supported

5.16 Chapter Summary

This section presented the outcome of the study; in summary, a good response rate was achieved (50.11%). With regards to the test of non-response bias, no statistically significant difference between early and late responses was found. As a result of that, the issue of non-response bias did not significantly affect the generalization of the findings. Confirmatory Factor Analysis (CFA) was conducted for each latent variable as an individual variable in order to test the construct validity and reliability of all interval scaled variables to see how free they were from random error. Further, the researcher tested the assumptions of normality, linearity, and homoscedasticity and the results showed that the assumptions were generally met. Table 5.22 presents the significant and insignificant relationships of direct and indirect impacts.

In addition, the section also presents the summary of the mediating effect and interpretation of the results; from all indication, attitude has full mediation between

subjective norm and customer resistance. Furthermore, attitude also fully mediated between perceived behaviour control and customer resistance. Credibility fully mediates between trust and customer resistance. As well, credibility too has full mediation on perceived behaviour control and customer resistance. For partial mediating, attitude equally has partial mediating effect between government support and customer resistance. While credibility is a partial mediator on the relationship between compatibility and customer resistance. Furthermore, credibility is a partial mediator on the relationship between government support and customer resistance. Additionally, other relationships with mediations such as attitudes, subjective norms, perceived behaviour control, and credibility do not mediate the linkages between trust, compatibility, self-efficacy, and government support to customer resistance.

CHAPTER SIX

DISCUSSION and CONCLUSION

6.1 Introduction

The chapter begins with the discussion of the findings according to the research objectives of this study. Next, it discusses the practical contributions and limitations of the research. Finally, this chapter closes with the recommendations for future research and a summary.

6.2 Research Objectives Recapped

The findings of this study are in line with the main objectives of the research as stated below:

1. To ascertain the level of customer resistance to internet banking (postponers, oppositors and rejectors).
2. To determine the impact of attitude, subjective norm, perceived behavioral control and credibility on customer resistance to internet banking in Yemen.
3. To examine the impact of trust, compatibility and government support on attitude to internet banking in Yemen.
4. To determine the impact of trust, self-efficacy and government support on subjective norm to customer resistance to internet banking in Yemen.

5. To examine the impact of trust, self-efficacy, compatibility and government support on perceived behavioral control to internet banking in Yemen.
6. To examine the impact of antecedents of trust, self-efficacy, compatibility, government support and perceived behavioral control on credibility to internet banking in Yemen.
7. To determine the mediating effect of attitude, subjective norm, perceived behavioral control and credibility on specific relationships between exogenous variables and customer resistance.

The discussion of the findings is based on the study's research questions and objectives, which could help us to understand and explain the status of customer resistance to internet banking in Yemen. Each objective discusses the significant and insignificant relationship among the exogenous and endogenous variables, the mediating effect of attitude, subjective norm, perceived behavioral control, credibility and how the underpinning theory (decomposed theory of planned behavior) can be employed to explain the antecedents of customer resistance to internet banking in Yemen. The preceding sections discuss the answers to each research question and the corresponding objective.

6.3 Objective One: Discussion on the Level of Customer Resistance towards Internet Banking in Yemen

This study uncovers that the level of customer resistance to internet banking is reflected in the percentage of rejectors which is quite minimal (29%). The postponers and oppositors constitute 35% and 36%, respectively. Since postponers and oppositors are laggards and not total resistors to new technology, they can safely be classified as

potential adopters (Laukkanen *et al.*, 2008). This could mean that the majority of the respondents are willing to adopt internet banking in the nearest future. The situation indicates that there is a big potential for internet banking in Yemen, although the pace is quite slow. The probable reasons for such a situation could be that there are some barriers to the process of adoption, such as lack of internet infrastructure in Yemen. The unstable government also contributes in part to the sluggish development of internet banking (Al-Hassani, 2013; Zolait, 2010). In addition, there is no specific law for e-banking (Willems, 2009). Moreover, lack of trust and credibility makes customer avoid utilizing internet banking (Al-Swidi & Mahmood, 2011c; Al-Qasa *et al.*, 2013). If the barriers are overcome, the customers are expected to employ internet banking in future.

6.4 Objective Two: Discussion on the Antecedents of Customer Resistance (CRS) to Internet Banking in Yemen (Old Paths- Attitude, Subjective Norms, Perceived Behavior Control, Credibility; New Paths - Compatibility, Self-Efficacy, Government Support, and Trust)

This study found five significantly direct antecedents of customer resistance (CRS): attitude, credibility, compatibility, self-efficacy and government support; and three insignificant relationships: subjective norm, perceived behavioral control and trust.

6.4.1 Significant Direct Antecedents of Customer resistance towards internet banking

Out of the eight direct hypotheses examining customer resistance antecedents, five hypotheses are found to be significant, two existing paths and three new paths (H1: attitude →CRS, H4: credibility →CRS; $H37_N$: compatibility →CRS; $H38_N$: self-efficacy →CRS; $H39_N$: government support →CRS). The new paths are $H37_N$, $H38_N$ and $H39_N$. The new paths were obtained as suggested by SEM analysis during

modification index while fitting the structural model for goodness of fit (GoF). Each significant relationship is discussed below.

6.4.1.1 Attitude and Customer Resistance to Internet Banking

From this study, there is a significant and negative relationship between the bank customers' attitude and customer resistance in Yemen. Thus, hypothesis H1 is supported. This result indicates that when customers' attitude is low to internet banking, there will be high resistance; while high attitude will lead to low internet banking resistance. Accordingly, the theory of planned behavior suggests that an individual's attitude can be positive or negative evaluation of self-performance of the particular behavior (Ajzen, 1991). Based on the literature reviewed, attitude to resistance has not been examined before. Thus, the finding of this relationship could not be justified directly. However, attitude has been examined with adoption of internet banking. There are a number of past studies that have obtained similar results, indicating that customers' attitude is a good predictor, and plays a very significant role in actual internet banking adoption behavior (Kaijaluoto *et al.*, 2002a; Chau & Lai, 2008; Ndubisi & Sinti, 2006; Shi *et al.*, 2008; Guerrero *et al.*, 2007; Hashjin *et al.*, 2014). Therefore, the relationship between attitude and customer resistance is partially supported.

The reasons why attitude is negatively related to customer resistance in Yemen could be many. Firstly, most respondents are postponers and oppositors, which means they are willing to use internet banking in future and that is why their attitude is high compared to low resistance to use internet banking. Secondly, the majority of customers are internet users (83%) and the majority of the respondents of around

(39%) have e-banking experience of 2-4 years. Another (37%) of the respondents have less than one year, which means that they are familiar with internet and e-banking services which might make them have low resistance to internet banking usage. Therefore, internet banking service will take time to encourage users to adopt internet banking in Yemen. Additionally, Yemeni bank managers and practitioners should pay particular attention to maximizing users' informational-based readiness (knowledge, awareness, experience, exposure) attributes, which have been proven empirically to influence and contribute to improving customers' attitudes and enhancing people's intention to use internet banking in Yemen (Zolait *et al.*, 2009a).

6.4.1.2 Credibility and Customer Resistance to Internet Banking

In this study, there is a significant and negative relationship between credibility and customer resistance in Yemen. Thus, hypothesis H4 is supported. This result indicates that when a customer's credibility is low to internet banking, there will be high resistance. The findings indicate that a customer's credibility in using internet banking service is low and it is considered as one of the main factors that influences their credibility to use or not to use internet banking. This is because the degree of uncertainty regarding privacy and safety of economic transactions in a virtual setting is higher than in traditional settings (for example, withdrawing money using cheques or over the bank's counters). According to previous studies, credibility to resistance has not been investigated before. Therefore, the result of this relationship could not be justified directly. However, credibility has been investigated with internet banking adoption. Most researchers have found a positive relationship between credibility and intention to adopt internet banking (Hanafizadeh *et al.*, 2014; Ariff *et*

al., 2012; Ariff *et al.*, 2013; Wang *et al.*, 2003; Giovanis *et al.*, 2012; Koenig-Lewis, 2010).

In terms of the Yemeni environment, this result seems to point to the respondents feeling insecure and distrusting internet banking. According to Al-Swidi and Mahmood (2011c); and Al-Qasa *et al.* (2013), the Yemeni population does not trust the banks to handle their business transactions. They prefer to keep their money at home rather than in banks. The number of bank accounts holders not exceeding four percent of the Yemeni population reflects this.

6.4.1.3 Compatibility and Customer Resistance to Internet Banking

The generated model shows that the path from compatibility to actual behavior is significant and negative, suggesting that non-adopters (resistors) are less compatible to using internet banking. Thus, hypothesis $H37_N$ is supported. The result indicates that high compatibility will lead to less customer resistance to use internet banking or lower compatibility will increase customer resistance. This result is consistent with the findings of Hernandez and Martin (2007), where compatibility had a significant and negative impact on customers' resistance behavior to using internet banking. They confirmed the key role of compatibility in predicting internet-banking adoption in Brazil. However, there are several studies which support compatibility positively for internet banking adoption (Sophonthummapharn, 2009; Amin *et al.*, 2013; Liu and Li, 2010; Tung *et al.*, 2008). For instance, Sophonthummapharn (2009) found compatibility to be significantly and positively related to adoption of e-customer relationship management in small and medium enterprises in Thailand. Similarly, Amin *et al.* (2013) also found a significant relationship between compatibility and

Islamic home financing adoption in Malaysia; while Liu and Li (2010) confirmed that compatibility is instrumental in determining the diffusion process of mobile internet use in China. In the same vein, Tung *et al.* (2008) also confirmed the important role played by compatibility in explaining why one chooses or not choose the electronic logistics information system in hospital information systems (HIS) in the medical industry.

The reason why compatibility is negatively related to customer resistance in Yemen could be many. It might be that Yemeni customers are not comfortable with using internet banking because of the slow line connection and cost compared to customers in other countries (Al-Hassani, 2013). Further, the culture of dealing with banking services is still uncommon in Yemeni society (Al-Adhi, 2009, cited in Al-Qasa *et al.*, 2013). In addition, the feeling of holding money in hand and trading with cash creates a psychological confidence among the people; so cash is used in most trading transactions, even for the most durable goods (Al-Mushrqui, 2009; Akinyosoye, 2011; Chavan, 2013).

6.4.1.4 Self-efficacy and Customer Resistance to Internet Banking

The generated model shows that the path from self-efficacy to customer resistance is significant and negative. Thus, hypothesis $H38_N$ is supported. This finding shows that the higher the self-efficacy, the lower is the customer resistance to internet banking or vice versa. Since the actual behavior is resistance, so the relationship is logically negative. The result is consistent with previous studies (Hernandez & Martin, 2007; Hill *et al.*, 2011). Customers with less self-efficacy are more likely to strongly resist using internet banking. This result might be caused by image barrier, which is one of

the dimensions of customer resistance. The Yemeni participants might stereotype in their mind that internet banking is difficult to use which concurs with the previous findings (Laukkanen *et al.*, 2008; Ram & Sheth, 1989).

6.4.1.5 Government Support and Customer Resistance to internet banking

This study found that there is a significant and negative relationship between government support and customer resistance in Yemen. Thus, hypothesis $H39_N$ is supported. The explanation for this result could be that the lower government support leads to higher customer resistance. There are a number of past studies that have obtained similar results in terms of internet banking adoption which indicate that government support is a good predictor and plays a very significant role in information and communications technology (ICT) adoption by government-owned universities in Nigeria (Eze *et al.*, 2012). Hernandez and Mazzon (2007) also found government support has a positive and significant relationship among adopters/non-adopters of internet banking in Brazil.

Zolait *et al.* (2010) reiterated that in Yemen, there is a lack of government policies regarding online activities compared to other countries. Moreover, customers complain about the sluggishness of internet line connection in Yemen, rendering the lack of interest for internet banking (Al-Hassani, 2013). In addition, there is also a lack of polices on internet usage. Al-Zubieri who is the CEO of Yemen Gulf Bank noted that "There is still no law to approve and control electronic banking or an electronic signature. This is very important to banks and clients. If there is a dispute, we will go to court and the judge will not consider the electronic signature as a legal transaction" (Willems, 2009).

6.4.2 Insignificant Antecedents of Customer Resistance towards internet banking

This study also found three insignificant antecedents of customer resistance to internet banking: subjective norm (H2), perceived behavioral control (H3) and trust ($H36_N$).

6.4.2.1 Subjective Norm and Customer Resistance to Internet Banking

The result shows that the relationship between subjective norm and resistance to internet banking in Yemen has a non-significant but negative effect. Thus, hypothesis H2 is not supported. Since there are only limited studies conducted on the subjective norm and resistance, relationship, support for this link can be assimilated to the positive aspect of the behavior or adoption. Nevertheless, the insignificant link between subjective norm and adoption is supported by several past studies (Al-Qeisi, 2009; Dauda *et al.*, 2007; Kim *et al.*, 2007; Shi *et al.*, 2008; Dauda *et al.*, 2007). For example, Al-Qeisi (2009) examined the relationship between subjective norm and banking service adoption in Jordan; while Dauda *et al.* (2007) found an insignificant relationship between subjective norm and consumer adoption of internet banking in Malaysia and Singapore. Similarly, Kim *et al.* (2007) discovered insignificant relationship between subjective norm and actual usage of internet in Korea.

The possible explanation for this link in Yemen could be that the respondents of this study are university employees, which means that they are highly educated: PhD (19%), Master's (25%) and Bachelor's (52%). The respondents could represent independent individuals who do not depend on others, such as family, when making decisions. Moreover, in this particular case, it may be that family and mass media (37%) are a less important normative factor for determining resistance to use internet banking in Yemen. Finally, it could be said that the bank customers do not find

cooperation from their family members and mass media channels regarding customer resistance to use internet banking in Yemen. This is a positive signal to decrease the resistance to internet banking usage.

6.4.2.2 Perceived Behavioral Control and Customer Resistance to Internet Banking

The finding shows that there is a non-significant and negative relationship between perceived behavioral control and customer resistance to internet banking in Yemen. Hence, hypothesis H3 is not supported. This insignificant link to adoption is in accordance with previous related empirical findings (Leng *et al.*, 2011; Nysveen & Pedersen, 2005). There are also studies that have found a significant and positive link between PBC and adoption in an internet banking setting (Zolait *et al.*, 2010, Al-Majali, 2012). Zolait *et al.* (2010) found a significant link between resources, knowledge, skills and ability (dimensions of PBC) and intention to use internet banking in Yemen (Zolait *et al.*, 2010). Similarly, Al-Majali (2012) found a significant relationship between perceived behavioral control and actual behavior in Jordan. Therefore, these internal and external factors have significant impact on customers' decisions to adopt internet banking.

Perceived behavioral control seems to be an unimportant antecedent of customer resistance to internet banking usage because they believe that having the ability (skills), resources (computers and internet) and knowledge (qualification) are important requirements to operate internet banking service. The finding shows that 96% of the respondents have skills because they have higher education (PhD, Master's, Bachelor's and Diploma). Although the results show that the majority of the respondents of around (73%) have heard about internet banking, the respondents

still resist using internet banking in Yemen due to image barrier. They feel that internet banking is difficult to use in Yemen.

6.4.2.3 Trust and Customer Resistance

This study found the relationship between trust and customer resistance to internet banking in Yemen to be negative but not significant. Therefore, hypothesis $H36_N$ is not supported. It might be due to the uncertainty in the internet banking sector where the customers will be unlikely to proceed if they have lack of trust in using internet banking.

6.5 Objective Three: Discussion on the Antecedents of Attitude (Old Paths- Trust, Compatibility, and Government Support; New Paths–Subjective Norm, Perceived Behavior Control) towards Customer Resistance to Internet Banking in Yemen.

This study found three significantly direct antecedents of attitude (ATT), which are government support, subjective norm and perceived behavioral control; and two insignificant relationships, which are trust and compatibility.

6.5.1 Significant Direct Antecedents of Attitude

Out of the five direct hypotheses examining attitude antecedents, three hypotheses are found to be significant, one existing path and two new paths (H7: government support → ATT; $H33_N$: subjective norm →ATT; $H34_N$: perceived behavioral control →ATT). The new paths ($H33_N$ and $H34_N$) were obtained as suggested by SEM analysis during modification index while fitting the structural model for GoF. Each significant relationship is discussed below.

6.5.1.1 Government Support and Attitude

The finding shows that there is a significant and negative relationship between government support and customers' attitude in Yemen. Thus, hypothesis H7 is supported. This result indicates that when government support is low, there is negative customers' attitude to internet banking. There are limited studies which have examined government support and customers' attitude and these studies have found a significantly positive relationship (Ozkan & Kanat, 2011; A-Qader & Zainuddin, 2010), as opposed to the significantly negative finding of this study. The probable reason could be that the Yemeni population has high exposure to internet through the World Wide Web (www), making them high internet users (83%). So they are familiar with using the internet. Accordingly, Internet World Statistics (2013) noted that Yemeni internet users have increased from 420,000 in 2010 to 3.7 million in 2012. Consequently, the majority of respondents are willing to adopt internet banking in future.

6.5.1.2 Subjective Norms and Attitude

The findings indicate a positively significant effect between subjective norm and the attitude of bank customers. Thus, $H33_N$ is supported. The interpretation of this result could be that social norms, such as friends, parents, experts in the field and influential bodies affect a person's attitude as indicated in the literature (e.g., Chang, 1998; Khang *et al.*, 2012).This finding supports the concerns put forward by several researchers (Alsajjan *et al.*, 2010; Kulviwat *et al.*, 2009; Hsu *et al.*, 2004, Sivo & Brophy, 2003; Amin *et al.*, 2013) who found that the relationship between subjective norm and bank customers' attitude is significant. In the Yemeni context, (30%) of the respondents learnt about internet banking through word of mouth, which is the second highest

percentage after advertising (37%). Since family and friends have a big impact on the attitude of individuals in Yemen, banks should use this channel to promote internet banking.

6.5.1.3 Perceived Behavior Control and Attitude

The finding shows that there is a positively significant relationship between perceived behavioral control and the bank customers' attitude. Thus, $H34_N$ is supported empirically. Similar results have been found in past studies (Yang & Zhou, 2011; Lee, 2008). The finding indicates that high perceived behavioral control will lead to increasing customers' attitude. The explanation for this result could be the importance of perceived behavioral control whereby customers have a choice to select different service providers, hence creating a positive attitude that in turn would create stronger intention to selecting different service providers (Bansal & Taylor, 2002). Eagly and Chaiken (1993) indicated that *"people take control into account in conjunction with their desire to engage in a behavior"* (p. 189). In other words, desire drives the control of the behavior; hence, perceived behavioral control positively affects attitude. From the Yemeni perspective, the profile shows that (35%) are willing to use internet banking within one year (postponers); and (36%) are willing to use internet banking in future (oppositors) which proves that the bank customers in Yemen are willing to adopt internet-banking service in future.

6.5.2 Insignificant Antecedents of Attitude

This study found two insignificant antecedents of attitude, which are trust (H5) and compatibility (H6).

6.5.2.1 Trust and Attitude

The findings indicate that trust in using the internet banking service is insignificantly and positively related to attitude. This could imply that low trust is considered as one of the main factors that influences bank customers' attitude to use or not to use internet banking because the degree of uncertainty of economic transactions in a virtual setting is higher than in traditional settings. Hence, hypothesis H5 is not supported. Several past studies have found similar insignificant results (Cho & Cheung, 2003; Hsu & Lin, 2008; Van der Heijden *et al.*, 2003; Yu *et al.*, 2005). The main reason for this result could be that the bank customers feel that their information must be kept confidential and as a result, they cannot trust banks if they are to use internet banking sites. Adversely, other studies have found a significantly positive result (Al-Majali & Nik-Mat, 2010; Grabner-Kräuter & Faullant, 2008, Amoroso & Hunsiger, 2009; Nor & Pearson, 2007).

Customers' trust can be developed by banks when there is honesty, trustworthiness and confidentiality in using the internet banking service for their online transactions. The banks in Yemen need to develop strategies that could improve the customers' trust in the underlying technology. These strategies may include heightening security, embracing encryption and firewall internet technology and working closely with online security firms to decrease the perception of internet banking service as uncertain and unsafe. Consequently, if the customers trust internet banking, they may develop a long patronage with bank services via the internet. Banks in Yemen must give assurances to customers and show concern for security of online transactions and internet banking service. In this way, fraud could be reduced and trust enhanced. The respondents of this study are academic staff of Yemeni universities, and (47%)

reported that they use internet daily and (51%) use the internet from home. This result might make them more knowledgeable on whether they should have trust when using internet banking. Moreover, the users with the richest knowledge about the internet may know how to avoid the security issues online. The results of this study will be useful for academicians interested in exploring the antecedents and consequences of trust and for practical use in building consumer trust.

6.5.2.2 Compatibility and Attitude

Similarly, the relationship between compatibility and the bank customers' attitude in Yemen is found to be insignificantly positive. Thus, hypothesis H6 is not supported. This finding supports the concerns put forward by several researchers (Al-Majali & Nik-Mat, 2010; Shih & Fang, 2004; Nor & Pearson, 2007; Chakravarty & Dubinsky, 2005; Taylor & Todd, 1995) who found that the relationship between the compatibility factor and the individual's attitude to internet banking is insignificant. This finding suggests that compatibility with the technology and an individual's existing values and needs do not influence the bank customers to form a positive attitude.

This may indicate a low receptiveness level of the respondents to internet banking service. Hence, the banks should satisfy their customers' values, beliefs, needs and means of doing things to allow resistors to be willing to use internet banking in future. In addition, this result may mean the bank customers in Yemen are not concerned about the compatibility of internet banking service in their lives, but they care about other external factors that are more important than compatibility.

Therefore, the banks in Yemen should develop a positive customer attitude to internet banking service by highlighting the compatibility of the technology with individual existing values and needs. Communicating, working and entertaining online reflect the present and future lifestyles. Besides, the banks should promote and encourage online financial transactions in a customer's lifestyle. Faster access to financial transactions through internet banking service can be projected as befitting the "modern" lifestyle, where time is a critical factor.

6.6 Objective Four: Discussion on the Antecedents of Subjective Norm (Trust, Self-Efficacy, and Government Support) in Yemen.

This study found two significantly direct antecedents of subjective norm (SN), which are self-efficacy and government support and one insignificant relationship, which is trust.

6.6.1 Significant Direct Antecedents of Subjective Norm

Out of the three direct hypotheses examining subjective norm antecedents, two hypotheses are found to be significant (H9: self-efficacy → SN, H10: government support →SN). Each significant relationship is discussed below.

6.6.1.1 Self-efficacy and Subjective Norms

The finding shows that the relationship between self-efficacy and customers' subjective norm is positive and significant. Thus, hypothesis H9 is supported. It means that an individual with high confidence perceives higher expectation from the society around him or her. Truly, society has high expectation of the individual with high confidence in IT usage. This finding supports the concerns put forward by several researchers (Kim, 2010; Kim *et al.*, 2007). In Yemen, the finding of this study might

be because (39%) of the respondents are experts in the use of e-banking with 2-4 years' experience; (47%) of the respondents browse the internet daily; while 31% on a weekly basis. This can affect their beliefs on the usage or rejection of internet banking in Yemen. Also, the majority of respondents are internet users (83%). Therefore, they have confidence to use internet banking; additionally, respondents are exposed to the World Wide Web.

6.6.1.2 Government Support and Subjective Norm

The study finding indicates that there is a significant and negative relationship between government support and subjective norm in Yemen. Thus, hypothesis H10 is supported. The finding on this relationship demonstrates that when there is a lack of government backing on the use of internet, for example, failing to provide resources, such as infrastructure, there is a higher resistance of family which can make them not use internet banking. It is supported but as a positive relationship by (Lau & Kwok, 2007). In Yemen, there is lack of government policy to motivate people to use internet banking (Zolait, 2010). Moreover, the internet connection in Yemen is low and tariff rate is expensive compared to other countries (Al-Hassani, 2013).

6.6.2 Insignificant Antecedents of Subjective Norm

This study found one insignificant antecedent of subjective norm, which is trust (H8).

6.6.2.1 Trust and Subjective Norms

The relationship between trust and subjective norm to customer resistance in Yemen is insignificant and positive. Thus, hypothesis H8 is not supported. This finding is supported by previous researchers (Chow & Chan, 2008). It can be that their beliefs in

internet banking adoption do not play a role in determining subjective norm. Similarly, trust in banks' website with regards to their reputation, brand name and service may positively influence subjective norm over the behavior of on-line transactions. Besides that, it may be that family and mass media (37%) are a less important normative factor in determining resistance to internet banking usage in Yemen.

6.7 Objective Five: Discussion on the Antecedents of Perceived Behavior Control (Old Paths- Trust, Compatibility, Self-Efficacy, and Government Support) towards Customer Resistance to Internet Banking in Yemen.

Out of the four direct hypotheses examining perceived behavioral control antecedents, two hypotheses are found to be significant (H12: compatibility → PBC, H13: self-efficacy → PBC). Each significant relationship is discussed below.

6.7.1 Significant Direct Antecedents of Perceived Behavior Control

Out of the four (4) direct hypotheses examining perceived behavior control antecedents, two (2) hypotheses are found to be significant (H12: compatibility → PBC, H13: self-efficacy →PBC). Each significant relationship will be discussed subsequently.

6.7.1.1 Compatibility and Perceived Behavioral Control

The results of this study show that compatibility has a significant and positive effect on perceived behavioral control. Thus, hypothesis H12 is supported. This finding is consistent with the evidence reported in previous research (Scannell *et al.*, 2011; 2012). This result reveals that high compatibility will increase perceived behavioral control. The degree to which a new innovation is perceived to be compatible with existing systems convinces customers to use or not to use new

technology. It suggests that self-assurance will be improved in future successful internet banking adoption by previous practice with associated technologies. This finding may suggest that bankers will follow innovation plans rather than develop innovation strategies to reduce a perceived bad influence on the customer's insight of compatibility. This might be found Yemeni respondents feel compatible to control their money because internet banking still new service occur on 2003 by Yemen Gulf Bank compare with other e-banking.

6.7.1.2 Self-Efficacy and Perceived Behavioral Control

The result of this study shows that self-efficacy has a significant and positive effect on perceived behavioral control. Thus, hypothesis H13 is supported. This result reveals that human ability is an important factor which has a strong influence on perceived behavioral control to internet banking service in Yemen. This finding is consistent with the evidence reported in previous research (Hung *et al.*, 2012; To *et al.*, 2008; Nor & Pearson, 2008; Ndubisi, 2004; Chu & Wu; 2005; Shih & Fang, 2004; Tan & Teo, 2000).

This finding indicates that bank customers have ability and confidence which are the main requirements of people's perception of behavioral control to reduce their resistance to internet banking service. The result shows that (83%) of the respondents are internet users, which means that the respondents have the ability, skills and experience to use internet banking service in future. Moreover, the results show that (35%) are willing to use internet banking within one year (postponers); and (36%) are willing to use internet banking in future (oppositors) which proves that the bank

customers in Yemen will be able to adopt internet-banking service in future. This means the banks must provide additional training for their customers.

The findings show that more than half of the respondents are accessing internet from their homes; this indicates the bank customers have the confidence to use internet banking in future even if there is nobody around to show them how to do it. In addition, confidence may be affected by a concern that help is difficult to get when faced with difficulties in using the technology. Therefore, it is necessary for the banks in Yemen to equip non-adopters with the necessary skills to use internet banking in future.

6.7.2 Insignificant Antecedents of Perceived Behavioral Control

This study found two insignificant antecedents of Perceived Behavioral Control, which are trust (H11) and government support (H14).

6.7.2.1 Trust and Perceived Behavior Control

The 11th hypothesis is the link between trust and perceived behavioral control which is found to be insignificantly positive. Thus, hypothesis H11 is not supported. However, the finding of this study is different from other previous studies. It could be that mutual trust in the relationship between resistors and internet banking does not increase customers' self-efficacy nor does it lead to an increase in perceived behavioral control. Moreover, it can be associated to the type of respondents who are educated with most of them being familiar with using the internet.

6.7.2.2 Government Support and Perceived Behavioral Control

This study found that the relationship between government support and perceived behavioral control is negative but not significant. Therefore, hypothesis H14 is unsupported. This means that the bank customers confirm that the government of Yemen does not play any important role in supporting internet banking service in Yemen. The result is supported by Hernandez & Mazzon (2007); and Dauda *et al.* (2007). This is due to slow internet connection and the internet's high charges by the Yemeni government (Al-Hassani, 2013). Moreover, there is a lack of government policy to encourage the customers to have the intention or to adopt internet banking compared to other countries (Zolait *et al.*, 2010).

6.8 Objective Six: Discussion on the Antecedents of Credibility (Old Paths-Trust, Compatibility, Self-Efficacy and Government Support; New Paths – Perceived Behavior Control) in Yemen.

This study found three significantly direct antecedents of credibility (CRD), which are trust, government support and perceived behavioral control; and two insignificant relationships, which are compatibility and self-efficacy.

6.8.1 Significant Direct Antecedents of Credibility

Out of the five direct hypotheses examining credibility antecedents, three hypotheses are found to be significant (H15: trust → CRD, H18: government support →CRD; $H35_N$: perceived behavioral control →CRD). The new path ($H35_N$) was obtained as suggested by SEM analysis during modification index while fitting the structural model for GoF. Each significant relationship is discussed as follows.

6.8.1.1 Trust and Credibility

This study shows that there is a significant and positive relationship between customers' trust and credibility in Yemen. Thus, hypothesis H15 is supported. This result is supported by previous studies (Shareef *et al.*, 2011; Koenig-Lewis *et al.*, 2010). The finding indicates low customers' trust will lead to lesser credibility to use internet banking. This result might be because the respondents feel insecure and distrust internet banking usage. Al-Swidi and Mahmood (2011c); and Al-Qasa *et al.* (2013) found that Yemeni customers have no trust in dealing with banks when conducting their business transactions. They prefer to keep their money at home rather than deal with banks. The number of such bank account holders does not exceed 4 percent of the Yemeni population.

6.8.1.2 Government Support and Credibility

The finding shows that there is a significant and positive relationship between government support and credibility in Yemen. Thus, hypothesis H17 is supported. The result shows that low government support will lead to low credibility or vice versa. The literature shows very limited support for this link. However, government support has been reported to have links with trust (Hoang, 2003; Chong & Ooi, 2008; Chong *et al.*, 2010). Thus, this relationship is justified indirectly through trust. This result could be due to the slow internet adoption in Yemen; it is limited to some areas and people; and fully controlled by the government. This situation is different from the surrounding countries that have internet facilities covering the whole country and offering internet services to all categories of the society. If Yemeni government takes focused and concrete measures to build the telecommunications infrastructure all over the country, it would create a positive perception of users of the technology, i.e.

enhancing credibility, and thus stimulating the growth of internet-based services, such as internet banking.

6.8.1.3 Perceived Behavior Control and Credibility

There is a new finding related to the relationship between perceived behavioral control and credibility which is significant and positive. Thus, $H35_N$ is supported. According to the literature, the relationship between perceived behavioral control and credibility has not been established (to the best of the researcher's knowledge). Thus, this relationship could not be justified directly. However, since self-efficacy is an antecedent of perceived behavioral control and self-efficacy has been examined with credibility before, thus perceived behavioral control can be examined with credibility (George, 2002). This result might be due to concerns over security issues and privacy of transaction through internet which is believed to be as a result of experience in computer usage and knowledge, i.e. experience, which in turn impacts the perceived credibility of internet banking (Wang *et al.*, 2003). This applies also in the Yemeni context.

6.8.2 Insignificant Antecedents of Credibility

This study found two insignificant antecedents of credibility, which are compatibility (H16) and self-efficacy (H17).

6.8.2.1 Compatibility and Credibility

This study found the relationship between compatibility and credibility to be positive but not significant to customer resistance in internet banking in Yemen. Therefore, hypothesis H16 is unsupported. It may be because customers do not have sufficient

perceived usefulness of the service and its ease in their lifestyle. As a result, they do not find it trustworthy enough to adopt in Yemen.

6.8.2.2 Self-Efficacy and Credibility

This study found the relationship between self-efficacy and credibility to be positive but not significant on customer resistance to internet banking in Yemen. Therefore, hypothesis H17 is unsupported. It may be due to concerns over security issues and privacy of transaction through the internet which is believed to be as a result of experience in computer usage and knowledge, i.e., self-efficacy, which in turn impacts the perceived credibility of internet banking (Wang *et al.*, 2003) which is similar in the Yemeni context.

6.9 Objective Seven: Discussion on mediating effects of Attitude, Subjective Norm, Perceived Behavior Control, Credibility

The seventh objective of this research is to examine the mediating effect of attitude, subjective norm, perceived behavioral control and credibility on the relationship between predictors (trust, self-efficacy, compatibility and government support) and actual resistance behavior to internet banking among Yemeni academicians. This study found four full mediators, two partially mediators and 11 non-mediators. Details are discussed below.

6.9.1 Significant Mediating Effects of Attitude and Credibility

Out of the four (16) mediating hypotheses examining attitude, subjective norm, perceived behavioral control and credibility to customer resistance to internet banking, four are fully mediated (H29: TR → CRD →CRS; $H40_N$: SN → ATT →CRS; $H41_N$: PBC →ATT →CRS; $H42_N$: PBC → CRD → CRS) and two partially mediated (H21:

GS → ATT → CRS; H32: GS → CRD → CRS). The new mediating paths ($H40_N$, $H41_N$ and $H42_N$) were obtained as suggested by SEM analysis during modification index while fitting the structural model for GoF. Each significant mediator is discussed below.

6.9.1.1 Full Mediating Effect of Credibility on the Relationship between Trust and Actual Customer Resistance Behavior to Internet Banking

The results indicate that credibility fully mediates the relationship between trust and actual customer resistance behavior to internet banking. Thus, hypothesis H29 is supported since the standardized estimate of path from trust and actual customer resistance behavior to internet banking was insignificant after including the path of trust to actual customer resistance behavior to internet banking; and the path from trust to credibility was still significant but reduced. This finding shows that trust could affect actual customer resistance behavior to internet banking by creating credibility.

The full mediation shows the strength of credibility of the mechanism through which the effect of trust on actual customer resistance behavior to internet banking can be explained. It could be due to lack of studies on resistance as a dependent variable and with only one independent variable which is "information" in Finland (Laukkanen & Kiviniemi, 2010). Substantiating this, Laukkanen and Kiviniemi (2010) stated, *"This study is one of the first attempts to empirically validate the five adoption barriers suggested by Ram and Sheth (1989) over 20 years ago"*. In addition, Yousafzai (2012) said there is limited work on the use of customer resistance dimensions (value barrier, usage barrier, risk barrier, image barrier and tradition barrier) in the literature. Based on this, our study is the first study to investigate in-depth resistors' behavior. However, this result reveals that banks might need to focus on strategies that will increase

credibility among online customers through advertising, emphasizing on how the internet banking is safe and confidential. Under the tag code system, whenever customers want to proceed with their transaction, they need to have a secure tag code sent by banks to their mobile phones, without which customers cannot complete their transactions (for example, in Malaysia). The mediating effect of credibility in this relationship shows that credibility is the mechanism that explains how trust does not affect actual customer resistance behavior to internet banking. If credibility fails to be created among customers, internet banking cannot be performed.

6.9.1.2 Full Mediating Effect of Attitude on the Relationship between Subjective Norm and Actual Customer Resistance Behavior to Internet Banking

This study found that attitude fully mediates the relationship between subjective norm and actual customer resistance behavior to internet banking, where the standardized estimate of the path from trust to actual customer resistance behavior to internet banking was insignificant and both paths of subjective norm to attitude and attitude to actual behavior were significant. This means that attitude can affect actual customer resistance behavior to internet banking indirectly through attitude as a mediating variable. Until now, there is a scarcity of studies which has investigated this relationship. Moreover, most studies have linked attitude to behavior intention rather than actual behavior. However, one of the reasons which could be attributed to the full mediation of attitude on the relationship between subjective norm and actual customer resistance behavior to internet banking could be that social norms, such as friends, parents, experts in the field and influential bodies of people affect their attitude as indicated in literature (e.g., Chang, 1998; Khang *et al.*, 2012). In the Yemeni

context, (30%) of the respondents hear about internet banking via word of mouth and (37%) through advertising. This might have affected the bank customers' attitude.

6.9.1.3 Full Mediating Effect of Attitude on the Relationship between Perceived Behavior Control and Actual Customer Resistance Behavior to Internet Banking

The present study found that attitude fully mediates the relationship between perceived behavioral control and actual customer resistance behavior to internet banking. The standardized estimate of the path from perceived behavioral control to actual customer resistance behavior to internet banking was insignificant and both paths of perceived behavioral control to attitude and attitude to actual customer resistance behavior to internet banking were significant. This means that perceived behavioral control can affect customer resistance behavior to internet banking indirectly through attitude as a mediating variable. One more explanation for this result could be internet connection is slow, limited internet packages are provided and the government dominates the service (Al-Hassani, 2013). Moreover, it might be due to the absence of specific laws to determine the reliabilities between banks and banks' customers.

6.9.1.4 Full Mediating Effect of Credibility on the Relationship between Perceived Behavior Control and Actual Customer Resistance Behavior to Internet Banking

This study found that credibility fully mediates the relationship between perceived behavioral control and actual customer resistance behavior. The standardized estimate of the path from perceived behavioral control to actual customer resistance behavior reduced to the point where it was insignificant after including the path of perceived behavioral control to actual behavior. This means that perceived behavioral control

indirectly affects actual customer resistance behavior through credibility. Resistors are unlikely to use internet banking directly once they feel that they have confidence to use internet banking. Moreover, the government must issue some regulations that determine the responsibility between the customer and the bank. The mediating effect of credibility in this relationship shows that credibility is the mechanism that explains how perceived behavioral control can affect actual customer resistance behavior to internet banking. If the credibility has not been created among customers, internet banking cannot be performed.

6.9.1.5 Partial Mediating Effect of Attitude on the Relationship between Government Support and Actual Customer Resistance Behavior to Internet Banking

The present study found that attitude partially mediates the relationship between perceived behavioral control and actual customer resistance behavior to internet banking. Thus, hypothesis H21 is supported. The standardized estimate of the path from perceived behavioral control to actual customer resistance behavior to internet banking was significant and both paths of perceived behavioral control to attitude and attitude to actual customer resistance behavior to internet banking were significant. This means that perceived behavioral control can affect customer resistance behavior to internet banking directly or indirectly through attitude as a mediating variable. One explanation could be that bank customers' attitude intervenes the relationship between government support and customer resistance behavior to internet banking because a high customer's attitude to low resistance to use internet banking might change when that person feels insecure or unsure about the information given in the banks' websites. Moreover, it might be due to some difficulties to use internet banking, such as weak

internet connections and no specific law for determining the reliabilities between banks and banks' customers.

6.9.1.6 Partial Mediating Effect of Credibility on the Relationship between Government Support and Actual Customer Resistance Behavior to Internet Banking

This study found that credibility partially mediates the relationship between government support and customer resistance behavior to internet banking, where the standardized estimate of the path from government support to customer resistance behavior to internet banking was significant and both paths of government support to credibility and credibility to customer resistance behavior to internet banking were significant. This means that government support can affect customer resistance behavior to internet banking directly or indirectly through credibility as a mediating variable. It may be due to the lack of studies done on resistance as a dependent variable and with only one independent variable, which was "information" in Finland (Laukkanen & Kiviniemi, 2010). According to Laukkanen and Kiviniemi (2010) said *"This study is one of the first attempts to empirically validate the five adoption barriers suggested by Ram and Sheth (1989) over 20 years ago"*. In addition, Yousafzai (2012) said there is limited work done on the use of customer resistance dimensions (value barrier, usage barrier, risk barrier, image barrier and tradition barrier) in the literature. Based on this, our study is the first study to investigate in-depth resistors' behavior. However, this result reveals that banks should focus on strategies that can increase credibility among online customers through advertising and that internet banking is safe and confidential.

6.9.2 Insignificant Mediating Effect of attitude, subjective norm, perceived behavior control, credibility

This study found 11 insignificant mediations of customer resistance to internet banking: (H19: TR → ATT → CRS; H20: COM → ATT →CRS; H22: TR → SN → CRS; H23: SE → SN → CRS; H24: GS → SN → CRS; H25: TR → PBC → CRS; H26: COM → PBC → CRS; H27: SE → PBC → CRS; H28: GS → PBC → CRS; H30: COM →CRD → CRS; H31: SE → CRD → CRS). Details are discussed below.

6.9.2.1 Mediating Effect of Attitude on the Relationship between Trust and Actual Customer Resistance

The standardized estimate of the path of trust to actual customer resistance was not significant, attitude also did not mediate the relationship between trust and actual customer resistance. Hence, hypothesis H19 is not supported. It is because the path to trust to attitude was not significant even though the relationship between attitude to customer resistance was significant. This means that in most cases, customers do not use internet banking. Most studies have examined the mediation of attitude between trust to intention rather than actual behavior (for e.g., customer resistance). These results could be that the bank customers feel that information has not been kept confidential and as a result, they have no trust in using internet banking sites.

6.9.2.2 Mediating Effect of Attitude on the Relationship between Compatibility and Actual Customer Resistance

Even though the standardized estimate of the path of compatibility to actual customer resistance was significant, attitude did not mediate the relationship between compatibility and actual customer resistance. Hence, hypothesis H20 is not supported. It is because the path of compatibility to attitude was not significant, despite the fact that the relationship between attitude and actual customer resistance was significant.

Most studies have examined the mediating role of attitude between compatibility to intention rather than actual behavior (for e.g., customer resistance). This result recommends that compatibility of internet banking with an individual's existing values and needs do not influence the bank customers to form a positive attitude. This result may mean the bank customers in Yemen do not concern themselves with compatibility to internet banking service, but they care about other exogenous variables that are more important than compatibility.

6.9.2.3 Mediating Effect of Subjective Norm on the Relationship between Trust and Actual Customer Resistance

The standardized estimate of the path of trust to actual customer resistance was insignificant; subjective norm also did not mediate the relationship between trust and actual customer resistance. Hence, hypothesis H22 is not supported. It is due to fact that the path of trust to subjective norm was not significant and the relationship between subjective norm and actual customer resistance was insignificant too. Most studies have examined the mediating role of subjective norm between trust to intention rather than actual behavior (for e.g., customer resistance). The result found trust in friends and relatives about their beliefs of internet banking does not play an effective role in determining subjective norm. Similarly, trust in banks about their reputation, brand name and service may not positively influence subjective norm over the behavior of on-line transactions.

6.9.2.4 Mediating Effect of Subjective Norm on the Relationship between Self-Efficacy and Actual Customer Resistance

Subjective norm did not mediate the relationship between self-efficacy and actual customer resistance. Hence, hypothesis H23 is not supported. The standardized

estimate of the path of self-efficacy to actual customer resistance is significant. The relationship between self-efficacy and subjective norm was significant, although the path of subjective norm to actual customer resistance was insignificant. It may be attributed to the fact that most studies have examined the mediating role of subjective norm between self-efficacy to intention rather than actual behavior (for e.g., customer resistance). Other explanations might be the bank customers do not get cooperation from their family members and mass media channels regarding customer resistance to use internet banking in Yemen. This is a negative signal to decrease the resistance to internet banking usage.

6.9.2.5 Mediating Effect of Subjective Norm on the Relationship between Government Support and Actual Customer Resistance

Though the standardized estimate of the path of government support to actual customer resistance was significant, subjective norm did not mediate the relationship between government support and actual customer resistance. Hence, hypothesis H24 is not supported. It is because the path of subjective norm to actual customer resistance was not significant. Nonetheless, the relationship between government support and subjective norm was significant. Most studies have examined the mediating role of subjective norm between government support to intention rather than actual behavior (for e.g., customer resistance). From this result, it may be assumed that mass media (37%) is a less important normative factor for determining resistance to internet banking usage in Yemen. This is a negative signal to decrease the resistance to internet banking usage.

6.9.2.6 Mediating Effect of Perceived Behavior Control on the Relationship between Trust and Actual Customer Resistance

Though the standardized estimate of the path of trust to actual customer resistance was insignificant, perceived behavioral control did not mediate the relationship between trust and actual customer resistance. Hence, hypothesis H25 is not supported. It is due to the path of trust to perceived behavioral control not being significant and the relationship between perceived behavioral control and actual customer resistance being insignificant as well. Most studies have examined the mediating role of perceived behavioral control between trust to intention rather than actual behavior (for e.g., customer resistance). The explanation for this is it might be that trust does not increase perceived behavioral control over online transactions since the virtual interactions between customers and banks' websites have become less expectable (Pavlou, 2002). In addition, it might be trust does not influence perceived behavioral control effectively through the controlling factors of self-efficacy and the facilitation of favorable conditions (Wu & Chen, 2005).

6.9.2.7 Mediating Effect of Perceived Behavior Control on the Relationship between Compatibility and Actual Customer Resistance

Though the standardized estimate of the path of compatibility to actual customer resistance was significant, perceived behavioral control did not mediate the relationship between compatibility and actual customer resistance. Hence, hypothesis H26 is not supported. It is due to the path of perceived behavioral control to actual customer resistance being not significant despite the relationship between compatibility and perceived behavioral control being significant. Most studies have examined the mediating role of perceived behavioral control between compatibility to intention rather than actual behavior (for e.g., customer resistance). The reason for that

is it might be that banks continue developing and enhancing their diffusion of internet banking strategies to lessen compatibility issues, reduce resistance and accelerate adoption of internet banking.

6.9.2.8 Mediating Effect of Perceived Behavior Control on the Relationship between Self-Efficacy and Actual Customer Resistance

Although the standardized estimate of the path of self-efficacy to actual customer resistance was significant, perceived behavioral control did not mediate the relationship between self-efficacy and actual customer resistance. Hence, hypothesis H28 is not supported. It is due to the path of perceived behavioral control to actual customer resistance not being significant and the relationship between government support and perceived behavioral control being insignificant. It might be due to slow internet connection and the high cost of internet services provided by the Yemeni government (Al-Hassani, 2013). Moreover, there is a lack of government policy to encourage the customers' intention to use or to adopt internet banking compared to other countries (Zolait, 2010).

6.9.2.9 Mediating Effect of Perceived Behavior Control on the Relationship between Government Support and Actual Customer Resistance

Although standardized estimate of the path of government support to actual customer resistance was significant, perceived behavior control did not mediate the relationship between self-efficacy and actual customer resistance. Hence, the hypothesis (H28) is not supported. It is due to the path of perceived behavior control to actual customer resistance was not significant and the relationship between government support and perceived behavior control was insignificant. It might be slow internet connection and the internet high fare cost provided by Yemeni government (Al-Hassani, 2013).

Moreover, there is a lack of government policy to encourage the customer to intent or to adopt internet banking compare to other countries (Zolait, 2010).

6.9.2.10 Mediating Effect of Credibility on the Relationship between Compatibility and Actual Customer Resistance

Even though the standardized estimate of the path of compatibility to actual customer resistance was significant, credibility did not mediate the relationship between compatibility and actual customer resistance. Hence, hypothesis H30 is not supported. It is because the path of credibility and actual customer resistance was significant, in spite of the relationship between compatibility to perceived behavioral control being not significant. The finding shows that (96%) of the respondents have skills because they have higher education levels (PhD, Master's, Bachelor's and Diploma).

6.9.2.11 Mediating Effect of Credibility on the Relationship between Self-Efficacy and Actual Customer Resistance

Although the standardized estimate of the path of self-efficacy to actual customer resistance was significant, credibility did not mediate the relationship between self-efficacy and actual customer resistance. Hence, hypothesis H31 is not supported. It is due to the path of credibility to actual customer resistance being significant in spite of the relationship between self-efficacy and credibility being insignificant. It might be customers need more experience one acquires online skills, the more important are concerns of control over personal information, implying that computer self-efficacy will have effect on perceived credibility in an internet-banking context.

6.11 Research Contributions

This work contributes both empirically and practically. It is worth mentioning that theories are located within and generated from within the practice and they influence development of new practices, which in turn act as grounds for the development of new theories and new practices. To understand the context of Yemen, this study uses the Decomposed Theory of Planned Behavior. This is the first time this theory is being used in the Yemeni context in particular. The researcher finds that the Decomposed Theory of Planned Behavior is an effective theory that can be used in the internet banking service setting, especially to examine customer resistance to internet banking among public university employees and in other similar contexts. The researcher found that some findings correspond to findings in other studies though they are inconsistencies with others. These agreements and disagreements are based on whether these studies are applicable or not in this context. The use of the Decomposed Theory of Planned Behavior contributes uniquely to the body of knowledge. These contributions are clarified in the following sections:

6.11.1 Empirical Contribution

Most theories relating to behavior have been created in developed countries (AbuShanab *et al.*, 2010) and not many studies have used these theories in Arab countries (Al-Majali, 2011), specifically in Yemen. This study attempts to create and validate a research model that illustrates customer resistance behavior among university academic staff using the decomposed theory of planned behavior. The study attempts to determine the applicability of the decomposed theory of planned behavior to explain the predictors of customer resistance behavior in Yemen. This study found

that the decomposed theory of planned behavior can explain customer resistance behavior in Yemen amongst university academic staff very well.

The empirical analysis of this research contributes to knowledge in this area, whereby self-efficacy, compatibility, government support, attitude and credibility are the main predictors of customers' internet banking resistance; government support, subjective norm and perceived behavioral control are the significant predictors of attitude; self-efficacy and government support are the significant predictors of subjective norm; compatibility and self-efficacy are significant predictors of perceived behavioral control; trust, government support and perceived behavioral control are the significant factors of credibility. Additionally, attitude is a full mediator between these linkages (subjective norm and customer resistance; perceived behavioral control and customer resistance), while it is a partial mediator between government support with customer resistance. Similarly, credibility is a full mediator between these linkages (trust and customer resistance; perceived behavioral control and customer resistance); while it is a partial mediator between government support and customer resistance.

This study offers further insight into some existing research models and findings, especially the decomposed theory of planned behavior in terms of how certain constructs can work across models. This study, thus presents another step forward as it explores online customer resistance behavior. Additionally, the result of this study contributes to the understanding of online customers' resistance behavior. In addition, this is the first study conducted on Yemeni banking services using an underpinning theory. Not many studies have employed customer resistance behavior as the dependent variable (endogenous), as mentioned earlier in chapter one.

Therefore, this study contributes to the body of knowledge on customer behavior by taking actual behavior as the dependent variable (endogenous) in the Yemeni setting.

6.11.2 Practical Contribution

This study contributes to practitioners, for example: financial analysts, bank customers and government officers.

The findings of this study may help decision-makers within the financial sector by helping to visualize the significant role of the bank customers' attitude to internet banking and customer resistance in Yemen, and whether they are willing to adopt or reject these services. The banks can develop intensive promotion strategies to attract the customers by showing the benefits of the service, such as the system's usefulness and reduction of cost and time.

In addition, the banks could give the customers special training and tutorials on internet banking usage. These opportunities will reduce their uncertainty and fears of using the internet banking service, and enhance their use of internet banking in Yemen. Therefore, the banks must reduce customers' perceptions of risk in financial transactions, especially those related to internet banking in Yemen by increasing safety and systems security on the banks' websites.

The present study indicates the importance of social factors for the determination of the internet banking service setting. Trust and self-efficacy have a strong influence on bank customers' resistance. The banks could introduce marketing policies, like launching of intensive national campaign promotions though the mass media channels

to encourage family members to reduce customer resistance behavior. Banks could provide a set of internet banking services with attractive offers and awards. Banks and other organizations could conduct free training programs for the customers, to help those using internet banking service, and increase their abilities and skills to use this service easily. Last, but not the least, the banks can offer new strategies by requesting the Yemeni government to execute laws and policies, which could control transactions via the internet and support the banks in providing the customers with new services that could lead to better quality of life.

6.12 Limitations of the Study

While this study has produced interesting findings, it does however have certain limitations. First, this study reports a limitation with respect to sample size which is relatively small. This study targeted only the public university employees in Yemen. Therefore, the findings of this study do not reflect the behavior of other sectors, such as students, merchants and soldiers.

Second, this study focuses on the investigation of the antecedents of customer resistance in Yemen; it neglected to shed light on other aspects, such as the effect of the characteristics of the resistors of internet banking or the characteristics of the banks that provide internet banking service. In addition, this study discussed a few antecedents of customer resistance and neglected many others, such as the satisfaction, complexity, mass media and others.

Finally, the difficulty in finding enough literature that covers all the variables is one of the limitations, as there are no studies containing all the contingent variables (trust, self-efficacy, compatibility, government support), and attitude, subjective norm,

perceived behavioral control, credibility and customer resistance to internet banking in Arab countries, especially in Yemen.

6.13 Future Research

This study has a number of limitations that could create opportunities for future research. First, this study focuses on customer resistance to use internet banking. Most studies have investigated postponers, opponents and rejecters of internet banking. Thus, this study recommends a different area and different country to get a clearer picture on the extent to which resistors differ from each other. Looking at the barriers (usage, value, risk, tradition and image) as independent variable, only limited studies have examined it as a dependent variable (Laukkanen & Kiviniemi, 2010). Therefore, further studies are needed to evaluate these barriers as a dependent variable.

Secondly, customers from different cultures can exhibit different levels of resistance tendencies and culture. Therefore, cross-cultural studies involving other developing countries should be undertaken.

Thirdly, future research could examine more antecedents or factors influencing customer resistance behavior in Yemen, since researchers are still recommending these variables to be investigated on a larger scale with specific attention given to customer resistance behavior. These variables could include satisfaction, complexity, mass media and others.

Fourthly, more studies could be conducted on the actual behavior towards internet banking settings in Yemen, since there are only a few past studies investigating

the actual resistance; also, a comparative study could be conducted between Yemen and other countries.

As indicated earlier, there is a lack of research on actual customer resistance behavior of internet banking in the less developed countries. This is the first study concerning customer resistance to internet banking usage in Yemen. Thus, the researcher suggests conducting in-depth research in countries other than less developed countries. Since this study is based on the decomposed theory of planned behavior, future research could extend this theory and apply a newer version to study customer resistance, or other exchange theories that could be applied in the Yemeni context.

Fifth, the researcher used only one instrument, i.e., a questionnaire survey. Thus, the researcher suggests that the qualitative method of in-depth interview could be a suitable way to find more barriers that could influence customers' resistance to internet banking in Yemen. This can be better achieved when the researcher builds a trusting relationship with them and speaks their language.

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