FACTORS AFFECTING DECISION-MAKING EFFECTIVENESS IN PALESTINIAN BANKS

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ABSTRACT

This study investigated the influence of information quality on decision-making effectiveness among Palestinian bank managers. Previous studies revealed the importance of information quality on decision-making effectiveness in different fields of management. Organisational structure was found to moderate information quality and decision-making effectiveness in different fields of management. However, the moderating effect of organisational structure on the relationship between information quality on decision-making effectiveness had not been addressed in the banking sector in Palestine. This cross-sectional quantitative study examined the relationship between information quality and decision-making effectiveness as being moderated by organisational structure. A total of 146 managers were surveyed in which they were required to respond to 55 items that elicited the three variables. Information quality was represented by six dimensions, organisational structure three dimensions, and decision-making effectiveness three dimensions. The data were analysed by SPSS and PLS-SEM software. The findings indicated the relevance and importance of information quality dimensions to decision-making effectiveness in the banking sector of Palestine. The result revealed four dimensions of information quality, namely, accuracy, completeness, relevancy and interpretability had a significant relationship with decision-making effectiveness. Two dimensions of organisational structure, namely, formality and centralisation, significantly moderated the relationship between information quality and decision-making effectiveness while complexity did not show a moderating effect. Overall, this study extends the understanding of the decision-making effectiveness. It contributes to building the model of the relationship between information quality and decision-making effectiveness in the banking industry. These findings will benefit bank managers in Palestine to understand the role of information quality better and utilise it towards developing sustainable banking services in Palestine.

Keywords: decision-making effectiveness, information quality, organisational structure, banking sector

ABSTRAK

Kajian ini meneliti pengaruh kualiti maklumat terhadap keberkesanan membuat keputusan dalam kalangan pengurus bank di Palestin. Kajian sebelum ini mendapati bahawa pengaruh kualiti maklumat terhadap keberkesanan membuat keputusan dalam pelbagai bidang pengurusan adalah penting. Struktur organisasi didapati menyederhana kualiti maklumat dan keberkesanan membuat keputusan dalam pelbagai bidang pengurusan. Walau bagaimanapun, kesan penyederhana struktur organisasi terhadap hubungan antara kualiti maklumat dan keberkesanan membuat keputusan belum pernah ditangani di sektor perbankan di Palestin. Kajian rentas kuantitatif ini menyiasat hubungan antara kualiti maklumat dan keberkesanan membuat keputusan dengan disederhanakan oleh struktur organisasi. Satu tinjauan telah dibuat terhadap 146 orang pengurus yang dikehendaki menjawab 55 soalan yang mewakili tiga pemboleh ubah. Kualiti maklumat diwakili oleh enam dimensi, struktur organisasi tiga dimensi, dan keberkesanan membuat keputusan tiga dimensi. Data dianalisis dengan menggunakan perisian SPSS dan PLS-SEM. Dapatan kajian menunjukkan perkaitan dan kepentingan dimensi kualiti maklumat dengan keberkesanan membuat keputusan di sektor perbankan di Palestin. Hasil kajian menunjukkan bahawa empat dimensi kualiti maklumat iaitu ketepatan, kesempurnaan, kesesuaian, dan kebolehtafsiran mempunyai hubungan yang signifikan dengan keberkesanan membuat keputusan. Dua dimensi struktur organisasi iaitu formaliti dan pemusatan menyederhanakan hubungan antara kualiti maklumat dan keberkesanan membuat keputusan secara signifikan manakala kerumitan tidak menunjukkan kesan penyederhana. Secara keseluruhan, kajian ini mengembangkan kefahaman mengenai keberkesanan membuat keputusan. Ia turut menyumbang dari sudut pembinaan model hubungan antara kualiti maklumat dan keberkesanan membuat keputusan di industri perbankan. Penemuan ini akan memberi manfaat kepada pengurus bank di Palestin untuk lebih memahami peranan kualiti maklumat dan menggunakannya bagi membangunkan perkhidmatan perbankan yang mampan di Palestin.

Kata kunci: keberkesanan membuat keputusan, kualiti maklumat, struktur organisasi, sektor perbankan.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Banks in Palestine are an important source of financing for most businesses and organizations. Banks have to make decisions for various purposes. The decisions are usually made by managers as part of their jobs.

The banking sector plays an essential role in the economic development in Palestine (Arnone, Laurens, Segalotto, & Sommer, 2009). The challenges the Palestine banking sector are facing are mainly associated with internal factors and domestic imbalances. These problems primarily relate to the country's financial system whose infrastructure is not properly completed or in some cases dilapidated and weak institutions and their inactive role (Alkhatib & Harsheh, 2012). Others problems are related to the weaknesses in the economy and its structure, or market imbalances and credit concentration. Also, because of weak financial performance, many companies in Palestine borrow continuously from banks. In the absence of other financing alternatives such as securities and bonds, financial fraud takes place among Palestinian people who are then poisoned in Israeli jails (Fischer, Alonso-Gamo, & Von Allmen, 2001). This raises questions concerning corruption in the country, which prompted the National Authority officials to launch an investigation on how such activities could have started in the financial sector (Fischer *et al*., 2001). Furthermore, the Palestinian banking sector is currently being hampered by the Israeli occupation of Palestine (Fjeldstad & Isaksen, 2008). The Israeli government controls the currency in Palestine; as a result, the development and growth of the banking sector in Palestine are hindered.

based on the statistics, the national banks of Palestine fared poorer than foreign banks almost at all levels, indicating that some measures need to be implemented to solve the poor performance of the national banks. Table 1.1 shows the Palestinian banks' net assets and capital (in USD million) for both local and foreign banks. As tabulated in Table 1.1, the net assets distribution of national banks is small as compared to foreign banks, and this factor may be attributed to a large number of foreign banks as compared to the national banks in Palestine.

Table 1.1
Distribution of Assets among Palestinian Banks (2012)

Item	All banks	Foreign banks	National banks
Net assets	8,608	5,369	3,238
Paid-in capital	809	448	361
Equity	1,096	651	445
Net income	142	104	38
Total deposits	7,235	4,557	2,677
Net direct facilities	2,825	1,641	1,184
Investments	923	461	461

Source: Alkhatib and Harsheh (2012)

In December 2013, reforms were implemented to align the governing policies across all banks in Palestine (East, 2013). Also, the Central Bank law was changed by benchmarking it against the best international practice, and a deposit insurance scheme was established under the World Bank technical assistance. A monetary operations department was also expected to be created within the PMA (Palestine Monetary Authority) to allow for open market operations and the issuance of government

'Sukuk' where certificates of deposits would be a big part of new future developments in Palestine.

Despite the interest and support from the Palestine government, the banking industry is facing many problems such as quality of services, low consumer protection (in some areas), limited access to finance, low penetration ratios, and high production costs. Only 56% of deposits are given out as a loan. The Palestine banks are weak in capturing external markets due to over-regulation and restriction. This tends to discourage creativity and creates inflexibility in adapting to market trends. Other challenges facing the banks are partial commitment and non-adherence to regulations and the exception of some institutions from regulatory organizations. To worsen the case, what constitute a comparative advantage of the financial services sector in Palestine is not properly defined. Presently Palestine is facing limited human resource and talent development in the sector (Sweiti & Attayah, 2013). Other factors that are affecting the Palestine banks are erratic policies, inconsistency in the legal framework (mainly on the cross-sectorial level), and weak fiscal influence and control Abbadi, and Abu-Rub (2012). However, the biggest challenge faced by the Palestinian banking sector is the Israeli occupation of Palestine (Fjeldstad & Isaksen, 2008). The Israeli government controls the currency in Palestine and hence the economic currency used by the Palestine.

It can be noted that several risks faced by Palestine banking sectors are mainly associated with internal factors and domestic imbalances among the major economic players in the banking sector of the country. These problems relate to the country's financial system whose infrastructure is not properly completed or in some cases dilapidated and to weak institutions and their inactive role. Other problems are related

to the weaknesses in the economy and its structure, or market imbalances and credit concentration. The weakness in financial performance of companies in Palestine generates a continuous need to borrow from banks, especially in the absence of other financing alternatives such as securities and bonds to the point where disclosure on financial fraud investigations took place among Palestinian people who were then poisoned in Israeli jails (Fischer *et al*., 2001). This raises questions concerning corruption in the country and how it opened the door to the National Authority officials to launch an investigation on how such activities could have been started in the financial sector (Fischer *et al*.,2001).

Making effective decisions is important towards the financial viability of the banks in Palestine. Without proper decisions and without quality information used to make such decisions, bankruptcy may be unavoidable. Thus, it is crucial to carry out studies on decision effectiveness, specifically on the role of information quality and decision-making effectiveness in the banking sector.

1.2 Problem Statement

Because banking sector is heavily reliant on the use of financial information, quality information has become a critical core for effective decision making. As far as quality information for effective decision making is concerned, past studies had heightened the availability of information as a prerequisite for making a rational decision within a framework of the rational theory of decision making and utility maximization (Idrees, 1999). Information which was accurate, timely and relevant was claimed to enable decision makers to make better decisions and hence achieve organizational success (Idrees, 1999).

Indeed, history had shown how potentially poor information quality resulted in losses of billions of dollars in organizations (Strong, Yang & Wang,1997), and even causing disastrous effects (Bordo & Schwartz, 1999; Fisher, 1999; English, 2005). For example, in 1988 the US Navy vessel USS Vincennes shot down an Iranian commercial passengers' jet killing all 209 people aboard. This incident occurred because of the poor data quality received by the US Navy that led to inaccurate information (Fisher, 1999). In another instance, English (2005) gave two examples of banking losses in the USA due to the poor quality of information. One bank lost over USD 200 million when it failed to recover loans in 2004, and the second bank lost USD 600 million as a result of delusion of risk code. Still in another instance, the Los Angeles County lost USD1.2 billion and was required to pay out additional USD25 million a year as a result of poor management of retirement fund due to poor information quality (Bordo & Schwartz, 1999).

In tandem to this, empirical findings demonstrated a majority agreement that information as a useful input enhances decision making effectiveness (Raghunathan, 2000; Reid, Thomson, & Smith, 1998; Smith 2008), develops efficiency and offers a competitive edge to the institution such as management efficiency and enhanced organizational competitive advantage (Soliman & Youssef, 2003), and enhanced knowledge management (Letzring, Wells, & Funder, 2006). It was maintained that, regardless of the source, information is a useful input, and it adds extensive value to the decision-making effectiveness (Grieves , 1998; Reid, Thomson, & Smith, 1998; Smith, 2008; Winterman, Smith, & Abell, 1998).

In particular, to Palestine, past researchers demonstrated that decision makers in Palestine in both private and public banking organizations are negatively impacted by the depth information employed to take a decision (Nusseir, 1995; Sa'ed, Sawalha, Waleed, Al-Khalil, Suleima, Samah & Bsharat 2010). Similarly, Abdel-Karim and Shahin (2013) noted that impoverished information quality of financial operations has resulted in poor performance of some of the banks in Palestine such as Al-Quds Bank.

Although several studies were conducted in related fields on information quality within business firms and listed companies in the Palestine stock exchange, very few of these studies have investigated the influence of information quality in directing managers' decision-making in the Palestinian banking sector (Ghanim, 2009). To date, the study that focuses on information quality and decision-making effectiveness was carried out by Khader, Rosenberg, and McKee (2013), but they focused on water supply decision problems in West Bank in Palestine and not in the banking sector.

The examination of the influence of information quality on decision making was mostly carried out in developed countries, such as USA and Western countries (Alkhatib & Harsheh, 2012; Slone, 2006; Madnick, Wang, Lee, & Zhu, 2009). Further, past research also indicated little evidence on the influence in the developing countries in Middle East (Ahmad & Zink, 1998; Beersma, Greer, Dalenberg & De Dreu, 2016). This is worth-pondering because while the importance of information quality was heightened, past research conducted over multiple banking organizations also indicated that decision-making effectiveness can differ from one setting to another (Gorla, Somers, & Wong, 2010; Harb, 2012; Nielsen, & Baekgaard, 2015).

Further, amongst these past studies, the literature on information quality has been directed toward IT tools to improve managerial functions from the information system professionals' and practitioners' point of view (Bovee, Srivastava & Mak, 2003; Ismail& King, 2014; Knight& Burn, 2005; Lin& Wang, 2012; Van Zeist& Hendriks, 1996; Wang & Strong, 1996). Most of these studies focused on how to develop models which can fit information system users (Katerattanakul & Siau, 1999; Vazifedoust, Nasiri, & Norouzi, 2012). There was no noticeable evidence on considerations for the quality of information, and how it would affect decision making in organization. The important yet still neglected role of information quality for organizational effectiveness is reflected by Abdel-Karim and Shahin (2013), that little attention has been given to the importance of information quality for the sustainability of modern organizations.

Besides the discussion above witch justifies the need to examine the link between information quality and decision-making effectiveness in banking sector, the current study also highlighted that decision making in banks (Formisano, 2016; Valensisi & Missaglia, 2010) could have changed the genuine information in the winding trajectory before reaching the top management-decision makers (Fjeldstad & Isaksen, 2008; Sarsour & Daoud, 2015).

To illustrate, the Palestine Central Bank has different departments, and problems may arise in the use of the information as it has been passed through many hands and multiple levels before reaching the top management, who eventually use it for decision making (Fjeldstad & Isaksen, 2008; Sarsour & Daoud, 2015). Further, the antiquated information systems and information service in Palestine also exacerbated the problem (Abdelkarim, Shahim, & Arqawi, 2009). In fact, according to the National Information

Center Report (1996), although many organizations in Palestine can access the information, yet the information available is not always well structured and accurate.

Given the above discussion, organizational structure was proposed to have a potential moderating effect on the direct relationship between information quality and decision-making effectiveness in the current study. Essentially, the potential influence of organizational structure was evident. Past studies revealed that flexible organizational structures advance information quality sharing and decision effectiveness by encouraging horizontal communication (Bhatt, 2001; Chkravarthy & Zaheer, 1999; Hansen, 1995). Other researchers found that different organizational structure could produce differences in the attitudinal and behavioral conditions of the organizational employees (Martinez-Leon & Martinez-Gracia, 2011).

Supports for such potential moderations were also partly found in past studies which demonstrated the significant influence of organizational structure on decision effectiveness (Islam, Hasan, & Ahmed, 2011). Furthermore, organizational structure had also been previously studied and found to be significant moderator in relation to decision-making effectiveness and organizational outcome (Chen *et al*., 2010; Sharma & Kirkman, 2015; Tata & Prasad, 2004).

In addition, as past studies revealed little evidence of detailed interaction (moderation) between the dimensions of organizational structure (i.e., formality, centralization, and complexity) and the dimensions of information quality (i.e., accuracy, accessibility, relevancy, completeness, timeliness, and interpretability) (Knight & Burn, 2005; Leung, 2001; Naumann & Rolker, 2000; Osano & Gachunga, 2013; Pearson, Tadisina

& Griffin, 2012; Popovich & Habjan, 2012; Price & Shanks, 2005; Vazifedoust *et al*., 2012; Wang & Strong, 1996; Zaki, Hussien, Sanad & Sara, 2015), therefore hypotheses were exacted determine their potential moderations, such that detailed examination of interactions between each dimension of organizational structure and each dimension of information quality be examined with decision making effectiveness.

Based on the previous study and findings the current study put forth a research framework which examined the moderating role of organizational structure on the direct relationship between information quality and decision making effectiveness.

1.3 Research Questions

Based on the discussion of problem statement, put forth are two main research questions are proposed:

i) Do the dimensions of information quality influence decision-making effectiveness of banks in Palestine?

ii) Do the dimensions of organizational structure moderate the relationship between information quality and decision-making effectiveness of banks in Palestine?

1.4 Research Objectives

Corresponding to the research questions, the main objective of this study was examine the moderating role of organizational structure on the relationship between information

quality and decision-making effectiveness. Specifically, it attempted to meet the following objectives:

i) To examine the relationship between dimensions of information quality and decision-making effectiveness of banks in Palestine.

ii) To examine the moderating role of organizational structure's dimensions on the relationship between information quality and decision-making effectiveness of banks in Palestine.

1.5 Significance of the Study

This present study contributes in many ways to the existing bodies of knowledge in the area of banking studies. At the completion of this study and its recommendations implemented, the study will offer an understanding of the impact of information quality on decision making among the Palestinian bank managers. Moreover, the introduction of the moderating effects of organizational structure can demonstrate a valuable contribution to the modeling of the interaction between information quality and decision-making in an organization.

It is anticipated that this study would be regarded as among the very few pioneer studies that examine the integrated impact of the field of information quality and decision making in developing countries such as Palestine, especially in the banking sector of the economy. Also, the literature on information quality has been directed toward examining information technology tools to improve managerial functions from information system professionals and practitioners point of view (Popovich *et al*.,

2012; Van Zeist & Hendriks, 1996; Wang & Strong, 1996). Most of these studies focused on how to develop models which can fit information system users (Katerattanakul & Siau, 1999; Lin & Wang, 2012) without consideration of the information quality managers need and how that information will affect the organizational structure as a whole. This study adds to the body of knowledge by investigating the role dimensions of organizational structure on decision-making effectiveness in banks sector.

In summary, this study is significant in several ways. It contributes to the existing body of knowledge by enlightening the theoretical understanding of decision making, information quality and organizational structure.

The outcome of the study serves as empirical evidence that will guide banks in Palestine in their investment policy and how to use them for optimal performance in the banking industry. The outcome of the research study is expected to broaden understanding of the individual elements that constitute information quality. These elements include accuracy, accessibility, relevancy, completeness, timeliness, and interpretability to the enhancement of decision-making effectiveness.

1.6 Scope of the Study

The study was conducted in the banking sector in Palestine because of the importance of this sector for the Palestinian economy. For the purpose of this study, data was collected from 146 banks operating in Palestine, using online survey. The survey was responded by the managers of each branch bank. Bank managers were qualified to provide the most appropriate response, given their prominent role in managing the

bank and their knowledge about the organization-wide phenomena of the bank. The data collection was carried out between May 2015 and August 2015. Information quality, organizational structure, and decision-making effectiveness were underpinned by classical theory of decision making (also called the rational decision theory) by Simon (1945).

1.7 Definition of Key Terms

This study examined three major variables namely information quality, organizational structure and decision-making effectiveness. The definition of each variable and sub-dimensions is given as follows.

1.7.1 Information Quality

Information quality might be explained as information fit to be used by managers. In this study, information is said to be fit when it has the following dimensions:

a) Accuracy: Accuracy can be defined as how closely information matches a real-life state and how truly the information is relevant to the organization that requires such information (Eppler, 2006).

b) Accessibility: This is when information is made easily available, or easy to get when required and also quickly retrievable in any form that the information is presented in (Wang, Storey, & Firth, 1995).

c) Relevancy: Information that is adequate for the community that requires it (Eppler, 2006).

d) Timeliness: Getting information to the recipient within the needed time frame (Leon & Leon, 1999)

e) Completeness: This dimension of information quality focuses on having information that has no inadequacy or missing information, and of sufficient breadth and depth for the task at hand which managers would need to implement different businesses or organizational strategies for better performance of banks (Wang & Strong, 1996).

f) Interpretability: This is an understanding of the information that is derived from the appropriate use of language that managers in a banking sector can understand without misunderstanding the word used in the information available to them (Bovee, Srivastava, & Mak, 2003).

1.7.2 Organizational Structure

Organizational structure refers to a framework of relations, tasks and authorities among different organizational units (Mintzberg, 1973) which are normally divided into formality, centralisation, and complexity.

a) Formality: refers to the use of standard regulations, communications, methods, instructions, and commands provided by the organization in order to fulfil certain goals (Daft, 2006).

b) Centralization: refers to the ordering of authority within organization responsible for producing decisions. It is evident from the literature that only managers with certain centralization level are the one who make decisions. (Chen, Huang, & Hsiao 2010).

c) Complexity: refers to the degree of separation which exists in the organization. It denotes the number of tasks or sub-systems that exist inside an organization (Vazifedoust *et al.*, 2012).

1.7.3 Decision Making

Decision making is perceived as a process of choosing among alternatives for some courses of action for the purpose of attaining the required objectives (Robert, Mitchell, Shepherd, & Sharfman, 2011).

a) Decision effectiveness: Dean and Sharfman (1996) defined decision effectiveness as the capability for doing the best.
b) Commitment: A process through which subordinates accept the decision made by managers of a bank which is believed to enable the organization to successfully implement its strategic business process (Wang & Strong, 1996).
c) Quality: The confidence which the decision maker perceives that his or her decision is goal oriented (Paul, Saunders, & Haseman, 2007).
d) Satisfaction: The decision maker's feelings that the decision meets or exceeds his or her expectations (Bailey & Pearson, 1983).

1.8 Organization of the Thesis

The content of this thesis is divided into six chapters as follows. The first chapter provides the background of the study, problem statement, research questions, research objectives, the significance of the study, the scope of the study, the definition of key terms, and organization of the thesis. Chapter two explains the context of the study and details the Palestinian banking sector. Chapter three presents a literature review related to the area of study namely information quality, organizational structure, and decision making. Chapter four describes the development of the theoretical framework. It also explains the methodology of the research which also provides a detailed description of the population and sampling, data collection procedure, instrumentation, and

techniques of data analysis. Chapter five presents the results of the data analyses. They include a profile of the participants and PLS-SEM findings. Chapter six discusses the findings in detail by relating them to the past studies and theories. The implications for theory and practice are laid out while the limitations and future suggestion for research are articulated as well in the chapter.

CHAPTER TWO

THE PALESTINIAN BANKING SECTOR

2.1 Introduction

This chapter provides a description of the Palestine economy based on the latest available data. Moreover, it elaborates the components of the Palestine banking system. Also, it discusses the role of the Central Bank of Palestine in controlling the monetary policies. As it is the purpose of this chapter to highlight the strategic issues related to the performance of the Palestine banks, many issues will be highlighted. This chapter starts by providing a short description of Palestine and its economic situation.

2.2 Context of the Study

The geographical area of interest of this study is Palestinian territory. Palestine is an ancient and historical territory due to its location which has placed it in a historical vantage position. Palestine is a configuration of religious, cultural and economic territory that connects to the three important continents of the ancient world. Palestine is located in the south-western parts of Asia and to the Southern part of the Mediterranean Sea is East Coast.

In terms to contemporary administrative divisions, Palestine is constituted into two geographic regions. They are the West Bank and the Gaza Strip. The West Bank is divided into 11 governorates (Jenin, Tubas, Tulkarm, Nablus, Qalqiliya, Salfit, Ramallah, Al-Bireh, Jericho, AlAghwar, Jerusalem, Bethlehem and Hebron). The Gaza Strip is divided into five governorates (North Gaza, Gaza City, Deir Al-Balah, Khan Yunis, and Rafah). Table 2.1 shows the breakdown of the administrative areas.

Table 2.1
Administrative Divisions and Demographics and Area

No.	Palestine Governorates	Population	Area Km2
1	Palestine	4,420,549	6,020
2	West Bank	2,719,112	5,655
3	Jerusalem	404,165	345
4	Jenin	295,985	583
5	Tubas	60,582	402
6	Tulkarm	175,494	246
7	Nablus	364,333	605
8	Qalqiliya	105,330	166
9	Salfit	67,641	204
10	Ramallah & Al-Bireh	328,811	855
11	Jericho & Al Aghwar	49,390	593
12	Bethlehem	204,929	659
13	Hebron	662,452	997
14	Gaza Strip	1,701,437	365
15	North Gaza	335,253	61
16	Gaza City	588,033	74
17	Deir Al-Balah	247,150	58
18	Khan Yunis	320,835	108
19	Rafah	210,166	64

Source: Islamic Development Bank 2014

Being the direct descendants of the Arab, the present people occupying the territory of Palestine share the Arab culture, language, and history. Although many languages are spoken in Palestine, the Arabic language is the official language because the country is an Arab country. English is used for business communication with other countries. Other languages spoken are French, German, Hebrew, Italian, and Spanish.

The main three world monotheistic religions are being practiced by the people of Palestine, namely Islam, Christianity and Judaism. This country is considered the Holy Land by these three religions. Within the Palestine is the city of Bethlehem, believed to be the place where Jesus Christ was born and which hosts the Church of Nativity. For this historical reason, the Christian religion considers it the holiest site in Christendom. In Islam, the Al-Aqsa Mosque, in Jerusalem, are believed to be the places where Prophet Mohammed ascended to heaven, thus connecting Islam to Palestine. These configurations may explain the reason why Palestine has some understanding among the inhabitants even though Islam is the predominant religious and cultural practices among Palestinians for the past 1400 years.

Despite the preceding country background, the Palestine Government has no national currency. In this case, the banks of Palestine accept deposits and withdrawals in foreign currencies. The currencies used in Palestine are the New Israeli Shekel (NIS), Jordanian Dinar (JOD), Euro and US Dollar.

2.3 Bank Sector in Palestine

As mentioned earlier, different currencies are being used by Palestinians for business purposes. Palestine banks accept these currencies for savings, purchasing, and

investments. Three foreign currencies are mostly used: The Israeli shekel, the Jordanian Dinar and US dollar in daily financial transactions. These three currencies along with the Euro can be deposited and withdrawn by any customers in the banks in Palestine.

In recent years, Palestine witnessed an increase in banking activities as a result of the development of the banking sector by the Palestinian government. Currently, there are 17 banks with 232 branches. These 17 banks are made up of seven local banks and ten foreign banks. Of these banks, two of them are operating according to the sharia law. Some banks also venture into microfinance operations. One of the specialized microfinance banks is the Al-Rafah microfinance bank. The name of the Al-Rafah Microfinance Bank was renamed as the National Bank in 2012 after it was acquired by the Arab Palestinian Investment Bank. By the end of 2012, there was an increase in total assets to about USD 10,044.5 million, which was an increase of7.6 percent compared to 2011. Such an increase is considered remarkable considering the operational environment in which they operate. Also, in spite of the odds, the banks continued to grow their credit facilities. The banks made a considerable profit of about USD 648.4 million representing a growth of 18.3 % from 2011 to USD 4.2 billion by the end of 2012. Customer deposits reached USD 7.5 billion, an increase of 7.3 percent compared to 2011. Also, as a result of increasing paid-up capital the net equity of the banking system increased by 6.1 percent to reach USD 1,256.5 million which in turn increased the banks' ability to cope with expected and unexpected risks. This, in turn, meant increased activation of financial intermediation between surplus and deficit units in the economy by providing more funding opportunities, which eventually

contributed to the economic development of Palestine (Islamic Development Bank, 2014).

2.3.1 Institutional Infrastructure

As a result of the restrictions on access to the West Bank, the Palestinian banks' ability to develop operations is limited. For example, Palestinian banks find it extremely difficult to explain their customer base in the West Bank. License requirements which are hard to obtain restrict their ability to build branches or install ATMs in the area. As a result, the access to finance among Palestinian who live in the West Banks greatly reduced. Even if approval to establish banking facilities in the West Bank is granted, the banks would still be hesitant to go forward because of the law enforcement difficulties in the West Bank, where the Palestinian Authority is unable to carry out effective policing.

Some local banks do finance commercial activities in the West Bank, but these loans must either be guaranteed by third parties or collateralized by assets with the West Bank. Banks are highly unlikely to accept land in the West Bank as collateral due to the lengthy approval process and uncertainties associated with foreclosure in the West Bank including the possibility that the land could end up being sold to non-Palestinian buyers. Since the West Bank represents the bulk of the West Bank land, this has had a negative effect on the growth of credit in the West Bank. According to Palestinian Central Bureau of Statistics (PCBS), almost 98 percent of Palestinian establishments refrain from requesting bank credit because of the difficult collateral requirements imposed by banks.

2.3.2 Palestinian Monetary Authority (PMA)

The Palestinian Monetary Authority (PMA) is the authorized body that maintains monetary stability with a view topromoting investment and economic growth in Palestine. The PMA function includes developing and using monetary policy to design policy meant to achieve price stability as well as ensuring effective, transparent banking operation. It also has regulatory and supervisory function over the banks in Palestine. Other functions PMA is saddled with is to oversee the implementation and operation of a modern, efficient payment system in a creative way that provides supportive legislative environment for sound judgment and risk management. In doing this, it takes into consideration effectiveness, competition, and renewal of financial institution and markets that operate according to international standards. Furthermore, PMA ensures effective management of the Palestinian deposit insurance scheme through monitoring the procedures of issuing the central bank's law and the regulation for licensing and supervision of the specialized lending institutions (SLIs). This function is performed by preparing a detailed plan for issuing a currency that will be implemented once related conditions allow currency issuance. Another aspect of this function is the transformation of the PMA into a central bank, through enacting laws, regulations, and instructions necessary for shifting into central banks shown in Figure 2.1.

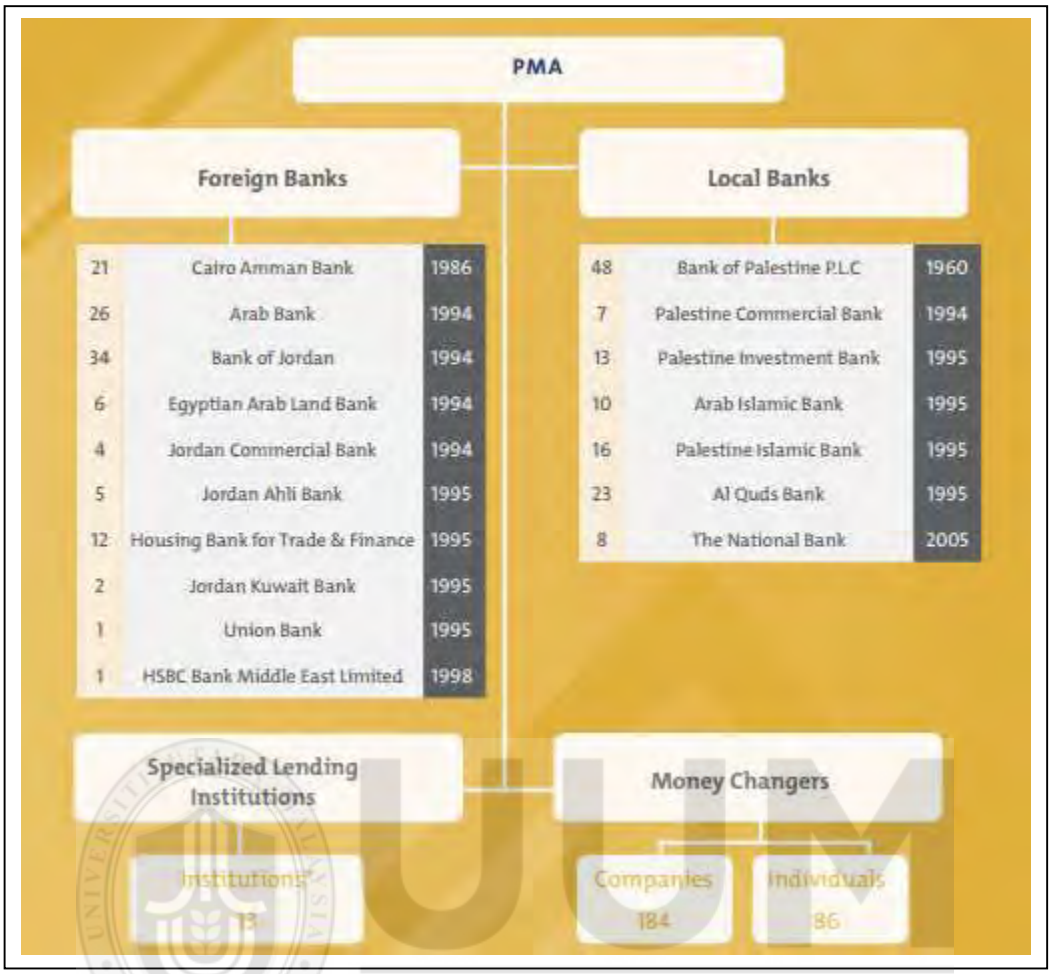

Figure 2.1
Unauthorized institutions working in Palestine
Source: Islamic Development Bank (2014).

2.3.3 Information and Communication Technology Sector

The major focus of the present study is the role of information technology (ICT) as a factor in the fastest growing sector of the Palestinian economy. There has been a significant use of ICT by banks in Palestine. The reasons for this development are attributed to three factors. First is the pool of educated labor population; second is the proximity between Palestine and Israel, and third is the growing cooperation between banks in Palestine and the centers of high technology based in Israel.

The continuous and sustainable supply of Information and Communications Technology ICT infrastructure and personnel to the banking sector is made possible by high-level training available in universities. For example, Palestinian universities provide IT training in their curriculum. They also get support from the donation of laboratories by the Sun Microsystems to three Palestinian Academic institutions to train IT students in Information Technology. This support has motivated the universities in Palestine to establish Information Technology Units. All these are helping the universities to achieve their objectives to provide a specialized curriculum. The emphasis on these areas is critical to several sectors of the emerging Palestinian state including bank services. Graduate students from these units are trained in the special needs of ministries, municipalities, telecommunications, banking and finance organizations.

The pool of ICT which the Palestinian banks continue to benefit from includes Application Software Companies, Professional IT Consulting Service Providers, Professional Network Service Suppliers, Software and Solution Development Companies, Internet Service Providers, Professional and Technical Training Providers, Suppliers of Computing & Telecommunications equipment, Palestinian Information Technology Association of Companies (PITA).

As a result of the factors mentioned above, many professional bodies are emerging in Palestine. Among these is the Ramallah-based association known as the Palestinian Information Technology Association of Companies (PITA) which was founded in 1999. The contemporary Palestine is vastly being equipped with the necessary elements of support to ICT business. The provision of modern 100% digital

telecommunication infrastructure and the regime of ICT are attracting international banking and auditing firms, as well as investment-friendly and foreign ownership laws. The private sector led by the Palestinian Information Technology Association is benefiting the people and the government of Palestine.

2.3.4 Other Challenges Faced by Palestinian Banks

The Central Bureau of Statistics mentioned that the number of the Palestinian population is estimated in the Palestinian territory until mid-2011, about 4.17 million. The main challenges of Palestine compared to other countries are to reduce dependency on external grants, managing budget deficiency, encouraging and attracting internal and external investments, and creating new job opportunities (Alkhatib, & Harasheh, 2012). The banking sector plays an essential role in the economic development in Palestine (Arnone *et al.*, 2009). The banking sector in Palestine comprises 18 anchor banks. Ten of them are conventional banks with 102 branches across Palestine (refer to Table 2.2)

Table 2.2
Summary of Banks in Palestine

Bank' Name	Origin of Banks	No. of branch	Year Established	Banks Type
Bank of Palestine P.L.C	Palestine	48	1960	Commercial
Al Quds Bank	Palestine	22	1995	Commercial
Palestine Islamic Bank	Palestine	15	1995	Islamic
Palestine Investment Bank	Palestine	13	1995	Commercial
Arab Islamic Bank	Palestine	10	1995	Islamic

Table 2.2 (Continued)

The National Bank	Palestine	7	2005	Commercial
Palestine Commercial Bank	Palestine	6	1994	Commercial
Foreign Banks				
Bank of Jordan	Jordan	33	1994	Commercial
Arab Bank	Jordan	26	1994	Commercial
Cairo Amman Bank	Jordan	21	1986	Commercial
The Housing Bank for Trade & Finance	Jordan	12	1995	Commercial
Egyptian Arab Land Bank	Egypt	6	1994	Commercial
Jordan Ahli Bank	Jordan	5	1995	Commercial
Jordan Commercial Bank	Jordan	4	1994	Commercial
Jordan Kuwait Bank	Jordan	2	1995	Commercial
HSBC Bank Middle East Limited	UK	1	1998	Commercial
Union Bank	Jordan	1	1995	Commercial

Source: Islamic Development Bank (2014)

2.4 Chapter Summary

This chapter discussed the Palestine banking system and the issues and challenges faced in the banking system. Apparently, the major issue related to the Palestine banking system is its failure to attract the Palestine customers to deal their transactions through the banks' network.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

In this chapter, relevant literature on the main variables, namely decision making, and organizational structure and information quality will be presented. In particular, this chapter attempts to conceptualize the main constructs by relating them to the context of the Palestinian banking sector. Also, relevant theories that could help explain the phenomenon of decision-making effectiveness will be discussed.

3.2 Decision Making

Management is a process of utilizing available resources toward the accomplishment of organizational goals and objectives. In doing so, managers must make decisions; in fact, it is argued that managers are engaged in a continuous process of making decisions (Hoch & Kunreuther, 2001). Decision making can be understood as making a choice among alternatives. According to Mintzberg (1973), a decision is defined as a commitment to action and a signal as an explicit intention to act. Similarly, Minton, Bresina, and Drummond (1991) stated that decision making is about constructing actions and determining the future. According to Simon (1960), decision making can be identified as a process of selecting between alternative ways of action for the aim of conquering the target.

3.2.1 Decision Making Process

Rationally speaking, making a decision involves a series of steps. Decision making is a systematic, incremental process that begins with recognizing a problem and finally selecting alternatives that have the most utility (Ehsani, Makui, & Sadi Nezhad, 2010).

According to some scholars, decision making is making a choice among alternatives. It involves a sequential process that can be classified into three major phases: (a) identification phase, which involves diagnosis of a problem or an opportunity by clarifying and defining the issues after recognizing the need to make a decision; (b) development phase, which involves searching and developing alternatives that can be used to reach the optimal objective; and (c) selection phase whereby a decision maker selects the optimal alternative among these choices (Mintzberg, 1973; Turban, Aronson, & Liang 2005).

Of the three phases, the selection phase can be considered the critical phase in the decision-making process because action will be made and commitment from the subordinates will be involved (Cowie & Burstein, 2007). In contrast, Mintzberg (1979) argued that even tough selection is the final step in the decision-making process; it is not essentially the most significant phase among the phases involved in decision making. He highlighted that identification or development phase might be more important than the choice phase in specific decisions.

3.2.2 Decision-making effectiveness

During the past decade, information quality has grown rapidly in the banking sector. Today, bank managers have more information and tools available to them than ever before. Recent studies Gao, zhang, wang and ba (2012), showed how information quality exerted a positive influence upon managerial decision-making. However, there is a gap in the current body of knowledge regarding how information quality and organizational structure impact managerial decision-making effectiveness in the banking sector. This research study investigated the relationship between information

quality and organizational structure and decision-making effectiveness of managers in the banking sector.

Screening decision-making effectiveness depends not only on which information is presented to the decision makers but also on the interpretation of that information in relation to the proposal, the calculated risk decision makers are prepared to take, and their understanding of the organizational stricter (Ribbink, Van Riel, Liljander, & Streukens, 2004). In an organizational structure, the way decision makers perceive, organize, and process information, as well as how these interpretations are used for guiding actions, affect the quality of collective decision-making (Nishimura, Trusty, Hayes, Ilstrup, Larson, Hayes, & Tajik, 1997).

On the other hand, the past research indicated that in order for managers to consolidate effective decision, they need to consider other alternatives. This without considering the role of information quality in altering the decision (Sharma, Choudhury, Kaur, Naidoo, Garner, Littlejohns, & Staniszewska, 2015). According to Paximadis, Idris, Torres-Jerez, Villarreal, Rey, and Brown (1999), accuracy, reliability, and timeliness of the information would allow a decision maker to make a good quality decision for the organization. Previous researchers such as Dean and Sharfman (1996); Harrison and Pelletier (1998) stated that decision-making effectiveness is a concept which can be seen as an outcome of the decision and it is linked to the goal achievement. Therefore, decision success usually can be measured by the ratio between output and input. This ratio can be determined as decision effectiveness (Teale, Dispenza, Flynn, & Currie, 2003). Mullins (2006) suggested that doing the things right and based on the

accomplishment of performance outcome will enable the effectiveness of a decision measurement in a banking sector.

But it is noteworthy to point out that from a decision makers' point of view, a good decision is a subjective concept. According to Welch (2002), there is no absolute ideal decision due to the existence of human bounded rationality. Because of that, decision effectiveness can be referred to as the capability for doing the best and it is not always the ideal or perfect (Taylor, 2013). With different situations, there is no one perfect course of action to be taken because several paths may lead to the same objective. In this context, Simon (1997) suggested that decision making is all about looking for a good outcome that satisfies the decision maker but not necessarily the ideal decision. Hence, an effective decision can be defined as one that is capable of being put into practice, has measures that satisfy the decision maker toward reaching his or her objective, and has a degree of subordinate's commitment. Findings showed that managers can efficiently gain the decision making dimensions needed to manage intricate decisions (Osman, 2010). Besides, it involves a cognitive process that assists employees in the same company to apply self-cognitive control to benefit from different, alternative decision perspectives that essentially aim to explain, plan, and implement organizational goals (Haynie & Shepherd, 2009; Maier, 1967).

Researchers propose decision effectiveness dimensions (Gonzalez-Benito, Martinez-Ruiz, & Molla-Descals, 2011; Mullins, 2006). In the organizational context, quality of a decision must be linked to subordinate acceptance and considerations, and such quality refers to the outcomes of the job while acceptance refers to subordinate commitment and implementation of the decision (Ivancevich, Konopaske, & Matteson

2008). The decision will not be well-thought-out if it takes more time than considered for that decision to take place. A similar view was expressed by Mullins (2006), who contended that effectiveness is measured by the quality of performance and subordinates' commitment.

The issue of commitment to the decision is mentioned in previous literature, and one of the best theories used to describe commitment is leadership theory which postulates that the criteria forhigh-quality decisions are linked to performance as well as the commitment of staff members in the decision-making effectiveness (Luthans, 2008). Taylor, (2013) maintained that the justification for decision makers to give a chance to other employees to share in the decision-making effectiveness is protecting their commitment toward the decisions made. He further asserted that if the subordinates contribute their thought and skills in decision making, they will be committed to putting their effort towards the success of these decisions in the organization. Path-goal theory postulates that subordinates' commitments can improve the quality and achievement of the decision (Miner, 2002). Sharma *et al. (*2015) argued that a decision cannot become effective unless there are action and commitment towards the building of such decision from the start; until then a decision is only a respectable intention.

3.2.2.1 Theories in Decision Making

Decision making is a core function of all managers. In general, decision making is to achieve the best among the available alternatives to achieve specific goals and objectives (Even & Shankaranarayanan, 2007). To obtain the objective, the process of decision making, generally , does not work in sequence because the decision maker should collect data and develop other options at the same time (Witte, 1972).

Cyert and March (1992) emphasized that the decision makers have to be attentive to the importance of information. Decision makers are required to choose what kind of information is important and how to successfully getting access to it. The value of information in decision making and processing of information about the available alternative options to determine their relative advantages and disadvantages have been sopt lighted in the past research. Decision-making effectiveness in steps in terms of a sequence of steps, adopting a set of standards to gather information, design alternatives, and assess other alternative options (Choo, 2006; Edwards, 1954). Decision making which can be done through interpretation, conversion, and processing the information, is considered dynamic social processes and subjected to interruptions and iterations.

A number of theories are available in decision making on the role of information. The classical theory of decision making (Simon, 1945) presumes that a decision maker is an economic man that seeks to obtain the largest benefits and goals by examining all available alternatives and then choosing the best alternative that achieves the maximum benefits. This theory is also called the rational decision theory (Simon, 1945). This theory assumes that the decision maker can determine the best possible outcomes for each alternative of all of the available alternatives to him or her because he or she also has enough time to study each alternative and has all the information which is required to evaluate the alternatives (Chuang, 2013). The classical theory emphasizes that the decision-making effectiveness in which the decision maker attains proper information that is characterized with valuable quality, quantity, and accuracy (Mintzberg, 1973).

But the classical theory of decision-making has been criticized by Simon (1997). Simon (1977) called for bounded rationality as the decision makers should explain information and extract crucial characteristics to reason their decisions despite the limits surrounding them. He claimed that there are boundaries in the human reasoning as a result to knowledge limitations for the managers relating to the preferences and end results of choices. Henceforth, the optimal choice relies on the information, situations and the surroundings. According to Simon, a decision maker does not always get the best decision because he or she faces a combination of factors that limits his or her ability to make a decision rationally. For Simon, the rationality of a decision maker is bounded rather than absolute. Because a decision maker has many limitations (time, effort, cognitive ability), he or she will not be able to assess all possible alternatives and hence achieve the best outcome; rather, instead of achieving the best possible outcome, the decision maker attempts to achieve an outcome that satisfies him or her.

The contingency theory maintains that the sufficiency of information accessible to the decision makers differs from one situation to another (Tarter & Wayne, 1998). Contingency theory claims that the decision-making models might be categorized into administrative, mixed scanning, incremental, classical, political model. In the classical model, objectives are set before generating alternatives. The decision making is means-ends analysis first; ends are determined and then the means to obtain them are sought. The test of a good decision is that it is shown to be the best means to achieve the end (Simon, Egidi, & Marris, 1992). In the administrative model, what is often extremely complex and rationality is limited for a number of reasons. All the alternatives cannot be considered because there are too many options that do not come to mind. All the

probable consequences of each alternative cannot be anticipated because future events are exceedingly difficult to predict and evaluate. Finally, rationality is limited not only by the administrators' information processing capacities, but also by their unconscious skills, habits, and reflexes as well as their values and conceptions of purpose that may deviate from the organization's vials (Simon, 1991).

In a mixed scanning model, administrators and other officials make both decisions that have the large scale or long term implications; hence, decisions are of a more limited scope and mixed (Chuang, 2013). Through his work decision makers are tasked to mix both perspectives, taking the time to conduct broad considerations of many major issues and alternatives to prevent shortsightedness of incremental.

According to Mintzberg and Theoret (1976), an incremental model of decision-making effectiveness moves through certain general phases such as identification phase that involves recognizing the problem and diagnosing it through information gathering. Then a development phase involves a search process that identifies alternatives followed by design of a particular solution. Then finally in a selection phase, the solution is evaluated, and through an authorization step, the organization makes a formal commitment to the decision (Rainey, 2009).

Researchers believe that the choice phase is the most important phase in the decision-making effectiveness as the decision maker tries to choose the distinctive or greatest option among other options. As stated by Choo (2006), if the choice is going to be a rational one, this choice would be based on information completeness about the organization’s goals, alternatives feasibility, the probability of the outcomes of these alternatives, and the benefits of these outcomes to the organization. This is consistent

with utility theory in decision making that requires choosing the options with the highest utility. Simon (1986) noted that decision makers logically increase utility in a certain environment in which the probability of all variables is available to him or her. On the other hand, the extent to which the probabilities of information availability are associated with the quality of the same information is considered to be one of the critical aspect to look at. Theoretically, it is evident that the decision makers always require to have access to quality information in order to effectively decide the substitutes for which the expected values of the utility are oppressed. With this in mind, the decision makers' access to quality information can positively play a key role in promoting uncomplicated and permits decision (Even & Shankaranarayanan, 2007). In addition, having poor quality of information may negatively impact the decision making process as a whole and result in losses to its principal (Redman, 2004).

In making effective decisions, the empirical findings support that the information quality plays a crucial as the essential input (Popovich, & Habjan, 2012). Taking significant decisions, organizations continually look for and assess information as this might decrease the indefiniteness in decision-making effectiveness (Choo, 1996). This comes in an agreement with media richness theory that identifies an organization's need to process information to lessen the level of uncertainty and ambiguity in its decision surroundings (Daft & Lengel, 1986). Media richness theory was developed by Shannon and his colleagues in the 1940s. The theory suggests that information serves to reduce uncertainty. According to Daft and Lengel (1986), organizational success is based on the organization's ability to process information of appropriate richness to reduce uncertainty and clarify the ambiguity. This theory concludes that as

information increases, uncertainty equivocally decreases. From this theory, it can be deduced how relevant the role of information quality to the effective decision making of managers is. What this theory informs us is that organizational structure has an influence on the quality of information available to managers which in turn affects the decision effectiveness of the managers. Hence, the organization which is determined to make its manager effective must also pay due regard to information processing within the organization.

3.2.2.2 A Model of Organization

Gachet and Brézillon (2005) focused on helping organizations in general and enterprises in particular to have a better understanding of the structures being dynamically built and dissolved in the organization due to varying contexts and focuses of attention. Gachet and Brézillon (2005) proposed four levels of an organization, as shown in Figure 3.1

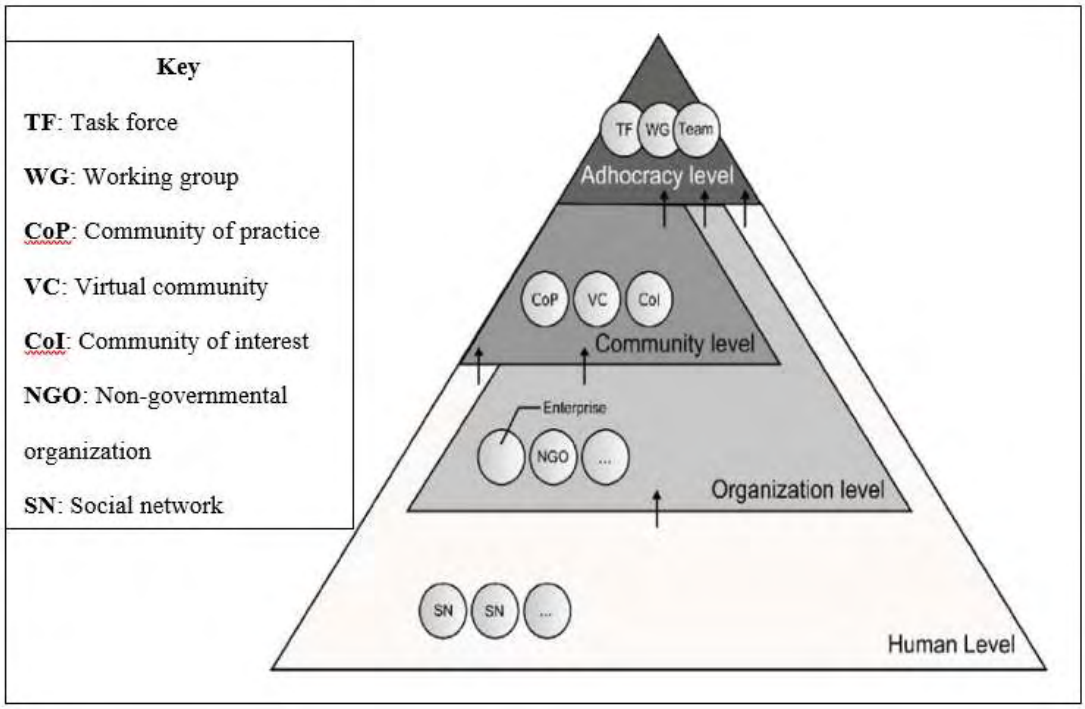

Figure 3.1
An organization model
Source: Gachet and Brézillon (2005).

As stated by Gachet and Brézillon (2005), the human level supports the other levels because individuals are the elementary constituents of the entire model. Because this level is believed to support the dynamic building of the upper-level structure, information flows more rapidly and easily among individuals. Weber (2009) also mentioned that in a metaphorical way that one can see the shared vision, the focus of attention, or the mission of the resulting structure acting as a magnet on iron filings, attracting only the individuals deemed appropriate for the purpose of the structure.

The organizational level is described as a network of social groups, each trying to reach its goal as well as possible, protecting its interests against outside interferences. The organizational level is closely related to bureaucracy concepts; wherein bureaucracies are characterized by regularized procedures, adivision of responsibility, hierarchy, and impersonal relationships (Gachet & Brézillon, 2005). Hammer and Champy (2009)

stated that bureaucratic organizations usually deal with routine operations where information flows bottom-up along a hierarchical path before coming down again along a different hierarchy.

Communities are rooted in the organization and human levels whereby a community structure emerges when a focus on a specific domain arises among the individuals of an existing social network or organization and having such a shared concern gives the community a collective context and individuals organize as actors with roles (Gachet & Brézillon, 2005). In the Palestine banking sector context, this means that banks need to establish a very strong relation with their workers to instill a sense of being one community within the banking sector.

The adhocracy level describes a structural configuration that can fuse experts drawn from different disciplines into smoothly functioning ad hoc project teams. In such instances, the organization will be able to capture opportunities, solve problems, and obtain results based on responses to environmental pressures (Aburub, 2015; Binder, 2016; Uotila & Melkas, 2007; Vijayakumar, & Cunningham 2016; Waterman, 1992). This also allows the teams in such a place to make decisions without approval from higher level members of the organizational chart, and decisions are made from high-risk organizations or emerging industries (Hammer & Champy, 2009). If Palestinian banks act at the adhocracy level, they will allow employees to make decisions. Although the decision made can better the company, it may also be a disaster to the bank if it is destructive. Hence, measures need to be put in place to avoid such decisions from negatively affecting the company. In this study, the focus was given on the

organizational level, as the organizational structure is one of the main constructs under examination.

3.3 Organizational Structure

Weber (1968) stated that an organization is a closed communal interrelationship and based on its internal rules does not permit outsiders to access. Permissions for operation are given by authorized personnel and those who are in charge of the organization, and they often have a managerial committee (Taylor, 2013). Organizational dimensions are classified into two divisions: structural and contextual. Structural dimensions represent the internal characteristics of the institution which form the base to evaluate and contrast the organizations. Organizational structure is defined as a means by which the institution classifies and coordinates its tasks, shapes the way of decision making, and links strategy and goals of the organization to personnel behavior (Osvaldo, Sordi, Meireles, and Azevedo, 2014). Contextual dimensions demonstrate the whole institution such as the size of the organization, kind of technology, climate, and its goals. Contextual dimensions might not be clear-cut because they represents the organizations in a climate in which structural dimensions are involved Osvaldo *et al. (*2014).

Theorists have defined an organizational structure in various ways. Based on Mintzberg (1976), organizational structure can be defined as the result of the combination of all the ways in which work can be divided into different tasks, the coordination of which must subsequently be ensured. Ungson and Wong (2014), defined this term as "the formal allocation of work roles and the administrative mechanisms to control and integrate work activities including those which cross formal

organizational boundaries" (p. 307). Daft and Lengel (1986) defined the structure as comprising of official reporting relationships, involving the number of levels in the hierarchy, the span of control of managers and supervisors, and the communication across the organization's departments. Miller (2005) defined the structure as holding centralization of control, formality and intricacy, and integration. According to Chen *et al. (*2010), organizational structure also reflects the way in which information and knowledge are distributed within an organization, which affects the efficiency of their utilization. Consequently, it substantially influences the distribution and coordination of the company's resources, the communication processes and the social interaction between organizational members. Martinez-Leon and Martinez-Gracia (2011) noted that the configuration of organizational structure impedes or facilitates the capacity of the company to adapt to change, learn, innovate or improve its ability to generate added value for its customers.

Formality

The formal system of task authority controls the relationship among employees and managers to cooperate and use resources to achieve organization's goals. According to Griffin and Moorhead (2011), the structur includes the organization's duty reporting and the different relationships within the institution. Osano and Gachunga (2013) explained the structure as the official, hierarchical order of the operations to one another.

The definition of organizational structure refers the level of formality, centralization, and complexity (Child 1984; Lane & Lubatkin, 1998; Islam *et al.*, 2011). Daoli and Mohsenvand (2014) clarified formality as the implementation of regulations in the

organization. A job description is a standard that shapes the regulation that the person should consider in a given position (Martinez-Leon & Martinez-Gracia, 2011). The directory of the institution represents the official structure of the organization. This directory is prepared in large and average institutions and comprises institutional goals, policies and regulations, figures, job description, and instructions for administrative managers (Daoli, & Mohsenvand, 2014; Quangyen & Yezhuang, 2013).

Formality is also referred to the extent to which there are written rules, regulations, and procedures for the employees to follow in an organization (Pugh *et al*., 1969). Loose division of labor, small middle level management, a formal decision making process, and the centralization of power which allows for rapid response are the main features characterizing small organic organizations (Mintzberg, 1980). Furthermore, as smaller organizations behavior is comparatively formal, it allows organization to benefit from the minimal use of training, planning, and liaison devices (Mintzberg, 1980).

Centralization

Centralization is an aspect of organizational structure in which the decision-making power is in the hand of the senior management (Maleki & Karimi 2014). In other words, higher managers decide on all important aspects of the organization. Other researcher such as Bloisi *et al*. (2007) define centralization as the "concentration of authority and decision-making toward the top of the organization". The understanding of centralization can be traced back to Pugh *et al.* (1969), in which the researchers regarded centralization as one dimension. Centralization, is also closely related to the extent of how bureaucratic an organization is. Some researchers relate hierarchical

structure such as centralization to its greater ability to deal with large and complicated tasks (Leavitt, 2005).

Complexity

Larger organizations are more likely to be associated with complexity, and hierarchy of such larger organizations is believed to be able to manage the size with more efficiency (Leavitt, 2005). Growing complexity within an organization is not only confined to the growth in size, but it also corresponds to the maturity.

When a person steps in the institution, they face the intricacy of the organization which is formed by multiple managerial levels in the administrative order. This intricacy might be horizontal or vertical. Big institutions usually require extra expertise. Regarding complexity, institutions are categorized into three divisions: horizontal complexity, vertical complexity, and geographical complexity (Daft, 2006; Zaki *et al*., 2015).

Researchers have proposed the diversity and variety of the structure of organizations (Griffin & Moorhead, 2011; Miller, 2005; Osano & Gachunga, 2013). They have essentially drawn a critical difference between mechanistic or bureaucratic structures and organic structure. A mechanistic structure has vertical hierarchies, multiple departments, limited decentralization, and multiple regulations and procedures. It tends to have power specification of tasks, and interaction is basically in the vertical direction (Maduenyi, Fadeyi & Ajagbe 2015). On other hand, an organic structure tends to be open; it has less structural complexity, fewer rules, extensive decentralization, and a

less rigid definition of methods, duties and powers, and it is prone to rich, horizontal interaction (Johnson & Scholes, 2009; Meijaard, Brand, & Mosselman, 2005) stated that the appropriate organizational structure can change through time and therefore must be explicitly managed Maria Martínez-León and Martínez-García, (2011). The bureaucratic or mechanistic resulted from the environmental settings especially when the environment is limited to certain aspects that make it rapidly changing and uncertain. Previous studies asserted that decision makers in such environmental conditions it is expected to experience less bureaucratic. According to Utterback (1979), firms that maintain flexible production and reliable structures are viewed to do well at process innovation than more rigidly structured firms.

3.3.1 Organizational Structure and Decision-making Effectiveness

Organizational structure plays an important role in determining different outcomes in various workplace settings. According to Martinez-Leon and Martinez-Gracia (2011), organizational structure can be centralized, complex, and formalized. With the differences in structure, organizations can produce differences in the attitudinal and behavioral conditions of the organizational employees. For instance, Gallivan (2001) found that formality, centralization, and complexity in different banking sectors posed difficulties for employees in knowledge sharing capabilities in public sector organizations. Gallivan (2001) revealed that formality, centralization, and complexity inversely influenced role ambiguity for the Americans, but not the Japanese and KoreansCovaleski, Evans, Luft, and Shields (2006) argued that the differences in the attitude were because the Japanese and Korean employees were collectivistic compared to the American counterparts who were individualistic. Also, formality (in

terms rules, policies and procedures) provides guidelines to Japanese and Korean employees but not the American employees.

Formality indicates the extent to which the rights and duties of the members of the organization are determined and the extent to which these are written down in rules, procedures, and instructions (Schminke, Ambrose, & Cropanzano, 2000). An organization that is less formal in its structure leads to greater or better communication with partners and employees due to the less formality within the organization. It creates greater flexibility and openness, which is conducive for an organizational structure that is less formal. An organizational structure that is more flexible helps to lower the obstacles during communication flow in the organization (Islam *et al*., 2011).

Centralization is the delegation of decision-making authority throughout the organization, and this helps to create an environment that increases communication and commitment among the employees in the organization. The central idea of centralization is to provide greater opportunities for participation in decision-makingand the better interactions among the employees. Greater participation in decision making also breaks down the barriers between those who make decisions and those that are affected by the decisions; in this regard, this would help to facilitate easy interaction and understanding of the goals that a banking sector in Palestine needs to achieve (Islam *et al*., 2011). Centralized decision making drives the knowledge sharing process ineffectively, especially when complex knowledge is involved (Kanamori, & Motohashi, 2006). Centralization and especially hierarchy have an effect on management's decision-making effectiveness between units in organizations (Anggadini, 2013; Tsai, Klayman & Hastie, 2008).

Flexible organizational structures advance information quality sharing and decision effectiveness by encouraging horizontal communication (Bhatt, 2001; Chkravarthy & Zaheer, 1999; Hansen, 1995). Organizations can develop proper structures to leverage information quality and decision-making effectiveness between departments in a banking sector in Palestine. The problem of designing an organization that optimizes information quality and decision-making effectiveness remain unsolved, but several studies have shed light on the issue and revealed insight into the relevant influencing factors (Vazifedoust *et al.*, 2012). One important facilitator of information quality and decision-making effectiveness between departments is the coordination that exists between departments (Griffin & Moorhead 2011).

As stated in the previous chapter, limited research had been done in examining the moderating role of organizational structure in decision-making effectiveness on information quality. However, within the perspective of the services industry, a few authors had studied the moderating role effect of organizational structure factors (Chen *et al*., 2010). For example, Tata and Prasad (2004) studied the moderating impact of organizational structure, measured by formality, centralization, and complexity, on decision effectiveness. The findings showed that teams with higher self-management appeared to be more effective in organizations that allow input from employees about their task performance (micro-level decision making). On the other hand, macro-level decision making did not influence the strength of team effectiveness association at any level. They also found a stronger relationship of team effectiveness in organizations that had a lower level of formality. This indicates that fewer rules, policies, and procedures allow flexibility in teams' self-management, which eventually boosts

teams' effectiveness. Sharma and Kirkman (2015), found that leader expert power and subordinates were highly associated with lower levels of formality, centralization, and complexity. Chuang (2013) further revealed that knowledge and skills provided by leaders were useful only if subordinates perceived their usefulness. Interestingly, employees perceived that clear, detailed, and rigid policies and procedures about task and structure can be a worthy substitute for the role of a manager in the organization. This indicates that the level of powerfulness in leaders does not guarantee a high influence on employees' behavioral and attitudinal outcomes towards decision-making effectiveness.

3.4 Information Quality

Information might be recognized from the institution's perspective as data which requires being processed (Michnik & Lo, 2009). Improper processing of such data, institutions may not possess the required information to work efficiently. But there is no clear consensus as to what constitutes information. Some researchers consider information and data similarly (James, 1998). But according to James (1998), if information is identified, information is a structural, consequential, and constructive version of data which can contribute toward an understanding of a decision a manager may require if faced with a particular situation. James (1998) reiterated that information is related to knowledge because it is the product of information utilized in a meaningful manner, whereas data can be considered raw facts. But Higgins (1999) concurred with James (1998) on the view that identified information is data that exists in a recognizable form that is easy for interpretation purposes.

A different definition of information that might be of use in this context was offered byOsvaldo, Meireles, and Azevedo (2014) they stated that "information is not a byproduct, nor documentation but rather an information is a direct product of process used to capture knowledge about the persons, places, things and events discovered while conducting business transactions"(p. 665). By having such information, managers' decisions can be made more easily as information can be tabulated into diagrams that manager might easily explain.

In making an effective managerial decision, information is one of the success factors. It is important to decide what information and which information to choose when managers make decisions. About this, Ni and Khazanchi (2009) classified the perception of managers into two categories:

a) Informed managers - This type of managers has more information about the consequences of their decisions than other managers when it comes to decision-making effectiveness.
b) Uninformed managers - This type of managers is more concerned about the cost of information and is unlikely to recognize the benefits gained from the information made available through different sources in an organization.

The importance of information to organizations cannot be denied. Leon and Leon (1999) emphasized the importance of information and its role in the present and the future. They claimed that a current situation requires us to understand and obtain information about similar previous situations. Furthermore, they added that many historians believed that one of the major attributes of all societies' development is their ability to generate and exploit information successfully. Porter and Millar (1985)

stressed that one of the most important bases for achieving competitive advantage is to gain good information. In consistency with Porter and Millar (1985) pointed out that managing information is a fundamental activity and function for organizations. Such management should be considered for both structured and unstructured information that will improve the decision-making effectiveness (Madnick *et al*., 2009).

Information is noted as an essential component for effective operations and decision-making at all levels in businesses (Knight & Burn, 2005). Information technology is a major tool for producing information because of its abilities to store, process data, and distribute information which is the foundation of knowledge (Dauda, Akingbade, & Akinlabi, 2010). According to James (1998), information technology tools, to a large extent, are faster in their task manipulation than people because most of the tasks that are used with computers can be accomplished in many processes within a very short time space. But, all of this depends on the knowledge managers have with operating such technology which can be used in their decision-making effectiveness (James, 1998; Johnson, 2009). Without limitations in knowledge about the use of such information technology, organizations should have information systems that are secure, reliable, and accessible in all departments to gain competitive advantages (Jennings, 2007). Although information systems help managers to gain access to historical and present information needed for decision making, most of the historical information has suffered from poor quality if the information systems are not updated regularly (Power, 2008).

The main reason why managers in Palestine need to spend time and effort in investing in information technology is to obtain quality information that will result in effective

decisions (Raghunathan, 2000). This is because the development of information technology tools can speed up the accessibility to information required for decision making since time is a manager's precious commodity (Lurie & Swaminathan, 2009). In this regard, good information is essential to the success of any organization as well as a money saver for an organization such as banks in Palestine. But, there is less interest to obtain good information for managerial decision making as the focus is mainly on outcomes rather than on the process of making these decisions. This is due to the nature of the information which is subjective and non-consumable.

3.4.1 Information Quality Overview

The value of quality of information has been identified at all institutional levels with special emphasis among the high management (Jonas, Traut-Mattausch, Frey, & Greenberg, 2008). Information quality will affect the well-being of banking organizations such as those in Palestine. Information quality is a crucially important determinant of institutional successfulness, as it effects manipulation of data to generate high quality information (Gao, Zhang, & Wang, 2012). Similarly, quality is a crucial variable for attaining competitive privilege among institutions in the business context (Drucker, 1985).

Many different scholars have come up with various definitions which could help define or describe information quality. Juran (1988) noted that 'quality' in general is a subjective concept because it depends on the users' perceptions. According to Strong *et al. (*1997), quality is a subjective conception that differs among users and uses of such information. Information quality can be a measure of the value which is offered as information to the users. Henceforth, quality or value of information is dependent

on the one who uses it (Strong *et al*., 1997). Likewise, Xiao (2015) identified information quality as a multi-dimensional conception that might represent unpredictable features, relying on the theoretical perceptions of the authors. This idea is supported by Nauman and Rolker (2000,) who claimed that the actual evaluations of information quality dimensions are complex because the conception of quality is subjective in any given time frame or period. Massaki (1997) claimed that quality starts when personnel have not rejected or made faulty information to the next course of action. In a similar vein, Sharma *et al. (*2015) emphasized that quality should be a crucial point in managers' perceptions not only as a tangible point but related to the products.

Kahn, Strong, and Wang (2002) argued that generalized quality can be identified as being convenient for use. In agreement with Kahn *et al. (*2002), Wang and Strong (1996) considered information quality as fit-for-use, because the information which is perceived suitable for one use cannot have proper characteristics for another use (Xiao 2015; Strong *et al*., 1997). Adequacy for use refers to the degree to which information matches or exceeds the necessity or the goal based on the user's perspective (Huner, Ofner & Otto, 2009). This indicates that various dimensions can shape the information quality which is one of the focuses of this research. Despite the numerous information quality dimensions, a large number of these dimensions are defined about performance regarding relevancy, understandability, and accuracy (Redman, 2004). Hence, there is a further need to explore this subject area.

3.4.2 Information Quality Dimensions in Information System Research

Research for developing a general framework of information quality dimensions began only in the mid-1990s (Slone, 2006). Slone referred to the pioneering work of Wang and his colleagues who sought to develop a framework that describes information quality. Wang and Strong (1996) came to the conclusion that most research had focused on limited information quality dimensions such as accuracy, timeliness, completeness, consistency, and interpretability. They also noted that customer perspectives to information quality also include perceived information as a product to be determined in an organization carrying out business processes. This led Wang and Strong (1996) to conduct a customer-based opinion survey to identify the quality dimensions which would best fit in providing quality information. The results of such a survey identified 179 information quality attributes. Through analysis, these attributes were reduced and grouped into four categories of data quality, namely, intrinsic, contextual, representational, and accessibility. These attributes are shown in Figure 3.2.

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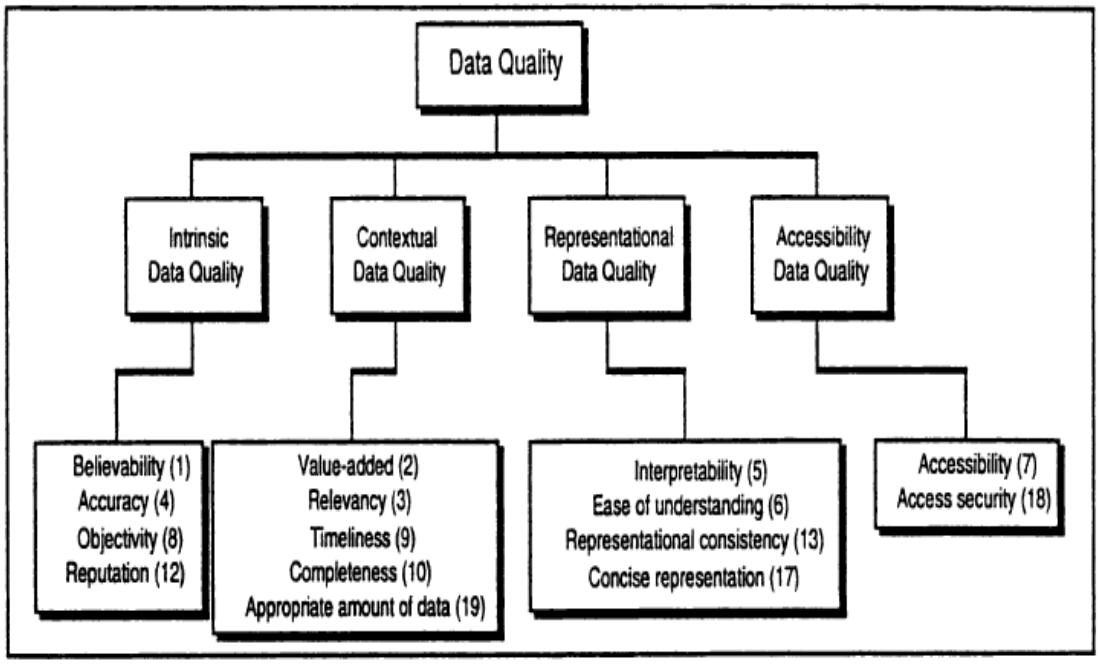

Figure 3.2
A conceptual framework of data quality
Source: Wang and Strong (1996)

Many authors who studied information quality field as the basis to determine information quality dimensions (Dedek, 2000; Eppler & Muenzenmayer, 2002; Kahn *et al*., 2002; Klein, 2001; Knight & Burn 2005; Knight, 2011; Leung, 2001; Naumann & Rolker, 2002; Price & Shanks, 2005; Wand & Wang, 1996; Zeist Hendriks, 1996; Zhu *et al.*, 2014) adopted the model developed by Wang and Strong (1996). Recently, Michnik and Lo (2009) adopted Wang and Strong's (1996) model for assessing information quality dimensions. This implies the importance of this model and the need for developing new models that can be used for assessment of information quality dimensions. Madnick and Lo (2009) revealed that Wang and Strong's model was used in 123 publications in their review.

Although many researchers adopted Wang and Strong's (1996) model, the literature in information system studies indicates differences in researchers' perceptions of quality

dimensions. For example, Zeist and Hendricks (1996) conducted a study on software quality management to specify the quality of software. The outcomes of this study suggested that functionality, reliability, efficiency, usability, maintainability and portability were the main attributes of information quality dimensions. The sub-attributes were comprised of accessibility, accuracy, appropriateness, ease of manipulation, relevance, security, timeliness and interpretability. Similarly, in trying to determine realistic software metrics of usefulness when applied to the intranet, Leung (2001) subjected the six software quality attributes to user's applications and user's satisfaction survey. Their results indicated that dimensions of information quality were comprised of accessibility, appropriateness, believability, completeness, freeness of error, objectivity, representation, speed, timeliness and interpretability; all are important dimensions in intranet software metrics.

To overcome database problems, Strong *et al. (*1997) utilized interviews with data producers, consumers, and managers. The main aim of Strong *et al. (*1997) was to identify information quality dimensions used in problem-solving during three different phases, namely, identification, investigation, and resolution phases. Strong *et al. (*1997) found that the dimensions of accessibility, accuracy, appropriateness, believability, completeness, consistency, objectivity, relevance, representation, reputation, security, timeliness, interpretability, and value-adding were the information quality dimensions adopted in organizational databases. In another attempt to examine the problems related to information quality encountered by information system users, Klein (2001) used a critical incident technique and revealed that accuracy, appropriateness, objectivity, relevance, source, timeliness, and interpretability were

the dimensions of information quality. The preliminary results of his study provided a theoretical model on the factors that influence users' perceptions of information quality problems. In another study, Naumann and Rolker (2000) categorized information quality measures into three main categories, namely, subject, object, and process. They concluded that each category required different information quality dimensions. The study focused on the attributes of accessibility, accuracy, believability, completeness, objectivity, relevance, representation, security, speed, timeliness, interpretability, and value-added as the most suitable dimensions to assess information quality.

Katerattanakul and Siau (1999) developed an instrument to measure information quality dimensions from MIS student's viewpoints. Their results suggested that dimensions such as accessibility, accuracy, believability, freeness of error, relevance, representation, reputation and source were considered to be the major attributes of information quality (Knight2011).

Alexander and Tate (1999) examined information quality dimensions required for the web. They came up with the following results which showed that accessibility, accuracy, appropriateness, believability, error free, objectivity, relevance, representation, reputation, source, timeliness and interpretability were the most needed dimensions of information quality on the web pages.Zhu *et al. (*2014)found that accessibility, believability, objectivity, relevance, source, speed, timeliness, and interpretability were the major information quality dimensions and concluded that quality metrics enhanced the efficiency of web search. Eppler and Muenzenmayer (2002) observed that web designers should include quality dimensions in content and design quality. Their survey showed that the dimensions such as accessibility,

accuracy, appropriateness, consistency, ease of manipulation, error free, objectivity, representation, security, speed, and interpretability should be considered when measuring information quality in the web context.

Regarding social and cultural aspects of information quality, Shanks and Corbitt (1999) found that accessibility, accuracy, believability, completeness, consistency, objectivity, reputation and timeliness were the most important dimensions of information quality. Similarly, Liu and Huang (2005) conducted a cross-cultural study to evaluate the integrity of intellectual information in information systems. The results revealed that dimensions such as accessibility, accuracy, completeness, consistency, relevance, representation, reputation, source, speed, timeliness and interpretability could be used to measure the quality of intellectual information. Using a case study approach to examine information quality based on information quality problems and the related activities, Stvilia (2006) revealed that accessibility, accuracy, completeness, consistency, objectivity, relevance, security, timeliness and interpretability were some of the major contributing attributes towards information quality dimensions. In another case study conducted on information producers, custodians and consumers, Kahn *et al. (*2002) developed a conceptual framework consisting of appropriate information quality dimensions to measure product and service quality. These dimensions are accessibility, appropriateness, believability, completeness, error free, objectivity, representation, source, speed, timeliness and interpretability. Fehrenbacher and Helfert, (2012), developed another conceptual framework to measure the quality of information system. He proposed the attributes of accessibility, accuracy, appropriateness, completeness, consistency, ease of manipulation, error free,

relevance, speed, timeliness and interpretability as quality measurements for information systems.

In a comparative analysis of previous frameworks, Price and Shanks (2005) observed that most of the existing frameworks have limitations regarding reliability and comprehensiveness. Information quality dimensions derived from their study were completeness, accuracy, accessibility, timeliness, interpretability, security, relevant, objectivity and ease of manipulation. Six dimensions of information quality were adopted by Lee and Strong (2003) to examine the relationship between knowledge and information quality in the field of knowledge management. These dimensions were accuracy, completeness, timeliness, interpretability, relevance, and accessibility. Overall, Lee and Strong suggested that knowledge plays a significant role in improving the quality of information. In a follow-up study on knowledge management Xiao (2015) showed that the information quality dimensions had provided a model to improve decisions specifically in decisions support systems.

Batini, Cappiello, Francalanci, and Maurino (2009) revealed no consensus among researchers on the information quality dimensions. But they identified accuracy, completeness, consistency, timeliness and interpretability as the basic dimensions adopted by previous key studies when measuring information quality in an organization. To sum up, the previous literature indicates the subjectivity of information quality as a concept used in different studies, and this may be due to the dimensions of information quality which are based on the objectives of their use and the user's viewpoints.

3.4.3 Information Quality and Decision Making

In general, organizations use information strategically in three areas, namely, to respond to the environmental changes which the organizations operate, for innovation and knowledge foundation, and for making a decision (Choo, 1996). Baars and Kemper (2008) linked knowledge management with decision making by adopting Simon's (1960) work, which postulates the three phases of decision making, namely, intelligence, conception, and selection phase. He revealed that types of knowledge, as well as knowledge management strategies, varied according to the different phases of decision making.

According to O'Reilly (1982), there is an implication in the literature that supports the conception that good information might improve an organization's effective decision making. On the other hand, it is hard to make sound decisions without the involvement of processing data or information in each individual phase of the decision-making process. The reason for this is the increasing numbers of options available, time limitations, decision intricacies, the cost of wrong decisions, and the necessity for accessing adequate information (Turban, Rainer, & Potter, 2003). That is to say, the valuable information is the one that helps improve the decision making effectiveness for the institution. Stated differently, the value of information has to be evaluated in terms of usefulness for a particular institution (Jokinen & Ritala, 2009). In sum, without sufficient information, decisions will be based on heuristics or intuition (Mahmood, 2000). According to Mahmood (2000), heuristic decisions are the consequence of information scarcity which would likely lead to wrong decisions making by managers.

While information scarcity is detrimental to decision-making effectiveness, it is no longer true that the more information acquired, the more effective will be the decision-making process. Information overload can lead to counter-productivity(March, 2002). According to Simon (1957), information overload will interfere with the decision maker's ability to solve difficult problems. Therefore, people need sufficient amount of suitable information to make effective and rational decisions (Simon, 1977). Every decision maker needs to acquire high-quality information since it will help him or her to make effective decisions (Graefe & Werner, 2004). Access to relevant and complete information is a basic requirement for making a high quality decision (Jung, 2004). If a correct amount of information is presented in a correct design, at the correct set and, at the correct time, achievement is reasonably easy and anticipated in an organization (English, 1999; Lillrank, 2003). Idrees (1999) pointed out that the availability of information is a prerequisite for making a rational decision within a framework of the rational theory of decision making and utility maximization; information which is accurate, timely and relevant will enable decision makers to make better decisions and hence achieve organizational success.

As pointed out by Naumann and Rolker (2000), the sources of information quality form a big problem that is faced by information users because they are not well structured and therefore cannot provide high quality information (Baars & Kemper, 2008). In their investigation on information quality, Graefe and Werner (2004) identified eight information quality attributes. One of the important attributes of information is its relevance to information users. According to Simons and Thompson (1998), due to some external factors related to the environment and internal factors,

organizations need information quality to help them make sure that informed decisions can be made. They showed that time pressure, governmental policies and employee conflicts were important issues affecting manager's decisions in an organization.

Empirical findings demonstrated that good information enhances decision making, develops efficiency and offers a competitive edge to the institution. Soliman and Youssef (2003) maintained that high-quality information leads to management efficiency and enhances organizational competitive advantage. Letzring, Wells, and Funder (2006) obtained a positive effect of information quality on knowledge management. Using personality dimensions, Wang (1994) investigated the behavior of Chinese managers when making their decision while Higgins (1999) conducted a case study on Singaporean managers. These studies concluded that the quality of the decision makers had a positive impact on the quality of decisions (Raghunathan, 2000). Using a cost-benefit approach, Kleinmuntz and Schkade (1993) conducted a study by taking into consideration trade-offs between a decision maker's cognitive costs and benefits. They concluded that making these trade-offs will improve the value of decision and ultimately provide a guide to effective decision making. Studies conducted by Grieves (1998), Reid, Thomson, and Smith, (1998), Smith (2008), and Winterman, Smith, and Abell (1998) found that, regardless of source, information was a useful input and added extensive value to the decision-making effectiveness. In most instances, decision makers are experienced information users due to their seniority in the organizations. Information quality and decision-making relationship were explored in library management by Fox (2004), pharmaceutical industries by Bouchet, Hopkins, Kinnell, and McKnight (1998), and innovations in decision support systems by Uotila

and Melkas (2007). Overall, there is an agreement among these studies that quality information and knowledge benefit decision-making effectiveness.

Literature shows a lack of research which investigated the relationship between information quality and decision making and decision types in particular. One of these few studies was by Levini, Huneke, and Jasper (2000), who aimed at examining individual differences in information processing in different decision-making types. They found that individual differences were mainly related to the need for recognizing the problem which is the first phase in the decision-making process. Regarding the types of decision made, most studies have focused on strategic decisions while ignoring other decision types. For example, Hickson and Centre (1986); Kirkwood (1997); Kelly and Gennard (2007) examined strategic decision making in organizations. Hence, there is a need to conduct research to fill the gap in the literature. When it comes to decision type or phases that may affect the organization, the focuswas given to the banking sector in Palestine. Such research should focus specifically on the information quality attributes needed for both decision types, tactical and strategic, in each phase, intelligence, design, and choice. This study was conducted to fill this gap by investigating the relationship between information quality required for different decision-making effectiveness moderated by organizational structure.

3.4. 4 Information Quality Dimensions for Managerial Decision Making

Based on the discussion in the previous section, it is clear that there is a lack of studies to examine the relationship between information qualities in business management in general and decision making in particular. This study focused on a banking industry in Palestine to fill the gap.

Several theoretical frameworks on the dimensions of information quality exist, but most of them were developed within the field of information systems. Within the management field, only one framework, to date, is available, that is, one developed by Morris, Med, and Svendsen (1996). The scant framework highlights the limited studies conducted on information quality in the field of management. Jung (2004) also noted the significance of information in information system studies, but a lack of research on the consequence of information quality on decision-making effectiveness. Furthermore, information quality has been discussed as a subjective concept with multidimensional attributes. However, research in the management field has yet to investigate the different dimensions of information quality. For example, O'Reilly (1982) measured quality regarding accessibility, accuracy, relevant, timeliness and interpretability specificity, and the amount of information to determine the variations in decision making from the IS perspective. He found a significant relationship between the quality of information with the attributes of information users, activities, and sources.

Reid *et al. (*1998) conducted a study on bank managers in the U.K. to examine the effect of information quality produced from corporate libraries in decision making among bank managers. The dimensions of information quality were identified as

accuracy, completeness, relevance timeliness and interpretability. They revealed that information quality affected the decision-making effectiveness among the bank managers positively. In another study in a banking sector, Nino (2001) revealed that information quality regarding accuracy, relevance, timeliness and interpretability was positively associated with decision making and had positive effects on bank performance and competitiveness.

Najjar (2002) adopted the dimensions used by Wang and Strong (1996) to determine the impact of information quality on service quality in the banking sector. The dimensions of information quality examined were accessibility, accuracy, appropriateness, believability, completeness, consistency, ease of manipulation, objectivity, relevance, representation, reputation, security, timeliness and interpretability, value-adding and reliability. Najjar showed that reliability and responsiveness were the key factors to be considered when it comes to decision making. Ge, (2009) examined the quality of information regarding accuracy, relevance, source, timeliness and interpretability to investigate their impact on decision-making effectiveness in pharmaceutical industry. showed that information services should be compatible with usage and could improve decision-making effectiveness for managers. Winterman *et al. (*1998) investigated the influence of accuracy, relevance, timeliness, interpretability and value-adding as determinants of information quality on the decision in a governmental sector organization. Overall, they revealed that information quality had a positive influence on the decision-making effectiveness.

The effect of information quality, time constraints, and experience levels on decision making was examined by Fisher (1999). He found that decision makers with extensive experience obtained higher quality information than those with less experience while time constraints did not have any significant consequence on information quality. Raghunathan (2000) found that information accuracy on decision making had some major influence on the quality of decision maker. Hedelin and Allwood (2002) investigated the impact of accessibility, accuracy and reliability dimensions on strategic decision making. They showed that the adoption of information and communication technology enhanced the strategic decision-making effectiveness. Lee, Brouwer, Lee, and Koo (2005) conducted a study to identify information quality. They used the following dimensions: accessibility, believability, ease of manipulation, relevance, value-added, reliability and availability as the dimensions of information quality. They found that techniques used for seeking relevant information for decision making and information tools could be used to provide quality information. Scannapieco (2002) showed that information quality (measured by the dimensions of accuracy, appropriateness, completeness, consistency, ease of manipulation, representation, speed, timeliness interpretability and value-added) was a significant factor in improving the efficiency of all kinds of information systems. Bovee (2004) developed a conceptual framework of information quality dimensions that comprised timeliness, accuracy, completeness, consistency, accessibility and interpretability. He showed that rating information quality was useful in selecting information for the purpose of the task at hand and the choice should be based on the relevancy of information.

Miller (2005) aimed to determine 18 information quality dimensions based on Wang and Strong's model of information quality and to examine their relationship with market share in electronic commerce. He found that most organizations used the high quality information to gain high market share. To investigate the relationship between information quality improvement and organizational outcome, Slone (2006) adopted accessibility, accuracy, appropriateness, believability, completeness, consistency, ease of manipulation, objectivity, relevance, representation, reputation, understandability, value-added, reliability and the amount of information as determinants of information quality. He revealed a positive relationship between information quality and organizational outcomes. However, the quantity of information did not play any role in moderating the relationship between information quality and organizational outcomes.

In general, researchers revealed that information quality could improve organizational structure. However, they mainly focused on decision making in general. The appropriate information quality dimensions needed. (Bunderson & Sutcliffe, 2002).

3.4.5 Determining Information Quality Dimensions in Banking Studies

Information quality has a significant role in modern-day business transactions in the banking sector. According to Bettis-Outland (2004), limited research has been conducted to examine the relationship between management processes efficiency and information quality. Previous studies also tried to explain the relationship between information quality and the quality of decisions. However, there has been very little empirical research conducted to examine the relationship between these two variables (Slone, 2006).

Ahmad and Zink (1998) revealed that over the past two decades, many studies related to information quality in developed countries had been conducted. In contrast, few researchers have focused on developing countries in general and specifically the Arab countries. Further, a lack of studies, particularly in the Islamic banking sector, is also evident in regards to information quality and decision making (Tahir, 2007). Within the Islamic banking sector, studies tended to focus on determining bank selection criteria from customers' point of view and a degree of satisfaction among customers on Islamic bank's facilities and products was found (Aburub, (2015); Ehsani *et al. (*2010); Jonas *et al. (*2008); Lee *et al. (*2005); Uotila & Melkas (2007).

At the other spectrum, studies on conventional banks had focused on information system (IS) usage and bank customers. For example, Turk (2015) focused on the relationship between investments in IS and efficiency outcomes. They found that IS improved bank efficiency and contributed to business achievements, increased productivity, and improved customer's satisfaction by offering high-quality services. Despite the growing number of literature on the subject of decision making and information, there is still a lack of studies on the impact of information quality dimensions in the banking sector.

At the corporate level, Reid *et al. (*1998) examined the role of the internal library as the main source of information on managerial decisions. They found that information was an important factor that improved decision-making effectiveness. The study used accuracy, completeness, relevance, timeliness and interpretability as the main attributes of information quality. Grieves (1998) examined information quality (measured in terms value-added and availability) used in four different sectors,

namely, banking, government, insurance and pharmaceutical. He showed the benefits that decision makers gained from using such information. Nino (2001) reached a similar conclusion in that information quality (measured by accuracy, relevance, timeliness and interpretability) improved the efficiency in the overall banking process in Palestine. Using Wang and Strong's (1996) model, Najjar (2002) examined the impact of information quality on banking services in the USA. From the service quality perspective, he found significant differences between banks about all information quality dimensions (i.e. accessibility, accuracy, appropriateness, believability, completeness, consistency, ease of manipulation, objectivity, relevance, representation, reputation, security, timeliness interpretability, value-added and reliability) except accessibility of information. Slone (2006) also used the same attributes developed by Wang and Strong and found that information quality affected positively organizational outcomes. In sum, the studies cited here seemed to suggest a positive link between information quality (measured by various attributes) and organizational outcomes. The dimensions of accuracy, completeness, relevancy, timeliness and interpretability of information were used more often in the previous studies, which suggest that these four dimensions could be important information quality attributes in decision making in the banking sector.

The next section presents a summary of information quality dimensions in an information system, management, and banking studies to determine the appropriate information quality dimensions adopted in this study.

3.4.6 Determining Information Quality Dimensions

Table 3.1 shows that accessibility; accuracy, completeness, relevancy, timeliness, and interpretability of information were the most important dimensions in information systems studies as they were adopted by more than 50 percent of the studies (Knight & Burn, 2005). In management studies, accessibility, accuracy, relevant, timeliness, and interpretability of information were the most important quality dimensions as they were also adopted by more than 50 percent of the studies (Knight & Burn, 2005).

Table 3.1

Information Quality Dimensions in IS, Management and Banking Studies (Frequency and Percentages)

Information quality dimensions	IS studies		Management studies		Banking studies		Total		Ranking of dimensions
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	
Accessibility	18	72%	9	60%	1	20%	28	62%	4
Accuracy	21	84%	12	80%	3	60%	36	80%	1
Appropriateness	8	32%	4	26%	1	20%	13	28%	11
Believability	11	44%	4	26%	1	20%	16	35%	7
Completeness	15	60%	6	40%	3	60%	24	53%	5
Consistency	11	44%	6	40%	1	20%	18	40%	6
Ease of manipulation	7	28%	5	33%	1	20%	13	28%	11
Free-of-error	9	36%	1	6.6%	0	0	10	22%	17
Objectivity	11	44%	3	20%	2	40%	16	35%	7
Relevancy	20	80%	8	53%	4	80%	32	71%	3
Representation	10	40%	4	26%	2	40%	16	35%	7

Table 3.1 (Continued)

Reputation	7	28%	3	20%	1	20%	11	24%	15
Security	9	36%	2	13%	0	0	11	24%	15
Source	8	32%	3	20%	1	20%	12	26%	13
Speed	7	28%	2	13%	0	0	9	20%	18
Timeliness	21	84%	9	60%	3	60%	33	73%	2
Interpretability	10	4%	3	20%	1	20%	14	31%	10
Value-added	4	16%	6	40%	2	40%	12	26%	13
Reliability	0	0	6	40%	1	20%	7	15%	19
A availability	0	0	4	26%	1	20%	5	11%	20
Amount of information	0	0	3	20%	1	20%	4	8%	21
Specify	0	0	2	13%	0	0	2	4%	22

Note: The bold font in the above table refer to the main variables used in the study

However, the analysis suggests the differences in the dimensions adopted by studies in different fields. For instance, 'completeness' was not rated highly in the management studies but was rated highly in IS studies (Teale *et al*., 2003). In IS studies, 'accessibility' was not considered important (Ehsani *et al.,* 2010). So based on this analysis, there were several important information quality dimensions adopted in the three different fields, namely, accessibility, accuracy, relevancy, timeliness and interpretability (Ehsani *et al.,* 2010). To determine whether or not the other two dimensions, namely, 'accessibility' and 'completeness' would be included in this study, the frequencies of each dimension in all three different studies were examined (Knight & Burn, 2005). Based on the frequency column in Table 2.4, 'accessibility' and 'completeness' were used in more than 50 percent of the studies. Therefore, these two dimensions were considered important dimensions and were included in this study. From the above discussion, six dimensions of information quality were examined in this study. They were accuracy, accessibility, completeness, relevancy, timeliness, and interpretability of information.

3.4.6.1 Accuracy of Information

Accuracy is not the sole variable in identifying the quality of information. Accuracy relies on the way the data was collected and the way they are evaluated in terms of different measurements, calculation, and specification (Chen *et al*., 2010; Widom, 2004). Accurate information facilitates effective decisions. However, inaccurate information leads to negative decisions with negative consequences. Since the impact of a managerial decision has a great significance on the organization, accurate

information is, therefore, important. But an important caveat was highlighted by Fehrenbacher and Helfert, (2012); Samukri (2015) who stated that information on management information system output is not as broad and as in-depth as that presented by expert-led sources of information. The expert-led information is more credible than the information provided by a system.

3.4.6.2 Accessibility of Information

Accessibility defines that data has to be available, obtainable or retrievable when needed by managers (DeLone & McLean, 2003). Data is attainable if it is not too old or out of date. Hilton (1982) was the pioneer in proposing timeliness as a dimension of information quality. Later, other researchers supported this dimension (Fox, 1994; Miller, 2005; Wang & Strong, 1996). Accessibility also implies security, a dimension which was proposed by both Miller (2005) and Wang and Strong (1996). Security involves keeping data secure and restricting access to it. It also means keeping the data inaccessible from people and protecting it from natural disaster (Mndzebele, 2013).

Accessibility of information quality is more related to the medium of communication rather than information itself. A poor or inaccessible communication channel can cause the problems of accessibility. In other words, a communication channel would hinder the data from being accessible and updated as per the requirements in an organization. Besides this, unauthorized access to the communication channel would incur the problems of security (Lin, & Wang. 2012; O'Reilly, 1982).

3.4.6.3 Relevancy of Information

Relevancy and appropriateness in information quality dimension mean that data have be relevant to the task concerned (Wang & Strong, 1996). Hilton (1982) identified relevancy as one of the major dimensions of information quality. When data is closely relevant to the task, managers can make effective decisions (Miller, 1996; Popovich *et al.*, 2012 & Wang and Strong, 1996).

3.4.6.4Timeliness of Information

According to Schaffer (2008), timeliness of information refers to the sooner the information is available to decision-makers, the foundation of mission success in this department is to maintain high information quality, because it plays a significant role in the support of decision-making and ensures timeliness. Previous studies found the relationship between the timing of the availability of information and decision making whether Information quality is context sensitive in this type of organization (Ballou & Pazer, 1995; Xiao, 2015). Information provided in a timely manner enables managers to choose a suitable alternative between several alternatives available to them. According to Chen *et al. (*2010), a positive correlation means two information quality dimensions are mutually responsible for and share a set of information quality problems. For example, when timeliness and accuracy are sharing outdated data as a mutual information quality problem, the improvement of timeliness may lead to an increasing value in accuracy. In this way, timeliness and accuracy are positively correlated (Azimaee, Smith, Ostapyk, Burchill, & Hong, 2014).

3.4.6.5 Completeness of Information

Completeness of the information can be explained as the degree to which data are of sufficient breadth, depth, and scope of the concerned task (Wang & Strong, 1996). This explanation is task-centered and derived from the intended use of the information for the managers. According to this goal and data-centered perspective, completeness refers to all values for a particular factor that are recognized (Ballou & Pazer 1995). Based on these definitions, two componential elements are crucial to the completeness of information: content and structure (Ballou & Pazer, 1995). Highly complete information is achieved when the information content and structure are both at a high-quality level. Azimaee *et al. (*2014) found that decision effectiveness might be improved by promoting the completeness of information.

Completeness also means appropriateness and sufficiency of the information for the decision-makers to make a particular decision. This means that not only the amount of information should be correct; it also means that the information should be enough. In other words, full information is considered an important factor in management decisions and to the decision makers (Lin & Wang 2012).

3.4.6.6 Interpretability of Information

The dimension of interpretability refers to the ease of understanding. From the perspective of information quality, interpretability relates to interpretational aspect of semantic. According to Kahn *et al. (*2002), interpretability is defined as to the degree to which information is in proper lexical units and symbols. According to Alkhattabi *et al. (*2010), it is whether the definitions are clear and the information is represented using an appropriate notation (Alkhattabi *et al.*, 2010). All the corresponding

literatures on the dimensions of information quality discussed above are summarized in Table 3.2.

Table 3.2

Information Quality Dimensions

Information Quality Dimensions / Researchers	Accessibility	Accuracy	Appropriateness	Believability	Completeness	Consistency	Ease of	Free-of-error	Objectivity	Relevancy	Representation	Reputation	Security	Source	Speed	Timeliness	Interpretability
Wang & Strong, 1996	V	V	V		V		V			V	V			V		V	V
Applerand Muenz-enmayer (2002)	V		V	V	V	V		V								V	
Pipino *et al*. (2002)							V										
Kahn *et al*. (2002)								V						V			V
Rieh (2002)																	
Klein (2002)		V												V		V	
Lee and Strong (2003)										V							
Eppler (2003)	V		V		V	V		V			V		V			V	
Price and Shanks	V				V				V	V			V			V	V
Liu and Huang (2005)	V					V					V			V	V	V	V
Srv ilia (2006)			V						V	V			V			V	
Li (2006)																	V
Even and Shankaranarayanan (2007)		V					V									V	V
Lee (2007)	V	V		V									V				V
Uotila & Melkas, 2007																	
Schaffer 2008	V			V						V			V			V	V
Jennex & Olfman, 2008																	
Fjeldstad & Isaksen, 2008																	
Shahim, & Arqawi, 2009																	
Alkhattabi *et al*., 2010	V	V					V			V						V	V
Chen *et al*., 2010		V			V		V				V					V	
Valensisi & Missaglia, 2010																	
Fehrenbacher & Helfert, 2012					V												
Lin, & Wang. 2012				V			V		V	V			V			V	
Mndzebele, 2013		V			V											V	
Amid 2014	V									V						V	
Filieri and McLeay 2014																	
Penny, and Bengtsson 2014	V		V					V									V
Azimaee *et al*. 2014	V															V	V
Srour, Baird, and Schoch 2016																V	

Variable = v

3.5 Chapter Summary

This chapter presented an exposition of previous studies on the effect of and using of information quality and organizational structure on decision making. In general, the previous literature seems to indicate that information quality and organizational structure have a positive link with decision-making effectiveness. The next chapter explains the development of the conceptual model of the present study, the formulation of hypotheses, and research methodology.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This chapter is an attempt to provide an explanation of the research methodology and the procedures employed to achieve the study objectives. In particular, this chapter begins by providing a thorough explanation of the study's theoretical framework, hypotheses, and conceptual definitions. Then, a discussion on the research design, measures, data collection procedure, population, sample size, sampling technique, and pilot study follow. The last section of this chapter explains the techniques of data analysis.

4.2 Theoretical Framework and Application of Theories

The theoretical framework of current study consisted of six independent variables, which were the six dimensions of information quality. The dependent variable was decision-making effectiveness. The relationship between the former and the latter was moderated by formality, complexity, and centralization, which were the constituent dimensions of organizational structure. The illustration of the theoretical framework is depicted in Figure 4.1.

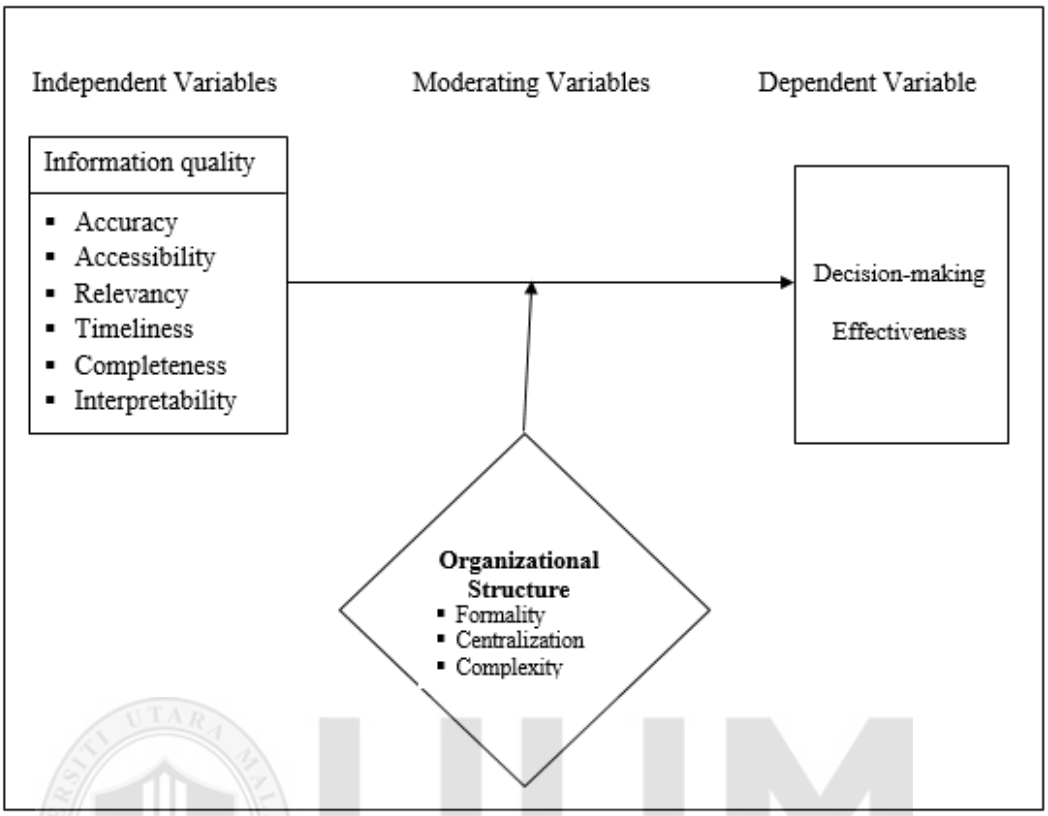

Figure 4.1
Theoretical Framework of the Research

The theoretical framework was underpinned by the classical theory of decision making (Simon, 1945), which is also called the rational decision theory. This theory presumes that a decision maker is an economic man that seeks to obtain the largest benefits and goals by examining all available alternatives and then choosing the best alternative that achieves the maximum benefits. Therefore, as applied to this study, this theory assumes that bank managers being the decision makers can determine the best possible outcomes amongst all their available alternatives because they have enough time to study each alternative and they also have all the information required to evaluate these alternatives.

Beside the main theory, the framework was also supported by the contingency theory and Media Richness Theory. According to the contingency theory, understand that the sufficiency of information accessible to the decision makers differs across situations (Tarter & Wayne, 1998). As implied by the principle of contingency theory, the decision-making models are able to be categorized into administrative, mixed scanning, incremental, classical, political model. In the classical model, objectives are set before generating alternatives. The decision making is means-ends analysis first; ends are determined and then the means to obtain them are sought. According to Simon, Egidi, and Marris (1992), the test of a good decision is that of it shown to be the best means to achieve the end.

In particular, the influence of information quality on decision-making effectiveness was also supported by the media richness theory. Media richness theory was developed by Shannon and his colleagues in the 1940s. The theory suggests that information serves to reduce uncertainty. Media richness theory identifies an organization's need to process information to lessen the level of uncertainty and ambiguity in its decision surroundings (Daft & Lengel, 1986). As in the making of effective decisions in this study, organizations continually look for and assess information as this potentially decreases the indefiniteness in decision-making effectiveness (Choo, 1996).

4.3 Hypotheses Development

The following sub-sections expound the development of research hypotheses based on prior literature.

4.3.1 Information Quality and Decision-Making Effectiveness

Previous studies investigating the relationship between information quality and decision-making effectiveness found a positive relationship between them (Bouchet, Hopkins, Kinnell, & McKnight, 1998; Couzin, Krause, Franks, & Levin, 2005; Hedelin & Allwood, 2002; Jansen, Curşeu, Vermeulen, Geurts, & Gibcus, 2013). Brodbeck, Kerschreiter, Mojzisch, and Schulz-Hardt (2007) summarized that high-quality information enables effective decision making to be made.

In addition, previous theories related to decision-making effectiveness argue that good information, as an input, will lead to good decisions, as an output (O'Reilly, 1982). According to rational theory of decision-making effectiveness and the expected utility maximization, the higher quality information a decision maker acquires, the better decisions he or she will make.

Bharati and Chaudhury (2004)highlighted the essential role of information accuracy in promoting the process of decision making in an organization. This includes its impact on managers' perception to consolidate the given information. Meanwhile, Wills and Holmes-Rovner (2003) explained the potential correlation between the accuracy of information and decision making effectiveness in which it enable them to be involved in operational decisions and reducing the needs to seek additional channels. Based on these, the researcher formulated the following hypothesis:

H1a: Accuracy significantly influences decision-making effectiveness.

Previous studies like Nabi (2003) and Marshall, West, and Aitken (2011) asserted the significant impact of accessibility in guiding subsequent decision making with regards to various demographic and environmental backgrounds. For instance, when decision makers are able to obtain information quickly, they can be able to apply them effectively within the context of their decision. Such aspect was explained by Peters, Västfjäll, Gärling, and Slovic (2006) as the effect of accessible information on individual's subsequent preferences. As such, the researcher here proposed the following hypothesis:

H1b: Accessibility significantly influences decision-making effectiveness.

Information timeliness has been widely addressed to influence one's prediction and knowledge about current situation (Breath & Ives, 1986; Choe, 1998; Habjan, Andriopoulos, & Gotsi, 2014; Teng & Calhoun, 1996). The timeliness of information needed to produce effective decision is usually specified in terms of the ability to provide information on request and the frequency of reporting systematically collected information. Jordan, Yusuf, Mayer, and Mahar (2016) and Eslami, Armin, and Jaz (2016) stated that information timeliness help identify timely input as a necessary criterion for effective public participation. Hence, the researcher proposed the following hypothesis:

H1c: Timeliness significantly influences decision-making effectiveness.

In addition, completeness of information has also been reviewed by many previous studies (e.g., (Flanagin, Metzger, Pure, Markov, & Hartsell, 2014; Kiang & Shang, 2015; Yoo, Kim, & Sanders, 2015)to drive decision makers' understanding in different

ways. For example, Ge and Helfert (2013) showed the significant effect of completeness on decision quality as it facilitate ordering of decisions and help managers to adequately forecasts future actions. On the other hand, Grimmelikhuijsen, Porumbescu, Hong, and Im (2013) highlighted the role of information completeness in providing more transparent viewed as compared to the uncompleted one. Therefore, the researcher considered formulating the following hypothesis: this

H1d: Completeness significantly influences decision-making effectiveness.

The researcher review of the literature also showed that information relevancy to influence decision making effectiveness in which it regulate the way decision makers perceive information to be within the context of current decision (Mitra & Mitra, 2016; Yusof, 2015). Gonzalez-Ibañez and Shah (2015) stated that relevancy plays a central role in promoting individual's judgement by inducing positive perception about the given information. In light of this, the researcher suggested the following hypothesis:

H1e: Relevancy significantly influences decision-making effectiveness.

Understanding information is mostly associated with the ability of a person to interpret the message in relation to his/her context (Ghalwash, Radosavljevic, & Obradovic, 2014; Hannachi, 2015; Hausvik, 2017). Ameen and Ahmad (2013) stated that interpretability of information can help assess decision makers' judgement by increasing transparency and accountability. As such, the researcher considered forming the following hypothesis:

Hf1: Interpretability significantly influences decision-making effectiveness.

4.3.2 Organizational Structure and Decision-making Effectiveness

Studies found the association between organizational structure and decision-making effectiveness (Dooley & Fryxell, 1999; Kushner & Poole, 1996). Organizing includes devising jobs in the organization. Organizing implies decisions on tasks and responsibilities as well as the way of doing the tasks. According toSoltani, Hewage, Reza, and Sadiq (2015), decisions are made via commanding hierarchy on complexity units or centralized units while the non-concentrated units or decentralized units' decisions are assigned to line managers as well as contributed by subordinates. In a centralized organization, such as the banking sector, the lower ranking personnel make fewer decisions, and decisions are made through the use of established policies.

Organizational structure has not been explored thoroughly in previous research as a moderator. Only a few studies have concentrated on organizational structure as a moderator (e.g., Ambrose & Schminke, 2003; Jaoua, 2014). In addition, Sharma, Mithas, and Kankanhalli (2014) and Harper (2015) asserted the potential role of examining organizational structure in promoting decision making choice. This includes investigating how certain activities in terms of task allocation, coordination and supervision are directed toward the aim of an organization. These activities are usually regulated by certain antecedents of formality, centralization, and complexity. Schultz, Salomo, Brentani, and Kleinschmidt (2013) highlighted the impact of formality on project operational outcomes, irrespective of technical uncertainty which in return drive decision making effectiveness. Moreover,Farrell and Héritier (2004)and Shogren and Wehmeyer (2015) stated that the formality of interaction stimulate decision making performance. Thus, the researcher shaped the following hypothesis:

H2a: Formality significantly moderates the relationship between accuracy and DM

H2b: Formality significantly moderates the relationship between accessibility and DM.

H2c: Formality significantly moderates the relationship between timeliness and DM.

H2d: Formality significantly moderates the relationship between completeness and DM.

H2e: Formality significantly moderates the relationship between relevancy and DM.

H2f: Formality significantly moderates the relationship between interpretability and DM.

Centralization of the organization has been reviewed to effectively manipulate the way decision makers perceive information (Zabojnik, 2002) by allowing managers to follow their own idea than other manager's idea. Such practice can significantly influence decision making, which some previous studies like Shamim Khan *et al.* (2013) linked it to the extent to which an organization promotes a cooperative conflict management style and comprehensive decision making based on information being shared among members within organization. Hence, the researcher in this study considered investigating the role of centralization by formulating the following hypotheses:

H3a: Centralization significantly moderates the relationship between accuracy and DM.

H3b: Centralization significantly moderates the relationship between accessibility and DM.

H3c: Centralization significantly moderates the relationship between timeliness and DM.

H3d: Centralization significantly moderates the relationship between completeness and DM.

H3e: Centralization significantly moderates the relationship between relevancy and DM.

H3f: Centralization significantly moderates the relationship between interpretability and DM.

The complexity of organizational systems can also play a key role in consolidating individual's decision which often reveal additional critical performance objectives (Kasprzyk, Nataraj, Reed, & Lempert, 2013). Previous studies like Vohs *et al*. (2014) asserted the partial role of complexity to choice whereas others like Hannah, Balthazard, Waldman, Jennings, and Thatcher (2013) viewed complexity as the extent to which leader of an organization need to be highly adaptive and to adjust their behavioral responses to meet diverse role demands. The sense of adaptability however is manipulated by the quality of information upon which leaders having requisite complexity to facilitate effective decision making practices. Hence, the researcher proposed the following hypotheses:

H4a: Complexity significantly moderates the relationship between accuracy and DM.

H4b: Complexity significantly moderates the relationship between accessibility and DM.

H4c: Complexity significantly moderates the relationship between timeliness and DM.

H4d: Complexity significantly moderates the relationship between completeness and DM.

H4e: Complexity significantly moderates the relationship between relevancy and DM.

H4f: Complexity significantly moderates the relationship between interpretability and DM.

4.4 Research Approach

The purpose of a research forms the basis for choosing a research design. A research design involves four issues: the research questions, the determination of relevant data, the process of data collection, and the results (Philliber, Schwab, & Samsloss, 1980).

Yin (2003) referred research purpose as a statement of what must be accomplished by conducting research and how research results can be used. According to Zainal, (2007) and Yin (2003), research can be classified into several main types, namely exploratory research, descriptive research, and explanatory research. The current study was designed as an explanatory research. As an explanatory study, the research questions and objectives were clearly identified, and precise hypotheses were developed and tested to describe the relationship between the identified variables. Emphasis is placed on the study of a situation, or problem to explain the relationship between variables (Saunders *et al*., 2009). The researcher must be well informed on the subject matter and able to explain and describe the findings or relationship that surfaced in the study.

This explanatory research was also conducted by the quantitative methodology (versus qualitative methodology). According to Saunders *et al. (*2007), a qualitative approach is based on the interpretation of non-numerical data such as words while the quantitative approach is based on numerical data. This research was interested in knowing about how information quality factors relate to decision-making effectiveness among managers of Palestinian banks by analyzing numerical data. Hence, a quantitative methodology was the most appropriate.

Survey strategy was used in the current study, because this strategy is able to reach a large set of participants in a short period and enhance the generalization of study findings (Chang & Harrington, 2000).

This study was also a cross-sectional study, where data collection was made in one shot of time, between the dates of May 2015 to August 2015. There was no research intent for a longitudinal study, or any examination of cause-and-effect amongst the main variables understudied.

4.5 Measures and Instrumentation

A questionnaire was used to collect the required data from the target population. The instrument consisted of four parts. The first part used nominal scales aimed to obtain demographic information of participants including gender, age, academic qualification, experience, and type of bank. In the second part, the questions asked about six main dimensions related to the quality of supplied information. They were accuracy, accessibility, relevancy, timeliness, completeness, and interpretability. The third part asked questions about decision-making effectiveness, which was measured by commitment, quality, and satisfaction. Finally, the fourth part was the moderator of organizational structure. Three dimensions were considered: formality, centralization, and complexity.

Generally, information quality is defined as information fit to be used by managers (Wang & Strong, 1996). Information fit is characterized by six main dimensions, namely, accuracy, accessibility, relevancy, timeliness, completeness and interpretability. Accuracy is defined as how closely information matches a real-life

state and how truly the information is relevant to the organization that requires such information (Eppler, 2006). Accessibility is defined being achieved when information is made easily available, or easy to get when required and also quickly retrievable in any form that the information is presented in (Wang, Storey, & Firth, 1995). Relevancy is defined in that information that is adequate for the community that requires it (Eppler, 2006). Timeliness is getting information to the recipient within the needed time frame (Leon & Leon, 1999). Completeness focuses on having information that has no inadequacy or missing information, and of sufficient breadth and depth for the task at hand which managers would need to implement different businesses or organizational strategies for better performance of banks (Wang & Strong, 1996). Interpretability is defined as an understanding of the information that is derived from the appropriate use of language that managers in a banking sector can understand without misunderstanding the word used in the information available to them (Bovee, Srivastava, & Mak, 2003).

Organizational structure is a framework of relations, tasks and authorities among different organizational units (Mintzberg, 1973) which are normally divided into formality, centralisation, and complexity. Formality refers to the use of standard regulations, communications, methods, instructions, and commands provided by the organization in order to fulfil certain goals (Daft, 2006). Centralization refers to the ordering of authority within organization responsible for producing decisions. It is evident from the literature that only managers with certain centralization level are the one who make decisions. (Chen, Huang, & Hsiao 2010). Complexity refers to the

degree of separation which exists in the organization. It denotes the number of tasks or sub-systems that exist inside an organization (Vazifedoust *et al.,* 2012).

Decision making effectiveness is defined as the capability for doing the best (Dean & Sharfman, 1996). Commitment is defined as a process through which subordinates accept the decision made by managers of a bank which is believed to enable the organization to successfully implement its strategic business process (Wang & Strong, 1996). Quality refers to the confidence which the decision maker perceives that his or her decision is goal-oriented (Paul, Saunders, & Haseman, 2007). Satisfaction refers to the decision maker's feelings that the decision meets or exceeds his or her expectations (Bailey & Pearson, 1983).

Table 4.1 and Table 4.2 show the items used to measure the variables as defined above. All dependent and independent variables were measured on a five-point Likert scale from (1) strongly disagree to (5) strongly agree.

Table 4.1

Demographic Information

Theme	Questions	Why?
Background	Gender	To get the general background distribution reflected the nature of Palestine and Arabs culture in general where males dominate and hold top management positions
	Age	For further analyzing the results distribution, which is based on different academic background (department)
	Education	To get a general information about the education level of managers
	Experience	To get information about how many years the managers have working experience
	Type of bank	To get a general information about type of banks

Table 4.2
Measurement of Variables

Variables	Dimension and operational definition	Items	Source
Decision-making effectiveness	Quality -- The extent to which the decision maker perceived confidence on his decision, as its comprehensive, reliable and understood by subordinates.	1. the decision is easy to understand. 2. the decision is reliable. 3. the decision is comprehensive. 4. the correct decision makes me more confident.	Paul *et al. (*2005); Ives, Olson, & Baroudi, (1983). (1983); Idrees (1999); Fisher *et al. (*2003)
	Commitment -- The measure of individual's dedication to the decision in order for it to be successfully implemented.	1. the subordinates don't care if they implement this decision or not. 2. the subordinates strongly committed to pursuing this decision. 3. observance of administrative formal rules and regulations and standards in displacements. 4. the subordinates willing to put forth a great deal of effort beyond what they normally do to implement this decision.	Ivancevich *et al. (*2008); Hollenbeck *et al.,* (1989); DeShon and Landis (1997); Klein *et al.,* (2001)
	Satisfaction -- The extent to which the sum of one's feelings or attitudes toward the decision.	1. decision-making effectiveness requires to be satisfied with my decision. 2. decision-making effectiveness requires that to be in full agreement with my decision. 3. decision-making effectiveness requires support my decision. 4. decision-making effectiveness requires to be confident that my decision will work out well.	Bailey and Pearson (1983); Speier and Morris (2003); Fisher *et al. (*2003); Lilien, Rangaswamy, Bruggen and Starke (2004); Cai (2007)

Table 4.2 (Continued)

Variables	Dimension and operational definition	Items	Source
Organizational structure	Centralization-- How things are done here is left up to persons doing the work?	1. flow of communication between the lowest rank and the highest rank. 2. a reduction in the existing department in the organization. 3. a reduction in total number of labor who are involved in the dispersed units 4. constant interaction among high ranking management of the organization 5. less number of job titles 6. Less number of physical locations (units' dispersion).	Dewar, Whetten, and Boje (1980); Aiken and Hage (1968); Vazifedoust *et al. (*2012) Soltani *et al. (*2013)
Organizational structure	Formality -- How system of task and reporting relationships that controls?	1. conformity of employee's performance with existing standards (existence of job description). 2. observance of regular task procedures. 3. existence of annual policies and instructions for different tasks. 4. determination of job procedures. 5. compliance of administrative regulations, instructions, and standards. 6. observance of administrative formal rules and regulations and standards in displacements. 7. observing standards by employees.	Dewar, Whetten, and Boje, (1980); Aiken and Hage (1968); Vazifedoust *et al*.,(2012); Johari, Yahya, and Omar (2011); Child (1974); Soltani *et al*.,(2013)
	Complexity- understanding variances equality variances inequality	1. surveying employees about new issues. 2. employee involvement in organization's decision makings. 3. information distribution between low ranks.	Dewar, Whetten, and Boje, (1980); Aiken and Hage (1968); Vazifedoust *et al. (*2012); Johari *et al. (*2011) Soltani *et al*., (2013)

Table 4.2 (Continued)

Variables	Dimension and operational definition	Items	Source
		4. surveying employees about new plan or project.	
Information quality	Accuracy -- The extent to which information is correct and reliable.	1. constant and accurate flow of information in the organization. 2. Dissemination of reliable information in the organization. 3. dissemination of error-free information in the organization. 4. dissemination of information that helps decision-making effectiveness.	Wang and Strong (1996); Lee *et al. (*2002); Najjar (2002); Kahn *et al. (*2002); Bovee (2004); Slone (2006)
	Accessibility -- The extent to which information is available, or easily and quickly retrievable.	1. information is easily accessible and usable. 2. completeness of information disseminated. 3. dissemination of relevant information. 4. dissemination of information that is easy to interpret by relevant officer of the organization.	Wang and Strong (1996); Lee *et al. (*2002); Najjar (2002); Kahn *et al. (*2002); Slone (2006)
Information quality	Completeness -- The extent to which information is not missing and is of sufficient breadth and depth for task at hand.	1. dissemination of information that includes all necessary values of the organization. 2. dissemination of information is sufficiently complete for the need of the organization. 3. dissemination of information meets the needs of the assigned tasks. 4. dissemination of information that covers the breadth and depth for the assigned task.	Wang and Strong (1996); Lee *et al. (*2002); Najjar (2002); Kahn *et al. (*2002); Slone (2006)
	Relevancy -- The extent to which information is applicable and helpful for the task at hand.	1. Dissemination of information that is useful to decision-making effectiveness.	Wang and Strong (1996);

Table 4.2 (Continued)

Variables	Dimension and operational definition	Items	Source
		2. Dissemination of information relevant to decision-making effectiveness. 3. Dissemination of information that is appropriate for decision-making effectiveness. 4. Dissemination of information that is applicable to decision-making effectiveness.	Lee *et al. (*2002); Najjar (2002); Kahn *et al. (*2002); Slone (2006)
	Timeliness -- The extent to which information is sufficiently up-to-date for the task at hand.	1. Dissemination of information that is current to decision-making effectiveness. 2. Dissemination of information that is sufficiently current for decision-making effectiveness. 3. Dissemination of information that timely for decision-making effectiveness. 4. Dissemination of information that sufficiently up-to-date for decision-making effectiveness.	Wang and Strong (1996); Lee *et al. (*2002); Najjar (2002); Kahn *et al. (*2002); Slone (2006)
	Interpretability -- This is an understanding that is derived from the appropriate use of language that managers in a banking sector can be able to understand consistently without misunderstanding of the word used in the information being made available to them	1. Dissemination of information that is easy to understand. 2. Dissemination of information that is easily to comprehended. 3. Dissemination of information that make it easy to identify what to do at a point. 4. Dissemination of information that is interpretable for decision-making effectiveness. 5. Dissemination of information that is readable.	Bovee *et al.*,(2003); Lee, *et al. (*2005); Miller (2005); Slone (2006)

4.6 Data Collection Procedure

The current study utilized questionnaire survey as a data collection technique. An online survey form was created for the data collection. The first step of data collection procedure was to contact the main branch of the banks in Palestine to seek permission and approval. Some of the banks did not give the permission to the researcher to collect the data from their branches. So, after the approval from the banks was obtained, the researcher sent an email with an attached survey questionnaire to the banks.

Participant were instructed how to complete the online survey. For instance, they were not required to write their name. They were assured that their answers would be kept confidential and used for the research purpose only. An introductory paragraph was also given to help participants answer the survey in a meaningful way (Sekaran, 2003). The survey was conducted from May 2015 to August 2015. The unit of analysis was individual bank managers (Ivankova, Creswell, & Stick, 2006). After data had beencollected, they were transferred into an Excel file and SPSS for data analysis.

4.7 Population and Sampling Frame

The population of the study consisted of banks in Palestine. The population size was 232 banks in Palestine, as generated from Islamic Development Bank (2014) and Palestinian Stock Exchange (Abu-Rub, 2012).

The rationale for focusing on the banking sector in Palestine was because of their pivotal role in the economic growth of Palestine (Paltrade, 2014). Also, the banking and financial service sector in Palestine is on the frontline of the adoption of the new

information technology for the production of high-quality information (Angelogiannos, 2009).

4.8 Sample Size

Sample is a sample part people that can be used to represent the target population. It is performed to facilitate the process of data collection from a certain population. (Hair, Black, Babin, & Anderson, 2010). To derive a minimum sample size, Yamane's (1967) formula: $n = N / (1 + N * e^2)$ was used. Applying an error tolerance of 5% (Neuman, 2003) to the 232 branch banks, the formula returned a minimum sample size of 146 participants.

The literature on statistical analysis showed that using large sample size would result in a small sampling error. This was explained as a part of quantifying the accuracy of sample selection in according to the size of the population in order to ensure a desirable level of precision. Here, the researcher followed the guid liness of Cohen (1992) in order to estimate the adequate power based on the maximum number of outgoing arrowheads to the latent variable in the current mode. Hence, the researcher set the statistical power to 80% based on the abbreviation of six arrowheads at minimum R^2 values of 0.25 in any of the endogenous constructs. Based on these settings, and by setting the significant level to 0.05, the minimum sample size was recommended to be 75 cases as indicated by Hair, Hult, Ringle and Sarstedt, (2013). It is evident that a statistical power of 80% should be considered in order to ensure that there is 80 percent chance in the current model to reject the null hypothesis in the event of unfit relationships. Specifically, the power here is considered as the probability that is used to indicate whether to rejects or not a false null hypothesis. As such, it is assumed that

the researcher may require larger sample size in order to minimize the confidence interval of the estimate to avoid any Type-1 error. Based on these parameters, the sample size of 146 satisfied the sample size requirement and maintained the appropriate power of analysis.

4.8 Sampling Techniques

There are two categories of sampling: probability and no probability sampling (Saunders, Lewis & Thornhill, 2007). In a survey research, a probability sampling method is more appropriate than a non-probability one because the resulting sample is likely to provide a representative cross-section of the whole (Denscombe, 2014). Moreover, researchers can make an unambiguous statement about the accuracy and validity of the finding from the survey by referencing to the degree of error and/or bias which may be present in it as measured by well-understood statistical methods (Stamenkovic, Schmidt, Ross, & Markovic, 2002). Therefore, the researcher considered simple random sampling technique in which the sample for this study was selected from a larger group. In addition, using this technqiue helped to ensure that each manager has the chance to be chosen and each member of the population has an equal chance of being involved in this study. therefore, the researcher has randomly distributed a number of 232 and 146 questionnaire were returned. Parteculally, the researcher firstly ordered the approved emails alphapatically then labled them with numbers. Then, the numbers were subject to random selection. With the selected banks,the researcher approached the bank managers in Palestine.

4.9 Content and Face Validity

To measure the study variables, some questions were rephrased to meet the appropriate objectives of the variable. After re-wording or rephrasing the questionnaire items of the variables, content and face validity was conducted. To carry out these procedures, academic and banking experts were asked to review the instrument's items. Based on their recommendation, the measurement items were edited before they were to participants.

4.9.1 Pilot Study

It is important to conduct a pilot study to test the techniques and instrument in advance before running the actual or full-scale study. The pilot study was conducted in two phases to have greater validity and reliability from the responses. In the first phase, a pretest was conducted to satisfy the content validity because the measurement items in the questionnaire were adopted by modifying/expanding them from relevant prior research. The pre-test involved four participants, each with more than two years of experience as a supervisor/ manager in the banking sector. The pretest asked the participants to provide their comments regarding the consistency of the English language, the instrument's format, the length of the instrument, and ease of understanding. Slight changes in wording, format, and language issue were made based on their comment.

The second phase of the pilot study was to test the instrument reliability. A draft questionnaire with more than 55 items was mailed to a random sample of 40 banks that were randomly selected from the bank list. An email was first sent to potential participants asking whether they were willing to participate in the pilot study or not.

Only those who agreed to participate were selected, and the questionnaires were mailed to them. However, because of the small total number of people in the target group, the pilot study sample was small as well. In this research, 35 sets of questionnaire were distributed in the pre-quantitative study and 22 were returned. A reliability analysis was then conducted (62.8% response rate). Table 4.3 shows the reliability analysis for the pilot study.

Table 4.3
Reliability Analysis for the Pilot Study N=22

N	Dimensions Name	Factor Name	Number of Items	Cronbach's Alpha
1	Information Quality	Accuracy	4	.847
2		Accessibility	4	.752
3		Timeliness	4	.824
4		Completeness	4	.780
5		Relevancy	4	.763
6		Interpretability	5	.879
7	Organizational Structure	Formality	7	.870
8		Centralization	6	.884
9		Complexity	4	.887
10	Decision-making effectiveness	Commitment	4	.774
11		Quality	4	.778
12		Satisfaction	4	.819

4.10 Data Analysis Methods

The following sections discuss the data analysis techniques used in this study.

4.10.1 Descriptive Analysis

The participants' demographic variables contained self-reported demographic information, such as gender, age, academic qualification, experience, and type of bank. The data were descriptively analyzed to obtain the frequency count.

4.10.2 Scale Reliability Analysis

The measures used were supported by earlier research and modified for the purpose of the present study. Even so, as the instruments were applied in a dissimilar context and population, the scales used to conduct a reliability analysis were different. Hence, Cronbach's alpha was computed for the multiple questionnaire items to assess the reliability of the measurements which would reflect the consistency of participants' answers to all items in the measure. A Cronbach's alpha is close to 1 for items with high-reliability measurements.

4.10.3 Exploratory Factor Analysis (EFA)

Exploratory factor analysis (EFA) with varimax rotation was applied to identify the underlying structure of variables and assess the overall fit of the variables. This type of factor analysis in which an indicator may be linkedto any factor is the one most commonly performed. In this study, exploratory factor analysis was performed to reduce a set of variables into fewer underlying factors and to uncover the structure in the relationships between variables

4.10.4 Structural Equation Modeling SEM

The Partial Least Squares (PLS) is described to be one of the structural equation modeling (SEM) techniques that operate based on the association in the values of path analysis and regression analysis. Furthermore, It was commonly utilized by previous researchers to help in validating the measurements and test the relationships in the hypotheses model. It also allows performing additional measures in order to ensure theory confirmation and exploratory research (Chin, Marcolin, & Newsted, 2003). The

software used for this purpose is known as Smart PLS software version 3.0. PLS is one of the second generation analytical techniques available for evaluating models of relationships among constructs (Hair *et al*., 2013). As recommended by Hair *et al. (*2013), PLS analysis involves two stages for reporting the results. The adequacy of the measurement model is assessed in the first stage. The structural relationships are examined in the second stage.

4.10.4.1 Assessment of the Measurement Model

The measurement model specifies the relationship between the indicators and the latent construct they are intended to measure. Assessment of the measurement model requires examining two types of validities: convergent validity and discriminant validity (Chin, 1998). Convergent validity indicates the degree to which theoretically similar constructs are highly correlated with each other. Alternatively, discriminant validity indicates the degree to which a given construct is different from other constructs. Collectively, these two validities provide some evidence regarding the goodness of fit of the measurement model.

4.10.4.2 Convergent Validity

To what extent dimensional measures of the same concept are linked are determined by convergent validity. The items that show a specific concept should merge or share a high level of uniform variance. There are many ways to approximate the relative quantum of convergent validity among item measures. Hair Black, Babin and Anderson, (2006) used factor loadings, composite reliability, and average variance extracted (AVE) to gauge convergent validity. Factor loadings ≥0.5, and preferably

≥0.70, show high convergent validity. Composite reliability estimates ≥0.70 show enough convergence or internal consistency. The AVE exhibits the indicators' total variance accounted for by the latent construct. The general acceptance is for target AVEs to be ≥0.5. When scores are more than the minimum recommended values for factor loading, composite reliability, and AVE, the instrument items truly show their intended concept.

4.10.4.3 Discriminant Validity

Discriminant validity measures the extent to which a concept is truly different from other constructs. A high discriminating validity shows that a concept is specific and highlights some effects overlooked by other measures. To assess discriminant validity, latent constructs correlations matrices are applied, where the square roots of the AVEs along the diagonals are indicated. Correlational statistics between constructs are shown in the lower left off-diagonal elements in the matrix. Discriminant validity is realized when the diagonal elements (square roots of AVEs) exceed the off-diagonal elements (correlations between constructs) in the same row and column (Fornell & Larcker, 1981).

4.10.4.4 Assessment of the Structural Model

In this phase, the researcher relied on the model's characteristic to assess the proposed model. This includes studying the R^2 determination coefficients along with the estimation of regression of one construct on another. In this study, the researcher considered the role of R^2 value to represent the amount of prognostic power by representing the divergence based on the independent variables in the model.

Moreover, ensuring a proper assessment of the structural model requires R^2 values to be higher than the minimum level of explanatory power (Urbach & Ahlemann, 2010). As such, the researcher considered the recommendations of Chin (1998) when estimating the R^2 values of 0.67, 0.33, and 0.19 as significant, reasonable, and poor respectively. On the other hand, the measurement of path coefficient was used to determine the strength of link between two latent variables (Lvs), especially when the path coefficients is less than 0.100, and be substantive at the 0.05 level of significance at least.

4.11 The Moderating Variable

A moderator in a model is introduced either as a qualitative or quantitative variable. A moderator is qualitative if attributes like sex or ethnic group are the manifest measurement. However, where the attributes of the moderating variable are represented with metric values, then the moderator is quantitative (Baron & Kenny, 1986). A moderator, when introduced, plays both the role of a moderator variable and the role of independent variables. The introduction of a moderator is to determine whether it interacts with the original independent variable; their joint impact will have a statistically significant influence on the dependent variables. Baron and Kenny's (1986) article on the moderating-mediating process is the usual and widely acknowledged guide for conducting the test of moderation. In this situation, multiple regression is the appropriate recommended test for the analysis. As guidance for a decision on the choice of analysis, Barron and Kenny (1986) identified four scenarios of moderation analysis as indicated in Table 4.4.

Table 4.4
Four-case scenario for analysing moderation

	Moderator variable	
Independent Variable	Categorical	Continuous
Categorical	1	2
Continuous	3	4

The moderating variable in this study was organizational structure with three dimensions: formality, complexity, and centralization. Organizational structure was hypothesized to moderate the relationship between information quality dimensions and decision-making effectiveness.

4.12 Justification for Selecting PLS Path Modeling

PLS approach was used to analyze the research model because of several advantages (Hair *et al*., 2013).

1. PLS is robust with fewer statistical identification issues while comparing with covariance-based SEM.
2. PLS is capable in handling sample size.
3. PLS possesses the ability in analyzing data with non-normality.
4. PLS overcomes the problem of multicollinearity.

4.13 Chapter Summary

The present chapter provided an overview of the method used in this study. It explained the method and technique of data collection along with the rationale behind the research design. It also supplied the necessary information about the formation of

the theoretical framework and a discussion of hypothesis development. In addition, population and sampling were also explained along with the pilot test and reliability measure of the research constructs. Finally, the data analysis methods according to the proposed hypothesis were described.

CHAPTER FIVE

FINDINGS

5.1 Introduction

This chapter focuses on outlining the data characteristics and reporting of the measurement models that will subsequently be used for addressing the structural hypotheses followed by the investigation of the moderation effect. This chapter starts by discussing the pre-testing process to validate the questionnaire, the data collection process and the response analysis of the sample characteristics. The data description involves data screening for analysis suitability. Specifically, all variables were examined for missing data patterns and descriptive results are presented. Next, the measurement model process was examined to ensure the adequacy of fit criteria. Finally, the structural model was assessed in two stages. The first stage employed bootstrapping for hypotheses testing. In the second stage, the three moderators (Formality, Complexity, and Centralization) were introduced to the model for testing the moderation.

5.2 Response Analysis

Table 5.1 shows the distribution of participants, according the bank type. The total response rate of response was 62.9%.

Table 5.1
Response by Bank

Bank name	Effective response	Percent of overall sample
Conventional	113	77.4
Islamic	33	22.6
Total	146	100%

5.2.1 Demographic Composition of the Sample

Table 5.2 shows the profile of the participants.

Table 5.2
Respondent Characteristics

Characteristic	Category	Frequency	Percentage %
Gender	Male	132	91
	Female	14	9
Age	45 years old and lower	64	43
	Above 45 to 50 years old	50	34
	Above 50 years old	32	22
Education Level	Diploma	6	4
	B.Sc.	123	84
	Master	13	8
	PhD	4	2
Experience	10 <Years	5	3
	15-10Years	66	45
	20-15Years	64	43
	> 20 Years	11	7
	Total	146	

5.3 Assessment of the Measurement Model

This section outlines the analysis procedure undertaken in establishing the adequacy of the construct measurement model using smart PLS. Hence theory is the driver in proposing measurement structures to test for reliability and validity in the current study, the exploratory factor analysis was not necessary (Hair *et al.*, 2013). Measurement model synthesized with all 10 constructs. The 3 constructs for the three moderator named formality, centralization and complexity were computed separately for each moderator and medians were taken to classify respondents in high and low

level moderator (e,g, Low formality=1 / High Formality= 2). Key statistics such as construct reliability and Average Variance Extracted (AVE) are presented and the internal consistency of items is established.

5.3.1 Reliability Test

Reliability is a test used to determine the consistency of the items being studied (Sekaran & Bougie, 2010). In order to examine the reliability of construct, Cronbach's alpha is commonly used to assess the internal consistency between items in a construct (Santos, 1999). The Cronbach's Alpha is ranged from 0 to 1. However, the acceptable reliability measure is recommended to be higher than 0.7 in order to consider the construct (Nunnaly, 1994). Table 5.3 represents the reliability results of the constructs based on the Cronbach's alpha values in this study model. From the table, it can be said that all constructs had an acceptable reliability (ranged from 0.847 to 0.948).

Table 5.3
Summary of Descriptive Statistics (N=146)

		Component	Number of items	Mean	Cronbach's Alpha
IVs	AC	Accuracy	4	3.658	0.853
	AB	Accessibility	4	3.842	0.810
	CO	Completeness	4	3.774	0.885
	RE	Relevancy	4	4.003	0.840
	TI	Timeliness	4	3.717	0.797
	INT	Interpretability	5	3.767	0.874
Moderatin	FORM	Formality	7	3.625	0.888
	COMP	Complexity	4	3.647	0.854
	CENT	Centralization	6	3.915	0.878
DV	DM *(Higher order construct)*	SAT Satisfaction (*Lower order construct*)	4	3.469	0.838
		QUA Quality (*Lower order construct*)	4	3.488	0.848
		CMT Commitment(*Lower order construct*)	4	3.717	0.844
				Overall	0.923

5.3.2 Component Validity

Component validity refers to the measure of appropriateness of items to describe the theoretical latent component in a model (Sekaran & Bougie, 2010). Component validity is measured by examining the convergent and discriminant validity.

5.3.2.1 Convergent validity

Convergent validity refers to the process of consolidating the unity of items to measure the target construct. Previous studies like Hair *et al. (*2010) recommended considering the factor loadings, composite reliability, and average variance extracted AVE in order to examine the convergent validity of items.

On the other hand, Fornell and Larcker (1981) suggested that the values that results in a better convergent validity can be used to represent the research variables in a model. It has been recommended that all the factor loadings for the used items must be greater than 0.5 whereas the preferred level is 0.7. However, items that result in factor loading less than 0.7 should be investigated further to assess whether to delete it or not (Hair *et al.*, 2013). In addition, items with loadings of less than 0.5 should be dropped (Hulland, 1999). The results showed that the factor loading values were greater than the recommended level (i.e. 0.7). Secondly, the composite reliability (CR) values of the components (ranging from 0.858 to 0.984) exceeded the accepted value of 0.70. Finally, the AVE values (ranging from 0.603 to 0.795) were higher than the generally accepted value of 0.5. Thus, criteria fulfilled and the empirical data in this study assured the convergent validity as shown in Table 5.4.

Table 5.4
Results summary for the measurement model

	Component	Item	Main loading	AVE	Composite Reliability
Results summary for the measurements of IVs					
AC	Accuracy	Acc1	0.870	0.73	0.917
		Acc2	0.880	6	
		Acc3	0.898		
		Acc4	0.778		
AB	Accessibility	Abl1	0.897	0.79	0.939
		Abl2	0.885	3	
		Abl3	0.899		

Table 5.4 (Continued)

		Abl4	0.881		
CO	Completeness	Com1	0.882	0.795	0.939
		Com2	0.885		
		Com3	0.904		
		Com4	0.895		
RE	Relevancy	Rel1	0.887	0.777	0.933
		Rel2	0.853		
		Rel3	0.875		
		Rel4	0.911		
TI	Timeliness	Tim1	0.877	0.686	0.897
		Tim2	0.793		
		Tim3	0.764		
		Tim4	0.874		
IN	Interpretability	Int1	0.881	0.736	0.918
		Int2	0.793		
		Int3	0.866		
		Int4	0.888		
		Int5	0.780		
Results summary for the measurements of DVs (Lower order constructs)					
SAT	Satisfaction (*Lower order construct*)	SAT1	0.836	0.731	0.915
		SAT2	0.825		
		SAT3	0.925		
		SAT4	0.829		
QUA	Quality (*Lower order construct*)	QUA1	0.717	0.606	0.860
		QUA2	0.835		
		QUA3	0.714		
		QUA4	0.839		

Table 4.5 (Continued)

CMT	Commitment (*Lower order construct*)	CMT1	0.720	0.603	0.858
		CMT2	0.836		
		CMT3	0.730		
		CMT4	0.813		
DM	Decision Making (*Higher order construct*)	Satisfaction	0.982	0.953	0.984
		Quality	0.974		
		Commitment	0.972		

The approach to analyzing the moderation effect, which is rather widely used, began by converting the continuous moderator variables into a dichotomous variable by splitting the scale at some point and designating individuals above and below that point as defining two separate groups. One common approach is to split the scale at the sample median, thereby defining high and low groups on the variable in question; this approach is referred to as a median split (MacCallum, Zhang, Preacher, & Rucker, 2002). The three moderators, i.e. formality, centralization, and complexity were categorized into high and low perception based on the median split. The items of each moderator were summed, then a median was computed. The reason why visualizing high and low values of the three latent variables in graphs can be useful in the identification of moderating effects is that moderating variables lead to different patterns of distributions of data points for high and low values of the moderating variables (Kock, 2014). Another reason of making high and low values is to avoid the problematic high collinearity between moderators and other latent variables in the model. Table 5.5 shows the number of groups for each moderator. The groups retrieved

from the median split were in the balance and appropriate for the moderation interaction testing using Smart PLS.

Table 5.5
Convert continues moderators to categorical

	Moderator	Median	Categories	Number of participants	Coding
Form	Formality	26	High Formality	81	2
			Low Formality	65	1
Cent	Centralization	24.5	High Centralization	92	2
			Low Centralization	54	1
Comp	Complexity	16	High Complexity	74	2
			Low Complexity	72	1

5.3.2.1 Discriminant Validity

Discriminant validity is the extent to which a construct is truly distinct from other constructs by empirical standards (Hair *et al*., 2013). There are two approaches to assessing discriminant validity; cross loading and the Fornell-Larcker approach (Hair *et al*., 2013).

5.3.3 Cross Loading Assessment

The cross-loading approach was used by testing the cross-loadings of the indicators. Specifically, an indicator's outer loading on the associated construct should be greater than all of its loadings on the other constructs. It should be greater at least by 0.1 more than other cross-loadings (Hair *et al*., 2013). By examining across the columns and rows in Table 5.6, the item loadings were higher for their corresponding components (main loading) than for others (cross-loading). The difference between the main loading and cross loading was greater than 0.1 in all cases. Thus, the first criterion was fulfilled (see Table 5.6).

Table 5.6
Item cross loadings

Item/Constru	AC	AB	CO	RE	TI	IN	QU	SAT	CM
Acc1	**0.87**	0.35	0.33	0.29	0.36	0.09	0.32	0.49	0.37
Acc2	**0.88**	0.33	0.29	0.25	0.24	0.08	0.29	0.49	0.49
Acc3	**0.89**	0.43	0.33	0.34	0.35	0.13	0.35	0.49	0.14
Acc4	**0.77**	0.38	0.40	0.34	0.28	0.27	0.34	0.49	0.47
Abl1	0.36	**0.89**	0.40	0.43	0.38	0.14	0.38	0.35	0.40
Abl2	0.38	**0.88**	0.41	0.44	0.39	0.16	0.28	0.37	0.31
Abl3	0.29	**0.89**	0.42	0.43	0.42	0.11	0.31	0.41	0.32
Abl4	0.37	**0.88**	0.44	0.49	0.39	0.22	0.36	0.38	0.35
Com1	0.31	0.44	**0.88**	0.49	0.37	0.24	0.37	0.37	0.40
Com2	0.31	0.46	**0.88**	0.49	0.40	0.28	0.39	0.24	0.33
Com3	0.32	0.43	**0.90**	0.54	0.40	0.23	0.42	0.38	0.30
Com4	0.34	0.42	**0.89**	0.34	0.39	0.25	0.39	0.39	0.44
Item/Constru	**AC**	**AB**	**CO**	**RE**	**TI**	**IN**	**QU**	**SAT**	**CM**
Rel1	0.29	0.42	0.49	**0.88**	0.38	0.18	0.37	0.26	0.33
Rel2	0.28	0.41	0.49	**0.85**	0.46	0.16	0.35	0.23	0.33
Rel3	0.33	0.48	0.49	**0.87**	0.40	0.20	0.36	0.23	0.35
Rel4	0.28	0.42	0.49	**0.91**	0.22	0.17	0.34	0.18	0.28
Tim1	0.31	0.37	0.35	0.09	**0.87**	0.18	0.38	0.40	0.23
Tim2	0.31	0.43	0.37	0.08	**0.79**	0.23	0.39	0.39	0.32
Tim3	0.32	0.41	0.41	0.13	**0.76**	0.17	0.40	0.41	0.31
Tim4	0.32	0.34	0.38	0.27	**0.87**	0.25	0.30	0.40	0.34
Int1	0.23	0.34	0.37	0.14	0.38	**0.88**	0.27	0.42	0.39
Int2	0.23	0.28	0.24	0.16	0.41	**0.79**	0.39	0.24	0.36
Int3	0.29	0.39	0.38	0.11	0.44	**0.86**	0.37	0.24	0.39
Int4	0.30	0.40	0.39	0.22	0.39	**0.88**	0.19	0.23	0.36
Int5	0.11	0.17	0.26	0.24	0.37	**0.78**	0.22	0.22	0.38
SAT1	0.09	0.16	0.23	0.28	0.30	0.35	**0.83**	0.29	0.37
SAT2	0.10	0.18	0.23	0.23	0.40	0.28	**0.82**	0.24	0.36
SAT3	0.07	0.15	0.18	0.25	0.40	0.39	**0.92**	0.24	0.37
SAT4	0.34	0.37	0.40	0.18	0.17	0.35	**0.82**	0.23	0.44
QUA1	0.33	0.37	0.39	0.16	0.20	0.18	0.18	**0.71**	0.32
QUA2	0.24	0.36	0.41	0.20	0.21	0.20	0.20	**0.83**	0.33
QUA3	0.45	0.37	0.40	0.17	0.16	0.18	0.18	**0.71**	0.40
QUA4	0.36	0.43	0.49	0.18	0.37	0.15	0.17	**0.83**	0.38
CMT1	0.38	0.43	0.49	0.23	0.40	0.41	0.37	0.52	**0.72**
CMT2	0.29	0.22	0.49	0.17	0.42	0.39	0.36	0.53	**0.83**
CMT3	0.35	0.40	0.49	0.25	0.37	0.42	0.39	0.54	**0.73**
CMT4	0.34	0.46	0.35	0.11	0.51	0.40	0.38	0.49	**0.81**

5.3.4 Fornell-Larcker Criterion

Based on the standards recommended by Fornell and Larcker (1981), discriminant validity of the scales is satisfied when the square root of the average variance extracted (AVE) values from the component are greater than the variance any of the inter-component correlations. As shown in Table 5.7, the AVE values on the diagonal were greater than thecorrelate on coefficient of that component with all the other components in the model. This shows that the discriminant validity was fulfilled for all components, and the inner model was ready for hypothesis testing.

Table 5.7
Correlations and discriminant validity N=146

	AC	AB	CO	RE	TI	IN	DE
AC	**0.858**						
AB	0.425	**0.891**					
CO	0.320	0.442	**0.892**				
RE	0.287	0.561	0.538	**0.881**			
TI	0.386	0.451	0.455	0.287	**0.828**		
IN	0.495	0.526	0.510	0.398	0.458	**0.858**	
DE	0.525	0.342	0.237	0.351	0.591	0.362	**0.976**

Note: Square root of the AVE on the diagonal

5.3.5 R^2 assessment

The next step suggested by Hair *et al. (*2013) is to examine R^2 values of the endogenous latent variables. The estimates of the R^2 values represent the amount of variance in the dependent variable explained by the independent variables. The R^2 values should be high enough for the model to achieve a minimum level of explanatory power (Urbach

& Ahlemann, 2010). For instance, Falk and Miller (1992) recommended that R^2 should be at least greater than 0.10, whereas Chin (1998) considered R^2 values of 0.67, 0.33, and 0.19 as substantial, moderate, and weak respectively. As shown in Figure 5.1, the model accounted for 83.7% of the variance which was considered substantial.

The employment of smart PLS in measurement assessment revealed four satisfactory path coefficient link between the independent variables (Accuracy AC, Completeness CO, RE Relevancy, and IN Interpretability) and the dependent variable (Decision Making DM). The path coefficients were β = 0.307, 0.313, 0.341 and 0.262 respectively. Lastly, the path coefficients between the IVs (Accessibility AB, and Timeliness TI) and the dependent variable DM were relatively low (β = -0.097, -0.162) respectively. Overall, the current measurement model exhibited sufficient convergent and discriminant validity. These path coefficients did not reveal significance and the bootstrapping process was required in the next assessment.

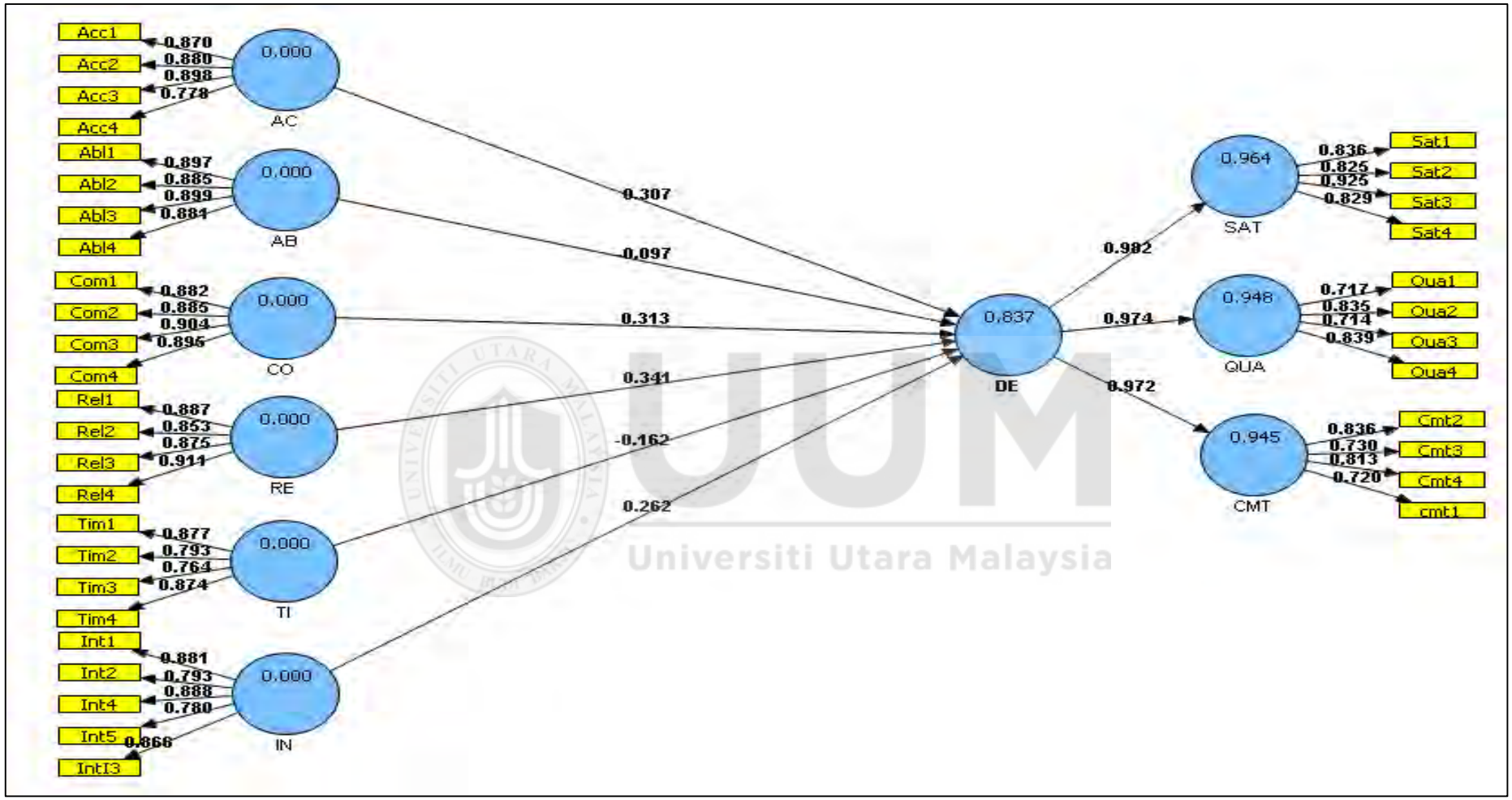

Figure 5.1
Assessment of Measurement Model

5.4 Preliminary Data Analysis

Missing values were not present because an online survey tool was used. An online survey offers a feature to inform the participant if there are some missing fields before moving to the next page. Therefore, the preliminary data analysis involved the descriptive analysis that provides the estimates of the characteristics of the data. Descriptive statistics such as multivariate normality, multicollinearity, common method variance analysis, mean, and correlations between variables for appropriateness before estimation of the measurement models were computed. These activities are detailed below.

5.4.1 Multivariate Normality

PLS-SEM makes no assumptions about data distributions (Hair *et al*., 2013). However, it is worthwhile to consider the distribution when working with PLS-SEM because while it is not an assumption, the extreme violation of normality can distort the results (Hair *et al*., 2013).

Skewness and kurtosis tests give insight to analyzing normality (Hair *et al*., 2013). The kurtosis and skewness values of the indicators were within the ±1 acceptable range, thus exhibiting normality of data distribution.

5.4.2 Multicollinearity

Multicollinearity is a statistical phenomenon in which two or more predictor variables in a multiple regression models are highly correlated. A high level of multicollinearity can confuse the results (Tabachnick & Fidell, 2012). The easiest to deal with

multicollinearity is to drop one of the problematic variables. The way to check this is to calculate a Variable Inflation Factor (VIF) for each independent variable after running a multivariate regression using one of the IVs as the dependent variable and then regressing it on all the remaining IVs. Then, the IVs are swapped one at a time. The rules of thumb for the VIF are as follows: (VIF < 3: not a problem, VIF > 3; the potential problem, VIF > 5; very likely problem); (Tabachnick & Fidell, 2012). The examination of the variance inflation factor (VIF) shows values ranging from 1.197 to 1.442, which were below 3.3 of the accepted criterion.

5.4.3 Common Method Variance Analysis

Variance analysis is the process of assessing the association between independent and dependent variables in different contexts. For this measure, the researcher considered the use of common method variance (CMV) (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). This method can either inflate or deflate the studied relationships which may lead to greater errors (Podsakoff *et al*., 2003).

For this reason, the researcher used Harman's single factor test in order to assess the potential impact of common methods bias after data collection (Harman, 1976). This test is commonly used to determine the CMV in a single-method research design (Malhotra & Patil 2006). The process mostly consists of assessing whether single factor will emerge from the factor analysis or results in other variables (Pavlou & Gefen, 2005). Here, the main idea was to see if the single factor could be used to explain the significant amount of the variance in the model. As such, researcher in this study loaded all the variables from the research model into an exploratory factor

analysis based on the use of axis factoring method for each construct (Pavlou & Gefen, 2005). The obtained result from such analysis resulted in highest variance value of 23.40%. This led the researcher to conclude that neither a single factor nor a general factor accounted for the majority of the covariance in the measures.

5.4.4 Describing the Approaches for Higher-order Measurement Model in Partial Least Squares Modeling (PLS)

The main reasons for the inclusion of a higher-order measurement model in the current research as suggested by Hair *et al. (*2013) is to reduce the number of relationships in the structural model, making the PLS path model more parsimonious and easier to grasp. As pointed out by Falk and Miller (1992), "A parsimonious approach to theoretical specification is far more powerful than the broad application of a shotgun" (p. 24). In this thesis, there was one higher-order construct model (DE) which consisted of three lower order constructs (SAT, QUA, and CMT). The hierarchical component model of HRM Practices follows Reflective-Reflective, Type I based on Becker, Klein and Wetzels (2012) (see Figure 5.2)

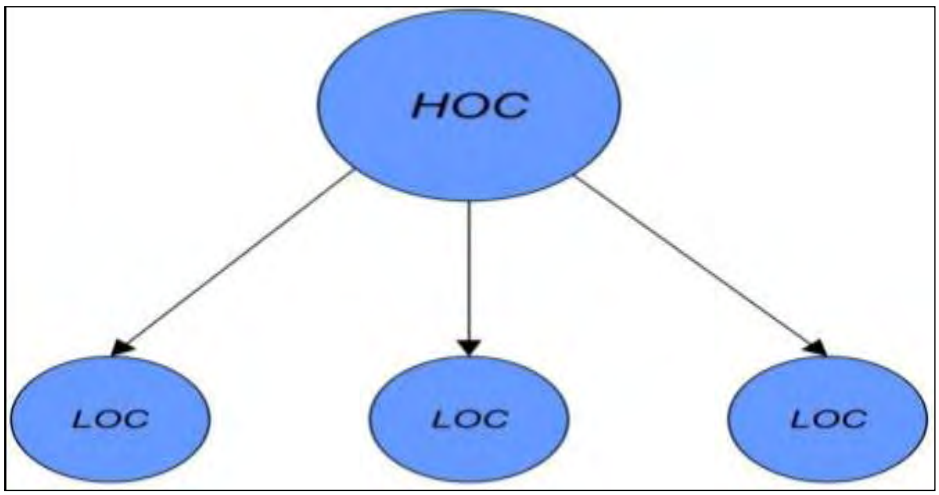

Figure 5.2
Hierarchical component model of DE follows Reflective-Reflective, Type I

5.5 Structural Model Assessment

With a satisfactory measurement model (inner model), the study progressed to test the structural model, including the estimates of the path coefficients which refer the strength of the relationships between model constructs.

5.5.1 Predictive Relevance Q^2

The blindfolding procedure was performed using Smart PLS to assess the predictive relevance of the path model. The blindfolding procedure yielded positive Q^2 values for all endogenous constructs (i.e. variable at least one arrow pointing to it). As suggested by Hair *et al. (*2013), Q^2 values above zero imply predictive relevance. The current path model had predictive relevance for selected endogenous constructs with Q^2 values above zero.

The proposed model accounted for 83.7% of the variance in Decision-making effectiveness which was considered substantial. Moreover, current path model had predictive relevance for selected endogenous constructs in DM ($Q^2 = 0.681$).

5.5.2 Effect Size f 2

The final assessment addressed the f^2 and q^2 effect sizes. Effect size is a measure of the strength of a phenomenon by estimating the relationship between each two endogenous variables in a statistical population (Kelley & Preacher, 2012). Cohen (1988) proposed an equation to estimate the effect size as the following:

$$Effectsize: f^2 = \frac{R^2_{incl} - R^2_{excl}}{1 - R^2_{incl}}$$

Where

R^2_{incl} is the R-squared when including specific predecessor of that endogenous latent variable

R^2_{excl} is the R-squared after deleting a specific predecessor of that endogenous latent variable

The computation of the q^2 effect size is an analogous procedure. However, instead of the R^2 values, the values of the predictive relevance are used as inputs as shown in the next equation (Hair *et al*., 2013):

$$q^2 = \frac{Q^2_{incl} - Q^2_{excl}}{1 - Q^2_{incl}}$$

Where,

Q^2_{incl} is the Q-squared when including specific predecessor of that endogenous latent variable

Q^2_{excl} is the Q-squared after deleting a specific predecessor of that endogenous latent variable

The f^2 and q^2 values of 0.02, 0.15, and 0.35 indicate an exogenous construct as having a small, medium, or large effect, respectively, on an endogenous construct (Hair *et al*., 2013).

As shown in Table 5.8, all exogenous constructs (i.e. no arrows pointing to the variable; only arrows pointing out) had a small effect size on the endogenous constructs in the current model.

Table 5.9
Results of effect size f^2 and q^2
Decision-Making Effectiveness (DM)

NO.	Path coefficient	f^2 Effect size	q^2 Effect size
Accuracy (AC)	0.307	0.129	0.057
Completeness (CO)	0.313	0.080	0.035
Relevancy (RE)	0.341	0.104	0.046
Interpretability (IN)	0.262	0.049	0.028

Note: Effect sizes $f^2$and q^2>0.35 large effect; >0.15 medium effect; >0.02 small effect size

5.5.3 Hypotheses Testing Results for The Direct Relationship

To test the specific hypotheses proposed in the research model, the t-statistics was evaluated for the standardized path coefficients by running bootstrap with 5000 re-samples. One-tailed t-tests were assumed because corresponds are extremely negative or extremely positive. 95% significance for t-value ≥ 1.645 at the level of $p<0.05$, and 99% significance for t-value ≥ 2.326 at the level of $p<0.01$, and 99.9% significance for t-value ≥ 3.091 at the level of $p<0.001$.

Figure 5.3 and Table 5.8 show the hypotheses testing results. Four of six relationships were significant. They were Accuracy (AC) →Decision-making effectiveness (DM), Completeness (CO) →DM, Relevancy (RE)→DM, and Interpretability (IN) →DM.

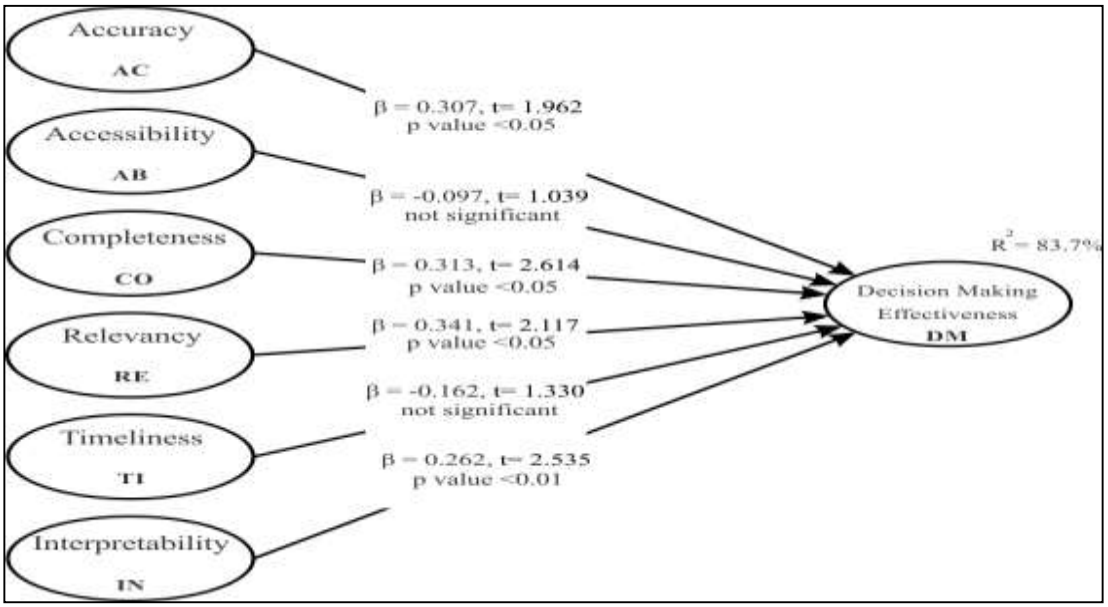

Figure 5.3
Results of bootstrapping (t-values)

Table 5.10
Summary of Hypotheses Testing Results: Direct Relationship

NO.	Hypothesis	Path coefficient	Standard Error (STERR)	t value	Decision
H_1	Accuracy(AC) ->Decision-making effectiveness (DM)	0.307	0.07	*1.962	Supported
H_2	Accessibility(AB) ->Decision-making effectiveness (DM)	-0.097	0.10	1.039	Not Supported
H_3	Completeness (CO) ->Decision-making effectiveness (DM)	0.313	0.08	*2.614	Supported
H_4	Relevancy (RE) ->Decision-making effectiveness (DM)	0.341	0.07	*2.117	Supported
H_5	Timeliness (TI) ->Decision-making effectiveness (DM)	-0.162	0.08	*1.330	Not Supported
H_6	Interpretability (IN) ->Decision-making effectiveness (DM)	0.262	0.06	**2.535	Supported

Significant at level of **p<0.01, * p<0.05 (one-tiled test)

The current study proposed six hypotheses to examine the relationships between the independent factors--Accuracy (AC), Accessibility (AB), Completeness (CO), Relevancy (RE), Timeliness (TI), and Interpretability (INT)--and the dependent factor (Decision-making effectiveness [DM]). As tabulated in Table 5.8, hypothesis H1a stated that Accuracy significantly influences Decision-making Effectiveness of bank managers in Palestine. The result demonstrated that any increase in AC would significantly increase DM. The path coefficient between AC and DE was found positive ($\beta = 0.307$) and significant ($t = 1.962$, $p < 0.05$).

Hypothesis H1b stated that Accessibility significantly influences Decision-making Effectiveness. The result did not support this relation, and consequently, the hypothesis was rejected. Hypothesis H1c stated that Timeliness significantly influences Decision-making Effectiveness. The result did not support the hypothesis. The path coefficient between TI and DE was not significant ($\beta = -0.162$).

Hypothesis H1d stated that Completeness significantly influences Decision-making Effectiveness. The result supported the hypothesis and showed that any increase in CO would significantly increase DE. The path coefficient between CO and DE was $\beta = 0.313$ which was significant ($p \leq 0.05$).

Hypothesis H1e proposed that Relevancy significantly influences Decision-making effectiveness. The result supported the hypothesis. The path coefficient between RE and DE was the highest in the proposed model with a value of $\beta = 0.341$ and it was significant ($p < 0.05$).

Hypothesis H1f stated that Interpretability significantly influences decision-making effectiveness. The result supported the hypothesis (β= 0.262, $p < 0.01$).

5.5.4 Analysis Procedures and Results of Moderation

The next step was to see if this proven influencing relationship would be further disturbed by the moderating variables (Formality, Centralization, and Complexity). In this model, AB and TI did not significantly influence decision-making effectiveness (DM), and consequently, there was no ground to continue further with the testing for its moderating effect. As a result, hypotheses H1b and H1c were further examined.

The moderating effects are produced by variables whose variation influences the strength or the direction of a relationship between an exogenous and an endogenous variable (Baron & Kenny, 1986). In general, there are two common approaches to estimating the moderating effects with regression-like techniques: the product term approach and the group comparison approach. As long as the construct measurement is invariant across groups, the product term approach and the group comparison approach lead to the same results (Henseler & Fassott, 2010).

Therefore, the current study used the product term approach as suggested by Henseler and Fassott (2010) since it is usually equal or superior to those of the group comparison approach. In this approach, each item representing the independent construct (X) was multiplied with each item representing the moderating construct (Z) to create interaction product terms (X.Z). The following section discusses the interaction effect of formality, centralization, and complexity.

5.5.4.1 Moderation Results of Formality

Formality refers to the application of laws in the organization. As shown previously, based on a median split, data were categorized into two groups: 81 participants whose moderator score was above the median were said to perceive a high moderator effect while 65 participants whose moderator score was below the median were said to perceive a low moderator effect. The code given to a high moderator value was 2, and to a low moderator, value was 1. When formality moderator was introduced to the previous model the product of moderation was computed only for the variables with significant relationships with the dependent variable.

All indicators were mean-centered when generating an interaction term to avoid zero value for moderator whichwould cause problematic issues in interpreting the results (Hair *et al*., 2013). Figure 5.4 shows the measurement model of the moderator variable (Formality) and the product terms of interaction (AC*Formality, CO*Formality, RE*Formality, and IN*Formality). As can be seen in Figure 5.4, the interaction term AC*Formality had a positive effect on DE (0.103). The interaction term of CO*Formality was relatively low and had a positive effect on DE (0.026). Also, the interaction term of RE*Formality was relatively low and had a positive effect on DE (0.032). Finally, the interaction term of IN*Formality had a positive effect on DE (0.056). These results gave an idea about the direction of the moderation effect. However, such conclusions only hold when the interaction term is significant. Consequently, the bootstrapping procedure was applied to 146 bootstrap cases. Five thousand bootstrap samples using the no sign changes option to conduct the significance test for the relationship between the interaction terms and DE were employed.

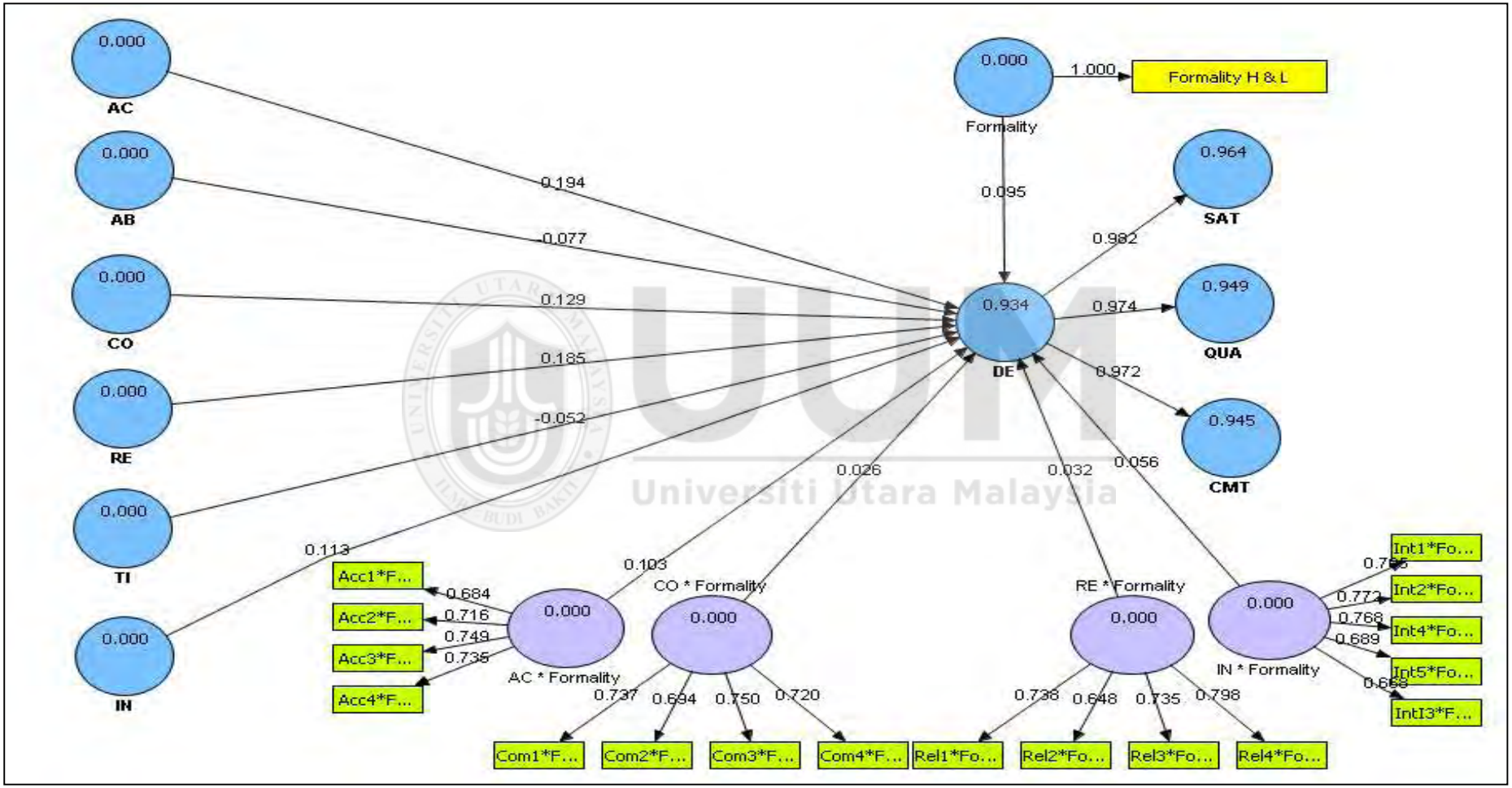

Figure 5.4

Measurement model includes moderator (to the top) and product terms (to the bottom)

The analysis of bootstrapping yielded at t value of 2.010 for the path linking the interaction term (AC*Formality) and DM. Therefore, the support for a significant moderating effect of Formality on the relationship between AC and DM existed. The p-value of 0.63 for the path linking between (CO*Formality) and DM was not significant. The same case was appliedto the path between (RE*Formality) and DM at t value= 0.998. Lastly, the t-value of 1.694 for the path between (IN*Formality) and DM supported a significant moderating effect of formality on the relationship between IN and DM. The result of moderation for Formality Table 5.10

Table 5.11

Summary of Results: Moderation of Formality

NO.	Hypotheses	Path coefficient	t value	Decision
H2a	AC*Formality →DM	0.103	2.010	Supported
H2b	AB*Formality → DM	---	---	---
H2c	TI*Formality→ DM.	---	---	---
H2d	CO*Formality →DM	0.026	0.637	Not supported
H2e	RE*Formality →DM	0.032	0.998	Not supported
H2f	IN*Formality →DM	0.056	1.694	Supported

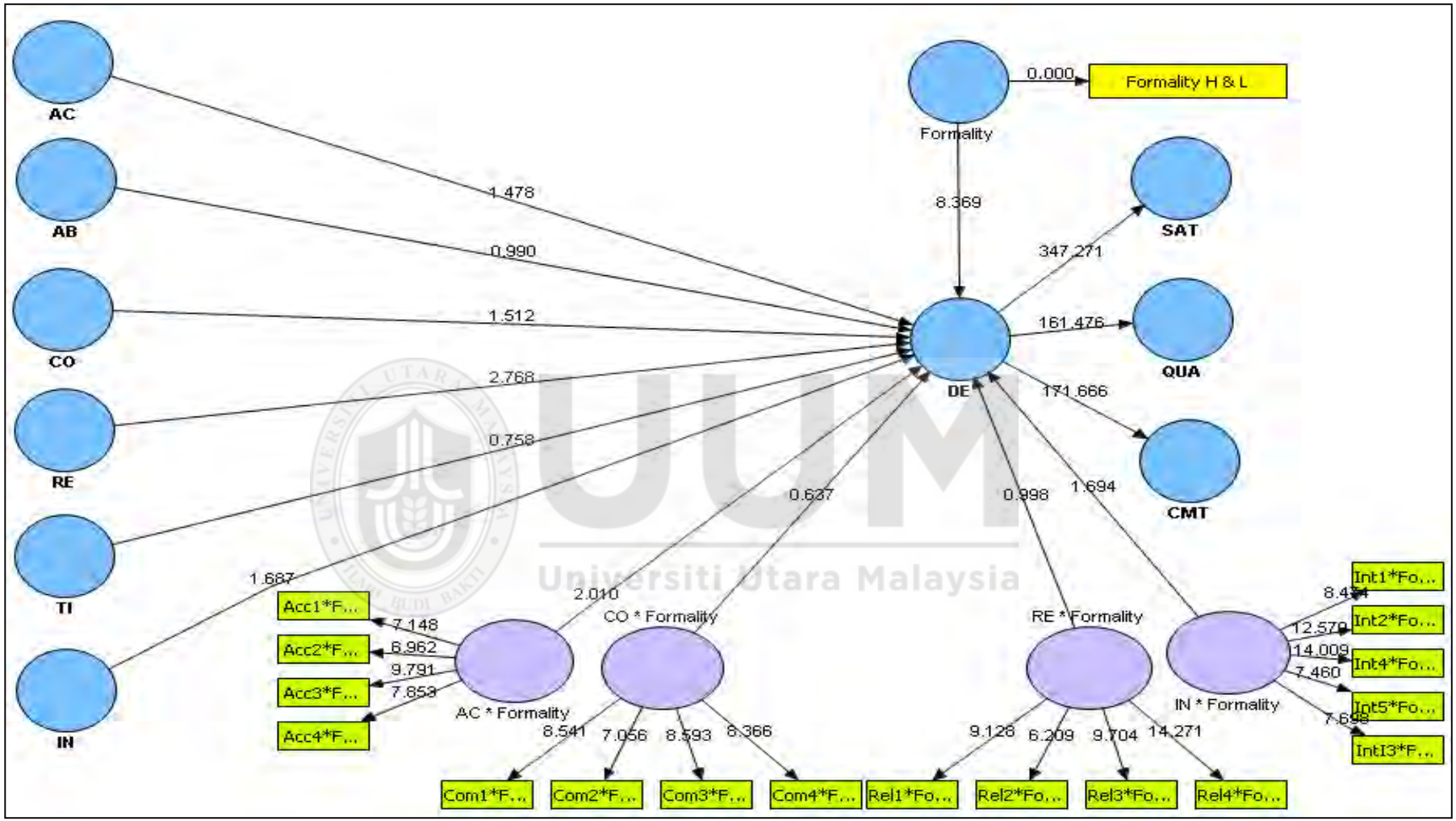

Figure 5.5

Bootstrapping results to find the significance of moderation effects

The results imply that any increase in Accuracy will increase Decision-Making Effectiveness for employees perceiving high formality more than employees perceiving low formality in the bank's structure (Figure 5.6).

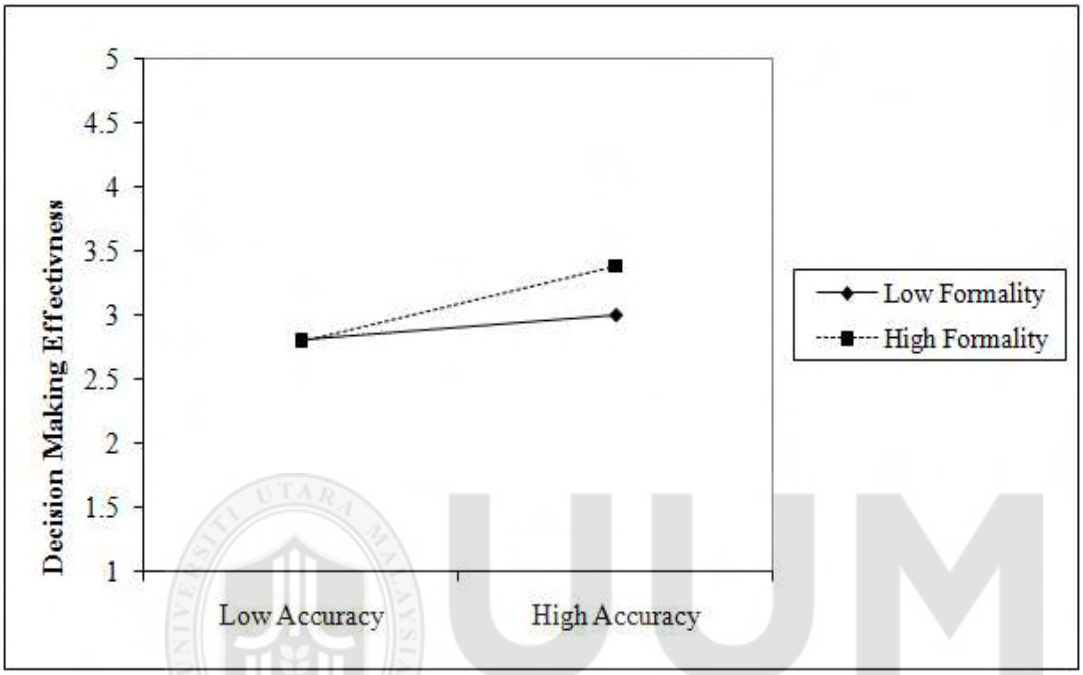

Figure 5.6
Interaction effect of Formality on the relation of AC on DE

In the same manner, any increase in Interpretability will increase Decision-making effectiveness for employees perceiving high formality more than employees perceiving low formality in banks (Figure 5.7).

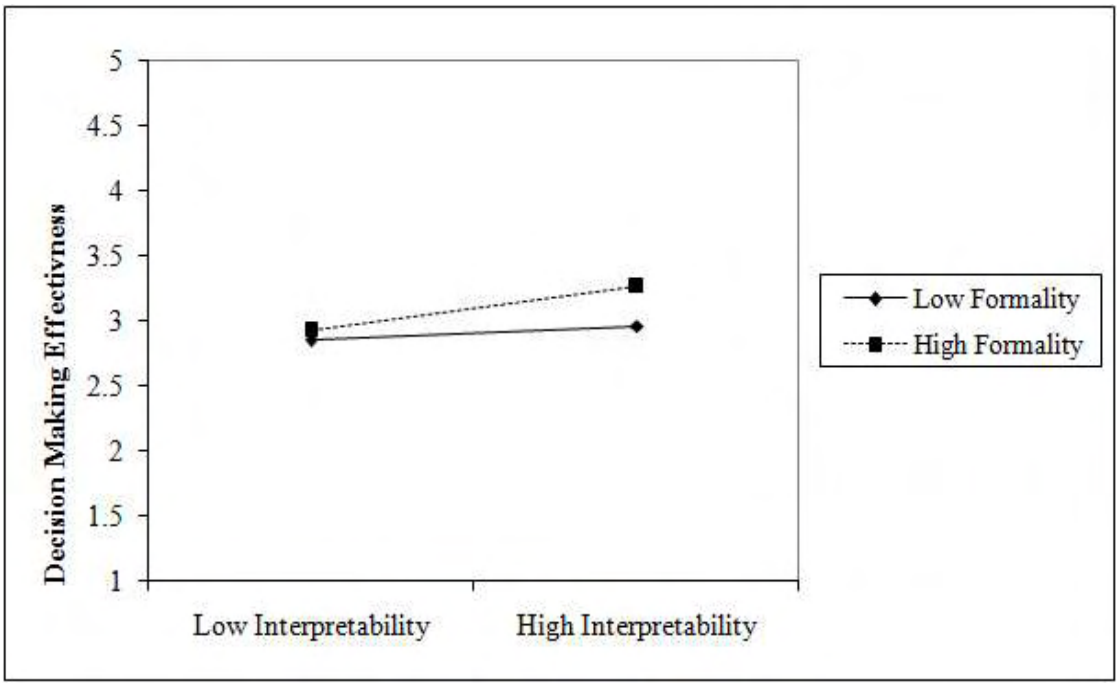

Figure 5.7
Interaction effect of Formality on the relation of IN on DE

5.5.4.2 Moderation Results of Centralization

Centralization refers to a domain in which the senior management has the decision-making power. Based on the median split, the data were categorized into two groups: 92 participants whose moderator score was above the median were said to perceive a high moderator effect while 54 participants whose moderator score was below the median were said to perceive a low moderator effect. The code given to a high moderator value was 2 and the code given to low a moderator value was 1. When centralization as a moderator was introduced to the model, the product of the moderation was computed only for the variables with significant relationships with dependent variables (AC, CO, RE, IN). All indicators were mean-centered when generating an interaction term to avoid a zero value for moderator which would cause problematic issues in interpreting the results (Hair *et al.*, 2013).

Figure 5.8 shows the structural model of the moderation of centralization and the product terms of interaction (AC*Centralization, CO*Centralization, RE*Centralization, and IN*Centralization). The result of moderation for Centralization Table 5.11.

Table 5.12

Summary of Results: Moderation of Centralization

NO.	Hypotheses	Path coefficient	t value	Decision
H3a	AC*Centralization →DM	0.160	3.955	Supported
H3b	AB*Centralization →DM	---	---	---
H3c	TI*Centralization→DM	---	---	---
H3d	CO*Centralization →DM	0.114	2.067	Supported
H3e	RE*Centralization →DM	0.057	0.981	Not Supported
H3f	IN*Centralization→DM	0.140	2.096	Supported

As demonstrated in Figure 5.8 and as tabulated in Table 5.10, the interaction term AC*Centralization had a positive effect on DE (0.160). The interaction term of CO*Centralization had a positive effect on DE (0.114). Also, the interaction term of RE*Centralization was relatively low compared with other product terms and had a positive effect on DE (0.057). Finally, the interaction term of IN*Centralization had a positive effect on DE (0.140). The results give showed that the direction of the moderation effect was positive in total. However, such conclusions only hold when the interaction term is significant as mentioned before. Therefore, the bootstrapping procedure applied was to 146 bootstrap cases.

Five thousand bootstrap samples using the no sign changes option to conduct the significance test for the relationship between the interaction terms and DE were employed.

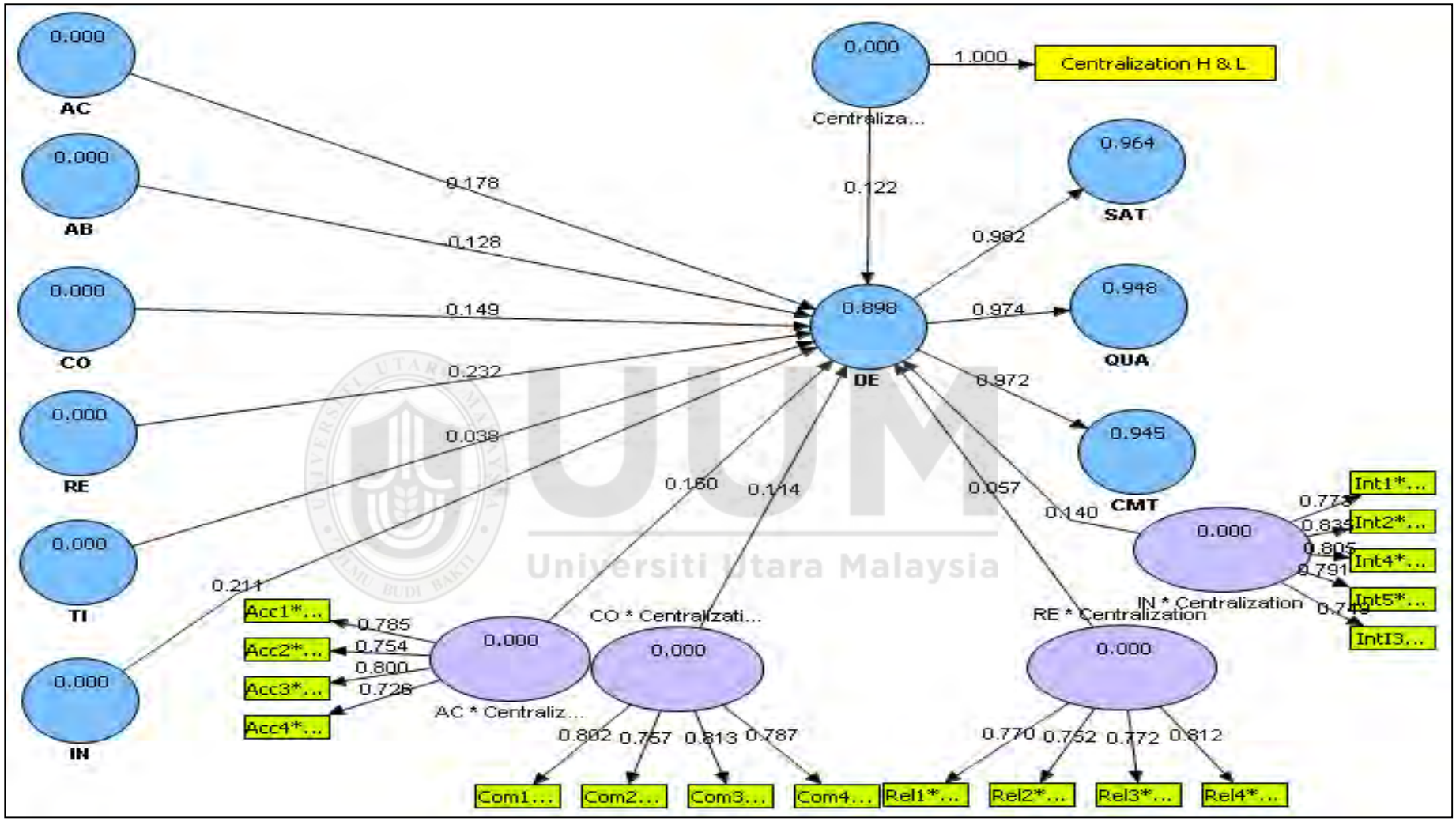

Figure 5.8

Measurement model includes moderator (to the top) and product terms (to the bottom)

The analysis of bootstrapping yielded at the value of 3.955 ($p \leq 0.001$) for the path linking the interaction term (AC*Centralization) with DM. Therefore, the support for a significant moderating effect of Centralization on the relationship between AC and DM existed. That value of 2.067 for the path linking between (CO*Centralization) and DM supported such conclusion at $p < 0.05$. The case was different for the path linking between RE*Centralization and DM (p value = 0.981). Lastly, a t-value of 2.096 for the path between IN*Centralization and DM supported a significant moderating effect of Centralization on the relationship between IN and DE at $p < 0.05$ (Figure 5.9).

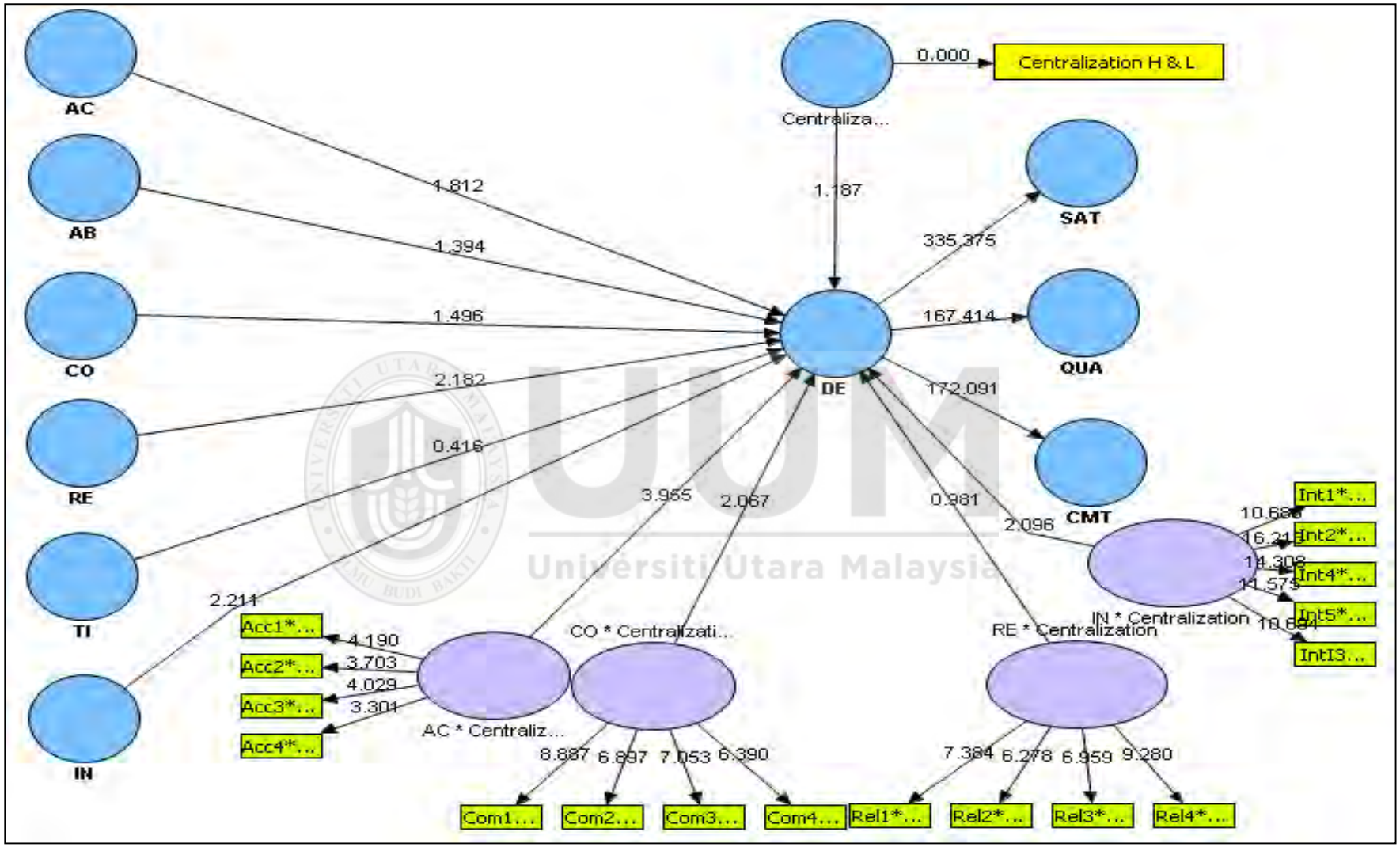

Figure 5.9

Bootstrapping results to find the significance of moderation effect

The interpretation of moderation rule of centralization shows that any increase in Accuracy (AC) will increase the Decision-Making Effectiveness (DM) for employees perceiving high centralization more than employees perceiving low centralization in management's decision (Figure 5.10).

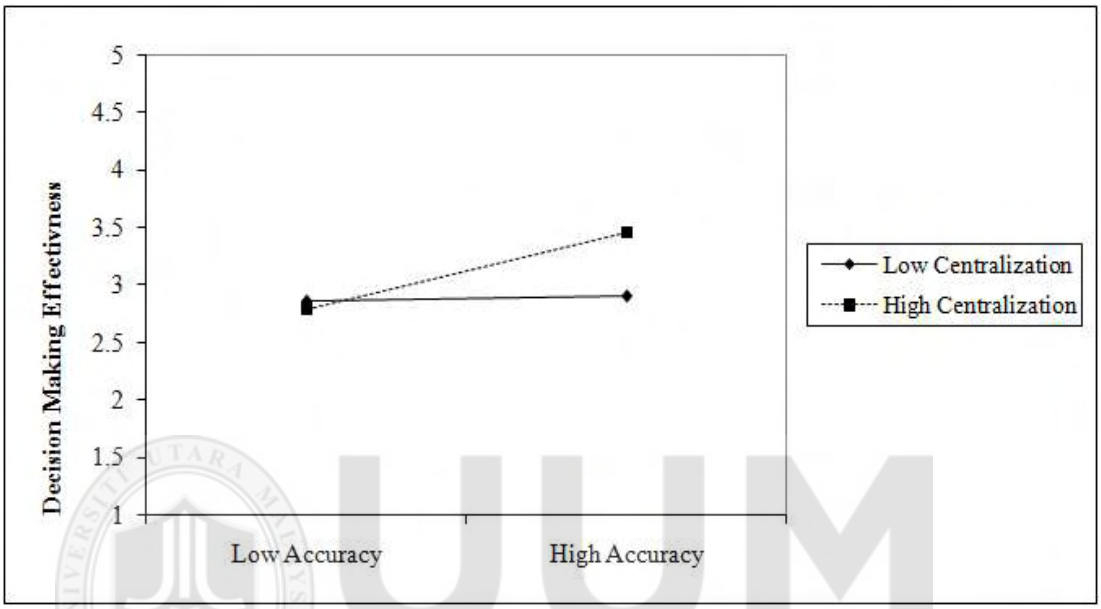

Figure 5.10
Interaction effect of Centralization on the relation of AC on DE

Moreover, any increase in completeness (CO) will increase the Decision-Making Effectiveness (DM) for employees perceiving high centralization more than employees perceiving low centralization in management's decision (Figure 5.11).

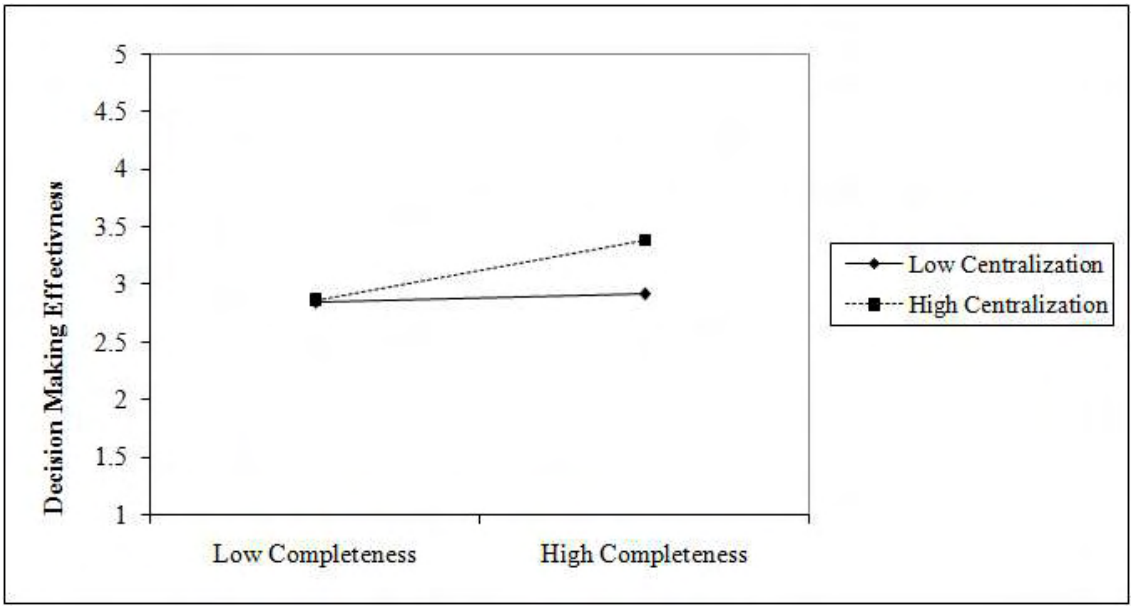

Figure 5.11
Interaction effect of Centralization on the relation of CO on DE

Finally, any increase on Interpretability (IN) will increase the Decision-Making Effectiveness (DM) for employee perceiving high centralization more than employee perceiving low centralization in management's decision (Figure 5.12).

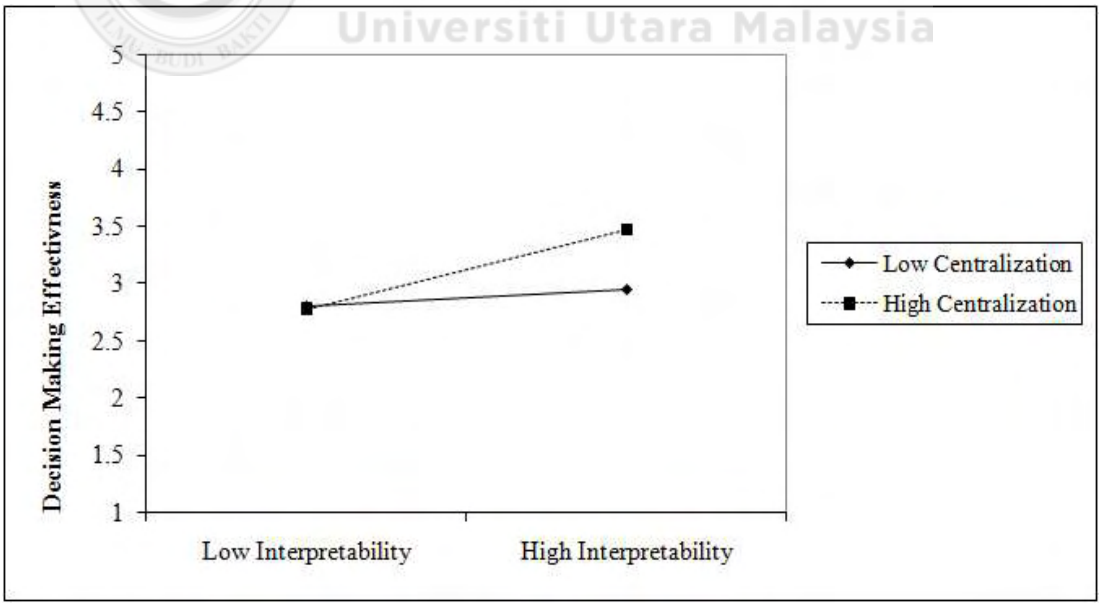

Figure 5.12
Interaction effect of Centralization on the relation of CO on DE

5.5.4.3 Moderation Results of Complexity

Based on the median split, the data were categorized into two groups. The first group consisting of 74 participants whose moderator score was above the median were said to have a high moderator value while 72 participants whose moderator score was below the median were said to have a low moderator value. The code given to a high moderator value was 2 and the code given to low moderator value was 1. When complexity was introduced to the previous model, the product of moderation computed only for the variables with significant relationships on dependent variable. All indicators were mean-centered when generating an interaction term to avoid zero value for moderator which causes problematic issues in interpreting the results (Hair *et al*., 2013).

Figure 5.13 shows the measurement structure model for the moderation of complexity and the product terms of interaction. The corresponding statistical results are summarized in Table 5.12.

Table 5.13

Summary of Results: Moderation of Complexity

NO.	Hypotheses	Path coefficient	t value	Decision
H4a	AC*Complexity→DM	0.031	1.016	Not Supported
H4b	AB*Complexity →DM	---	---	---
H4c	TI*Complexity →DM	---	---	---
H4d	CO*Complexity □DM	0.043	1.355	Not supported.
H4e	RE*Complexity → DM	0.020	0.616	Not supported
H4f	IN*Complexity →DM	0.035	1.274	Not supported

CO*Complexity, RE*Complexity, and IN*Complexity) were found to have a positive and low effect on DM ($\beta = 0.031$, $\beta = 0.043$, $\beta = 0.020$, and $\beta = 0.035$ respectively). The interaction term of CO*Formality is relatively low and has a positive effect on DM ($\beta = 0.026$). The bootstrapping procedure was appliedto 146 bootstrap cases, 5000 bootstrap samples using the no sign changes option to conduct the significance test for the relationship between the interaction terms and DM.

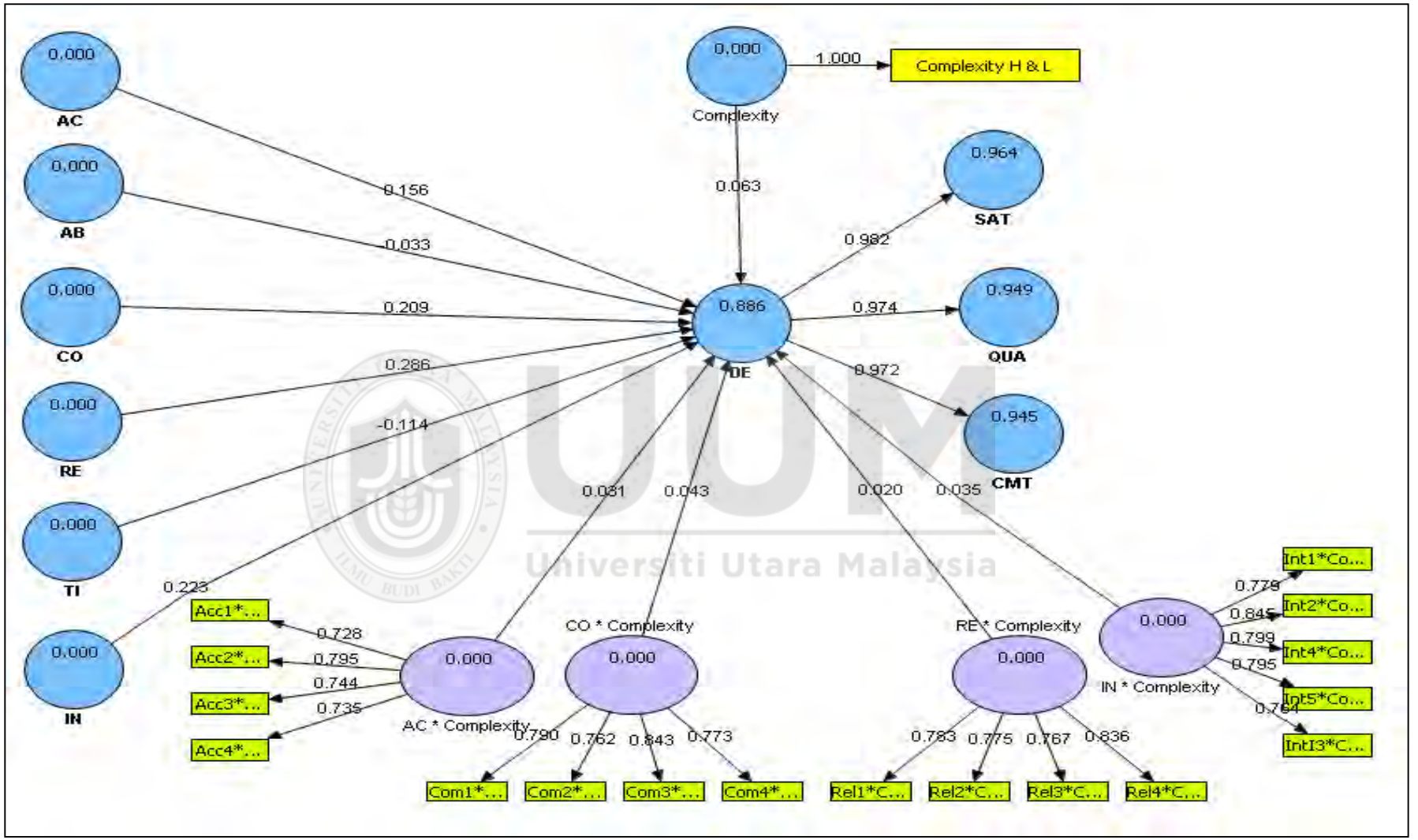

Figure 5.13

Measurement model includes moderator (to the top) and product terms (to the bottom)

The analysis of bootstrapping yielded at t value of less than 1.645 for all path coefficients linking the interaction term and DE. Therefore, the support for the significance of moderation effects of the Complexity on the relationships between AC, CO, RE, IN and DE did not exist (refer to Figure 5.14).

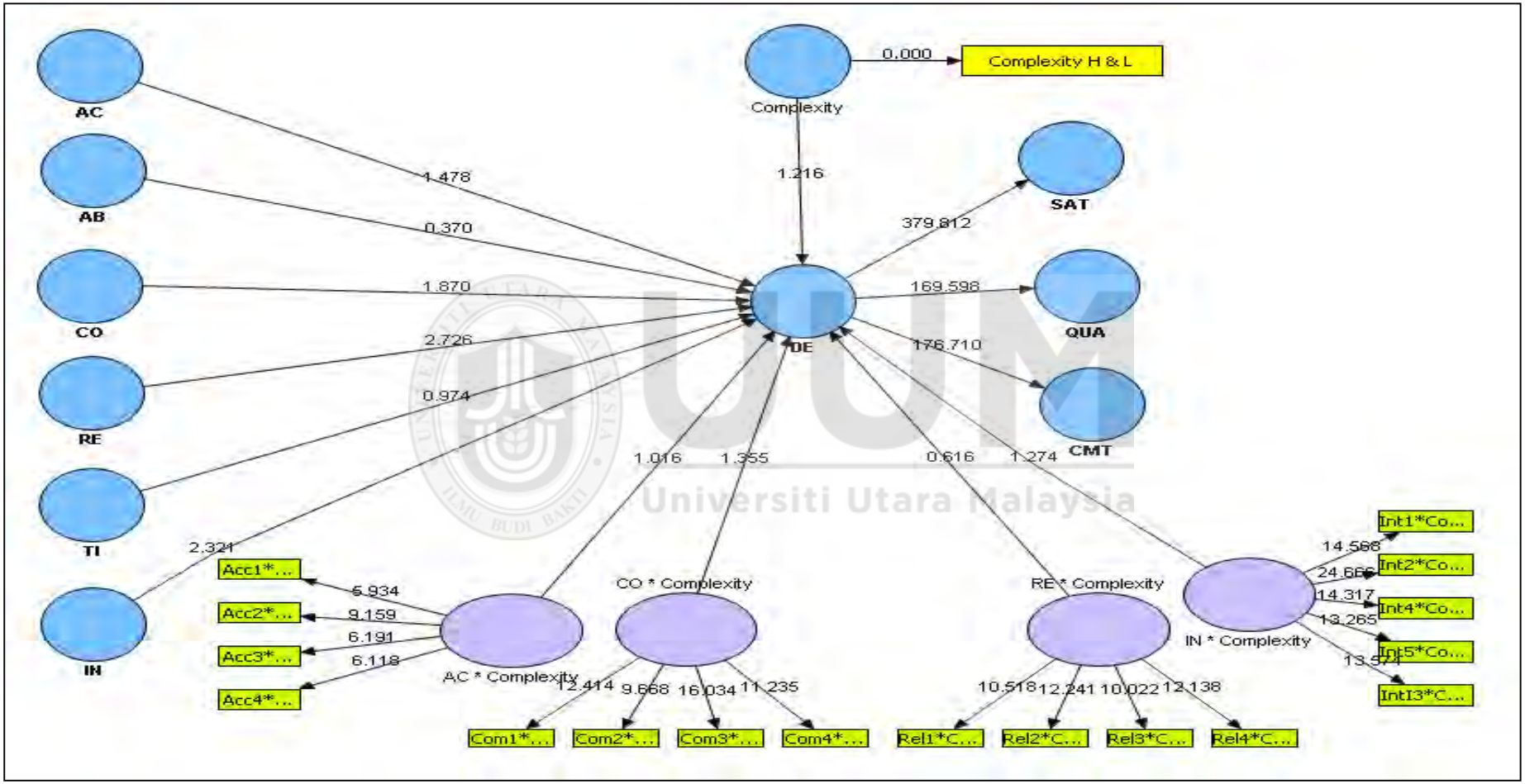

Figure 5.14

Bootstrapping results to find the significance of moderation effects

5.6 Chapter Summary

The moderators were tested using the product term approach, and interesting results were found. Formality was found to moderate the relationship between Accuracy (AC) and Decision-making effectiveness (DM). Any increase on Accuracy will increase Decision-making effectiveness for employees perceiving high formality more than those perceiving low formality in the bank's structure. Formality moderated the relationship between Interpretability (IN) and (DM) where any increase in Interpretability will increase Decision-making effectiveness for employees perceiving high formality more than employees perceiving low formality in banks. Bear in mind that moderation interaction analysis was applied only to significant relationships. Therefore, Hypothesis 7 was partially supported in that two of four relationships were found to be moderated by Formality. Formality did not have any moderation effect on the relationship between CO and DE and RE and DM. The moderation analysis was excluded from the relationships AB > DM and TI > DM for not being significant in the initial hypotheses testing. This condition was applied to all moderators.

Centralization found to moderate some relationships between IVs and DV and therefore Hypothesis 8 also was partially supported. Centralization moderated the relation between AC and DM revealing that any increase in accuracy (AC) will increase Decision-making effectiveness (DM) for employees perceiving high centralization more than employees perceiving low centralization in management's taking decision. Centralization found to moderate the relationship between CO and DM in that any increase in completeness (CO) will increase Decision-making effectiveness (DM) for employees perceiving high centralization more than employee

perceiving low centralization in management's decision. Also, Centralization was found to moderate the relationship between IN and DM in that any increase in Interpretability (IN) will increase Decision-making effectiveness (DM) for employees perceiving high centralization more than those perceiving low centralization in management's decision.

Finally, Hypothesis 9 was not supported; Complexity in organizational structure did not significantly moderate the influence of Quality of Information on Decision-making Effectiveness. Out of 24 hypotheses set, nine were supported. In sum, the results are pulled together in Table 5.13. All the results were further discussed in the next chapter.

Table 5.14

All Hypotheses Testing Results.

NO.	Hypotheses	Path coefficient	t value	Decision
H1a	Accuracy (AC) →DM	0.307	*1.962	Supported
H1b	Accessibility (AB)→DM	-0.097	1.039	Not Supported
H1c	Timeliness (TI) ->DM	-0.162	*1.330	Not Supported
H1d	Completeness (CO) ->DM	0.313	*2.614	Supported
H1e	Relevancy (RE) -> DM	0.341	*2.117	Supported
H1f	Interpretability (IN) ->DM	0.262	**2.535	Supported
H2a	AC*Formality →DM	0.103	2.010	Supported
H2b	AB*Formality → DM	---	---	---
H2c	TI*Formality→ DM.	---	---	---
H2d	CO*Formality →DM	0.026	0.637	Not supported
H2e	RE*Formality →DM	0.032	0.998	Not supported
H2f	IN*Formality →DM	0.056	1.694	Supported
H3a	AC*Centralization →DM	0.160	3.955	Supported
H3b	AB*Centralization →DM	---	---	---
H3c	TI*Centralization→DM	---	---	---
H3d	CO*Centralization →DM	0.114	2.067	Supported

Table5.13 (Continued)

NO.	Hypotheses	Path coefficient	t value	Decision
H3e	RE*Centralization →DM	0.057	0.981	Not Supported
H3f	IN*Centralization→DM	0.140	2.096	Supported
H4a	AC*Complexity→DM	0.031	1.016	Not Supported
H4b	AB*Complexity →DM	---	---	---
H4c	TI*Complexity →DM	---	---	---
H4d	CO*Complexity □DM	0.043	1.355	Not supported.
H4e	RE*Complexity → DM	0.020	0.616	Not supported
H4f	IN*Complexity →DM	0.035	1.274	Not supported

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Introduction

This chapter discusses the findings reported in Chapter Five. The chapter also discusses the contribution of the study, both theoretically and practically. Followed suit, the limitations and future research directions are also elaborated. The chapter ends with a summary.

6.2 The Recapitulation of the Research

The main objective of this study was to examine the relationship between information quality and decision making effectiveness, as well as the moderating effect of organizational structure on this relationship within the banking sector in Palestine. Online surveys were used to collect responses from the respondents, which are the managers of banks. While the research framework was underpinned by the classical theory of decision making (rational theory), contingency theory and media richness theory provided further support for the framework. Two main research questions were responded by 24 hypotheses, out of which nine were supported. Significant relationships were found in the direct relationships between accuracy, completeness, relevancy, and interpretability with decision making effectiveness. Significant moderations were also found for formality and formalization.

6.3 Discussion of Findings

This section discusses the results of the study. Both relevant literature and theoretical framework for the study serve as a guide for the discussion in this section. This discussion focuses on the dimensions of information quality. The dimensions are accuracy, accessibility, completeness, relevancy, timeliness, and interpretability. The other element of the discussion is the test of the moderating role of the organizational structure. Here, the researcher discussed the research hypotheses related to the following research question:

1. Do information quality dimensions have an influence on decision-making effectiveness of bank managers in Palestine?

H1a: Accuracy significantly influences decision-making effectiveness.

The result demonstrated that any increase in accuracy of information would significantly increase decision-making effectiveness of bank managers in Palestine. This relationship can be explained in terms of the degree of accuracy of information has always been associated with the rationality of decision-making in which it may promote the transformation of innovation performance indicators for essential for increasing the diction-making effectiveness.

Accuracy of information can help decision makers to be actively involved in problem definition (Mayfield & Mayfield, 2015). For example, Fabunmi, Erwat, and Fabunmi (2013) stated that the accuracy of information can play a key role in promoting decision-making effectiveness in an organization, which Fabunmi *et al. (*2013) linked

such role to the accuracy of perceiving decision makers' knowledge in open organizational climate. The quality of the information is important because inaccurate or incorrect information will result in an imprecise decision (Weaver *et al.,* 2013). Such situation diminishes the decision-making effectiveness of the organization. In addition, it is assumed that accuracy of bank managers in Palestine is mostly driven by the procedures that are followed during the process of decision making, which may neglect the satisfaction of participants on the accuracy of information being shared among the decision making group. With this in mind, Woodside, de Villiers, and Marshall (2016), Creyer, Bettman, and Payne (1990), and Appelgren, Penny, and Bengtsson (2014) addressed the significant impact of feedback that can be obtained at many moments of the decision making procedure on the accuracy of information. Therefore, it can be said that the accuracy of information gained during the decision making process influenced improve decision-making effectiveness and efficiency of bank managers in Palestine by increasing their situation awareness of a situation. It is also believed that the accuracy of information enabled bank managers in Palestine to predict the consequences for the near future which as a result influenced their decision-making effectiveness.

The present study's finding related to the impact of accuracy on decision-making effectiveness is believed to support other previous claims like Garbuio, Lovallo, and Sibony (2015) who asserted that the accuracy of environmental conditions from the employee's perceptive are important determinant for determining strategic decision effectiveness. Such conditions may positively impact the organizational performance of bank managers in decision making activities. The findings add to previous

compelling research, like Amid (2014), that information quality determinants impact on management function by increasing the efficiency of decision making. It also extends the result ofSpeier, Valacich, and Vessey (1997) about the mitigating effects of information formats on the accuracy and speed of interrupted decision making. This includes showing the direct effect of accuracy on managers' perceptions of decision-making effectiveness. Based on these, it can be concluded that bank managers in Palestine are urged to recognize and adopt long-term strategies for maintaining high information accuracy necessary for promoting decision-making effectiveness.

H1b: Accessibility significantly influences decision-making effectiveness.

The result demonstrated that accessibility does not influence decision-making effectiveness of bank managers in Palestine. According to Lurie (2004), the lack of accessibility to information and facilitating tools would hinder the decision making process. Li, Yatrakis, Turner, Yen, and Hsu (2003) stated that the inadequate use of Information Technology (IT) tools may act as a barrier to access information needed for decision making process. However, Kamel (2008) asserted that the readiness of Information and Communication Technology (ICT) infrastructure may play a key factor in providing accessible information through computing and internetworking. Based on these, the researcher assumed that that lack of ICT and IT establishment in most Palestinian banks may be the reason why managers found accessibility of information to be less effective in shaping their decision-making effectiveness. Based on Alawattage *et al. (*2007) and Najeh and Kara-Zaitri (2007), the lack of understanding external factors by Palestinian managers can negatively influence the successful implementation of appropriate management systems. For example,

managers' negative perception about the access to sufficient information makes it difficult for them to get involved in decision-making processes. Furthermore, Hampson and Best (2005) consolidated that accessibility to information may not necessarily decision-making effectiveness of an organization.

The result comes in line with previous findings like Popoola (2009) and Oyewusi (2008) who reported a significant impact of information accessibility on decision-making of banks managers in developing countries. From these views, it can be concluded that the lack of ICT and IT tools may be reason why bank managers in Palestine perceive accessibility to information to be less effective for their decision-making effectiveness.

H1c: Timeliness significantly influences decision-making effectiveness.

The obtained result revealed that timeliness has no influence on decision-making effectiveness of bank managers in Palestine. Elbanna (2006) highlighted the impact of timely information on the decision making process by facilitating the use of intuition to make strategic decisions. The literature revealed that lack of access to timely information and timeline resources may significantly influence group communication and decision making (Eweje, Turner, & Müller, 2012; Nutt, 2008; Poole & Holmes, 1995). However, the lack of IT decision-making relationship within the emerging organizational computing environment may effect group's access to the information essential for decision making (Jennex & Olfman, 2008; Klinsukhon & Ussahawanitchakit, 2016; Teng & Calhoun, 1996). For example, IT usage is usually viewed to be linked with the managerial decisions than operational decisions. This

assumption was supported by Harold and Thenmozhi (2014) who perceived quality of information in terms of timelines as a critical factor that can be neglected based on the influence of IT on banking success. Tee, Bowen, Doyle, and Rohde (2007) also stated that IT impacts organizational characteristics and outcomes through the ability to generate information efficiencies and information synergies. As such, the researcher assumed that the lack of IT tools among managers in Palestinian can be the main driver of their negative perception about the influence of information timelines on their decision-making effectiveness.

The study's finding supports the conclusion made by Eweje *et al. (*2012) about the role of information timelines to the decision making process. They found that information timelines did not influence found long-term strategic value indicators, thus, the relevance of information timeliness could become lower to the bank managers in Palestine. In addition, this study's finding comes in line with Srour, Baird, and Schoch (2016) about the effect of information timeliness to develop a better understanding of input-output relations within departments to which it may not be effective in environment that lacks of adequate utilization of IT tools. After all, it the researcher recommend that bank managers in Palestine to may need to relook at the non-IT enabled structural dimensions in order to facilitate the link between organizational characteristics and decision-making effectiveness.

H1d: Completeness significantly influences decision-making effectiveness

The result showed that any increase in completeness would significantly increase decision-making effectiveness of bank managers in Palestine. This can be reasoned to that bank managers were able to perform better with complete information by providing them with a sufficient breadth, depth, and scope for the task at hand which, in turn, facilitated their decision-making effectiveness. The researcher's review of the literature revealed that most studies on overall information quality were mostly concerned about assessing information completeness to promote decision making by identifying the type of information that can aid decisions and offer detailed explanation of a process (Oppewal & Klabbers, 2003; Wen, 2009; Yusof, Kuljis, Papazafeiropoulou, & Stergioulas, 2008). According to Bharati and Chaudhury (2004), decision makers would value complete and accurate information that will positively affect their decision-making experience. As such, it can be said that bank managers in Palestine perceived the completeness of information to be an effective element for driving their decision-making effectiveness.

The finding seems to support the work of Ahituv, Igbaria, and Sella (1998) who stated that complete information improves the decision making performance, especially when no time pressure is involved. It also found to be inline with the result reported in previous studies about how complete information is perceived by managers to provide a better clarity by providing them with the confidence during the decision making process (Kok & Creemers, 2008; Reinking, 2013). On the other hand, incomplete information will lead to poor decision-making effectiveness (Sari, SE, & Purwanegara, 2016). Based on these views, the researcher in the present study

concluded that completeness of information can play an important role in promoting decision-making effectiveness of bank managers in Palestine.

H1e: Relevancy significantly influences decision-making effectiveness.

The result showed that relevancy significantly influences decision-making effectiveness of bank managers in Palestine. Based on the review of previous studies, individual's perception of information relevance can positively affect the decision making process by reducing the complexity within a given problem domain (Cheung, Lee, & Rabjohn, 2008; Speier, 2006). Parikh and Fazlollahi (2002) stated that decision-making quality depends usually on the extent to which information is relevant and how well guidance matches with the decision problem. Kelly and Karau (1999) linked perception of information relevance to the preferences of the distribution of shared information to aid the decision making process. The value of information depends on the information's relevance to the decision to be made (Sundqvist & Svärd, 2016). In addition, Filieri and McLeay (2014) stated that users' perception of information relevance can positively influence their adoption of information with regard to the nature of the task. From these, it can be assumed that bank managers were mostly positive that relevancy of information enabled them to construct a clear view about the activity. Meanwhile, bank managers are used to consolidate their decisions based on the degree to which the data requested appear relevant to problem domain. This is because perceived relevance of information needs has always been related to environmental and individual perceptions (Shih, 2004). In light of this, managers' attitude can be positively influenced by the role of information relevancy for effective decision making.

The finding of this study supports previous studies such as Reed (2008) who argued that any attempt to value information within a company has to be looked at in the context of the activity or decision it affects. It also provide some insights to Amid (2014) who examined the role of information relevance in promoting management function of enterprise resource planning system in terms of effectiveness and efficiency of decision making. Thus, it can be said that policy makers in Palestine may consider the option of paying attention to some control measures to ensure the relevancy of information to the decision making process.

H1f: Interpretability significantly influences decision-making effectiveness.

Interpretability was found to significantly influence decision-making effectiveness of bank managers in Palestine. Interpretability was reported byEl Sawy and Majchrzak (2004) to play an inter-relationship in processing and understanding information. According to Le Dinh and Moreau (2011), transformation from data to information and from information to knowledge depends on the ability of individual to interpret the presented message. As such, it can be said that bank managers' ability to interpret the given information is believed to direct their decision-making effectiveness by enabling them to acquire knowledge faster in the presence of other external factors. The finding supports other previous claims of Pullin, Knight, Stone, and Charman (2004) about the effectiveness of personal experience and interpretations to support decision making practices on the likely outcomes of alternative actions. It also support the study of Ford and Gioia (2000) about the potential influence of managers' interpretation on their creativity during the decision making process. Hence, it can be assumed here that bank managers' ability to interpret the supplied information can

positively promote their cognitive process which help them to select a belief or a course of action among several alternative possibilities.

H2: Do organizational structure dimensions (formality, centralization, complexity) moderate the relationship between information quality and decision-making effectiveness?

Organization structure was conceptualized as a moderator in this study. Organizational structure is characterized by formality, centralization, and complexity. The test of the moderating effect of organizational structure on the relationship between information quality and decision-making effectiveness was the major objective of this study. The finding emanating from the test of moderation using the product term approach revealed that formality and centralization partially moderated the relationship between information quality and decision-making effectiveness.

H2a: Moderating effect of formality on information quality and decision-making effectiveness

The result showed that formality significantly moderated the relationship between accuracy of information disseminated and decision-making effectiveness. When bank managers perceive that accuracy of information quality is carried out in a high formal setting, their decision-making effectiveness is enhanced.

The second significant moderating result was between interpretability of information and decision-making effectiveness. Interpretability of information is a vital requirement that can aid the effectiveness of decision making of bank managers in

Palestine. Such conclusion is supported theoretically by the literature. Previous studies, for example Chen and Huang (2007) and Chen, Huang, and Hsiao (2010), found that an organizational structure that was less centralized, less formalized, and more integrated could enhance the level of knowledge management. The finding also supports the claim made by Yan, Yurchisin, and Watchravesringkan (2011) who stated that formality of employee may play a key role for consumers to perceive the service quality. Hence, it can be said that bank managers in Palestine found formality to provide the expectations and confirms the function of service quality as an antecedent to promote decision-making effectiveness.

H2b: Moderating effect of centralization on information quality and decision-making effectiveness

As an element of the organizational structure, centralization refers to the position of the senior management cadre who are charged with taking vital decision-making and exercising power (Shepherd & Rudd, 2014; Uotila & Melkas, 2007). Where an organization entrusts the entire decision-making mandate to the higher managers, such an organization is classified and considered a centralized organization. If, however, the decision-making mandate is shared and the lower level of the staff participates in the decision-making process, the organizations regarded as closer to decentralization. This outlook informed the hypothesis that sought to test how centralization moderates the relationship between information quality and decision-making effectiveness. In this moderating role of centralization, it can be observed that centralization moderated the relationship between accuracy of information and decision-making effectiveness. The result also showed that centralization moderated the relationship between

completeness of information disseminated and decision-making effectiveness. The finding supports previous claim made by Zeng, Zhang, Matsui, and Zhao (2016) about the role of centralization of authority in facilitating quality management of decisions. Thus, centralization of bank managers in Palestine can have a different influence on the different dimensions of information quality rather than just have a single effect.

H2c: Moderating effect of complexity on information quality and decision-making effectiveness

Of the three dimensions of organizational structure that were hypothesized complexity of the information did not indicate a moderating role with any level or dimensions of information quality and decision-making effectiveness. According to Groenier, Pieters, Witteman, and Lehmann (2014), complexity of problems may not necessarily influence the formulation quality essential to explain complex problems. However, Plötner, Lakotta, and Jacob (2013) stated that decision-making uncertainty is related to the complexity of problem. Pfaff, Drury, Klein, and More (2016) highlighted the role of complexity in regulating managers' decision-making speed based on the available. Based on these, it can be assumed that bank managers in Palestine are directly affected by the information quality dimensions. This can be reasoned to that complexity influence the perception of conciseness; and accuracy and timeliness by interactional effects (Fehrenbacher & Palit, 2013), to which Dennis Dominique Fehrenbacher and Helfert (2012) showed that available resources, ICT as well as the decision environment influence users' views on the complexity of a problem. From these, it can be concluded that bank managers' perceptions about the moderating effect of complexity on information quality and decision-making effectiveness can be

explained by the potential impact of available resources used to make decision-makers aware of decision problems.

The first focus of the study was to measure the direct relationship between information quality dimensions and decision-making effectiveness. Of six hypotheses formulated, four were found significant. The information quality dimensions that were found significantly related to decision-making effectiveness were accuracy, completeness, relevancy, and interpretability.

In addition, out of 18 hypotheses related with the moderating effects of organizational structure on the relationship between information quality dimensions and decision-making effectiveness, five were found significant. Specifically, formality and centralization were found to have certain extent of moderation effects on the the relationship between information quality dimensions and decision-making effectiveness. The supported statistical model is recapped in Figure 6.1.

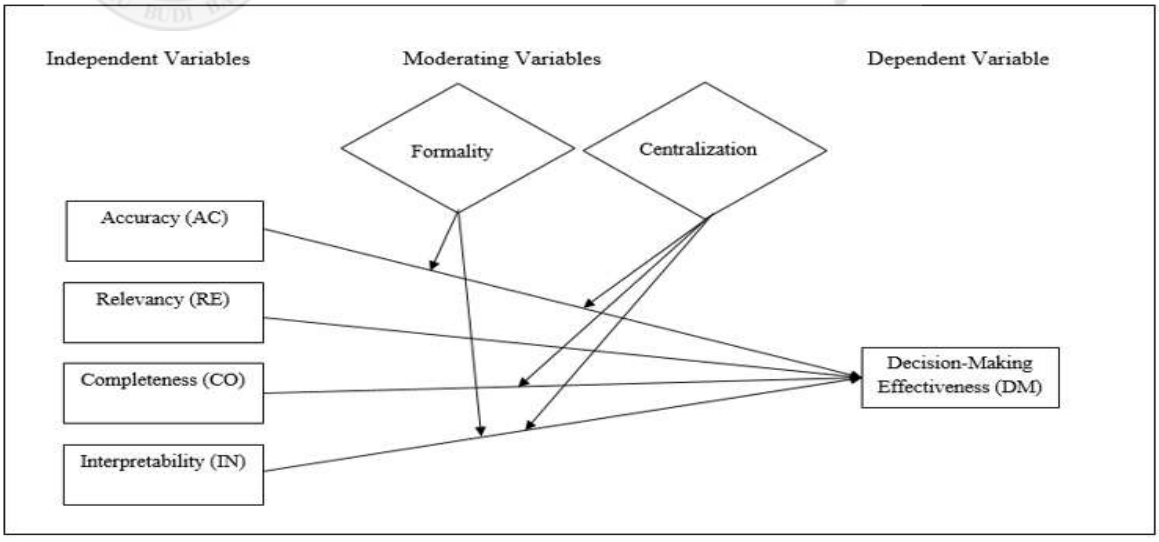

Figure 6.1
Statistical Supported Model of The study

6.4 Contributions of the Study

The contributions of this study are discussed from the theoretical and practical perspectives.

6.4.1 Theoretical Contributions

The conceptualization of this study involved the modeling of the relationship between information quality and decision-making effectiveness. The present study showed various significant relationships between the dimensions of information quality, organizational structure, and decision-making effectiveness. The findings have deepened the understanding of the role of the information quality dimensions. Specifically, the study was able to identify accuracy, completeness, relevancy, and interpretability of information in the model. This study contributes to the theory by supporting and extending the theory of information and decision-making effectiveness. For example, it contributes to the theory of classical decision making by showing the potential impact of information quality dimensions in assessing managers' decision making through the examination of available alternatives essential to achieve the maximum benefits. It also contributes to the current understanding of contingency theory in which accuracy, relevancy, completeness, and interpretability are found to influence managers' decision-making effectiveness in accordance to the situation.

The second important contribution of this study is the empirical validation of the moderating role of organizational structure in the relationship between information

quality and decision-making effectiveness. The information quality is important to the organization form the various functional viewpoints. The usefulness of information quality had been found in previous studies for the management functions throughout the organization (Ditkaew & Ussahawanitchakit, 2010; Doinea, Lepadat, Tomita, & Daniasa, 2011; Madapusi & D'Souza, 2012). In essence, this study contributes to greater competency in decision making because of the better information quality in different organizational structures.

6.4.2 Practical Contributions

The outcome of the study suggests the need the bank managers to pay attention to the quality of information regarding its accuracy, relevancy, completeness, and interpretability.

The relevance of the study to practice and management is as follows: First, this study showed that investment in modern information and communication technology is worth it. However, for decision making to be effective, a sustained level of investment in ICT is necessary. Second, banks in Palestine can come up with a policy that rewards effective use of ICT by the bank staff. This is because effective use of ICT and other resources can promote managers' perception about the quality of information in order to maintain the effectiveness of their decisions.

The findings from the present study have major implications for managers when making decisions. One of the main focuses of this study was to identify information quality dimensions needed for making decisions since not all information quality dimensions have the same effect on decision effectiveness. That is, the decision

makers in the banking sector in Palestine can use the output of this study to determine the most important information attributes they require when they make their decisions. Overall results from multiple regressions showed a positive relationship between information quality and decision-making effective. As a result, the decision makers should improve their information quality to achieve more effective decisions. The findings of this study help banks managers to enhance the efficiency and effectiveness in making decisions by considering the quality of the information received. Mironiuc, Carp, and Chersan (2015) asserted that information quality is useful for decision making as it affects value relevance of available resources.

On the other hand, the moderating effect in this study revealed that formality and centralization to influence bank managers' perception about the quality of available information for effective decision making. This study showed that formality on this level of organization would lend greater weight to the decision-making effectiveness by emerging the relevant dimensions of information quality different from those of other organizations. Centralization provide a good measure to bank managers by enabling them to adequately assess their decision making centralization tendencies based on the information quality dimensions. In addition, centralization of bank managers indicates distribution of decision-making power by promoting efficient and effective functioning.

6.5 Limitations and Future Research Directions

This study provided support for some of the hypothesized relationships between the exogenous and endogenous variables thus advancing theoretical understanding of the area, yet there are areas of limitations to the study.

However, this study was limited to the effect of certain information system construct (information quality) on bank managers' division making effectiveness. In addition, more research is needed in order to understand the link between information quality and decision-making effectiveness in the banking sector, and this can be accomplished by using a longitudinal survey. This includes examining the effect of information presentation on managers' decision confidence and effectiveness. Future studies can also consider the role of other information quality dimensions for managers' decision making and compare it to previous studies. The moderating effect of gender differences and experience on decision-making effectiveness of bank, managers in Palestine can be also explore. Moreover, future research can be extended by targeting the sample in different levels in banks because the population of this study was bank managers.

6.6 Conclusion

The result indicated a significant relationship between accuracy and decision-making effectiveness. The result suggests that for effective decision making in the banking sector particularly in Palestine, the accuracy of information disseminated is very important. Unexpectedly, accessibility did not show a significant relationship with decision-making effectiveness. The result though surprising may be attributed to the penetration of information and communication technology among the Palestinian

banks. On the other hand, the results found that completeness had a significant association with decision-making effectiveness. Completeness leaves out a doubt in the relationship of bank key operation staff and even between the banking staff and their customers. Relevancy was found to influence decision-making effectiveness of bank managers in Palestine. Relevancy of information helps bank managers to be committed to their decision-making. However, the result did not show that timeliness is significantly related to decision-making effectiveness. Finally, the interpretability of information was found to have a significant impact on decision-making effectiveness. Decision-making effectiveness is highly dependent on abilities of the encoder (sender) of the information to disseminate what the decoder (receiver) would be able to interpret as intended by the encoder (Aburub, 2015; Gazor, Nemati, Ehsani, & Ameleh, 2012; Uotila & Melkas, 2007). If this is not achieved, the result is chaos that will impact negatively on the decision-making effectiveness of the banking organization. From the findings, it can be concluded that for the banking industry in Palestine to sustain its growth and serve better the population of Palestine, it must continue to invest in information technology for effective decision making. The banks need to train their staff to adapt with the new ICT for the proper use of the information. Another important factor that banks in Palestine must give the attention to is the structure of their organization. This study found that the structure of an organization is important for effective decision making. The study provides the necessary insights to enrich the current decision making practices of bank managers in Palestine in the light of the level of information quality and moderating effect of certain organizational dimensions.

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Appendix A

Questionnaire(English)

Universiti Utara Malaysia

A Survey on Palestine Banks

Dear Manager.

I am Mohannad S.S Abumandil a Docctoral student at Othman Yeop Abdullah graduate school of business, universiti utara malaysia (uum) under the supervision of prof dr. Shahizan bin hassan. I am conducting a research on (FACTORS AFFECTING DECISION-MAKING EFFECTIVENESS IN PALESTINIAN BANKS)

I humbly seek your assistance in completing the questionnaire which is estimated to be not more than 20 minutes. Please be assured that the information provided will be treated with confidentiality and used only for the purpose of the research which is purely academic.

Individual names and identity are not required in this data collection. If you require any clarification, or have any comments or suggestions with regard to this study, please do not hesitate to contact me.

I am looking forward to receiving your completed questionnaire. Thank you in advance for your time and cooperation.

Yours faithfully,

Researcher

Mohanad S. S. Abumandil (94314)

Universiti Utara Malaysia

Kedah

mohanad.mandel@gmail.com

Please circle the appropriate option to your response.

SECTION A: Decision-making effectiveness: This section is about your perception of what constitutes Decision-making effectiveness in your organization as measured by quality *of decision, commitment, and satisfaction*

Instructions:

For each statement, circle the number on the scale that corresponds to your level of agreement.

1= Strongly Disagree (SD), 2= Disagree (D), 3= Neutral (N), 4= Agree (A), 5= Strongly Agree (SA).

Item	Decision-making effectiveness requires that...	SD	D	N	A	SA
1	the decision is easy to understand.	1	2	3	4	5
2	the decision is reliable.	1	2	3	4	5
3	the decision is comprehensive.	1	2	3	4	5
4	the correct decision make me more confident.	1	2	3	4	5
5	the subordinates don't care if they implement this decision or not.	1	2	3	4	5
6	the subordinates strongly committed to pursuing this decision.	1	2	3	4	5
7	observance of administrative formal rules and regulations and standards in displacements.	1	2	3	4	5
8	the subordinates willing to put forth a great deal of effort beyond what they normally do to implement this decision.	1	2	3	4	5
9	decision-making effectiveness requires to be satisfied with my decision.	1	2	3	4	5
10	decision-making effectiveness requires that to be in full agreement with my decision.	1	2	3	4	5
11	decision-making effectiveness requires support my decision.	1	2	3	4	5
12	decision-making effectiveness requires to be confident that my decision will work out well.	1	2	3	4	5

SECTIONB: Organizational Structure: this section is about your perception of Organizational Structure effectiveness as measured by *formality, complexity and centralization.*

Instructions: For each statement, circle the number on the scale that corresponds to your level of agreement.

1= Strongly Disagree (SD), 2= Disagree (D), 3= Neutral (N), 4= Agree (A), 5= Strongly Agree (SA).

Item	Organizational structure requires...	**SD**	**D**	**N**	**A**	**SA**
1	conformity of employee's performance with existing standards (existence of job description).	1	2	3	4	5
2	observance of regular task procedures.	1	2	3	4	5
3	existence of annual policies and instructions for different tasks.	1	2	3	4	5
4	determination of job procedures.	1	2	3	4	5
5	compliance of administrative regulations, instructions, and standards.	1	2	3	4	5
7	observance of administrative formal rules and regulations and standards in displacements.	1	2	3	4	5
8	observing standards by employees.	1	2	3	4	5
9	surveying employees about new issues.	1	2	3	4	5
10	employee involvement in organization's decision makings.	1	2	3	4	5
11	information distribution between low ranks.	1	2	3	4	5

12	surveying employees about new plan or project.	1	2	3	4	5
13	flow of communication between the lowest rank and the highest rank.	1	2	3	4	5
14	a reduction in the existing department in the organization.	1	2	3	4	5
15	a reduction in total number of labor who are involved in the dispersed units	1	2	3	4	5
16	constant interaction among high ranking management of the organization	1	2	3	4	5
17	less number of job titles	1	2	3	4	5
18	Less number of physical locations (units' dispersion).	1	2	3	4	5

SECTION C: Information Quality Dimension: this section is about your perception of Information Quality as measured by accuracy, accessibility, timeliness, completeness, relevancy and interpretability.

Instructions: For each statement, circle the number on the scale that corresponds to your level of agreement:

1= Strongly Disagree (SD), 2= Disagree (D), 3= Neutral (N), 4= Agree (A), 5= Strongly Agree (SA).

Item	Information quality is related to the following items…	**SD**	**D**	**N**	**A**	**SA**
1	constant and accurate flow of information in the organisation.	1	2	3	4	5

2	dissemination of reliable information in the organisation.	1	2	3	4	5
3	dissemination of error-free information in the organisation.	1	2	3	4	5
4	dissemination of information that helps decision making.	1	2	3	4	5
5	information is easily accessible and usable.	1	2	3	4	5
6	completeness of information disseminated.	1	2	3	4	5
7	dissemination of relevant information.	1	2	3	4	5
8	dissemination of information that is easy to interpret by relevant officer of the organisation.	1	2	3	4	5
9	dissemination of information that includes all necessary values of the organisation.	1	2	3	4	5
10	dissemination of information is sufficiently complete for the need of the organisation.	1	2	3	4	5
11	dissemination of information meet the needs of the assigned tasks.	1	2	3	4	5
12	dissemination of information that covers the breadth and depth for the assigned task.	1	2	3	4	5
13	dissemination of information that is useful to decision making effectiveness.	1	2	3	4	5
14	dissemination of information relevant to decision making effectiveness.	1	2	3	4	5

SECTION D: Demographic

15	dissemination of information that is appropriate for decision making effectiveness.	1	2	3	4	5
16	dissemination of information that is applicable to decision making effectiveness.	1	2	3	4	5
17	dissemination of information that is current to decision making effectiveness.	1	2	3	4	5
18	dissemination of information that is sufficiently current for decision making effectiveness.	1	2	3	4	5
19	dissemination of information that timely for decision making effectiveness.	1	2	3	4	5
20	dissemination of information that sufficiently up-to-date for decision making effectiveness.	1	2	3	4	5
21	dissemination of information that is easy to understand.	1	2	3	4	5
22	dissemination of information that is easily to comprehended.	1	2	3	4	5
23	dissemination of information that make it easy to identify what to do at a point.	1	2	3	4	5
24	dissemination of information that is interpretable for decision making effectiveness.	1	2	3	4	5
25	dissemination of information that is readable.	1	2	3	4	5

Instruction: Please tick (√) in the relevent boxes.

1. Gender:

Male ☐ Female ☐

2. Age [years]:

less than 45 years ☐ 45 - 50 ☐ 50 years or more ☐

3. Highest level of academic qualification:

Diploma ☐ Bachelor's Degree ☐ Master's Degree ☐ Doctoral ☐

Degree

4. Please indicate your experience years as a manager:

less than 10 years ☐ 10-15 years ☐ 15-20 years ☐ 20 years ☐

or more

5. Your bank (branch) primarily is:

1 Conventional ☐ 2 Islamic ☐

This is the end of the questionnaire

Thank you for your cooperation

Appendix B

Questionnaire (Arabic)

University Utara Malaysia

إستبيان حول البنوك الفلسطينية للعام 2015

السادة الكرام...

السلام عليكم

إسمحولي في البداية أن أشكركم على موافقتكم المشاركة في هذا الإستبيان. كما أود أن أقدم لكم نفسي , أنا مهند سرحي ابومنديل فلسطيني في برنامج الدكتوراه في تخصص إدارة الأعمال في ماليزيا.

يقوم الباحث بجمع معلومات **العوامل المؤثرة في اتخاذ القرار الفعالة في بنوك فلسطين**., بالإضافة الى أن نجاح هذا الإستبيان والنتائج المترتبة عليه أمر مهم لإستكمال متطلبات برنامج الدكتوراه, فإنها قد تكون مهمة للبنوك الفلسطينية من خلال التوصيات الهادفة الى رفع مستوى الأداء الكلي.

بناءً على ذلك فأنا اكتب اليكم هنا لمساعدتي في هذا الإستبيان من خلال تخصيص 20 دقيقة من وقتكم الثمين لتعبئة هذا الإستبيان بصفتكم مديراً لهذا البنك أو الفرع.

ونحن إذ نحيطكم علماً ً بأن هذه الدراسة تعد من أوائل الدراسات من نوعها حول البنوك في فلسطين, نرجو منكم الإجابة على جميع الأسئلة والعبارات والتي تتطلب رأيكم بخصوص بعض الممارسات الإدارية ولا تتطلب معلومات شخصية عنكم أو مالية عن البنك.

أخيراً, ونحن إذ نشكر لكم تعاونكم معنا سلفاً بتعبئة هذا الإستبيان لنؤكد لكم أن هذه المعلومات ستعامل بسرية تامة ولن تستخدم إلا لغرض البحث العلمي , كما يمكن مراسلتنا على الايميل التالي لمزيد من التوضيح .

الايمل: mohanad.mandel@gmail.com

القسم الأول

في هذا القسم من الإستبيان نرغب في معرفة وجهة نظركم عن فعالية صنع القرار : هذا القسم هو حول التصور الخاص لما يشكل اتخاذ القرار الفعالية في المؤسسة الخاصة بك التي تقاس نوعية القرار، والالتزام، والرضا (فرعكم). الرجاء قراءة العبارات التالية ووضع دائرة حول الرقم الذي يعكس وجهة نظركم

1	2	3	4	5
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة

.

العنصر	اتخاذ القرارات الفعالة يتطلب أن.....					
.1	.قرار من السهل أن نفهم	1	2	3	4	5
.2	.قرارات موثوق بها					
.3	.قرار شامل					
.4	.القرار الصحيح يجعلني أكثر ثقة					
.5	.المرؤوسين يهمني إذا كانوا تنفيذ هذا القرار أم لا					
.6	.المرؤوسين ملتزمة بقوة بمواصلة هذا القرار					
.7	.التقيد بالقواعد واللوائح والمعايير في نزوح رسمية الإدارية					
.8	المرؤوسين على استعداد لطرح قدرا كبيرا من الجهد وراء ما يفعلونه عادة	1	2	3	4	5
.9	.يتطلب اتخاذ القرارات فعالية لتكون راضية عن قراري					
.10	.مما يجعل فعالية القرار يتطلب أن تكون في اتفاق تام مع قراري					
.11	.مما يجعل فعالية القرار يتطلب دعم قراري	1	2	3	4	5
.12	مما يجعل فعالية القرار يتطلب أن تكون واثقا بأن قراري ستعمل بشكل					

القسم الثاني

في هذا القسم من الإستبيان نرغب في معرفة وجهة نظركم (رأيكم) هذا القسم هو حول التصور الخاص بك من فعالية الهيكل التنظيمي مقاسا شكلي والتعقيد والمركزية.. الرجاء قراءة العبارات التالية ووضع دائرة حول الرقم الذي يعكس رأيكم في مضمون كل عبارة.

1	2	3	4	5
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة

العنصر	.يتطلب الهيكل التنظيمي					
.1	مطابقة أداء الموظف مع المعايير القائمة (وجود وصف وظيفي)	1	2	3	4	5
.2	.مراعاة الإجراءات المهمة العادية					
.3	.جود سياسات السنوية وتعليمات للقيام بمهام مختلفة					
.4	.تحديد إجراءات العمل	1	2	3	4	5
.5	.الامتثال للوائح الإدارية والتعليمات والمعايير					
.6	.التقيد بالقواعد واللوائح والمعايير في نزوح رسمية الإدارية					
.7	.مراعاة المعايير من قبل الموظفين					
.8	.مسح الموظفين عن قضايا جديدة					
.9	.تورط موظف في يؤهلها قرار المنظمة					
.10	.توزيع المعلومات بين صفوف منخفضة	1	2	3	4	5
.11	.مسح الموظفين عن خطة أو مشروع جديد					
.12	.تدفق الاتصالات بين أدنى رتبة وأعلى رتبة					
.13	.انخفاض في دائرة الموجودة في المؤسسة					
.14	انخفاض في إجمالي عدد العمالة الذين يعملون في وحدات متفرقة					

15.	تفاعل مستمر بين إدارة على مستوى رفيع في منظمة					
16.	أقل عدد من المسميات الوظيفية					
17.	.أقل عدد من المواقع المادية (تشتت الوحدات)					

القسم الثالث

في هذا القسم من الإستبيان نرغب في معرفة وجهة نظركم(رأيكم) حول التصور الخاص بك من نوعية المعلومات التي تقاس دقة وسهولة الوصول إليها، توقيت واكتمال، أهميتها وتفسيرها.فى بنككم\فرعكم. الرجاء قراءة العبارات التالية ووضع دائرة حول الرقم الذي يعكس وجهة نظركم.

5 4 3 2 1

غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة		
العنصر	يرتبط جودة المعلومات إلى العناصر التالية ...	1	2	3	4	5
1.	.التدفق المستمر والدقيق للمعلومات في المؤسسة	1	2	3	4	5
2.	.نشر المعلومات الموثوق بها في المؤسسة	1	2	3	4	5
3.	.نشر المعلومات خالية من الأخطاء في المنظمة	1	2	3	4	5
4.	.نشر المعلومات التي تساعد على اتخاذ القرارات	1	2	3	4	5
5.	معلومات يمكن الوصول إليها بسهولة وقابلة للاستخدام لفعالية اتخاذ					
6.	.اكتمال المعلومات المنشورة على فعالية عملية صنع القرار					
7.	.نشر المعلومات ذات الصلة فعالية عملية صنع القرار	1	2	3	4	5
8.	نشر المعلومات التي من السهل تفسير من قبل الموظف المختص في	1	2	3	4	5
9.	.نشر المعلومات التي تتضمن كافة القيم الضرورية للمنظمة					
10.	.نشر المعلومات كاملة بما فيه الكفاية لحاجة المنظمة					
11.	.نشر المعلومات تلبية احتياجات المهام الموكلة					

12.	.نشر المعلومات التي تغطي اتساع وعمق للقيام بهذه المهمة المسندة					
13.	.نشر المعلومات يمكن أن يكون مفيدا لفعالية اتخاذ القرارات					
14.	.نشر المعلومات ذات الصلة لاتخاذ القرارات فعالية عملنا					
15.	.نشر المعلومات التي هي مناسبة لفعالية اتخاذ القرارات	1	2	3	4	5
16.	.نشر المعلومات التي تنطبق على فعالية عملية صنع القرار	1	2	3	4	5
17.	.نشر المعلومات التي هو الحالي لفعالية اتخاذ القرارات					
18.	.نشر المعلومات التي هو الحالي بما فيه الكفاية لفعالية اتخاذ القرارات					
19.	.نشر المعلومات التي في الوقت المناسب لاتخاذ قرارنا فعالية					
20.	نشر المعلومات التي بما فيه الكفاية ما يصل إلى موعد لاتخاذ القرارات					
21.	.نشر المعلومات التي من السهل أن نفهم					
22.	.نشر المعلومات التي فهمها بسهولة					
23.	.نشر المعلومات التي تجعل من السهل لتحديد ما يجب القيام به عند نقطة	1	2	3	4	5
24.	.نشر المعلومات التي الترجمة الشفوية لفعالية اتخاذ القرارات	1	2	3	4	5
25.	.نشر المعلومات التي يمكن قراءتها					

القسم الرابع

في هذا الجزء نرجو منكم الإجابة عن بعض الأسئلة المتعلقة بشخصكم الكريم وعن البنك (الفرع). مرةً أخرى نؤكد لكم أن هذه المعلومات ستعامل بسرية تامة ولن تستخدم الا لغرض هذا البحث .

1. الجنس

أ. ذكر ☐ **ب. أنثى** ☐

2. العمر

اقل من 45 عام ☐ **50-45** ☐ **اكبر من 50 عام** ☐

3. التعليم والمؤهل العلمي

أ. ثانوية عامةاو اقل ☐ **ب. بكالوريس** ☐

ج. ماجستير ☐ **د. دكتوراة** ☐

4. سنوات الخدمة

اقل من 45 عام ☐ **50-45** ☐ **اكبر من 50 عام** ☐

5. طبيعة الملكية في هذا البنك

أ. قطاع اسلامي ☐ **ب. قطاع عالمي** ☐

في الختام نشكر لكم ونثمن عالياً مشاركتكم في هذا الإستبيان,,,,,

Appendix C

Statistical Output

Table A.1: kurtosis and skewness analysis

NO.	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Acc1	1	5	4.14	.907	-.838	.201	.140	.399
Acc2	1	5	4.12	.914	-.784	.201	.001	.399
Acc3	1	5	4.05	.981	-.777	.201	-.049	.399
Acc4	2	5	4.32	.723	-.686	.201	-.383	.399
Abl1	2	5	3.88	.766	-.359	.201	-.109	.399
Abl2	2	5	3.86	.691	-.067	.201	-.341	.399
Abl3	2	5	3.84	.884	-.231	.201	-.787	.399
Abl4	2	5	3.78	.835	-.217	.201	-.533	.399
Com1	1	5	3.71	.999	-.143	.201	-.928	.399
Com2	1	5	3.77	.983	-.267	.201	-.782	.399
Com3	1	5	3.79	.991	-.294	.201	-.802	.399
Com4	1	5	3.83	.989	-.493	.201	-.642	.399
Rel1	1	5	4.06	.807	-.752	.201	.779	.399
Rel2	1	5	3.90	.905	-.659	.201	.057	.399
Rel3	1	5	3.92	.983	-.642	.201	-.187	.399
Rel4	1	5	4.12	.980	-.863	.201	-.274	.399
Tim1	1	5	3.76	.904	-.470	.201	.052	.399
Tim2	1	5	3.75	.914	-.313	.201	-.431	.399
Tim3	1	5	3.72	.908	-.366	.201	-.082	.399
Tim4	1	5	3.64	.901	-.074	.201	-.512	.399
Int1	2	5	3.75	.757	.059	.201	-.597	.399
Int2	2	5	3.87	.807	-.236	.201	-.524	.399
IntI3	2	5	3.75	.795	-.097	.201	-.506	.399
Int4	2	5	3.75	.795	-.180	.201	-.400	.399
Int5	2	5	3.72	.786	-.236	.201	-.282	.399

Appendix C

Statistical Output Multicollinearity analysis (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Accessibility	.787	1.271
	Completeness	.889	1.125
	Relevancy	.789	1.267
	Timeliness	.784	1.275
	Interpretability	.817	1.223
	Quality	.610	1.640
	Satisfaction	.581	1.720
	Commitment	.649	1.541
	Formality	.625	1.600
	Complexity	.635	1.575
	Centralization	.647	1.546

Appendix C

Statistical Output Coefficientsa analysis

(VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Relevancy	.782	1.280
	Timeliness	.775	1.291
	Interpretability	.812	1.232
	Quality	.599	1.668
	Satisfaction	.583	1.715
	Commitment	.652	1.533
	Formality	.626	1.598
	Complexity	.638	1.567
	Centralization	.648	1.543
	Accuracy	.728	1.374
	Accessibility	.774	1.292

a. Dependent Variable: Completeness

a. Dependent Variable: Accuracy

Appendix C

Statistical Output Multicollinearity analysis (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Completeness	.883	1.133
	Relevancy	.780	1.282
	Timeliness	.796	1.257
	Interpretability	.818	1.223
	Quality	.610	1.639
	Satisfaction	.578	1.731
	Commitment	.652	1.533
	Formality	.628	1.592
	Complexity	.635	1.575
	Centralization	.650	1.538
	Accuracy	.735	1.360

a. Dependent Variable: Accessibility

Appendix C

Statistical Output Multicollinearity analysis (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Timeliness	.773	1.293
	Interpretability	.838	1.193
	Quality	.600	1.668
	Satisfaction	.577	1.734
	Commitment	.658	1.519
	Formality	.631	1.586
	Complexity	.639	1.565
	Centralization	.645	1.550
	Accuracy	.732	1.367
	Accessibility	.774	1.292
	Completeness	.885	1.130

a. Dependent Variable: Relevancy

Appendix C

Statistical Output Multicollinearity analysis (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Interpretability	.818	1.222
	Quality	.601	1.665
	Satisfaction	.580	1.725
	Commitment	.672	1.488
	Formality	.625	1.599
	Complexity	.636	1.571
	Centralization	.654	1.529
	Accuracy	.734	1.363
	Accessibility	.797	1.255
	Completeness	.885	1.130
	Relevancy	.780	1.281

a. Dependent Variable: Timeliness

Appendix C

Statistical Output Multicollinearity analysis (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Quality	.606	1.649
	Satisfaction	.577	1.732
	Commitment	.667	1.500
	Formality	.624	1.602
	Complexity	.636	1.572
	Centralization	.653	1.531
	Accuracy	.729	1.372
	Accessibility	.780	1.282
	Completeness	.883	1.132
	Relevancy	.806	1.241
	Timeliness	.780	1.283

a. Dependent Variable: Interpretability

Appendix C

Statistical Output Multicollinearity analysis (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Satisfaction	.627	1.595
	Commitment	.657	1.522
	Formality	.641	1.560
	Complexity	.636	1.572
	Centralization	.660	1.515
	Accuracy	.736	1.359
	Accessibility	.788	1.269
	Completeness	.883	1.132
	Relevancy	.780	1.282
	Timeliness	.775	1.291
	Interpretability	.821	1.218

a. Dependent Variable: Quality

Appendix C

Statistical Output Multicollinearity analysis (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Commitment	.649	1.541
	Formality	.623	1.604
	Complexity	.638	1.567
	Centralization	.644	1.554
	Accuracy	.742	1.348
	Accessibility	.789	1.267
	Completeness	.909	1.100
	Relevancy	.794	1.260
	Timeliness	.791	1.264
	Interpretability	.827	1.209
	Quality	.663	1.508

a. Dependent Variable: Satisfaction

Appendix C

Statistical Output Multicollinearity analysis (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Formality	.689	1.452
	Complexity	.636	1.573
	Centralization	.644	1.554
	Accuracy	.723	1.383
	Accessibility	.778	1.285
	Completeness	.888	1.126
	Relevancy	.791	1.264
	Timeliness	.800	1.249
	Interpretability	.833	1.200
	Quality	.607	1.648
	Satisfaction	.566	1.765

a. Dependent Variable: Commitment

Appendix C

Statistical Output Multicollinearity analysis (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Complexity	.703	1.422
	Centralization	.648	1.544
	Accuracy	.725	1.379
	Accessibility	.780	1.282
	Completeness	.887	1.128
	Relevancy	.789	1.268
	Timeliness	.776	1.289
	Interpretability	.812	1.231
	Quality	.616	1.623
	Satisfaction	.567	1.765
	Commitment	.717	1.394

a. Dependent Variable: Formality

Appendix C

Statistical Output Multicollinearity analysis (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Centralization	.776	1.289
	Accuracy	.723	1.383
	Accessibility	.774	1.291
	Completeness	.888	1.127
	Relevancy	.785	1.274
	Timeliness	.775	1.290
	Interpretability	.813	1.230
	Quality	.600	1.666
	Satisfaction	.569	1.756
	Commitment	.650	1.539
	Formality	.691	1.448

a. Dependent Variable: Complexity

Appendix C

Statistical Output Multicollinearity analysis (VIF)

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Accuracy	.727	1.376
	Accessibility	.782	1.279
	Completeness	.889	1.125
	Relevancy	.782	1.279
	Timeliness	.785	1.274
	Interpretability	.823	1.215
	Quality	.615	1.627
	Satisfaction	.567	1.765
	Commitment	.649	1.541
	Formality	.627	1.595
	Complexity	.765	1.308

a. Dependent Variable: Centralization

Appendix C Statistical Output

Common Method Variance Analysis Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.066	20.492	20.492	10.294	19.063	19.063
2	4.757	8.808	29.300			
3	3.370	6.241	35.541			
4	3.207	5.939	41.480			
5	2.737	5.068	46.548			
6	2.288	4.237	50.786			
7	2.114	3.914	54.700			
8	1.911	3.539	58.239			
9	1.767	3.273	61.512			
10	1.712	3.171	64.683			
11	1.600	2.963	67.646			
12	1.295	2.398	70.044			
13	.940	1.741	71.784			
14	.862	1.596	73.380			
15	.841	1.558	74.937			
16	.790	1.462	76.400			
17	.724	1.341	77.741			
18	.711	1.317	79.058			

Appendix C Statistical Output

Common Method Variance Analysis Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
19	.679	1.257	80.315			
20	.661	1.225	81.540			
21	.614	1.136	82.677			
22	.581	1.076	83.752			
23	.562	1.040	84.793			
24	.509	.943	85.735			
25	.503	.931	86.666			
26	.472	.874	87.540			
27	.462	.855	88.395			
28	.441	.817	89.211			
29	.404	.748	89.960			
30	.391	.725	90.685			
31	.365	.676	91.361			
32	.342	.632	91.994			
33	.341	.631	92.625			
34	.325	.602	93.226			
35	.302	.560	93.786			
36	.290	.536	94.322			

Appendix C Statistical Output

Common Method Variance Analysis Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
37	.277	.514	94.836			
38	.270	.501	95.337			
39	.244	.452	95.789			
40	.232	.430	96.219			
41	.222	.411	96.630			
42	.209	.386	97.017			
43	.192	.356	97.372			
44	.179	.331	97.704			
45	.169	.312	98.016			
46	.160	.297	98.313			
47	.150	.278	98.591			
48	.143	.265	98.857			
49	.132	.245	99.101			
50	.117	.216	99.317			
51	.105	.195	99.512			
52	.097	.180	99.692			
53	.089	.165	99.857			
54	.077	.143	100.000			

Appendix C Statistical Output

Common Method Variance Analysis Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %