



The Role of Accounting Information in Risk Management in the Saudi Banks under Digital Services: Exploratory Study

Dr. Ahmed Zakaria Zaki Osemy

Assistant Professor

Accounting Department

Faculty of Commerce and Business Administration

Helwan University

Egypt

Email: aahmedzzo@hotmail.com

ABSTRACT

This research aims to determine the role of using useful accounting information in risk management in Saudi banks under digital services.

This study is based on an exploratory study and desk study from the literature review.

This study revealed that there is a statistically significant relationship between using useful accounting information in the risk management process in Saudi banks under digital services and achieving positive results in general. There is a positive and strong correlation, the value of which is 0.94. This study, also, revealed that there is a statistically significant relationship between using accounting information in risk management in the Saudi banks under digital services and reducing risks. There is a positive and strong correlation, the value of which is 0.80. In addition, the study revealed that there is a statistically significant relationship between using accounting information in risk management in the Saudi banks under digital services and avoiding risks. There is a positive and moderate correlation, the value of which is 0.66.

Finally, the researcher recommends the necessity of using useful accounting information in the Saudi banks properly to improve the quality of risk management process more and more, especially under digital services.

Keywords: Useful Accounting Information, Risk Management Process, Banks, Digital Service, and Saudi Arabia

Part I: Introduction

1. Preface

The nature of accounting information enforced in several fields of the banking industry helps in rationalizing the decision-making process and risk management. It does not only save the cost, time, and effort of the bank directors (especially under digital services) but also helps in developing a deep understanding of the bank's operations with its customers, detection of frauds, and risk management. In the Kingdom of Saudi Arabia, growth in the banking sector has facilitated the development of the financial sector and has increased the number of business transactions. This, consequently, requires the need for useful accounting information for risk management and other purposes.

2. Research Problem

To optimally use the available resources and achieve targets in banks in the Kingdom of Saudi Arabia, it is key to use accounting information in the process of risk management, especially under digital services.

Hence, the problem of this research is determining how to reap the benefits of using accounting information in the risk management process under digital services. In other words, this research is trying to determine the impact or the role of accounting information in the process of risk management in Saudi banks, either positive or negative, under digital services.

3. Research Hypotheses

In terms of the research problem, this research is based on *the following hypotheses*:

–“There is a statistically significant relationship between using useful accounting information in the process of risk management in the Saudi banks under digital services and achieving positive effects”.

–“There is a statistically significant relationship between using useful accounting information in the process of risk reduction in the Saudi banks under digital services and achieving positive effects”.

–“There is a statistically significant relationship between using useful accounting information in the process of risk avoidance in the Saudi banks under digital services and achieving positive effects”.

4. Research Questions

To test the research hypotheses, this research includes *the following questions*:

A. What are the main dimensions of the process of managing risks in the Saudi banks under digital services?

B. What are the main characteristics of the usefulness of accounting information?

C. How to achieve the maximum benefits from using useful accounting information in the process of managing risks in the Saudi banks under digital services?

5. Research Objectives and Importance

To explain how the research questions are related to the research hypothesis, this research aims to achieve two main objectives as follows:

- **The first objective** is concerned with summarizing the main dimensions of the process of risk management in the Saudi banks under digital services, and characteristics of the users of accounting information.
- **The second objective** is concerned with determining the role of using useful accounting information in the process of managing risks in the Saudi banks under digital services and achieving positive effects.

Therefore, the significance of this research lies in the necessity of achieving positive effects in the process of risk management in Saudi banks and thus achieving the optimum exploitation of Saudi Arabia's available digital services. This means that using useful accounting information in the process of managing risks in the Saudi banks under digital services properly will improve the quality of the risk management process more and more.

6. Research Methodology

This research was conducted in two parts:

Section One: A theoretical study of the main dimensions of the process of managing risks in the Saudi banks under digital services will be conducted with the main characteristics of the users of accounting information. This will be done by reviewing, analyzing, and discussing the suggestions presented in the literature related.

Section Two: An empirical study will be conducted, based on testing the impact of using useful accounting information and achieving positive effects in the process of risk management in the Saudi banks under digital services. This will be done by collecting data through distributing a questionnaire to a sample that is responsible for risks management within the Saudi banks.

7. Research Limitations

The research limitations are:

A. This research will concentrate on the relationship between using useful accounting information and the process of risk management in Saudi banks under digital services.

B. The research will be applied to a sample that who responsible for risks management within the Saudi banks during 2011-2020G.

8. Research Structure

To achieve the research objectives, this research is divided into the following parts:

PART I: Introduction

Part II: The Literature Review

Part III: The Empirical Study

PART IV: Summary, Conclusions, and Recommendations.

Part II: (The Literature Review)

First: Previous Studies

Numerous studies are related to this issue due to the importance of using useful accounting information in achieving several advantages and benefits in risk management in the field of banks under digital services, such as **Abu Hussain & Al-Ajmi's study (2012)** aimed to report empirical evidence regarding the risk management practices of banks

operating in Bahrain. A sample of bankers was surveyed through a questionnaire. This study reveals that banks in the Kingdom of Bahrain are found to have a clear understanding of risk and risk management and have efficient risk management practices. In addition, credit, liquidity, and operational risk are found to be the most important risks facing both conventional and Islamic banks. The risk management practices are determined by the extent to which managers understand risk and risk management, efficient risk identification, risk assessment, risk monitoring, and credit risk analysis. Islamic banks are found to be significantly different from their conventional counterparts in understanding risk and risk management. The levels of risks faced by Islamic banks are found to be significantly higher than those faced by conventional banks. Similarly, country, liquidity, and operational, residual, and settlement risks are found to be higher in Islamic banks than in conventional banks.

Furthermore, **Ismail's study (2014)** aimed to investigate the risk management process to assess the level of board involvement in risk management practices. This study uses the survey method to collect data regarding the risk management process. The study revealed that banks in Saudi Arabia have an efficient risk management process and an adequate understanding of risk management. In addition, the study revealed that there is a high level of board involvement in assessing, analyzing, monitoring, and controlling risk efficiently, where they are somewhat reasonably efficient in risk management.

In addition, **Alzaidi's study (2018)** aimed to understand the impact of big data analytics in the decision-making process in the banking sector in the Kingdom of Saudi Arabia. To this end, the researcher used a survey method with ten management / higher level authority per bank at 5 commercial banks in Riyadh via a questionnaire. This study reveals that big data analytics helps in targeted marketing, which, in turn, helps in better decision-making in the banking sector in the Kingdom of Saudi Arabia.

Tursoy's study (2018) aimed to explain why banks need to have business information systems applications to cover any losses from their activities. This study covers the latest amendments proposed by the Basel Committee for bank risk management. All the necessary steps in the process are explained in this article. This study revealed that as a monetary authority, the support and development of the Basel applications in the banking industry is the most effective option and is a vital necessity for internationally serving banks around the world to continue their activities in a good manner.

Moreover, **Dicuonzo et al's study (2019)** aimed to investigate how small banks are facing technological challenges, showing the state of the art about the actual use of the techniques of big data analytics in supporting the risk management process. This study tries to identify the skills required for risk management in the digital age for using big

data analytics. This study revealed that big data analytics has worth in the banking sector in the field of risk management.

In addition, Kose & Agdeniz,'s **study (2019)** aimed to examine how managerial accounting can play a role in the process of risk management. It is considered that effective managerial accounting can play a vital role in the risk management process. This study suggested that management accountant's new competencies especially strategic management, reporting and control, business judgment, and operations and leadership are closely associated with risk management.

Meanwhile, **Althebeh's study (2019)** aims to identify the impact of accounting information on reducing liquidity risks in Saudi Arabia between Islamic and Commercial Banks listed in the Saudi Stock Market. The study was carried on a sample consists of (3) Commercial Banks and (3) Islamic Banks listed on Saudi Stock Market. This study revealed that the liquidity problem is one of the most vital problems facing Islamic Banks because of the nature of the projects in which to invest the money, and not dealing with the interest. There was no statistically significant difference in using accounting information on reducing liquidity risks between Islamic Banks and Commercial Banks; Islamic banks have been most successful in liquidity indicators compared to Commercial Banks. The study recommends the necessity of developing accounting information systems to contribute to prospects of liquidity position, providing adequate internal control for each bank for various investment management.

Based on the above-mentioned studies, useful accounting information has an important role in general and in risk management in particular. Each study focused on one or more aspects or issues related to the research topic in a variety

of settings. However, the current study tries to measure the role of useful accounting information in risk management in Saudi banks under digital services.

Second: Risk Management in the Saudi Banks under Digital Services

The Covid-19 pandemic has been a huge substance for transformation banks. Expanding digital services became imperative when it became impossible to engage with clients in an analog way. Under digital services, banks face risks related to these services. Therefore, it is necessary to manage these risks to avoid them or, at least, to reduce them.

Bank risk management has received extraordinary international attention, especially under digital services. In response to growing expectations for effective risk management across the entire bank, many leading banks are deserting their traditional approach to managing risks, where risks areas are managed in isolation from one another and are adopting a bank risk management approach (see for example Lam, 2000; Liebenberg and Hoyt, 2003).

Bank risk management is an action that avoids, retains, transfers, separates, and reduces risk by using, for example, a decisions tree, expert's interview, workshops, SWOT Analysis, and probabilities matrix. It is the vital process involving the executive functions of planning, organizing, monitoring, and controlling activities in a bank relative to specified risks. Bank risk management is important as it assists banks in setting strategy, achieving objectives, and making rational decisions (Committee of Sponsoring Organizations of Tread way Commission, 2004) & Kot & Dragon 2015). However, bank risk management methods can be summarized as follows...

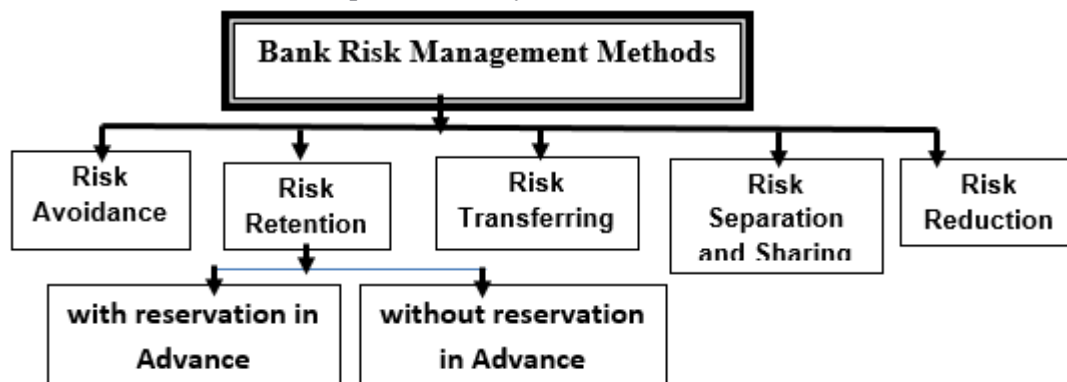


Figure (1) Risk Management Methods

Major bank risks under digital services include credit, operational, market, and liquidity risks. Since banks are exposed to a variety of risks, they have well-constructed risk management infrastructures and are required to follow government regulations and use useful accounting information.

Due to the large size of some banks in Saudi Arabia, overexposure to risk can cause bank failure and impact

millions of customers. The Saudi Government can set better regulations and issue guidelines for online banks to help in bank risk management. The ability of a bank to manage risk also affects investors' decisions. Even if a bank can generate large revenues, lack of risk management can lead to losses.

Saudi banks can use useful accounting information to identify risks that may affect the bank under digital services. In

addition, useful accounting information provides fast and precise fraud identification and reduces losses done by fraudulent activity. In the next point, the role of useful accounting information in risk management under digital services will be explained.

Third: The Main Characteristics of Useful Accounting Information

The primary objective of financial reporting is to provide useful accounting information for making business decisions. Useful accounting information should possess fundamental and enhancing characteristics. There are six qualitative characteristics of accounting information. Two of the six qualitative characteristics are fundamental (must have), while the remaining four qualitative characteristics are enhancing (nice to have).

Fundamental characteristics include relevance and representational faithfulness. Relevance refers to how helpful the information is for financial decision-making processes. It requires that the information is related to the required decision. For accounting information to be relevant, it must possess (Morosan-Danila & Claudia-Elena, 2016):

- ✓ **Confirmatory value**– Provides information about past events (feed-back value) to confirm risks, for example, regarding the past period and during the current period.
- ✓ **Predictive value**– Provides predictive power regarding possible future events to predict risks, for example, regarding the future.

Therefore, accounting information is relevant if it can provide helpful information about past events and help in predicting future events or in taking action to deal with possible future events. For example, a bank experiencing a strong quarter and presenting these improved results to creditors is relevant to the creditors' decision-making process to extend or enlarge credit available to the bank.

Representational faithfulness, also known as reliability, is the extent to which information accurately reflects a bank's resources, obligatory claims, transactions, etc. It means the user must be able to depend on the information. For accounting information to possess representational faithfulness, it must be (Morosan-Danila & Claudia-Elena, 2016):

- ✓ **Complete**–Financial statements should not exclude any transaction to give users a complete picture to help them in the process of risk management.
- ✓ **Neutral**–The degree to which accounting information is free from bias. It means objectivity that reflects the quality of being able to make a decision or judgment reasonably based on accounting information that is not influenced by personal feelings or beliefs.
- ✓ **Free from error**–The degree to which information is free from errors transaction to give users with a right picture to help them in the process of risk management.

Enhancing (Secondary) Qualitative Characteristics of accounting information that impact how useful the information is (Morosan-Danila & Claudia-Elena, 2016):

- **Verifiability**: If accounting information can be verified (e.g. through an audit) this assures the users that it is both credible and reliable in the process of risk management.
- **Timeliness**: Timeliness is how quickly information is available to users of accounting information. The less timely (thus resulting in older information), the less useful information is for decision-making. Timeliness matters for accounting information because it competes with other information. For example, if a bank issues its financial statements a year after its accounting period, users of financial statements would find it difficult to determine how well the bank is doing in the present.
- **Understandability**: Understandability is the degree to which information is easily understood. Therefore, it is easy to use this information in the process of risk management.
- **Comparability**: Comparability is the degree to which accounting standards and policies are consistently applied from one period to another. Comparable financial statements, with consistent accounting standards and policies applied throughout each accounting period, enable users to draw insightful conclusions about the trends and performance of the bank over time. In addition, comparability also refers to the ability to easily compare an entity's financial statements with those of other entities.

The qualitative characteristics of accounting information are important because they make it easier for both bank management and customer to utilize a bank's financial statements to make well-informed decisions.

Useful accounting information provides a variety of features that aid in increased productivity and improved services (like digital services) in the banking sector (Srivastava & Gopalkrishnan, 2015). This leads to increased profitability and delivers a high rate of efficiency in the banking operations, especially under digital services that save cost, time, and effort for both banks and customers.

When banks use useful accounting information in their risk management efforts, they are better able to identify risks that could potentially infect the bank. In the banking industry, useful accounting information identifies opportunities for emerging technologies that can provide efficient and sustainable financial services. The major key to using useful accounting information in risk management is having a powerful risk prediction model. When banks use a powerful risk prediction model for their risk management efforts, they will receive faster response times, more extensive risk coverage, and extensive cost savings.

The role of useful accounting information in risk management can be summarized in the following (see for example Kose & Agdeniz, 2019):

A-Identify trends and potential risks: useful accounting information (for example financial statements) helps in comparing internal and external data, enabling detecting and safeguarding from threats.

B-Make accurate forecasting and decision-making: With the use of useful accounting information, it is becoming easier than ever to create detailed forecasts, enabling banks to make key decisions decisively and confidently. Useful accounting information enables managers to easily detect and analyze patterns that could signal a crisis or a sudden change in the markets or even individual accounts. However, it is necessary to ensure that the collected accounting information is from primary sources to allow for accurate forecasting. However, the collected accounting information from secondary sources will be useful as well in the field of risk measurement (for example, measuring financial risks and business risks).

C-Improved capital efficiency: By identifying areas of risk in a bank, one can get rid of assets weighted down by risk, freeing up capital reserves for added growth.

The fundamental elements of risk management are the identification, evaluation, and prioritization of risks, as well as steps taken to minimize the negative aspects of risks, such as monitoring and controlling. Each of the elements in risk management has a direct correlation with using useful accounting information.

Useful accounting information enhances the quality of risk management models, especially predictive models, by simulating many scenarios to realize all the potential risks associated with all financial transactions. It offers a variety of features in terms of risk management, fraud detection, customer segmentation, credit scoring, text mining, bank marketing, and monitoring the behavior of the clients (Ram, Zhang, & Koronios, 2016).

To successfully use accounting information, banks should collect internal and external accounting data from internal and external sources. While collecting a useful amount of accounting data is beneficial, an integrated process of analysis is more important to effectively use accounting data, which will be done by using integrated models for analyzing. This can offer several solutions in the form of fraud detection and risk management.

Part III: The Exploratory Study

1-Preface

To achieve the second research objective that is related to determining the relationship between using useful accounting information and achieving positive effects in the process of managing risks in the Saudi banks, an empirical

study has been done. A questionnaire was distributed to those who are responsible for risk management within the Saudi banks.

The research population was the Saudi banks, and the sample was the Saudi banks in Riyadh city and nearby cities. 36 responses were collected via google forms, email, and personally.

The research sample was chosen at random, and Riyadh and its surrounding cities were chosen as a source of data collection due to the difficulty of collecting data from all cities over the Kingdom of Saudi Arabia, which would take a significant amount of time, effort, and money. In addition, the majority of the bank's headquarters that is responsible for risk management are in Riyadh city.

A questionnaire was designed after the review of previous studies related to the subject of the study. The questionnaire was divided into four sections, the first section dealing with demographic data to obtain general data (5 items). The second section deals with data regarding various aspects of risk management practices. (7 items), while the third section is related to using useful accounting information by the bank risk managers or directors in managing the various types of risks (7 items). The fourth section deals with any suggestions related to the research issue (1 item).

The researcher measured the degree of **validity** of the questionnaire used based on the scientific judgment of some specialized university staff with regards to the clarity of the measuring tool, and its ability to achieve its purpose. According to the opinions of the selected referees, the wording of some questions has been amended to achieve the research objectives.

The researcher also measured the **reliability**, using Cronbach's Alpha, and the total reliability factor was 0.91 for 14 items (section 2 and section 3 items).

The degree of validity can also be measured as follows:

The degree of validity = the square roots for reliability coefficient, i.e. the degree of validity = 0.95.

This means that the questionnaire items can measure what they have already been developed to measure, as well as the clarity of the questionnaire questions, paragraphs, and vocabulary and that they are understandable to those who will be included in the sample, as well as that the collected data is valid for statistical analysis to achieve the study objectives.

2- Presenting and discussing the results

2-1 Description of the research sample (demographic data)

In this section, the researcher deals with a description of the research sample. The research sample, according to their gender, can be presented as follows in Table 1:

Table 1 the Distribution of the Research Sample According to Their Gender

Gender	Frequency	Percentage
Male	21	58%
Female	15	42%
Total	36	100%

From Table 1, it can be seen that the highest percentage of responses came from Males, representing 58%. While the percentage of Female respondents represents 42%.

This reflects the majority of bank risk directors or managers are males.

The research sample, according to their qualifications, can be presented as follows in Table 2:

Table 2 the Distribution of the Research Sample According to Their Qualifications

Qualifications	Frequency	Percentage
Bachelor Degree	31	86%
Master Degree	4	11%
Ph.D. Degree	1	3%
Total	36	100%

From Table 2, it can be seen that the highest percentage of responses came from those who have bachelor's degrees, representing 86%. However, the percentage of respondents with a Master's Degree represents 11% and the respondents with a Ph.D. represent only 3%. This reflects that there is no direct relation between working in the field of risk

management the academic degree. This means that the survey concentrates on people who have bachelor degrees and may have a long period of experience in the field of risk management.

The research sample, according to their position, can be presented as follows in Table 3:

Table 3 the Distribution of the Research Sample According to Their Positions

Positions	Frequency	Percentage
Risk director or manager	19	53%
Risk analyst	10	28%
Employee in a risk management	7	19%
Total	36	100%

From Table 3, it can be seen that the highest percentage of responses comes from risk directors or managers, representing 53%. The second rank is risk analysts, representing 28%. Whereas, employees in risk management come at the third rank, representing 19%. This means that the survey concentrates on people who employ in the risk management field in Saudi banks. This will help in collecting

the required data regarding the research objectives. Thus, this will help in evaluating the current position in risk management in Saudi banks under digital services. So, this will support the study results and achieving its objectives.

The research sample, according to their experiences, can be presented as follows in Table 4:

Table 4 the Distribution of the Research Sample According to Their Experience Period

Experience period	Frequency	Percentage
Less than 10 years	17	47%
10 – Less than 20 years	11	31%
More than 20 years	8	22%
Total	36	100%

From Table 4, it can be seen that respondents have less than 10 years of experience score the highest, representing 47%, while the respondents who have more than 20 years of experience score the lowest, representing 22%. Whereas, respondents who have 10 – Less than 20 years of experience come at the second rank, representing 31%. This means that the respondents have different periods of experience. This will reflect different points of view regarding risk management in

the Saudi banks under digital services, and so will support the study objectives.

2-2 Description of the various aspects of risk management practices under digital services

Respondents' responses regarding the various aspects of risk management in their banks can be summarized in Table 5:

Table 5 the various aspects of risk management practices

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	S. Dev.	Var. Coef.	St. error of mean
Risk Identification:									
The bank risk managers or directors who do only risk identification	0	0	6%	44%	50%	4.44	0.60	0.13	0.02
It is easy in the bank to do risk identification under digital services	0	9%	6%	44%	41%	4.19	0.88	0.21	0.02
Risk Assessment:									
The bank's risks are assessed by using quantitative methods only.	0	6%	31%	56%	7%	3.67	0.71	0.19	0.02
The bank's risks are assessed by using qualitative methods only.	0	7%	24%	63%	6%	3.69	0.66	0.18	0.02
It is easy to do risk assessment at the bank under digital services.	7%	12%	29%	23%	29%	3.72	1.12	0.30	0.03
Risk Controlling:									
The bank effectively monitors and controls its risks under digital services.	0	7%	24%	38%	31%	3.94	0.88	0.22	0.02
The bank monitors and controls its risks based on a specific plan..	0	0	14%	62%	24%	4.11	0.61	0.15	0.02

From Table 5, it can be seen that the bank risk managers or directors who do only risk identification the Saudi banks' risks are generally under digital services (94%). Some respondents (9%) disagreed that it is easy in the bank to do risk identification under digital services. The Saudi banks' risks are assessed by using both quantitative (59%) and qualitative (67%) methods. In addition, some respondents (21% only) disagreed that it is easy to do a risk assessment at the bank under digital services. Some respondents (9% only) disagreed that the bank effectively monitors and controls its risks. This result agreed with Ismail's study (2013) that found that there is a high level of board involvement in assessing, analyzing, monitoring, and controlling risk efficiently within the Saudi banks. However, the majority of the respondent (67%) agreed that the bank monitors and controls its risks

based on a clear plan. This result agreed with Abu Hussain & Al-Ajmi's study (2012) that found the banks in Bahrain have a clear understanding of risk and risk management.

Banks, generally, have been leaders in risk management due to the emphasis on risk management in global regulation as a way to reduce a bank's minimum capital requirements. (Basel II, 2004). This result explains the need to raise awareness of the staff working in the field of managing risks under electronic services by providing them with training courses in this field.

2-3 Using accounting information by the bank in managing the various types of risks under digital services

Using accounting information by the bank in managing the various types of risks can be summarized in the following table:

Table 6 Using accounting information by the bank in managing the various types of risks

Questions	Yes	إلى حد ما To somewhat	No	Mean	S. Dev.	Var. Coef.	St. error of mean
Do you use accounting information in risk management under digital services?	78%	14%	8%	2.69	0.62	0.23	0.02
Do you use accounting information in risk management for all kinds of risks under digital services?	63%	26%	11%	2.53	0.69	0.27	0.02
Is it enough to use accounting information only in risk management at the bank under digital services?	49%	22%	29%	2.22	0.85	0.38	0.02
Do you face problems in using accounting information in risk management?	11%	28%	61%	2.72	0.45	0.16	0.01
Do you think that using accounting information in risk management lead to reducing risks under digital services?	59%	30%	11%	2.47	0.69	0.28	0.02
Do you think that using accounting information in risk management lead to avoiding risks under digital services?	79%	17%	4%	2.75	0.49	0.18	0.01
Do you think that using accounting information in risk management will help, in general, in risk management at the bank under digital services?	94%	6%	0%	2.94	0.23	0.08	0.01

From Table 6, it can be seen that the majority of respondents (78%) said that their banks use accounting information in risk management under digital services. Moreover, the majority of respondents (63%) said that their banks use accounting information in risk management for all kinds of risks under digital services. However, 29% said that it is not enough to use accounting information in risk management at the bank under digital services. In addition, 11% of respondents said that their banks face problems in using accounting information in risk management under digital services. 59% of respondents think that use accounting information in risk management leads to reducing risks under digital services, whereas 79% of respondents think that use accounting information in risk management leads to avoiding risks under digital services. Finally, 94% of respondents think that use accounting information will help, in general, in risk management at the bank under digital services. This result agreed with Kose & Agdeniz,'s study (2019) that considered that effective managerial accounting can play a vital role in the risk management process. This result explains the importance of accounting information in the field of managing risks under electronic services.

2-4 Suggestions related to the research issue

There are some suggestions from respondents as follows:

Some respondents said that it is useful to use accounting information for risk management, while other respondents said that it is best to use accounting information with other techniques for risk management. This result agreed with the Althebeh study (2019) that recommends the necessity of developing accounting information systems to be useful in the field of risk management.

2-5 Testing the research hypotheses

From Table 6, it can be seen that the standard error of the mean of question: "Do you think that using accounting information will help, in general, in risk management at the bank under digital services?" is less than 0.05 with confidence more than 95%. Thus, the first hypothesis is acceptable.

Moreover, it can be seen that the standard error of the mean of the question: "Do you think that using accounting information in risk management leads to reducing risks under digital services?" is less than 0.05 with a confidence of more than 95%.

Thus, the second hypothesis is acceptable. In addition, it can be seen that the standard error of the mean of the question: "Do you think that using accounting information in risk management leads to avoiding risks under digital services?" is less than 0.05 with a confidence of more than 95%. Thus, the third hypothesis is acceptable.

Table 7 The Correlation value of using accounting information in the process of risk management in the Saudi banks under digital services and achieving positive effects

Statement	Correlation Value
Using accounting information will help, in general, in risk management at the bank under digital services.	0.94
Using accounting information in risk management lead to reducing risks under digital services.	0.80
Using accounting information in risk management lead to avoiding risks under digital services.	0.66

From Table 7, it can be seen that there is a positive and strong moderate correlation between using accounting information in the Saudi banks in risk management and improving the risks management process generally. The correlation value is near 0.94. Moreover, it can be seen that there is a positive and strong correlation between using accounting information in the Saudi banks in risk management and reducing risks processes under digital services. The correlation value is near 0.80. In addition, it can be seen that there is a positive and moderate correlation between using accounting information in the Saudi banks in risk management and avoiding risks processes under digital services. The correlation value is 0.66.

Part IV: Summary, Conclusions, and Recommendations

The core of this paper has involved an examination of the role of using accounting information in improving the efficiency of risk management in general and in the Saudi banks in particular under digital services. This research aims, also, to summarize the main dimensions of the process of risk management in the Saudi banks under digital services, and the characteristics of the users of accounting information.

The study revealed that there is a statistically significant relationship between using useful accounting information in the risk management process in Saudi banks under digital services and achieving positive results generally. There is a positive and strong correlation, the value of which is 0.94. Furthermore, this study revealed that there is a statistically significant relationship between using accounting information in the process of risk management in the Saudi banks under digital services and reducing risks. There is a positive and strong correlation, the value of which is near to one (0.90). In addition, the study reveals that there is a statistically significant relationship between using accounting information in the process of risk management in the Saudi banks under digital services and avoiding risks. There is a positive and moderate correlation, the value of which is 0.66.

Finally, the researcher recommends using useful accounting information in the risk management process in general and in the Saudi banks, in particular, to improve the efficiency of this process, especially under digital services. Doing so will lead to positive changes in operating processes in banks.

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Appendices

QUESTIONNAIRE

Dear Sir/Madam,

I am going to study the role of accounting information in risk management in banks in the Kingdom of Saudi Arabia under digital services.

I would appreciate your point of view regarding the risk management practices at your bank. Your specific response to the questions here will help me in completing my study. I assure you that all responses to this questionnaire will be kept strictly confidentially, and used for academic research purpose only.

I thank you in advance for your valuable time and participation in this questionnaire.

Best regards,,,,,

Dr. Ahmed Z. Z. Osemy

Email: aahmedzzo@gmail.com

إستبيان

سيدي / سيدتي

أحيطكم علماً بأنني سأدرس دور المعلومات المحاسبية في إدارة المخاطر في البنوك في المملكة العربية السعودية في ظل التحول للخدمات الرقمية. سأكون ممتناً للرأي الذي تفضله بشأن ممارسات إدارة المخاطر في البنك الذي تعمل فيه. إن ردكم المحدد على الأسئلة هنا سيسهل عليّ إنجاز بحثي. وأؤكد لكم أن جميع الردود على هذا الاستبيان سوف تبقى سرية للغاية وتستخدم لغرض البحث الأكاديمي فقط. أشكركم مقدماً على وقتكم الثمين ومشارككم في هذا الاستبيان..

مع أطيب تحياتي،،،،،

الباحث: د. أحمد زكريا زكي عصيمي

بريد الكتروني: aahmedzzo@gmail.com

القسم الأول Part I

The purpose of this section is to obtain demographic data related to you as a participant in this questionnaire

الغرض من هذا القسم هو الحصول على بيانات ديموغرافية ذات صلة بك كمشارك في هذا الاستبيان

Gender: Male Female Age: _____ Qualifications: Bachelor Master Ph.D. Position: _____ Experience Period _____	الجنس: ذكر أنثى العمر: _____ المؤهلات: بكالوريوس ماجستير دكتوراه المركز الوظيفي: _____ مدة الخبرة: _____
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Part II القسم الثاني

This section is related to risk management practices under digital services.

يرتبط هذا القسم بممارسات إدارة المخاطر في ظل الخدمات الرقمية

Statements العبارة	Strongly Disagree غير موافق بشدة	Disagree غير موافق	Neutral محايد	Agree موافق	Strongly Agree موافق بشدة
Risk Identification: تحديد الخطر					
The bank risk managers or directors who do only risk identification مديري المخاطر بالبنك هم الذين يقومون فقط بتحديد المخاطر					
It is easy in the bank to do risk identification under digital services من السهل في البنك القيام بتحديد المخاطر في ظل التحول الرقمي					
Risk Assessment: تقييم الخطر					
The bank's risks are assessed by using quantitative methods only. يتم تقييم مخاطر البنك باستخدام الطرق الكمية فقط.					
The bank's risks are assessed by using qualitative methods only. يتم تقييم مخاطر البنك باستخدام الطرق النوعية فقط.					
It is easy to do risk assessment at the bank under digital services. من السهل القيام بتقييم المخاطر بالبنك في ظل التحول الرقمي					
Risk Controlling: مراقبة الخطر					
The bank effectively monitors and controls its risks under digital services.. يراقب البنك مخاطره ويتحكم فيها بشكل فعال في ظل التحول الرقمي.					
The bank monitors and controls its risks based on a specific plan. يراقب البنك المخاطر ويتحكم فيها بناء على خطة معينة.					

Part III القسم الثالث

This section is related to using accounting information by the bank in managing the various types of risks under digital services:

يرتبط هذا القسم باستخدام البنك للمعلومات المحاسبية في إدارة أنواع مختلفة من المخاطر في ظل الخدمات الرقمية:

Questions الأسئلة	Yes نعم	إلى حد ما To somewhat	No لا
Do you use accounting information in risk management under digital services? هل تستخدمون المعلومات المحاسبية في إدارة المخاطر في ظل الخدمات الرقمية ؟			
Do you use accounting information in risk management for all kinds of risks under digital services? هل تستخدمون المعلومات المحاسبية في إدارة جميع أنواع المخاطر في ظل الخدمات الرقمية ؟			
Is it enough to use accounting information only in risk management at the bank under digital services? هل كاف استخدام المعلومات المحاسبية فقط في إدارة المخاطر بالبنك في ظل الخدمات الرقمية ؟			
Do you face problems in using accounting information in risk management under digital services? هل تواجهون مشاكل في استخدام المعلومات المحاسبية في إدارة المخاطر في ظل الخدمات الرقمية ؟			
Do you think that using accounting information in risk management lead to reducing risks under digital services? هل تعتقد أن استخدام المعلومات المحاسبية في إدارة المخاطر يؤدي إلى تقليل المخاطر في ظل الخدمات الرقمية ؟			
Do you think that using accounting information in risk management lead to avoiding risks under digital services? هل تعتقد أن استخدام المعلومات المحاسبية في إدارة المخاطر يؤدي إلى تجنب المخاطر في ظل الخدمات الرقمية ؟			
Do you think that using accounting information will help, in general, in risk management at the bank under digital services? هل تعتقد أن استخدام المعلومات المحاسبية سيساعد بشكل عام في إدارة المخاطر في البنك في ظل الخدمات الرقمية ؟			

Part IV القسم الرابع

Do you have any suggestions related to the research issue?

هل لديك أي اقتراحات تتعلق بموضوع البحث؟