A MODEL TO EXAMINE THE INFLUENCE OF PERCEIVED SECURITY AND TRUST TO ADOPT MOBILE BANKING IN THE UNITED ARAB EMIRATES

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Abstrak

Selama bertahun-tahun, tingkah laku penggunaan perbankan mudah alih telah mendapat banyak perhatian daripada sarjana akademik. Pengguna sering ragu-ragu terhadap keselamatan m-perbankan disebabkan peningkatan trend serangan siber. Selain itu, kekurangan penyelidikan di Emiriah Arab Bersatu (UAE) khususnya, di mana isu berkaitan keselamatan telah dikenal pasti sebagai salah satu halangan yang menghalang pelanggan bank daripada mengguna pakai m- perbankan.Oleh itu, kajian ini dijalankan untuk menyiasat faktor m -niat penggunaan perbankan. Kajian ini memanjangkan Teori Penerimaan dan Penggunaan Teknologi Bersepadu (UTAUT) dengan membangunkan model yang menggabungkan persepsi keselamatan sebagai faktor penyederhana dan kepercayaan sebagai faktor bebas dengan faktor UTAUT lain untuk meramalkan niat pakai m-perbankan di UAE. Data yang dikumpul daripada 239 pengguna m-banking di UAE menggunakan teknik tinjauan web dan kaedah Partial Least Square (PLS) digunakan untuk mengesahkan model penyelidikan dan menguji hipotesis. Kajian ini menggunakan pensampelan bukan kebarangkalian kerana penyelidik tidak dapat mewujudkan bingkai persampelan disebabkan isu privasi, kerana bank tidak boleh mendedahkan data pelanggan mereka yang menggunakan perbankan mudah alih. Teknik persampelan bukan kebarangkalian yang digunakan di sini persampelan mudah kerana kesederhanaan, kos rendah dan ketersediaannya. Keputusan menunjukkan bahawa jangkaan prestasi, jangkaan usaha, kepercayaan, dan persepsi keselamatan mempengaruhi secara positif niat pakai m-perbankan. Selain itu, persepsi keselamatan didapati menyederhanakan hubungan ini secara positif. Walau bagaimanapun, keputusan menunjukkan sokongan statistik yang tidak ketara menjelaskan hubungan antara pengaruh sosial dan niat pengguna untuk menerima pakai m-perbankan. Kesimpulannya, kajian ini secara teorinya menyumbang kepada badan pengetahuan dengan mengenal pasti faktor penting yang mempengaruhi niat pakai m-banking di UAE. Selain itu, kajian ini menunjukkan bahawa persepsi keselamatan adalah pembolehubah penyederhana yang penting dan kepercayaan sebagai faktor bebas juga merupakan salah satu faktor penting untuk mempengaruhi niat pengguna untuk menggunakan m-perbankan. Secara praktikal, kajian ini menyumbang dengan mencadangkan mekanisme dan strategi yang akan membantu bank untuk menggalakkan penggunaan m-perbankan.

Kata Kunci: Niat perbankan mudah alih, Keselamatan yang dirasakan, Kepercayaan,

Emiriah Arab Bersatu, Teori Penerimaan dan Penggunaan Teknologi (UTAUT)

Abstract

For years, mobile banking adoption behaviour has received much attention from academic scholars. Users are frequently sceptical of m-banking security due to an increasing trend of cyber-attacks. Also, there is a scarcity of research in the United Arab Emirates (UAE), particularly where security-related issues have been identified as one of the barriers that prevent bank customers from adopting m-banking. Thus, this study is conducted to investigate the factors of m-banking adoption intention. This study is extending the Unified Theory of Acceptance and Use of Technology (UTAUT) by developing a model that incorporates perceived security as moderator factor and trust as independent factor with other UTAUT factors to predict m-banking adoption intention in the UAE. The data was collected from 239 m-banking users in the UAE using a web survey technique and the Partial Least Square (PLS) method to validate the research model and test the hypotheses. The study used non-probability sampling because the researcher could not establish the sampling frame due to privacy issues, as banks cannot disclose the data of their customers who are using mobile banking. The non-probability sampling technique used here is convenience sampling due to its simplicity, low cost, and availability. The results showed that performance expectancy, effort expectancy, trust, and perceived security positively influenced m-banking adoption intention. Additionally, perceived security was found to be positively moderating these relationships. However, the results showed insignificant statistical support explaining the relationship between social influence and users' intention to adopt m-banking. In conclusion, this study theoretically contributed to the body of knowledge by identifying the significant factors that influence m-banking adoption intention in the UAE. Additionally, this study demonstrated that perceived security is an important moderating variable and trust, as an independent factor, is also one of the important factors influencing users' intention to adopt m-banking. Practically, this study contributed by suggesting mechanisms and strategies that will help banks promote the adoption of m-banking.

Keywords: M-Banking adoption intention, Perceived Security, Trust, United Arab Emirates, Unified Theory of Acceptance and Use of Technology (UTAUT)

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I dedicate this thesis to the world.

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List of abbreviations

ATMs	Automated Teller Machines
AVE	Average variance extracted
BI	M-banking Adoption Intention
CR	Composite reliability
D^2	Mahalanobis distance
E	Equality of variances
EE	Effort Expectancy
f^2	Effect size of moderating variable
GoF	Goodness of Fit
HTMT	Heterotrait-Monotrait
ICT	Information and Communication Technology
IS	Information Systems
M-banking	Mobile banking
MENA	Middle East and North Africa
OTP	One Time Password
P	Path coefficient
PE	Performance Expectancy
PLS-SEM	Partial Least Square Structural Equation Modelling
PS	Perceived Security
Q^2	Predictive relevance
q^2	Effect size of Q^2
R^2	Coefficient of determination
SD	Standard deviation

SI	Social Influence
Sig	Significant variance
SPSS	Statistical Package for Social Science
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TR	Trust
TRA	Theory of Reasoned Action
UAE	United Arab Emirates
UTAUT	Unified Theory of Acceptance and Use of Technology
VIF	Variance Inflation Factor

CHAPTER ONE
INTRODUCTION

1.1 Introduction

Industrial Revolution 4.0 (IR 4.0) has brought a new dimension to the industry whereby all the conventional methods of operating a business have changed towards the implementation of automation and the utilization of robotics in the business (Alaloul, Liew, Zawawi, & Kennedy, 2020). All the changes happening in the business field have pushed the industry to be more creative and innovative in crafting their products and services to be used by people around the world. Moving forward, the banking industry has also been affected with the revolution of changing the conventional methods in servicing their clients towards adopting methods where clients can be served virtually.

Banking is segmented into a service industry whereby it is highly regulated, standardized, and has supervised financial operations in place (Mayliza & Yusnelly 2021). Banking is a place that deals with financial services such as loans, money exchange, credit facilities, and other financial activities for both individuals and corporations (Haralayya, 2021). According to Putranto (2020), banking is one of the major drivers of the economy because it provides the liquidity that allows people and companies to invest in the future.

With time, banks have broadened their offerings of products and services which are not only limited to checking accounts, opening and managing accounts, certificates of deposit, and processing loans, including car loans and home mortgages. They have also added additional services that include safe deposit boxes, investment-related services, and gold transactions (Magdalena, Marpaung & Indira, 2019). The usage of the internet for financial and banking services has expanded the traditional banking

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Appendix A: Questionnaire

Ph.D. Research Questionnaire

Title: **A MODEL TO EXAMINE THE INFLUENCE OF PERCEIVED SECURITY AND TRUST TO ADOPT MOBILE BANKING IN THE UNITED ARAB EMIRATES**

* Required

Dear Sir/Madam,
I am conducting a study titled 'Understanding the moderating influence of perceived security on the user's intention to use mobile banking application in the UAE'. This study is a full requirement for the Doctorate Degree (Ph.D.) in Universiti Utara Malaysia (UUM). It is very much appreciated if you could fill this questionnaire using your own opinion. The information from this questionnaire will only be used for academic purposes (i.e., writing a report, published in an academic journal, etc.). and all of the responses will be treated as 'STRICTLY CONFIDENTIAL'.

Thank you for your cooperation and valuable time.

Yours Sincerely,
Mahmoud El Hendy
Student ID Number: 902477
Ph.D. Candidate, University Utara Malaysia (UUM)
Sintok, Kedah, Malaysia
Email: mahmoud.elhindy@gmail.com

1. What is your gender? *

- Male
- Female

2. What is your age? *

- ◯ Less Than 20
- ◯ 21 to 30
- ◯ 31 to 40
- ◯ 41 to 50
- ◯ 51 to 60
- ◯ Older than 60

3. In which emirate are you located? *

- ◯ Abu Dhabi
- ◯ Dubai
- ◯ Sharjah
- ◯ Ajman
- ◯ Umm Al Quwain
- ◯ Ras Al Khaimah
- ◯ Fujairah

4. What is the highest degree or level of education you have completed? *

- ◯ High School Degree
- ◯ Diploma
- ◯ Bachelor's degree
- ◯ Postgraduate degree
- ◯ Professional Qualification
- ◯ Other

5. What is your current employment status? *

- ◯ Self-employed
- ◯ Government Sectors Employee
- ◯ Private Sectors Employee
- ◯ Multi-National Company Employee
- ◯ Semi-Government Employee
- ◯ Retired
- ◯ Unemployed

6. Are you currently using Mobile Banking Application(s)? *

- ○ Yes
- ○ No

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* Required

Part B: Mobile Banking Experience

7. How long you have been using the Mobile Banking Application(s)? *

- ○ Less than 1 year
- ○ Between 1 to 5 years
- ○ Between 5 to 10 years
- ○ More than 10 years

8. Select the name of the bank(s) that you are currently using their mobile banking application(s). (You can choose more than one Bank). *

- ☐ EmiratesNBD/Emirates Islamic
- ☐ First Abu Dhabi Bank (FAB)
- ☐ Dubai Islamic Bank (DIB)
- ☐ Mashreq Bank
- ☐ Abu Dhabi Commercial Bank (ADCB)
- ☐ Abu Dhabi Islamic Bank (ADIB)
- ☐ Sharjah Islamic Bank
- ☐ Rash Al Khaimah Bank (RAK)
- ☐ HSBC Middle East
- ☐ Citibank
- ☐ Other

9. How often do you use mobile banking? *

- ◯ Everyday
- ◯ Every week
- ◯ Every two weeks
- ◯ Every month

10. How many mobile device(s) do you have? *

- ◯ One
- ◯ Two Devices
- ◯ More than 2 devices

11. Do you have a dedicated mobile device only for mobile banking application(s)? *

- ◯ Yes
- ◯ No

12. Based on your personal user experience, which type of mobile devices you prefer to use for mobile banking application(s) to perform your banking transactions? (You can select more than one) *

- ◯ Smartphone
- ◯ Tablet

13. We would like to hear your comments on the answer provided to Question 12 (Optional).

Enter your answer

14. Which mobile platform makes you feel more comfortable to perform your mobile banking transactions? *

- ◯ Android
- ◯ iOS
- ◯ Both
- ◯ I don't mind using any OS

15. We would like to hear your comments on the answer provided to Question 14 (Optional).

Enter your answer

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* Required

Part C: Mobile banking Intention to Use (Behavioral Intention)

Adapted from Venkatesh et al. (2012)

16. I intend to use a mobile banking application. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

17. I predict that I would use the mobile banking application *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

18. I plan to use a mobile banking application. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

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* Required

Part D: Perceived Security (adapted from Wakefield 2013)

19. Mobile banking application has enough safeguards to make me feel comfortable using it to make transactions. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

20. I feel assured that legal and technological structures adequately protect me from problems while using mobile banking application. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

21. I feel confident that encryption and other technological advances in mobile banking application are safe for me to make transactions. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

22. In general, the mobile banking application is a safe environment in which to make transactions. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

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Part E: Trust (Adapted from Chandra et al. (2010))

23. I trust Mobile Banking Applications are reliable. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

24. I trust Mobile Banking Applications are secure. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

25. I believe Mobile Banking Applications are trustworthy. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

26. I trust Mobile Banking Applications. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

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* Required

Part F: Mobile Banking Adoption in Banking Services

Adapted from Venkatesh et al. (2012)

27. Performance Expectancy *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
Using a mobile banking application enables me to accomplish my online banking tasks more quickly.	○	○	○	○	○	○	○
Using the mobile banking application improves the quality of the banking services I do.	○	○	○	○	○	○	○
Using a mobile banking application makes it easier to do my banking services.	○	○	○	○	○	○	○
Using the mobile banking application enhances my effectiveness on performing my banking services.	○	○	○	○	○	○	○

28. Effort Expectancy *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I would find learning to operate the mobile banking application would be easy for me.	○	○	○	○	○	○	○
I would find it easy to get the mobile banking application to do what I want it to do.	○	○	○	○	○	○	○
My interaction with the mobile banking application would be clear and understandable.	○	○	○	○	○	○	○
I would find the mobile banking application system to be flexible to interact with.	○	○	○	○	○	○	○
It would be easy for me to become skillful at using the mobile banking application.	○	○	○	○	○	○	○

29. Social Influence *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
People who influence my behavior think that I should use the mobile banking application.	○	○	○	○	○	○	○
People who are important to me think that I should use the mobile banking application.	○	○	○	○	○	○	○
People in my surrounding who use mobile banking application have more prestige than those who do not.	○	○	○	○	○	○	○
People in my surrounding who use the mobile banking application system have a high profile.	○	○	○	○	○	○	○
Having a mobile banking application is a status symbol in my surrounding.	○	○	○	○	○	○	○

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