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**FARM CREDIT, FARMLAND, FARM INFRASTRUCTURE AND
AGRICULTURAL OUTPUT IN KANO STATE, NIGERIA: THE
MODERATING EFFECT OF *MURABAHAH* FINANCE**

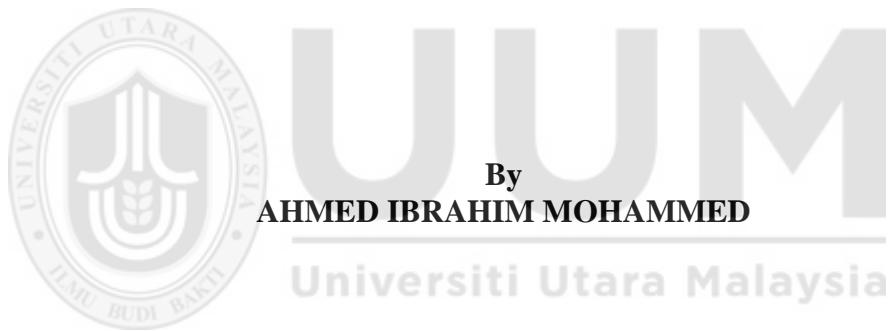
AHMED IBRAHIM MOHAMMED



UUM
Universiti Utara Malaysia

**DOCTOR OF PHILOSOPHY
UNIVERSITI UTARA MALAYSIA
JULY, 2017**

**FARM CREDIT, FARMLAND, FARM INFRASTRUCTURE AND
AGRICULTURAL OUTPUT IN KANO STATE, NIGERIA: THE
MODERATING EFFECT OF *MURABAHAH* FINANCE**



**Thesis Submitted to
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
in Fulfillment of the Requirement for the Degree of Doctor of Philosophy**



Pusat Pengajian Perniagaan Islam
ISLAMIC BUSINESS SCHOOL
كلية إدارة الأعمال الإسلامية
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: Relationship between farm credit, farm land, farm infrastucture and agricultural output in Kano State, Nigeria: The moderating effect of Murabahah finance .

Program Pengajian
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: Doctor of Philosophy (Islamic Economics)

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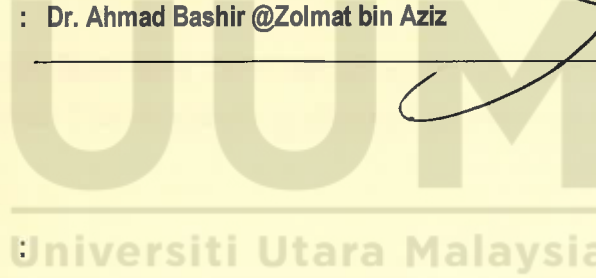
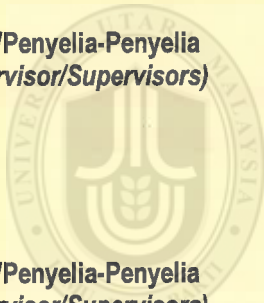
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ABSTRAK

Tujuan kajian ini adalah untuk menyelidik hubungan antara kredit ladang, tanah ladang, infrastruktur ladang dan pengeluaran pertanian di negeri Kano, Nigeria dengan kesan pembiayaan Murabahah. Sorotan kajian dalam bidang pertanian dan lain-lain bidang yang berkaitan dilakukan secara meluas untuk lebih memahami keperluan masa lalu, masa kini dan masa hadapan dalam bidang pengeluaran hasil pertanian. Walaupun hubungan tersebut telah menjana kepentingan ilmiah yang agak besar, namun hanya beberapa kajian dijalankan berkaitan mode pembiayaan pertanian berasaskan Syariah terhadap pengeluaran pertanian di Nigeria. Pertanian penting bagi pertumbuhan ekonomi di Nigeria dan merupakan sumber utama makanan, pekerjaan dan pembasmian kemiskinan di Nigeria. Berdasarkan pengamatan teori yang dikemukakan, satu model telah dicadangkan untuk meneliti hubungan ini. Reka bentuk tinjauan keratan rentas digunakan dalam kajian ini melibatkan pekebun kecil di Kano. Kajian ini telah menggunakan teknik persampelan secara sistematik dalam pengumpulan data dan seramai 764 responden yang terdiri daripada petani dipilih secara rawak. Algoritma Kuasa Dua Terkecil Separa (PLS) dan teknik butstrap telah digunakan untuk menguji hipotesis kajian. Dapatan kajian menunjukkan bahawa kredit ladang dan infrastruktur ladang mempunyai hubungan langsung yang positif secara signifikan dengan output pertanian, manakala tanah ladang pula bukan faktor peramal bagi output pertanian di Kano, Nigeria. Hasil regresi hierarki (ujian pengantaraan) membuktikan bahawa pembiayaan Murabahah mengantarakan hubungan antara kredit ladang, tanah ladang, infrastruktur ladang dan pengeluaran pertanian. Walaubagaimanapun, pembiayaan Murabahah tidak mengantara hubungan antara infrastruktur ladang dan hasil pertanian. Kesimpulannya, hasil kajian ini membuktikan pembiayaan Murabahah mampu memberikan impak yang penting khususnya terhadap pembuat dasar dan organisasi bukan kerajaan (NGO) juga seharusnya mengalakkan pekebun kecil untuk memperbaiki tahap aliran kewangan dan keuntungan. Hal ini akan menggalakkan institusi kewangan Islam menyediakan bantuan perkhidmatan kewangan kepada mereka.

Kata kunci: kredit ladang, tanah ladang, infrastruktur ladang, kewangan murabahah

ABSTRACT

The purpose of this study is to investigate the farm credit, farmland, farm infrastructure and agricultural output in Kano State, Nigeria with the effect of *Murabahah* finance. Literature in agriculture and other related fields was extensively reviewed for better understanding of past, present and future needs in the area of agricultural production. Although their relationships have generated considerable scholarly interest, few studies have actually been conducted in relation to Shariah mode of financing agricultural input and output in Nigeria. Agriculture is essential to the economic growth and it is a major source of food security, employment and poverty reduction in Nigeria. Based on a theoretical consideration, a model was proposed to examine these relationships. A cross-sectional survey design was adopted and the unit of analysis was the registered small scale farmers in Kano state. The study employed systematic sampling technique in data collection, with a sample size of 764 farmers. Partial Least Squares (PLS) algorithm and bootstrap techniques were used to test the study's hypotheses. This study found that farm credit, farmland and farm infrastructure have a significant positive relationship with agricultural output in Kano State, Nigeria. The result of hierarchical regression (moderation test) established that *Murabahah* finance was found to moderate farm credit and farmland. However, *Murabahah* finance does not moderate the relationship between farm infrastructure and agricultural output. Finally, the results of this study reveal that *Murabahah* finance is essential on farm input and output which implies that policy makers and non-governmental organizations should encourage small scale farmers to improve their cash flows and profit. These may encourage Islamic financial institutions to provide them with the financial services.

Keywords: farm credit, farmland, farm infrastructure, *murabahah* finance

ACKNOWLEDGEMENT

Alhamdulillah! All praises and thanks are due to ALLAH, the most beneficent, and the most merciful. I must express my sincere and profound gratitude to Almighty ALLAH, who created, sustained, nourished, and spared my life and enabled me to complete my PhD work. Peace and ALLAH's blessing be into his chosen servant, Prophet MUHAMMAD (SAW) his wives, children, companions and those who follow his path till the Day of Judgment.

I am indebted to my able supervisors, Dr. Ahmad Bashir Bin Aziz and Dr. Ahamad Faosiy Ogunbado as well as my research reviewers for their untiring support, excellent guide, moral encouragement, as well as good advices toward achieving excellence throughout the period of my PhD journey. May Almighty ALLAH rewards them in abundance. I would like to commend the effort of the Dean of Othman Yeop Abdallah Graduate School of Business, Dean Islamic Business School Assoc. Prof. Dr. Asamadi Mohamed Na'im, Assistant Registrar En Mohammed Fadzil, Postgraduate Coordinator Dr. Rosemaliza Abdul Rashid and Admin Assistant Azahari Abu Hassan. Equally, I wish the management of Islamic Business School and the entire University community the best of luck.

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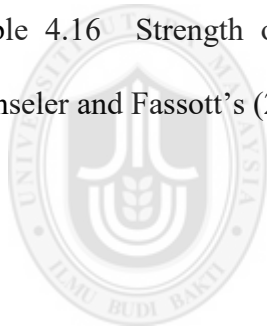


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Glossary of Terms

Ijara	Lease
Istisna	Commissioned or Order Production
Mu'ajjal	Sale by deferring Price
Mudarabah	Mark-Up or Cost Plus
Mudarib	Manager or Entrepreneur
Murabahah	Mark-Up or Cost Plus
Musharakah	Equity Partnership
Qardhassan	Benevolent Loan
Qur'an	Holy Book of Allah
Rabaha	Sells an Item for a Certain Profit
Rabbul mal	Investor
Riba	Interest Rate
Sadaqat	Deeds of Charity
Shariah	Islamic Law
Sihah	Higher Price than its Original

List of Abbreviations

SDGs	Sustainable Development Goals
ACGF	Agriculture credit Guarantee Fund
AMOS	Analysis of Moment Structure
AOP	Agricultural output
AVE	Average Variance Extracted
CAADP	Comprehensive African Agricultural Development Programme
CBN	Central Bank of Nigeria
CMH	Commodity Murabahah House
CPO	Crude Palm Oil
D2	Mahalanobis Distance
EU	European Union
FAOSTATS	Food and Agricultural Organization Statistics
FOA	Food and Agricultural Organization
GAFSP	Global Agriculture and food Security Programme
GDP	Gross Domestic Product
GIS	Geographic Information System
HND	Higher National Diploma
IBI	Islamic Banking Institutions
IDB	Islamic Development Bank
IFAD	International Fund for Agricultural Development
IFC	International Finance Cooperation
ITFC	International Trade Finance Cooperation
KM ²	Kilometer Square

LC	Letter of Credit
MF	Murabahah Finance
NA	Not Available
NACRDB	Nigerian Agricultural Cooperation and Rural Development Bank
NBS	National Bureau of Statistics
ND	National Diploma
NPC	National Population Commission
OLS	Ordinary Least Square
PGD	Post Graduate
PLS-SEM	Partial Least Square of Structural Equation Modeling
NGOs	Non Government Organizations
SACCOS	Savings and Credit Cooperatives
SPSS	Software Package of Social Science
UN	United Nations
USD	United State Dollars
VAR	Vector Auto Regressive
VIF	Variance Inflated Factors
WOFAN	Women Farmers Advance Network

CHAPTER ONE

INTRODUCTION

1.1 Background and Motivation of the Study

Agriculture is the pillar of the global economy through the food security and supply of raw materials to the industries. Agriculture is also a business management of food supply, animal rearing, fisheries, poultry and forest reservations for sustainable living. It can be seen as an act of soil cultivation for the growing of plant and animal management for the purpose of poverty reduction and economic growth. It equally serves as a solution to the global food constraints and means for accomplishing the target of Sustainable Development Goals (SDGs) of the United Nation towards food supply and poverty eradication. Similarly, it is a major source of income and full time employment to the majority of developing countries (Food and Agriculture Organization (FAO), 2013 & 2004; Chisasa, 2014a; Muhammad, Zaheer & Khan, 2014; Ogunbado & Ahmed, 2015; Dobermann, 2016; Bashir & Mohammed, 2017).

To add, developing economy solidly depends on agriculture, as such, three of every four Africans, which constituted 70 percent of the continent population are living in rural areas with the agricultural productivity (Sakumbade, 2009). It equally remained a vehicle for poverty reduction as well as a channel for speedy and sustainable living standard and economic growth of most African countries. Likewise, the economic growth of the most populous country of Africa called Nigeria is almost dependent on agricultural production (FAO, 2008; Ugwa & Kanu, 2012; Oludiran, Akinleye & Ighodaro, 2012; Ogunbado & Ahmed, 2015; Collins, 2015). Additionally, Oguoma, Ben-chendo and Henri-Ukoha (2010) argued that Nigeria was among the highest exporters of agricultural output in Africa that leads to the growth of the country's

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APPENDIX A

RESEARCH QUESTIONNAIRE



SURVEY QUESTIONNAIRE

Research Title: Relationship between farm credit, farmland, farm infrastructure and agricultural output in Kano State, Nigeria: The moderating effect of *Murabahah* finance.

Objective: To investigate the moderating effect on the relationship between farm credit, farmland, farm infrastructure and agricultural output in Kano State, Nigeria.

Target: Individual farmers

Dear Respondent

I am a PhD (Islamic Economics) research student in the above university, currently conducting a survey on the above titled research. The following are the self-explanatory questions that will not take much of your time to answer. Your kind and objective response would be appreciated as it will significantly contribute towards the achieving of the above mentioned objective of the study. Please note that your response will be treated strictly confidential, therefore do not put down your name or your company's name on the questionnaire.

Please do not hesitate to contact the researcher for any enquiry about this research.

Thank you.

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Part A

Instruction:

The following questions will help us understand your behaviour at work. You are not being subjected to tests. There is no right or wrong answers to any question. We believe that the success of this survey is highly dependent on your answers to all questions. Please indicate as honestly and as objectively the extent to which you have engaged in the following behaviour in your university. Use the scales provided below to indicate your level of agreement or disagreement with each Statement. Please **TICK ONE BOX ONLY** for each question. [√]

Strongly disagree	1	Disagree	2	Undecided	3	Agree	4	Strongly agree	5
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Section 1

The following statements describe your agricultural output. Please, indicate the extent to which you agree or disagree with the statement on agricultural output.

	Strongly Disagree, 1	Disagree, 2	Undecided, 3	Agree, 4	Strongly Agree 5	
AOP1	I produce my agricultural output in less than 2 hectares of land	1	2	3	4	5
AOP2	I produce my agricultural output in 3-8 hectares of land	1	2	3	4	5
AOP3	I produce my agricultural output in 9-11 hectares of land	1	2	3	4	5
AOP4	I produce my agricultural output in 12 and above hectares	1	2	3	4	5
AOP5	I used to spend less than 2 hours per hectare in a day	1	2	3	4	5
AOP6	I used to spend 3 and above hours per hectare in a day	1	2	3	4	5
AOP7	I produced less than 50,000 gross of agricultural output in the last season.	1	2	3	4	5
AOP8	I produced 50,001-70,000 gross of agricultural output in the last season.	1	2	3	4	5

AOP9	I produced 70,001-80,000 gross of agricultural output in the last season.	1	2	3	4	5
AOP10	I produced 80,001 and above gross of agricultural output in the last season.	1	2	3	4	5

Section 2

The following statements describe your farm credit. Please indicate the extent to which you agree or disagree with the statement on farm credit.

	Strongly Disagree,	Disagree,	Neutral,	Agree,	Strongly Agree	
	1	2	3	4	5	
FC1	The bank gives loans to finance farming activities.	1	2	3	4	5
FC2	The interest rate charged on loans restricts farmers from borrowing.	1	2	3	4	5
FC3	The interest rate charged by the banks is always favourable to farmers.	1	2	3	4	5
FC4	Farmers are able to take loans at any rate.	1	2	3	4	5
FC5	The banks always offer farmers better interest.	1	2	3	4	5
FC6	The interest rate discourages farmers from applying for loans	1	2	3	4	5
FC7	The loan repayment period that the bank gives enables farmers to accumulate assets.	1	2	3	4	5
FC8	The loan repayment period enables borrowers to pay all their pending loans in time.	1	2	3	4	5
FC9	The loan repayment period given by the bank always favours farming activities.	1	2	3	4	5
FC10	Farmers have a reliable source of income that enables them to pay back their loans in time.	1	2	3	4	5

Section 3

The following statements describe your farmland. Please indicate the extent to which you agree or disagree with the statement on farmland.

Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree						
		1	2	3	4	5
FL1	Due to the gradual building of farmland to non agricultural activities of family members this leads to the shortage of farmland.	1	2	3	4	5
FL2	Lack of support for small scale farmers causes low motive to work in to the agricultural sector that leads to the sales of farmland.	1	2	3	4	5
FL3	Population increases shift town physical space to farmland.	1	2	3	4	5
FL4	Poor fertility of farmland caused by pollution leads to the inability to support agricultural land.	1	2	3	4	5
FL5	Infrastructure development such as the construction of air port, stadium also disrupted the farmland.	1	2	3	4	5
FL6	Inappropriate allocation of farmland by the government officials to non agricultural projects such as hotel, factory etc affected the farmland.	1	2	3	4	5

Section 4

The following statements describe your infrastructure. Please indicate the extent to which you agree or disagree with the statement on farm infrastructure.

Strongly Disagree, Disagree, Neutral, Agree, strongly Agree						
		1	2	3	4	5
F/INF1	Using inappropriate transportation method of infrastructure.	1	2	3	4	5
F/INF2	Distance between harvesting and storage facilities is a constraint.	1	2	3	4	5
F/INF3	The inappropriateness of storage house and fridge facilities.	1	2	3	4	5

F/INF4	Low information about production and marketing of farm credit.	1	2	3	4	5
F/INF5	Insufficient skills and healthy labours is a constraint.	1	2	3	4	5
F/INF6	Insufficient extension workers limit the output.	1	2	3	4	5
F/INF7	Inadequate technology declines the output	1	2	3	4	5
F/INF8	Poor road and distance from farm to market limit the output.	1	2	3	4	5

Section 5

The following statements describe your infrastructure. Please indicate the extent to which you agree or disagree with the statement on *Murabahah* finance.

	Strongly disagree,	Disagree,	Neutral,	Agree,	Strongly Agree	
	1	2	3	4	5	
MF1	Engaging in <i>Murabahah</i> finance is fair	1	2	3	4	5
MF2	Engaging in <i>Murabahah</i> finance will benefit both farmers and bankers.	1	2	3	4	5
MF3	Engaging in <i>Murabahah</i> finance will provide me with alternatives to the available financial instrument.	1	2	3	4	5
MF4	Engaging in <i>Murabahah</i> finance will provide me with lower service charges.	1	2	3	4	5
MF5	<i>Murabahah</i> finance is developed according to the <i>Shariah</i> principle.	1	2	3	4	5

Part B

Instruction: Please read and tick as appropriate in the provided boxes your exact assessment of the following demographic information:

1. Gender

Male (1)

Female (2)

Poultry (3)

Fisheries (4)

Forestation (5)

2. Age

18 -29 (1)

30- 39 (2)

40-59 (3)

60 and above (4)

3. Level of Education

Primary (1)

SSCE (2)

ND/NCE (3)

Degree/HND (4)

PGD/Masters (5)

PhD (6)

4. Type of Farming

Farmer (1)

Postural (2)

5. Size of Farming

Large scale farmer (1)

Medium scale farmer (2)

Small scale farmer (3)

6. Number of Employee

1-9 (1)

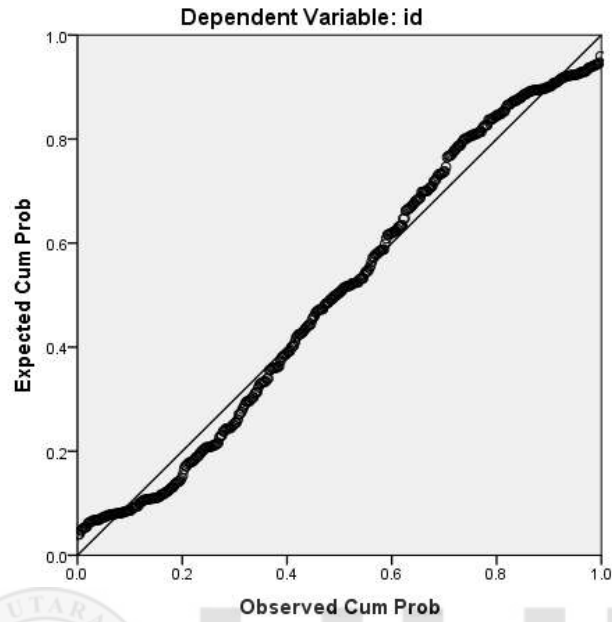
10-49 (2)

50-249 (3)

250 and above (4)

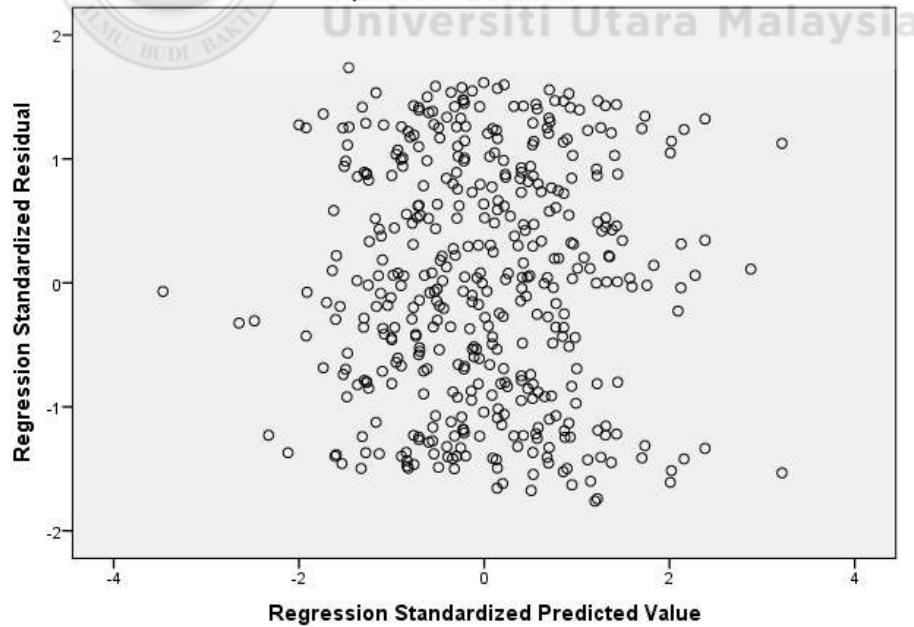
APPENDIX B

Normal P-P Plot of Regression Standardized Residual



Scatterplot

Dependent Variable: id



Descriptive Statistics of Nomality Test

	N	Skewness		Kurtosis	
		Statistic	Statistic	Std. Error	Statistic
AOP1_1	430	-.469	.118	-1.040	.235
AOP2_1	430	-.551	.118	-.901	.235
AOP3_1	430	-.560	.118	-1.013	.235
AOP4_1	430	-.285	.118	-1.369	.235
AOP5_1	430	-.452	.118	-1.063	.235
AOP6_1	430	-.544	.118	-.993	.235
AOP7_1	430	-.588	.118	-.807	.235
AOP8_1	430	-.468	.118	-1.111	.235
AOP9_1	430	-.575	.118	-.954	.235
AOP10_1	430	-.539	.118	-.990	.235
FL1_1	430	-.391	.118	-1.191	.235
FL2_1	430	-.538	.118	-.908	.235
FL3_1	430	-.312	.118	-1.276	.235
FL4_1	430	-.381	.118	-1.238	.235
FL5_1	430	-.392	.118	-1.252	.235
FL6_1	430	-.590	.118	-.943	.235
INF1_1	430	.504	.118	-.586	.235
INF2_1	430	.963	.118	2.286	.235
INF3_1	430	.710	.118	.861	.235
INF4_1	430	.435	.118	-.969	.235
INF5_1	430	-.053	.118	-1.217	.235
INF6_1	430	.804	.118	.544	.235
INF7_1	430	.823	.118	.763	.235
INF8_1	430	.054	.118	-1.358	.235
MF1_1	430	.517	.118	.206	.235
MF2_1	430	.500	.118	.353	.235
MF3_1	430	.463	.118	.303	.235

MF4_1	430	-.051	.118	-.341	.235
MF5_1	430	.157	.118	-.535	.235
FC1_1	430	-.572	.118	-.613	.235
FC2_1	430	-.750	.118	.560	.235
FC3_1	430	-.232	.118	-.862	.235
FC4_1	430	-.590	.118	-.308	.235
FC5_1	430	-.901	.118	.028	.235
FC6_1	430	-.095	.118	-.231	.235
FC7_1	430	-.139	.118	-.753	.235
FC8_1	430	-.426	.118	-.530	.235
FC9_1	430	-.186	.118	-.641	.235
FC10_1	430	-.301	.118	-.604	.235

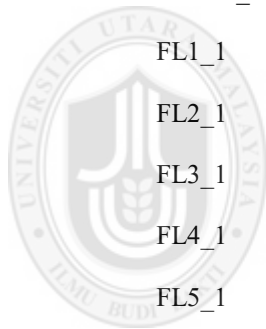
Results of Common Method Variance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	Variance	% of Cumulative	Total	Variance	Cumulative %
			%			
1	7.709	19.766	19.766	7.709	19.766	19.766
2	7.160	18.360	38.126			
3	2.474	6.344	44.470			
..			
..			
..			
37	.155	.396	99.341			
38	.143	.367	99.709			
39	.114	.291	100.000			

Extraction Method: Principal Component Analysis.

Number of Detected and Replaced Missing Values

Result Variable	Number of Replaced Missing Values
AOP1_1	2
AOP2_1	3
AOP3_1	1
AOP4_1	1
AOP5_1	2
AOP6_1	2
AOP7_1	2
AOP8_1	1
AOP9_1	2
AOP10_1	1
FL1_1	1
FL2_1	1
FL3_1	1
FL4_1	1
FL5_1	1
FL6_1	1
INF1_1	1
INF2_1	1
INF3_1	3
INF4_1	4
INF5_1	2
INF6_1	2
INF7_1	1
INF8_1	2
MF1_1	1
MF2_1	1
MF3_1	1



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MF4_1	1
MF5_1	2
FC1_1	2
FC2_1	1
FC3_1	2
FC4_1	1
FC5_1	2
FC6_1	1
FC7_1	2
FC8_1	2
FC9_1	1
FC10_1	2
Gender_1	1
Age_1	3
Education_1	3
FarmType_1	1
Employees_1	2
Grand total	71 out of 20,115 data points
Percentage of missing values	0.35%

Note: Percentage of missing values is obtained by dividing the total number of randomly missing values for the entire data set by total number of data points multiplied by 100.

Cross Loading

	AO	FC	FL	INF	MF
AOP10_1	0.815				
AOP1_1	0.671				
AOP2_1	0.754				
AOP3_1	0.623				
AOP4_1	0.711				
AOP5_1	0.654				
AOP6_1	0.803				
AOP7_1	0.700				
AOP8_1	0.768				
AOP9_1	0.792				
FC10_1		0.795			
FC2_1		0.561			
FC3_1		0.520			
FC4_1		0.681			
FC5_1		0.589			
FC6_1		0.822			
FC7_1		0.826			
FC8_1		0.795			
FC9_1		0.842			
FL2_1			0.621		
FL3_1			0.656		
FL4_1			0.777		
FL5_1			0.763		
FL6_1			0.758		
INF2_1				0.870	
INF3_1				0.854	
INF6_1				0.736	

INF7_1				0.774	
MF1_1					0.907
MF2_1					0.879
MF3_1					0.920

Path Coefficient

	AO	FC	FL	INF	MF
AO					
FC	0.137				
FL	0.468				
INF	0.188				
MF	0.128				

Inner VIF Values

	AO	FC	FL	INF	MF
AO					
FC	1.104				
FL	1.080				
INF	1.233				
MF	1.292				

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Date July 14, 2016

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MALAYSIA

POPULATION SAMPLE OF KANO STATE FARMERS

I hereby present the attached list of population sample of registered Kano State farmers for the purpose of PhD. Research work in respect of AHMED IBRAHIM MOHAMMED (Matrix No. 96190), who is undergoing a field survey entitled Relationship between farm credit, farmland, farm infrastructure and agricultural output in Kano State Nigeria; The moderating effect of Murabahah finance.

The selected 760 farmers were from the 511870 registered with Federal Ministry of Agriculture and Rural Development's Growth Enhancement Support (Scheme) Program.

Your consideration is much appreciated.


Abba Gana Yamani

Assistant Director (GES)
Federal Ministry of Agriculture and Rural Development
Kano State