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Service quality of Islamic banks: satisfaction, loyalty and the mediating role of trust

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Abstract

Purpose – The objective of this study is to examine the impact of PAKSERV model on customers' satisfaction, loyalty and trust in Malaysian Islamic banks. These comprehensive measures concern on the cultural dimension of service quality by focusing on the mediating role of trust in the Malaysian context.

Design/methodology/approach – A survey was conducted involving 401 customers of Islamic banks in the states of Kuala Lumpur and Selangor, Malaysia. The data were analyzed through exploratory factor analysis, confirmatory factor analysis and structural equation model employing AMOS 23 and SPSS 23.

Findings – The study found positive relationship of PAKSERV dimensions of service quality, customers' satisfaction, customers' loyalty and the mediating role of trust in enhancing customers' loyalty. This study provides new evidence on how trust can act as a partial mediation on the relationship between customers' satisfaction and customers' loyalty in the cultural context of Islamic banking in Malaysia.

Practical implications – The findings of this study can be used as a framework for other Islamic Financial Institutions (IFIs) in improving services to its customers.

Originality/value – This study contributes to the body of knowledge in enhancing the understanding on customers' satisfaction, loyalty and trust in Islamic banks in Malaysia. This study also covers a broad range of respondents, hence representing a good diversity of Islamic banks' customers.

Keywords Service quality, Satisfaction, Loyalty, PAKSERV, Islamic bank

Paper type Research paper

1. Background and objectives of the study

Islamic banking is a banking structure that complies with Islamic principles (Sharīʿah) that forbid interest (*ribā*), gambling (*maisir*) and speculative trading (*gharar*) (Bank Negara Malaysia, 2018). In order for Islamic banks to gain competitive advantage, the banks need to improve and sustain superior service quality, meet customers satisfaction and achieve customers' loyalty (Alnaser *et al.*, 2018; Pasha and Razashah, 2018). In the banking industry, by offering excellent service quality, customers' satisfaction can be improved which subsequently contributes to higher profitability (Nomran *el al.*, 2018; Ali and Naeem, 2019). Minimizes customers' defection, enhances customers' loyalty, delivers chances for crossselling, encourages word-of-mouth suggestion and enhances corporate appearances are the outcomes of offering excellent service quality (Baumann *et al.*, 2007; Moghavvemi *et al.*, 2018; Shayestehfar and Yazdani, 2019). Hence to remain competitive (Iqbal *et al.*, 2018),

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all the dimensions of service quality must be attended to by Islamic banks (Moghavvemi *et al.*, 2018). In addition, progress for the growth can be accelerated and long-term relationship with customers can be preserved by having greater service quality, which is particularly vital in the competitive business atmosphere of contemporary banking (Camarero, 2007).

In Malaysia, the development of the Islamic Financial Institutions (IFIs) was initiated with the setting up of the pilgrimage fund (Tabung Haji) in 1963 as the first Islamic savings institution. Few years following that, the enactment of the Islamic Banking Act in 1983 allowed the establishment of the first Islamic Bank in Malaysia, i.e. Bank Islam Malaysia Berhad. Later, with the liberalization of the IFIs, more institutions have been established. As for the nonbanking financial service institution, it started with the establishment of the first Takaful (Islamic insurance company) under the Takaful Act in 1984. The government of Malaysia has recognized the necessity to deal with a comprehensive diversity of products and services that serve to both Muslim and non-Muslim customers. In 1993, the government permitted commercial banks to operate Islamic windows where banks can operate their current infrastructure, staff and branch networks to provide Islamic financial scheme. Malaysia has been one of the leading countries to deal with the dual banking system where banks are providing Islamic as well as conventional banking products together. Nowadays, the financial institutions in Malaysia consist of commercial banks, Islamic banks, international Islamic banks, investment banks and other financial institutions. Currently, there are 16 licensed Islamic banks operating in Malaysia (Bank Negara Malaysia, 2018). According to the Islamic Financial Services Act (IFSA) 2013 (Act that repeals the Islamic Banking Act, 1983 and Takaful Act, 1984), Islamic banks and other IFIs that provide Islamic banking products and services are required to have Sharīʻah Advisory Committee (SAC) to provide guidance to the institutions and to guarantee that the operations and actions of the institutions are in accordance with the Sharīʻah principles. Islamic banking continued to expand at a much faster rate than the conventional banking in 2018, growing at 11% in contrast to the conventional banking which was at a 3.3% growth. As at end-January 2019, Islamic financing comprised some 32% of the overall loans in the banking sector (The Star, 2019).

The objective of this study is to examine the dimension of service quality that affects customers' satisfaction and loyalty among customers of Islamic banks in Malaysia. Furthermore, this study will also examine the role of trust as a mediator between customers' satisfaction and loyalty. The rapid growth in banking sector in Malaysia made it important to understand and measure the service quality of Islamic Banks. According to Kashif *et al.* (2015), in their study on Islamic banking in the city of Kuching, Sarawak, Malaysia, PAKSERV model is a valid measurement to measure the service quality of Islamic banks. Alnaser *et al.* (2018) revealed that in the cultural context, PAKSERV model was the most appropriate scale and had predictive power of service quality in the banking industry of Palestine. The study of Kashif *et al.* (2015) however has its limitation in which respondents were focused only on postgraduate students and did not incorporate the role of trust in the relationship between customers' satisfaction and loyalty despite trust being one of the most important antecedents of collaborative relationships between customers and Islamic banks (Tabrani *et al.*, 2018). Kashif *et al.* (2015) in their study recommended future research to engage on a wider range of samples to measure the service quality of Islamic banks. Given this gap, this study will focus on PAKSERV model in the context of Islamic banking in Malaysia by focusing on a broader range of respondents and the role of trust in the relationship between satisfaction and loyalty.

This study is organized into five sections. The first section explains the introduction about Islamic banking, and the second section deals with the related literature and the hypotheses development. The third presents the data and methodology, while the fourth discusses the empirical results. The last section concludes the whole study and presents managerial implications.

2. Literature review and hypotheses development

2.1 Service quality

Parasuraman *et al.* (1988) perceived service quality as a global judgment, or attitude, relating to the superiority of the service according to the ten dimensions of service quality known as SERVQUAL model. The model is based on a perception that service quality originates from customers' judgment of predictable service and real service provided (Parasuraman *et al.*, 1988). Literature shows a wide use of this model in a range of service industries to examine customers' response on service quality. The ten dimensions of service quality include reliability (dependability of service provider and accuracy of performance), responsiveness (promptness and helpfulness), competence (possession of the required skills and knowledge), access (approachability and ease of contact), courtesy (politeness, respect and friendliness of contact personnel), communication (keeping customers informed in language they can understand), credibility (trustworthiness, believability, honesty), security (the freedom from danger, risk or doubt), understanding (making the effort to understand the customer's needs) and tangibles (appearance of physical components).

Researchers have studied the concept of SERVQUAL model and adopted the measurement in examining different industries as claimed by Gaur and Agrawal (2006) and Saleem *et al.* (2016). However, the potential problems with the conceptual framework and empirical operationalization of SERVQUAL have been identified by researchers such as Arasli *et al.* (2005) and Njau *et al.* (2019). Despite its widespread use, SERVQUAL is being criticized specifically with regard to its reliability and validity, the use of different scores and the stability of its factor structure (Ladhari *et al.*, 2011; Njau, 2019). SERVQUAL needs to be customized by adding items or changing the wording of the items (Njau, 2019). Furthermore, Lewis and Soureli (2006) argued that SERVQUAL is not a reliable model to employ in different cultural settings as customers' perceptions on quality vary and the extent to which cultures are individualistic and significant impacts customers' evaluation on service providers. Due to cultural and environmental differences, customers of services in different countries may have different perceptions of what service quality is (Guesalaga *et al.*, 2016; Farah, 2017). Culture therefore strongly influences customers' expectations (Raajpoot, 2004; Alnaser *et al.*, 2018).

Following this, Raajpoot (2004) engaged a mixed-method methodology (PAKSERV) in his study in Pakistan, and the results verified several SERVQUAL dimensions of service quality, i.e. tangibility and reliability. Nevertheless, other dimensions of SERVQUAL were substituted with four new dimensions, i.e. sincerity: the service personnel are genuine while providing the service; formality: the social distance is maintained and cultural rituals are performed well; personalization: the service provider pays individual attention and the service is highly customized and assurance: ability of service provider to provide confidence to guarantee safety, equal treatment and competence to perform professionally. Raajpoot (2004) tested the PAKSERV model on services industry where customers and employees directly communicate. Some studies have used PAKSERV and tested the service dimensions of the model and found it to be reliable in African banking business (Saunders, 2008) and in health care industry of Indonesia (Ratnawati and Kholis, 2019).

Kashif *et al.* (2015) used PAKSERV to investigate service quality of Islamic banks in Malaysia. In their study, personalization and sincerity significantly influence customers' satisfaction in Islamic banking services. However, reliability is found to be not significant in affecting customers' satisfaction on Islamic banking in Malaysia. Meanwhile, a study in Pakistan by Kashif *et al.* (2016) using PAKSERV has found that all dimensions have significant influence on customers' satisfaction in the Islamic banking of Pakistan. Karatape *et al.* (2005) and Alnaser *et al.* (2018) stated that service quality dimensions established in one culture might describe service quality in a different culture.

The conceptual model of the relationship between service quality and customers' satisfaction in this study is developed based on the literature. The service quality dimensions

discussed above are measured based on the PAKSERV model adapted from Rajpoot (2004), and the following hypotheses are proposed:

H1. Tangibility significantly influences and has positive effect on customers' satisfaction.

H2. Reliability significantly influences and has positive effect on customers' satisfaction.

H3. Assurance significantly influences and has positive effect on customers' satisfaction.

H4. Sincerity significantly influences and has positive effect on customers' satisfaction.

H5. Personalization significantly influences and has positive effect on customers' satisfaction.

H6. Formality significantly influences and has positive effect on customers' satisfaction.

2.2 Customers' loyalty

Loyalty refers to customers' long-term patronage for a specific bank over time (Ladhari *et al.*, 2011). Meanwhile, Baumann *et al.* (2011) delineated customers' loyalty as a deeply held commitment to re-buy or re-patronize a preferred product consistently in future. Baumann *et al.* (2011) and Boonlertvanich (2019) clarified loyalty as a behavior and attitude of customers and indicate that the attitude and behavior can be evaluated to determine customers' loyalty. Literature shows that customers' satisfaction is a significant factor and is positively associated with customers' loyalty (Amin *et al.*, 2013; Kashif *et al.*, 2016; Ali and Naeem, 2019). These results are also in line with the studies conducted in the service setting of supermarket customers (Kitapci *et al.*, 2013). The significant influence of customers' satisfaction on loyalty is also recorded in both Islamic and conventional banks by Ladhari *et al.* (2011); Saleem *et al.* (2016); Saleh *et al.* (2017) and Ali and Naeem (2019).

Kashif *et al.* (2016) in their study using PAKSERV on Islamic banks in Malaysia established that customers' satisfaction significantly influenced loyalty. Therefore, this study further validates that customers' satisfaction is a critical predictor of loyalty in Islamic banks, and the following hypothesis is proposed:

H7. Customers' satisfaction significantly influences and has positive effect on customers' loyalty.

2.3 Trust

Trust is a paradigm applied to characterize customers' struggles in reducing risk (Boonlertvanich, 2019). Sumaedi *et al.* (2015) stated that trust involves behavioral intention that signifies dependence of a customer on a service provider and it involves vulnerability and uncertainty on the role of the provider. Trust is also defined as the belief that a service provider's statement or promise is reliable and the provider will meet its commitments in the customer–service provider relationship. In relation to Islamic bank, trust means customer beliefs that a bank would perform its business in accordance with what is predicted by the customer of the bank. The degree of the customers' trust reflects the greater the customers' belief that Islamic banks will perform accordingly and vice versa (Sumaedi *et al.*, 2015; Nomran and Haron, 2020). For this study, the term "Sharī'ah" is used for items BT5 and BT6 in variable trust in order to capture customer's trust that the conducts of Islamic banks on all transactions strictly follow the Sharī'ah rules. The BT5 questions whether the bank fulfills its obligations to the customer in accordance to Sharī'ah rules as advised by the Sharī'ah Supervisory Board of the bank and the BT6 questions whether the customer has confidence in the Islamic bank's services due to its fully Sharī'ah-compliance operations. Trust was

recorded by Ratnawati and Kholis (2019) to have a positive effect on loyalty and may influence the overall satisfaction of existing customers and can attract interest of new customers. Hence, satisfaction has a positive effect on trust, and trust will eventually have a positive influence on loyalty to the bank (Boonlertvanich, 2019). If customers are satisfied with economic benefits that emerge from the customer–service provider relationship, they perceive the service provider as being trustworthy (Sumaedi *et al.*, 2015). Satisfaction will influence the customer's confidence and his/her encouragement to contribute in collaborative business. Customer–provider commitment to the relationship is enriched by trust (Boonlertvanich, 2019). Thus, the following hypothesis is proposed:

H8. Customers' satisfaction significantly influences and has positive effect on trust.

Trust eventually grows to become loyalty and is a significant feature in customer–service provider relationship. Long-term relationship with customers is emphasized by trust and trustworthiness (Shainesh, 2012). In order to maintain and improve customers' loyalty, a bank must be trustworthy and committed to the services provided (Ndubisi *et al.*, 2007; Nomran *et al.*, 2018; Ali and Naeem, 2019). Therefore, the main feature in continuing a service relationship with one's bank is the act of trust (Lewis and Soureli, 2006; Ndubisi *et al.*, 2007; Shainesh, 2012; Saleh *et al.*, 2017). Trust is effective in expecting loyalty from customers and has deeper sentiment than satisfaction (Shainesh, 2012). Thus, a significant indicator in emerging customers' loyalty is attributed by trust (Castaneda, 2011; Shainesh, 2012). A satisfied customer may become a loyal customer when a customer has high level of trust (Dimitriadis *et al.*, 2011). The higher the trust on a bank and the quality of the relationship, the more loyal its customers will be (Ndubisi *et al.*, 2007; Ali and Naeem, 2019).

Therefore, banks should take more efforts to earn customers' trust (Ndubisi *et al.*, 2007). This study hence will examine the relationship between customers' trust and loyalty and the role of trust as a mediator between customers' satisfaction and loyalty in Islamic banking services in Malaysia. The following hypothesis is proposed:

H9. Trust significantly influences and has positive effect on customers' loyalty.

According to Mutonyi *et al.* (2016), trust is a mediator between satisfaction and loyalty of producers in a fresh fruit supply chain. Trust may influence the social values between the producer and the buyer in the supply chain, which can eventually affect and improve producer's attachment in the relationship. This will boost the mutual benefit and strengthen the long-term engagement. Osman and Sentosa (2013) also disclosed that trust is a mediator between customers' satisfaction and loyalty in Malaysian tourism industry. Loyalty will be affected positively when a satisfied customer has trust on a firm (Kassim and Abdullah, 2010). Thus, trust is seen as a mediator between customers' satisfaction and loyalty. Therefore, this study hypothesizes the following:

H10. Trust mediates the relationship between customers' satisfaction and loyalty.

In this study, the conceptual model of PAKSERV in explaining the six dimensions of service quality and the role of trust as a mediator in the relationship between customers' satisfaction and loyalty is developed based on the literature as discussed above. Figure 1 illustrates the theoretical framework of the study following Rajpoot (2004); Ndubisi (2007); Kashif *et al.* (2015) and Kashif *et al.* (2016).

3. Data and methodology

The sample for this study is gathered from random convenience sampling comprising 401 customers of Islamic banks. In answering the questionnaires, respondents were ensured of confidentiality. Various control and filters questions were put in place to ensure the quality of

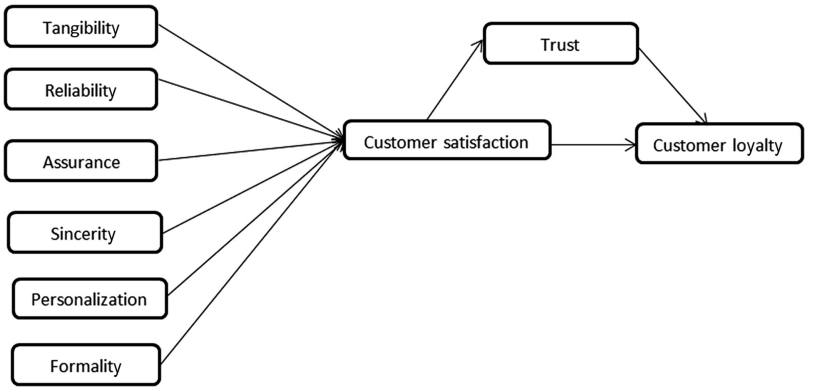


Figure 1.
Theoretical framework

the survey. The purpose of the filter questions is to make sure that the respondents fit the three basic restrictions, i.e. minimum age of 18 years, holding account(s) with Islamic bank(s) and respondents agreed to participate in the survey. The survey was administered in English language. Every respondent was asked to choose one of the Islamic banks from those they might have transactions with as their main bank and to complete a questionnaire which would refer to their perceptions on the services provided by the bank.

The questionnaires were distributed using two approaches, i.e. face to face and online. Initially, the researchers visited and courteously approached the customers outside the Islamic bank counters, in order to distribute the questionnaires by hand. Selection of the respondents was from among the customers who visited the sampled Islamic banks during the banks' operating hours. The questionnaires were distributed during various working hours of the same day (morning and evening), along with the various days of the week, to lessen any potential bias due to high concentration of banks' customers during certain hours of the day or certain days of the week or month (Dusuki and Abdullah, 2007). The survey questionnaire was filled partly face to face and secondly, the remaining questionnaires were sent through online link which allowed the respondents to answer to the questions asked via online (Rehman, 2012). By using electronic device, researchers can reach a larger number of respondents and expedite the data collection phase.

The respondents were provided with a set of questionnaire consisting of the cover page and the contents which were written in English. The location of the survey was in Kuala Lumpur and Shah Alam (Selangor). The choices of the two cities were mainly due to their city capital status with substantial number of Islamic banks in the areas. The data were collected within the duration of three weeks in March 2019. A total of 410 out of 500 questionnaires were returned from respondents, and nine out of the returned questionnaires were considered as not useable because of unengaged responses. Thus, the overall response rate was 80.2%, and data entry has been done for final analysis based on the final sample size of 401 respondents. The data were analyzed using two statistical programs, i.e. SPSS 23 and AMOS 23 software, by the application of the structural equation model (SEM) for hypotheses testing.

The questionnaire consists of five sections as follows: the first section states the demographic profile of respondents. The second and third sections consist of four questions each with six items to study customers' satisfaction and loyalty, adopted from the work of Nam *et al.* (2011). These measures have been used in the studies of customers' loyalty (Kashif *et al.*, 2015; Kashif *et al.*, 2016). Besides that, two items of customers' loyalty and customers' satisfaction were adopted from the work of Kaura *et al.* (2015). The fifth section contains six questions used to measure trust. Trust indicators were adapted from Ndubisi *et al.* (2007).

A five-point Likert scale (1 = strongly disagree to 5 = strongly agree) was used in the questionnaire to measure responses to the relevant questions. Bearing in mind the criticism of SERVQUAL model, the researchers employed the PAKSERV model that has been advocated for investigating service quality in the Asian setting (Raajpoot, 2004).

Raajpoot (2004) in his study on service quality in Pakistan provided evidence that culture (Hofstede, 2003) significantly influenced the dimensions of service quality. Following his finding, he concluded that due to the cultural differences between the western and Asian countries, the dimensions on service quality conducted in the United States (SERVQUAL), as proposed by Parasuranam *et al.* (1988), deem irrelevant in the context of Asian countries such as Pakistan. Raajpoot concluded two aspects from his studies as follows: first, culture causes the emergence of different dimensions of service quality and second, even if the same dimension is applicable, it can be interpreted differently between the two cultures. He provided three aspects of cultural differences that may influence the dimensions of service quality, which are collectivism, uncertainty avoidance and power distance. Collectivism is the degree which people in a culture prefer to act as group members rather than as individuals, and this is notable in Asian rather than the Western countries (Furrer *et al.*, 2000). Uncertainty avoidance is defined as the degree to which people in a culture prefer structured over unstructured situations. Structured situations are those in which there are clear rules as to how one should behave. In the Asian culture, which is high in uncertainty avoidance, people are more rigid, while in the Western culture, which is low in uncertainty avoidance, people are more flexible (Redpath and Nielsen, 1997). Power distance is defined as the degree of inequality among people that a culture considers as normal. All societies are unequal, but some are more unequal than others (Hofstede, 2003). In cultures with high power distance like Pakistan, inequalities are expected and desired, with privileges and status symbols being expected and socially acceptable. Therefore, it is expected that customers in cultures with high power distance will place extreme importance on the recognition of their status in society and on receiving preferential service treatment. Based on these arguments on cultural differences, Raajpoot (2004) concluded two similar dimensions of service quality (reliability, tangibility) as SERVQUAL and discovered four new dimensions (assurance, sincerity, personalization, formality). Rajpoot (2004) termed these six dimensions of service quality as PAKSERV, which were later been adopted by many studies on service quality in Asian countries such as in Malaysia (Islamic banking) (Kashif *et al.*, 2015), Thailand (conventional banking) (Boonlertvarich, 2019), Indonesia (health care industry) (Ratnawati and Kholis, 2019) and Pakistan (Islamic banking) (Kashif *et al.*, 2016; Ali and Naim, 2019). This study employs PAKSERV due to the influence of culture on service dimensions in Asia as proposed by Raajpoot (2004) and the adoption of the model by many past studies in Asian service setting.

As PAKSERV is a model that explains service quality, the model therefore is appropriate to be applied on the studies of Islamic banking, being in a service industry. In order for Islamic banks to maintain and expand their customers' base, it is important for the bank to understand customers' perception toward the evaluation of banking services and to have a system by which customers' satisfaction is continuously measured and improved. Various studies such as Kashif *et al.* (2015); Kashif *et al.* (2016); Al-Naser *et al.* (2018) and Ali and Naim (2019) have employed PAKSERV to study the service quality of Islamic banks. Tabrani *et al.* (2018) suggest that one of the most important antecedents of collaborative relationships between customers and banks is trust. In the Islamic banking context, trust is referring to customers' belief that Islamic banking is operating in line with Sharī'ah rules and principles (Amin *et al.*, 2013; Tabrani *et al.*, 2018). Following this perspective, Sumaedi *et al.* (2015) explained that building trust in the Islamic banking is more challenging than in the conventional banks as interactions in Islamic banking are typically associated with religious issues and a set of beliefs. Therefore, trust has become one of the most important aspects for

customer–Islamic bank relationships (Amin *et al.*, 2013; Ashraf *et al.*, 2015; Sumaedi *et al.*, 2015; Tabrani *et al.*, 2018). This study therefore incorporates trust as an additional dimension to the existing dimensions of PAKSERV to make it relevant to the context of Islamic banking.

4. Analysis and findings

4.1 Descriptive statistics

Table 1 summarizes the demographics of the respondents of the study.

This study performs content validity in order to remove or revise questions that have not satisfied the research objectives (Alnaser *et al.*, 2018). In order to guarantee the validity of the instrument, a thorough review of the existing literature is conducted, followed by a pilot test among experts on the subject, and then a confirmatory pilot test is undertaken involving a group of respondents (Kim *et al.*, 2008; Alnaser *et al.*, 2018). The pilot test among experts and professionals was performed to confirm that the scales measure what they were intended to measure (Haron and Ibrahim, 2016; Iqbal *et al.*, 2018). Another pilot test was performed which did not involve any of the respondents of the previous pilot test. This process ensures that questions of the instrument are well specified and easily comprehended, in addition to avoiding any misinterpretations of their meaning among the respondents.

Unidimentionality analysis offers evidence that a concept that is not visible can be formed by combining different items (Iqbal *et al.*, 2018). The two most common methods of assessing the level of unidimentionality of a factor are as follows: the exploratory factor analysis (EFA) and the confirmatory factor analysis (CFA). The main objective of the EFA is to summarise the information of a large group of variables into a smaller one by allocating them into distinct factors without significant loss of their information (Hair *et al.*, 2006). The extraction of the factors was performed with the method of maximum likelihood and the Promax rotation. Furthermore, to test the reliability, sample adequacy and internal consistency of the scale items, Cronbach's alpha, KMO and Bartlett's tests were performed. Reliability analysis refers to the internal consistency of the factors (Chu and Murramann, 2006; Iqbal *et al.*, 2018). Threshold value of reliability coefficient (α) for all scale items (mostly considered acceptable by researchers) should be 0.7 or above, and KMO should be greater than 0.50 (Hair *et al.*, 2006). In addition, a factor loading of 0.50 for each item was considered as a threshold for retaining items to ensure a greater confidence (Hair *et al.*, 2006). Often, variables with low communalities (less than 0.20 so that 80% are unique variables) are eliminated from the analysis as the aim of the factor analysis is to explain the variance through the common factors (Child, 2006).

The first stage of EFA was performed, and the variables T1, T3, P2 and F1 resulted in low communalities (<0.2). As dimension reduction techniques seek to identify items with a shared variance, it is advisable to remove any item with communality score less than 0.2 (Child, 2006). Thus, all the low-factors communalities were removed from the variables in the EFA. The repetition of the EFA test must be done continuously until the overall data meet the minimum requirement. Thus, the second stage of EFA test was performed in which sampling adequacy (KMO) for overall construct obtained the result of 0.876 and Bartlett's test of sphericity is significant ($p = 0.05$), indicating factor analysis is good for further analysis. Table 2 shows the factor loadings of the items used and Cronbach's alpha for each factor. While examining the pattern matrix, it was found that all items loaded on their respective factors have good loadings (>0.50) and communalities (>0.2). The analysis showed that from the 35 items that were used, 9 factors are produced. The results of the analysis (Table 2) justify the use of the EFA as all the criteria were well exceeded.

For the next step, CFA was employed in this study to assess the measurement model and to test data quality (Gerbing and Anderson, 1988). The SEM is employed to assess the overall fit of the proposed model and to test the hypotheses. For assessment of CFA, various model fit

Demographic attributes	*n*	%
Gender		
Male	210	52.4
Female	191	47.6
Marital Status		
Single	245	61.1
Married	148	36.9
Divorced	8	2
Age		
18–24	121	30.2
25–34	152	37.9
35–44	71	17.7
45–54	35	8.7
55 and above	22	5.5
Education level		
SPM/STPM	17	4.2
College diploma/matriculation/ A-level	85	21.2
Bachelor degree	211	52.6
Master degree	37	9.2
PhD	22	5.5
Professional qualification	29	7.2
Occupation		
Student	97	24.2
Government employee	68	17
Private employee	201	50.1
Businessman	12	3
Others	23	5.7
Monthly income		
Less than RM1,000	105	26.2
RM1,001-RM3,000	133	33.2
RM3,001-RM5,000	87	21.7
RM5,001-RM10,000	52	13
RM10,001-RM20,000	14	3.5
More than RM20,001	10	2.5
The period of bank's customer relationship		
Less than one year	20	5
One to two years	60	15
Two to three years	81	20.2
Above three years	240	59.9
Types of bank account		
Current account	86	21.4
Saving account	280	69.8
Investment and financing account	35	8.7
Total	401	100

Table 1.
Sample of respondents of the study

indices for the measurement model were determined (Chau, 1997) as follows: CMIN/DF (<2 is good and 2–5 is acceptable); goodness of fit index (GFI > 0.90 is good and >0.80 is acceptable); comparative fit index (CFI > 0.90); normed fit index (NFI > 0.90); root mean residual (RMR < 0.10); root mean square error of approximation (RMSEA < 0.10) and adjusted goodness of fit index (AGFI > 0.80 is good and >0.70 is acceptable). Factor loadings are

the standardized regression weights of the constructs with their items, the loadings above 0.70 are considered good and loadings above 0.60 can also be accepted (Hair *et al.*, 2006). The model fit of the measurement model of this study is shown in Table 3. The table shows that all the goodness of fit and badness of fit indices are in the acceptable range and supports EFA findings where all the standardized factor loadings emerged as fairly high. This shows that the measures display convergent validity (Gerbing and Anderson, 1988).

Conceptual factors	Items	Loadings	Cronbach's alpha
Customer loyalty	BL1	0.817	0.885
	BL2	0.858	
	BL3	0.821	
	BL4	0.697	
Customer satisfaction	SB1	0.762	0.895
	SB2	0.893	
	SB3	0.786	
	SB4	0.747	
Tangibility	T2	0.811	0.848
	T4	0.830	
	T5	0.766	
Reliability	R1	0.698	0.852
	R2	0.670	
	R3	0.836	
	R4	0.885	
Assurance	A1	0.747	0.842
	A2	0.865	
	A3	0.715	
	A4	0.595	
	A5	0.588	
Sincerity	S1	0.841	0.895
	S2	0.847	
	S3	0.889	
Personalization	P1	0.595	0.878
	P3	0.960	
	P4	0.927	
Formality	F2	0.845	0.834
	F3	0.695	
	F4	0.846	
Trust	BT1	0.528	0.889
	BT2	0.621	
	BT3	0.755	
	BT4	0.879	
	BT5	0.908	
	BT6	0.776	

Table 2.
Exploratory factor analysis (EFA) and reliability analysis results

Overall fit of the model	
Chi-square/degree of freedom (*x/df*)	2.003
Goodness of fit index (GFI)	0.869
Comparative fit index (CFI)	0.936
Normed fit index (NFI)	0.881
Root mean square residual (RMR)	0.012
Root mean square error of approximation (RMSEA)	0.050

Table 3.
Model fit of the measurement model

Based on the results of EFA, four items (out of 39) were deleted from the instrument because of low factor loadings. These items were T1, T3, P2 and F1. The results of CFA on the remaining 35 items showed a good fit of the data. In term of the path estimates (CFA loadings) of the measurement model, they were above 0.50; average variance extracted (AVE) above 0.50 and construct reliability above 0.70 indicate convergent validity and internal consistency. Thus, the final scale consists of 35 items (standardized confirmatory factor loadings are not reported here, available upon request). Figure 2 illustrates the measurement model.

Table 4 shows the discriminant validity of the construct. The square root of the AVE between each pair of factors was higher than the correlation estimated between factors, thus ratifying its discriminant validity (Hair *et al.*, 2006).

4.2 Hypotheses testing

Finally, a SEM is constructed to assess the proposed structural model by employing the maximum likelihood estimation method. The proposed structural model is presented in Figure 3. Model fit of the structural model shown in Table 5 reveals that the model fits the data reasonably well.

The results summary provided in Figure 4 indicates an excellent fit of the PAKSERV model in the context of Islamic banking in Malaysia. The relationship between assurance and customer satisfaction is positive and significantly contributes to customers' satisfaction in Islamic banking, and H3 is thus supported (0.380; $p < 0.01$). This is followed by H5, which is also supported. The relationship between personalization and satisfaction is significant (0.201; $p < 0.01$), which is an important contributor toward satisfaction on services of Islamic banks. Then, the relationship between sincerity and customers' satisfaction appears to be significant (0.185; $p < 0.01$) where H4 is supported. The relationship between tangibility and customers' satisfaction is significant (0.140; $p < 0.01$), hence supporting H1. The relationship between formality and customers' satisfaction shows formality significantly influences customer satisfaction (0.121; $p < 0.01$), hence supporting H6. The relationship between reliability and customers' satisfaction on services of Islamic banks is also significant and positive (0.120; $p < 0.01$), supporting H2. Meanwhile, path coefficient of the relationship between customers' satisfaction and loyalty is 0.591 ($p < 0.01$). This indicates that customers' satisfaction is positively and significantly contributing toward customers' loyalty in services of Islamic banks. Thus, H7 is supported. The relationship between customers' satisfaction and trust is 0.605 ($p < 0.01$), showing that customers' satisfaction significantly influences trust, supporting H8. The relationship between trust and customers' loyalty is 0.187 ($p < 0.01$). The result demonstrates that trust significantly influences customers' loyalty, therefore supporting H9. The summary of the results is presented in Table 6.

The significance of trust, the standardized total and direct and indirect effect is determined by using the bias-corrected (BC) two-tailed percentile method with bootstrapping. Figure 5 describes the causal relationship between customers' satisfaction and customers' loyalty with the mediation of trust. The more detailed results of trust as a mediator are provided in Table 7. The results of the direct and indirect path parameters reveal that trust acts as a partial mediator between customers' satisfaction and loyalty. The regression estimates and the *p*-values show that both the direct and indirect paths between customers' satisfaction and customers' loyalty are significant in the presence of trust as a mediator. H10 is therefore supported.

5. Conclusion and managerial implication

The results of this study confirm that all the six dimensions of PAKSERV model are reliable in the context of Islamic banking in Malaysia and each dimension has a significant positive relationship with the service quality of Islamic banks. The employment of PAKSERV is to

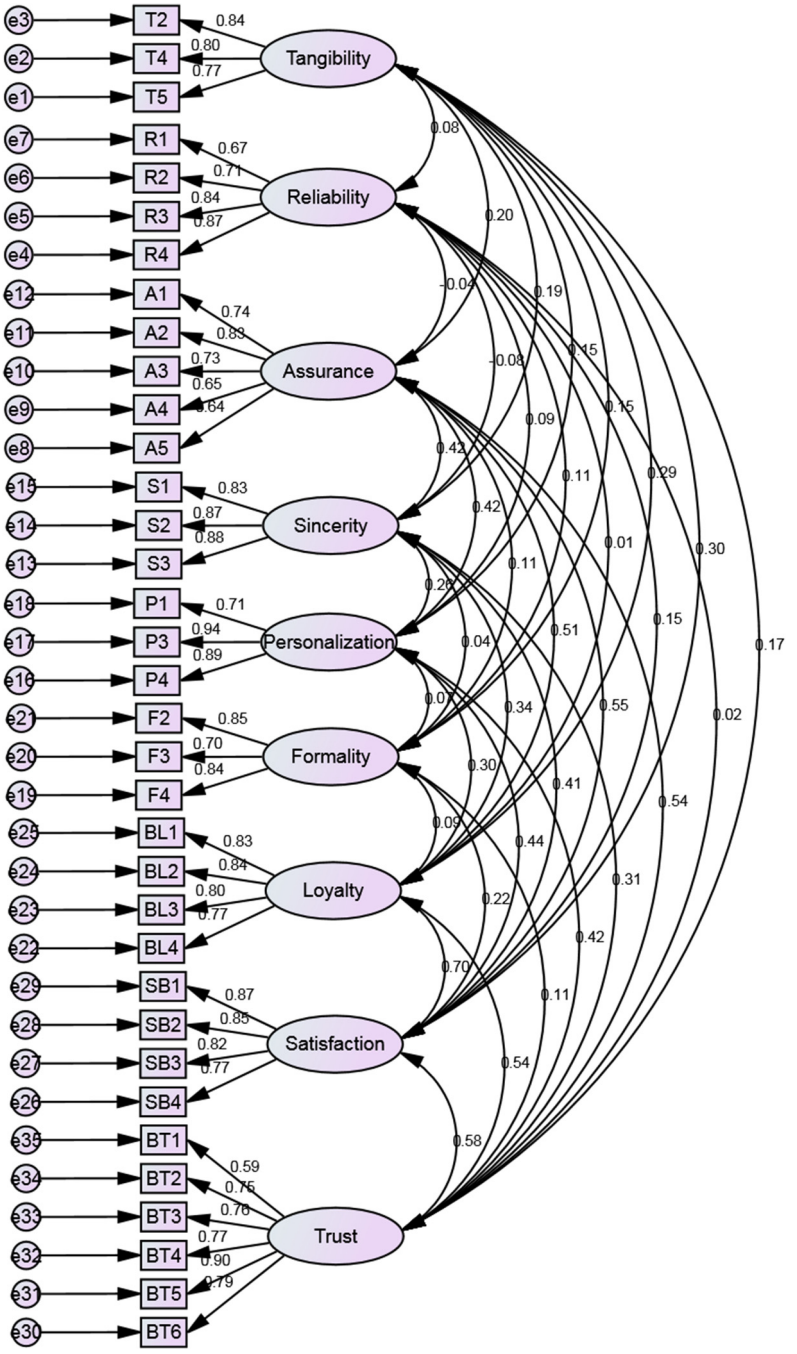


Figure 2.
The measurement model

exploit culturally sensitive service quality (Ganguli and Roy, 2011); hence it confirms that service quality and customers' satisfaction is a cultural phenomenon and is essential to be grounded in a local cultural context (Raajpoot, 2004; Malhotra *et al.*, 2005; Moghavvemi *et al.*, 2018).

In terms of key driver to the service quality of Islamic banks in Malaysia, assurance is the most important driver to service quality, followed by personalization, sincerity, tangibility, formality and reliability. This reveals that customers of Islamic banks chose banks that provide financially safe investment, have appropriate knowledge about products and services and practice courtesy in delivering services. Additionally, customers are also particular on equal service offered to all customers and have competent employees to perform services professionally. Consequently, excellent service quality asks staff to be polite with customers, to be competent, provides effort on delivering appropriate financial advice, and customers to have easy access to their account information. Then, customers primarily focused on the personalization and sincerity dimensions. As Asian culture is attributed to a greater acknowledgment of social status and power distance (Raajpoot, 2004), paying attention on personalization is understandable. This indicates the influences of social status in describing service quality, even in the context of Islamic banking, hence having implication on Islamic bank marketers (Kashif *et al.*, 2016; Alnaser *et al.*, 2018). Given the higher customer focus toward personalization, the bank staff must provide individual attention on services offered by Islamic banks. This way, Islamic banks can attract more customers. Imrie *et al.* (2013) suggested that highly customized solutions to customers have been found to help marketers in attracting more customers.

It is an established argument that people in collectivist cultures are less tolerant to risks connected with business, and this is applicable even in consumer spending on various goods and services (Hofstede, 2003). A high score on uncertainty avoidance advocates the importance of a sincere advice which is expected by customers as part of a service quality. This entails that such customers need a higher level of sincere advice that is personal in nature, in order to minimize his/her perceptions of risk associated with a service encounter (Kashif *et al.*, 2015). As Asians are not prepared to take higher risks in many decisions, it can slow down the service consumption progression in such societies (Lee *et al.*, 2007). The service consumption risk in Asian societies can be minimized through sincerity during service provision. This is where the frontline staff is recommended to earn a reputation of providing proactive, well-mannered and a personalized advice to the customers (Raajpoot, 2004; Eze *et al.*, 2019). Thus, the high score on sincerity dimension explains the significance of a personal and highly sincere advice predicted by Asian customers from bank staff during service encounters. These outcomes also emphasize the significance of national culture comprehending the perceived service quality (Hofstede, 2003). It also has a special implication

	SB	R	T	A	S	P	F	BL	BT
Satisfaction (SB)	0.827								
Reliability (R)	0.145	0.776							
Tangibility (T)	0.30	0.077	0.807						
Assurance (A)	0.553	−0.037	0.204	0.720					
Sincerity (S)	0.406	−0.082	0.19	0.42	0.86				
Personalization (P)	0.438	0.088	0.149	0.425	0.256	0.852			
Formality (F)	0.223	0.109	0.151	0.106	0.035	0.066	0.797		
Loyalty (BL)	0.696	0.01	0.286	0.509	0.336	0.302	0.087	0.811	
Trust (BT)	0.585	0.025	0.17	0.542	0.308	0.421	0.109	0.545	0.764

Note(s): Diagonals represent the square root of the AVE, while the off diagonals represent the correlations

Table 4. Discriminant validity of customer loyalty, satisfaction, trust and service quality

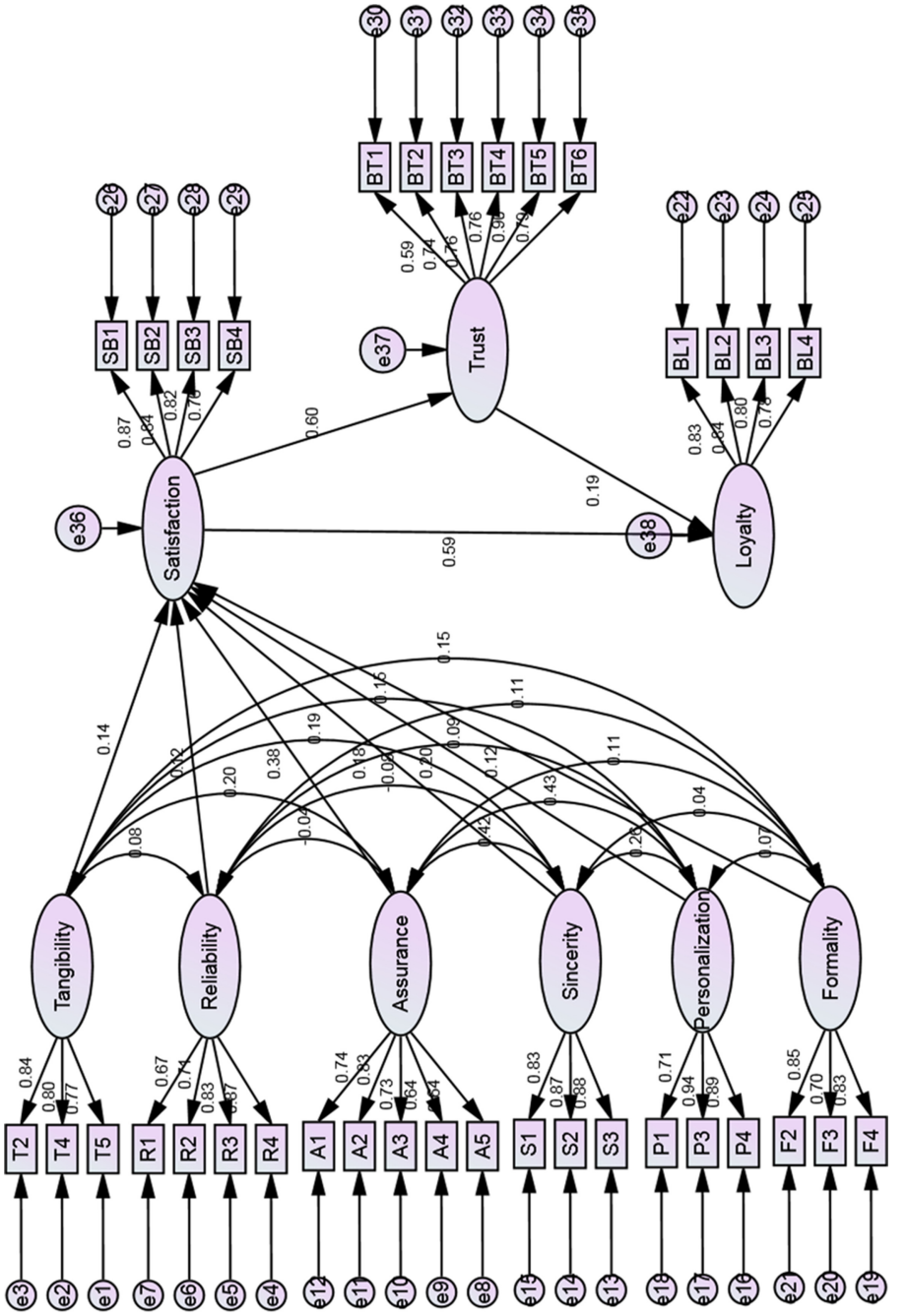


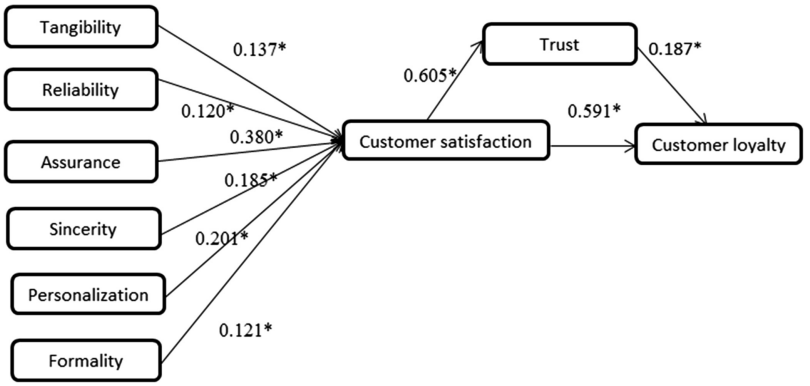
Figure 3.
The structural equation model (SEM)

for Islamic bank marketers as the sincere advice can minimize the risks related to banking transactions. It can also result in customers switching from conventional banks to benefit the services of Islamic banks (Kashif *et al.*, 2016; Saleh *et al.*, 2017). Furthermore, the rapid development and competition of banking services have made it important for banks to measure the service quality (Alnaser *et al.*, 2018). The outcomes specified that the PAKSERV dimensions of assurance, personalization and sincerity are found to be critical for Islamic banks in constructing and executing service quality programs to customers.

Interestingly, the formality dimension though being important is low-ranked based on the results of this study. This contradicts with the work of Raajpoot (2004) but nevertheless supports the findings of Saunders (2008) and Kashif *et al.* (2016) who replicated the

Overallfit of the model	
Chi-square/degree of freedom (*x/df*)	2.056
Goodness of fit index (GFI)	0.864
Comparative fit index (CFI)	0.931
Normed fit index (NFI)	0.875
Root mean square residual (RMR)	0.016
Root mean square error of approximation (RMSEA)	0.051

Table 5.
Model fit of structural model



Note(s): *$p < 0.01$

Figure 4.
Result summary

Hypothesized path	Standardized coefficients	*t*-value	*p*-value	Hypotheses
H1.SB ← T	0.137	2.904	0.004	Supported
H2.SB ← R	0.120	2.668	0.008	Supported
H3.SB ← A	0.380	6.226	0.003	Supported
H4.SB ← S	0.185	3.692	0.006	Supported
H5.SB ← P	0.201	4.079	0.001	Supported
H6.SB ← F	0.121	2.642	0.005	Supported
H7.BL ← SB	0.591	9.685	0.002	Supported
H8.BT ← SB	0.605	9.330	0.004	Supported
H9.BL ← BT	0.187	3.256	0.001	Supported

Note(s): SB = customer satisfaction; T = Tangibility; R = Reliability; A = Assurance; S = Sincerity; P = Personalization; F = Formality; BL = Customer loyalty; BT = Customer trust

Table 6.
Results of the structural model

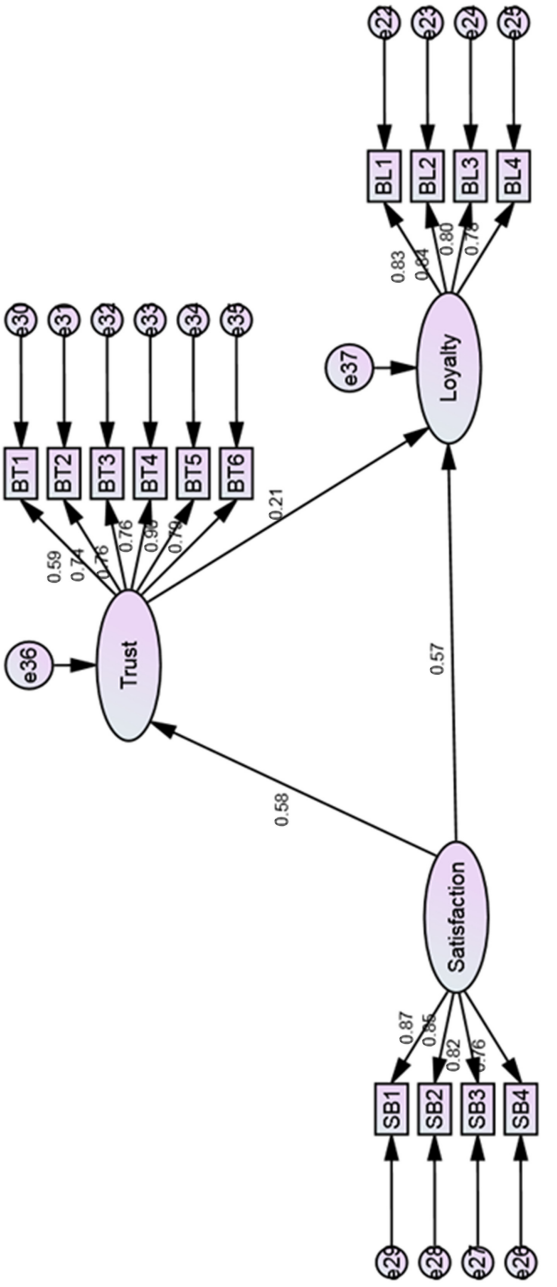


Figure 5.
Mediation model with trust as a mediator

	SB		BT	
	Standard regression estimates	*p*-value	Standard regression estimates	*p*-value
Total effects				
BT	0.584	0.001	0	
BL	0.696	0.001	0.21	0.005
Direct effects				
BT	0.584	0.001	0	
BL	0.574	0.001	0.21	0.005
Indirect effects				
BT	0		0	
BL	0.122	0.004	0	–

Note(s): SB = customer satisfaction; BL = Customer loyalty; BT = Customer trust

Table 7.
Full results with trust as mediator

PAKSERV model in African and Pakistan banking context and found formality a less desirable dimension. Therefore, a slighter emphasis on formality and better concentration on personalization and sincerity are reasonable (Kashif *et al.*, 2016). In this study, reliability recorded the lowest coefficient of service quality despite being significantly and positively related to customers' satisfaction on the service quality of Islamic banks in Malaysia. The results of this study support the claims of Malhotra *et al.* (2005) and Alnaser *et al.* (2018) that perceptions of service quality differ by nationality due to the differences in economic, social and cultural atmospheres.

It has been recorded that customers' satisfaction is a strong predictor of customers' loyalty in the context of Islamic banking in Malaysia (Saleh *et al.*, 2017). The result of the current study strongly supports this relationship. These findings are in line with the previous studies that signal the importance of achieving service quality in order to ensure customers' loyalty in service settings (Baumann *et al.*, 2011). The results supported all hypotheses proposed in this study. Through the results, it has been found that a PAKSERV-based customers' satisfaction leads to customers' loyalty in Islamic banks, which is in line with the studies of Kashif *et al.* (2015); Kashif *et al.* (2016) and Alnaser *et al.* (2018). These results are also in line with the studies conducted in other service settings (Amin *et al.*, 2013; Kitapci *et al.*, 2013; Saleh *et al.*, 2017). Although Islamic banking customers are satisfied with the overall service quality provided by Islamic banks, it is not guaranteed that their customers will not switch to other banks. Therefore, Islamic banks need to continue improving the relationship between bank and customers by increasing customers' trust toward the services provided (Saleh *et al.*, 2017; Nomran *et al.*, 2018).

In the context of Islamic banking in Malaysia, customers' trust in Islamic banks may be linked to customers' perception on the products and services (Nomran *et al.*, 2018). This study also provides survey evidence that satisfaction has a positive effect on trust and trust eventually has a positive influence on loyalty to the bank. The positive sign of the estimates shows that the greater the level of customers' satisfaction, the higher the level of customers' trust and the greater the level of trust, the higher the level of customers' loyalty. All elements of the research propositions are thus firmly supported. This study also reveals that trust acts as a partial mediator between customers' satisfaction and customers' loyalty. Trust may influence the customers' decisions toward building the long-term relationship with Islamic banks, which in turn can result in satisfied customers having greater trust on the banks, and this will enhance the long-term relationship even further.

The results of this study contribute to the literature and the practices of service quality in Islamic banking. Islamic banks in Malaysia can achieve numerous benefits by advancing the provisions of service quality as desired by customers. This study found all the six dimensions

of PAKSERV model have been reliable in the context of Islamic banking in Malaysia. The results of this study uphold the idea that service quality and customers' satisfaction is a cultural occurrence and backed by local cultural background. Banks should continue gaining customers' trust and satisfaction. This can be achieved by showing concern on the security of transactions, delivering quality services, showing respect for customers through frontline staff, fulfilling commitments and performing to develop customers' confidence toward the banks and its services. The findings of this study therefore can be used as a framework for other Islamic financial institutions (IFIs) in improving services to its customers.

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The determinants of *Ṣukūk* issuance in GCC countries

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Abstract

Purpose – This paper focuses on *Ṣukūk* issuance determinants in Gulf Cooperation Council (GCC) countries. Given the dual characteristic of debt and equity of *Ṣukūk* as well as their unique benefits of social responsibility, the author questions whether the theories of capital structure, the trade-off and the pecking order are able to well explain the *Ṣukūk* issuance.

Design/methodology/approach – First, the author verifies these theories using capital structure determinants and regresses the *Ṣukūk* change on these determinants. Second, the author tests the trade-off theory with the target debt model and third, verifies the pecking order theory using the fund flow deficit model.

Findings – The empirical results show that capital structure determinants fail to explain both theories. The author confirms that the *Ṣukūk* change is significatively linked to the deviation from a *Ṣukūk* target. So, issuing firms balance the marginal costs of *Ṣukūk* and their benefits of religiosity and social responsibility toward a target debt. The author finds no evidence of the pecking order theory.

Research limitations/implications – This study contributes to corporate finance theory and corporate social responsibility. It verifies if capital structure theories proved in conventional financing can well explain Islamic bonds issuance given their social responsibility benefits.

Practical implications – Managers and investors would pay attention to the social factors explaining *Ṣukūk* issuance in their finance and investment decisions. They would be enhanced to use this financing tool knowing its social unique benefits. This also should encourage governments to enhance this socially responsible financing. Rating agencies would be motivated to evaluate *Ṣukūk* and firms would improve the quality and relevance of disclosure to get the best rating.

Social implications – The author highlights the social factors explaining *Ṣukūk* issuance and enhances corporate social responsibility (CSR).

Originality/value – The author extends the few literature testing capital structure theories for Islamic bonds and highlights the specific social responsible features of *Ṣukūk* that would bridge their issuance to capital structure theories. So the author enhances the concept of Islamic CSR. Tying capital structure theories to CSR would also help developing Islamic finance theory as a unique social responsible framework.

Keywords Social responsibility, Pecking order theory, *Ṣukūk* issuance, Trade off theory

Paper type Research paper

1. Introduction

Financing decision involves decision on the composition between debt and equity and the decision on type of financial securities to be issued. Many studies on corporate finance have dealt with debt-equity choice and associated shareholders' wealth effect. Researchers have focused on the determinants of bond issuance. They have proved theories of capital structure, mainly the pecking order theory and the trade-off theory. The trade-off theory predicts that there is an optimal debt ratio maximizing the value of a firm. This optimal leverage is determined by a trade-off between the marginal costs and benefits. In contrast, the pecking order theory suggests instead a pecking order of financing choice generated by the problem of information asymmetry (Myers and Majluf, 1984; Rajan and Zingales, 1995;

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Al-Sakran, 2001; Kayo and Kimura, 2011; Psillaki and Daskalakis, 2009; Vasiliou *et al.*, 2009; Shyam-Sunder and Myers, 1999; Frank and Goyal, 2003).

There is a scarcity of empirical research dealing with the choice involving another debt type security, i.e. the *ṣukūk*. Compared to conventional bonds that promise to pay interest, which is prohibited in Sharīʿah, *ṣukūk* allow ownership in the underlying economic assets and pay either profit or rent of those assets. Thus, *ṣukūk* have unique benefits of religiosity and making socially responsible finance embedded in them. Besides, the profit-sharing principle implies that *ṣukūk* represent fractional ownership in an underlying asset or project. *Ṣukūk* holders receive part of the profit proportional to their fractional ownership, which confers them the dual status of lenders and investors. So, *ṣukūk* have the hybrid nature of debt and equity. Given these features of religiosity, embedded Islamic corporate social responsibility (CSR) and the hybrid nature of debt and equity, we question if capital structure theories can well explain *ṣukūk* issuance.

Researchers have regressed *ṣukūk* amount on capital structure determinants to examine if *ṣukūk* issuance is explained by these theories. Nagano (2016) finds no evidence of pecking order theory but does not confirm the trade-off theory. Other authors find some evidence of trade-off theory (Shahida and Saharah, 2013; Hanifa *et al.*, 2014; Mohamed *et al.*, 2015). However, Azmat *et al.* (2014) find no evidence of debt ratio target in Malaysian *ṣukūk*. Very few studies have tested if the theories of capital structure explain *ṣukūk* issuance in GCC countries. Using capital structure determinants, Grassa and Miniaoui (2018) find mixed results supporting both the trade-off and the pecking order theories.

Existence of only few studies focusing on *ṣukūk*, with little evidence of capital structure theories, make it difficult to stipulate that *ṣukūk* issuance can be well explained by either trade-off or pecking order theories. In this paper, we contribute to fill this gap by testing these theories in GCC countries using not only capital structure determinants but also the debt target model and the fund flow deficit model.

We address the research question of whether capital structure theories can explain *ṣukūk* issuance in GCC countries. We use the accounting data of GCC *ṣukūk* issuing firms for the period 2005–2016. Our results show that capital structure determinants fail to confirm either the trade-off theory or the pecking order theory. Indeed, the amount of *ṣukūk* depends significantly and negatively on profitability and significantly and positively on earning volatility which is contrary to the trade-off theory. Thus the trade-off theory is rejected. Besides, the pecking order theory is not confirmed since it also predicts a negative sign of the coefficient of earning volatility. However, the trade-off theory is proved using the target level debt model. In fact, we find that the *ṣukūk* change is significantly linked to the deviation from a *ṣukūk* target. So, *ṣukūk* issuance aligns toward an optimal leverage. This target is determined by a trade-off between the marginal costs and social responsibility benefits of the *ṣukūk*, which confirms the trade-off theory. We also perform the fund deficit flow model to test the pecking order model. But the results reject the pecking order theory.

This study contributes to corporate finance theory and CSR. It checks if the capital structure theories proved in conventional finance can as well explain Islamic bonds issuance given their social responsibility benefits. It would help defining the social factors that encourage *Ṣukūk* issuance. This would reasonably lead to Islamic finance and Islamic CSR development.

The remainder of this paper is organized as follows: the first section deals with the conceptual approach and literature review. The second section presents the methodology. Section three presents the sample study, while section four reports the descriptive statistics. Section five is about results and section six is about discussion.

2. Conceptual approach and literature review

This paper verifies if capital structure theories are able to explain *ṣukūk* issuance. We present the theoretical and empirical literature on capital structure theories and *ṣukūk*.

2.1 Capital structure theories

Many corporate finance studies have pointed out that trade-off theory and pecking order theory are major determinants of conventional bond issuance. The trade-off theory has contradicted the theorem of Modigliani and Miller (1958) that postulated no leverage impact on firm's value. On the contrary, the trade-off theory predicts that there is an optimal debt to equity ratio maximizing the value of a firm. This optimal leverage is determined by a trade-off between the marginal costs and benefits (Kraus and Litzenberger, 1973; Myers, 2001; Van Binsbergen *et al.*, 2011). In contrast, the pecking order theory does not predict a target debt ratio. It suggests instead a pecking order of financing choice generated by the problem of information asymmetry. The information asymmetry concerns the bigger knowledge of shareholders/managers about the value of the firm assets and future growth prospect. To overcome this problem, shareholders/managers prefer internal financing to external financing. Besides, in case of external financing, they opt for debt prior to equity to reduce information cost (Myers and Majluf, 1984; Rajan and Zingales, 1995; Al-Sakran, 2001; Kayo and Kimura, 2011; Psillaki and Daskalakis, 2009; Vasiliou *et al.*, 2009).

A first part of these researches in this field has tested these theories using determinants related to capital structure, which are mainly profitability, growth opportunities tangibility, non-debt tax shields, volatility and size. Another part assumes that firms target a particular leverage induced by a trade-off between the securities costs and benefits. A third part uses the funds flow deficit model to assume that in case of deficits, the firm will only issue or retire equity as a last resort. The major part of these researches deals with conventional bonds, while very few authors focus on Islamic bonds.

2.2 Researches using capital structure determinants

Authors in this field have observed the relation between debt and capital structure determinants relating to profitability, growth opportunities, tangibility, non-debt tax shields, volatility and size.

2.2.1 Profitability. Concerning profitability, the trade-off model argues that profitable firms are less likely to be subject to bankruptcy risk because of their increased ability to meet debt repayment obligations. Thus, they will demand more debt to maximize their tax shield at more attractive costs of debt. The pecking order theory predicts the opposite sign suggesting that high profitable firms will be able to generate more funds through retained earnings and then have less leverage. Compared with debt and equity, retained earnings have no adverse selection problem, and hence, they are the cheapest source of finance (Myers and Majluf, 1984; Rajan and Zingales, 1995; Al-Sakran, 2001; Kayo and Kimura, 2011; Psillaki and Daskalakis, 2009; Vasiliou *et al.*, 2009).

2.2.2 Asset tangibility. The trade-off theory predicts that the risk of lending to firms with more tangible assets is expected to be low, given the higher liquidation value of these assets in the event of financial distress or bankruptcy. Therefore, a firm with a higher percentage of fixed assets is expected to borrow more as compared relatively to firms with smaller fixed asset. Thus, we expect a positive relationship between tangibility of assets and debt (Harris and Raviv, 1991; Rajan and Zingales, 1995; Hovakimian and Li, 2011). In contrast, the pecking order theory predicts that firms with few tangible assets are more sensitive to informational asymmetries. Thus, these firms will issue debt rather than equity when they need external financing, which leads to negative relation between asset tangibility and debt (Titman and Wessels, 1988).

2.2.3 Firm size. Under a trade-off framework, larger firms have higher debt capacity and can borrow at more favorable risk-adjusted interest rates than smaller firms. Also, they are more diversified and less susceptible to bankruptcy (Titman and Wessels, 1988). Therefore, we expect a positive relationship between size and debt (Harris and Raviv, 1991;

Rajan and Zingales, 1995; Shyam-Sunder and Myers, 1999). However, according to the pecking order theory, larger firms are more closely observed by the investment community and thus less subject to information asymmetry than small firms (Rajan and Zingales, 1995).Thus, they should be more capable of issuing equity, which is more sensitive to information asymmetry and have lower debt (Rajan and Zingales, 1995). We suggest a negative relation between firm size and leverage.

2.2.4 Growth opportunities. According to the trade-off theory, low-growth firms should use debt because it has a disciplinary role to alleviate the free cash flow problem (Jensen, 1986; Stulz, 1990). Hence, we expect a negative relationship between debt and growth opportunities. Pecking order theory predicts that growth opportunities should be financed with equity instead of debt. In order to mitigate moral hazard, a negative relationship is expected between debt and growth opportunities (Smith and Watts, 1992). However other authors claim that internal funds may be insufficient for highly growing firms, which will tend to issue debt, thus leading to a positive correlation between debt and growth opportunities (Myers, 1977; Titman and Wessels, 1988).

2.2.5 Non-debt tax shield. In the trade-off scheme, firms consider non-debt tax shields, such as depreciation and investment tax credit deductions, as a substitute for the tax shield and will have less incentive to increase leverage for tax considerations. So, non-debt tax shields and debt should have a negative relationship (Titman and Wessels, 1988; Fama and French, 2002; Flannery and Rangan, 2006). On the other hand, pecking order theory does not offer any judgments on the relationship between debt and non-debt tax shield.

2.2.6 Volatility. In the context of volatility, the trade-off theory assumes that firms with high earnings volatility try to accumulate cash during good years to avoid under-investment problems in the future (Myers, 1977). As DeAngelo and Masulis (1980) point out, an adverse selection problem is more severe to firms with highly volatile earnings. To avoid adverse selection problem, firms with financial surpluses should retire debt or invest in cash or marketable securities, to preserve their debt capacity for future financing needs or to avoid issuing equities at higher costs (Myers, 1984). Higher volatility of earnings increases the probability of financial risk and these firms will face the difficulties in debt financing. According to Jensen (1986), the pecking order theory also suggests the negative relationship between leverage and earnings volatility.

2.3 Researches using target leverage model

Authors of these papers assume that firms target a particular leverage. If the actual ratio differs from the target, the firm would adjust its debt or equity to achieve the target. Researchers in this field have regressed the long-term debts change scaled by the total asset on the deviation of the debt ratio from its target value (Bradley *et al.*, 1984; Long and Malitz, 1985; Rajan and Zingales, 1995; Titman and Wessels, 1988; Taggart, 1977; Marsh, 1982; Auerbach and King, 1983; Jalilvand and Harris, 1984; Opler and Titman, 1994; Graham and Harvey, 2001; Marsh, 1982, Hovakimian *et al.*, 2001; Ozkan, 2001; Fama and French, 2002; Flannery and Rangan, 2006; Lemmon *et al.*, 2008; Huang and Ritter, 2009).

2.4 Researches using fund flow deficit model

Researchers in this field regress the firm's net debt issues on its net financing deficit. The financing deficit is defined using the cash flow identity, as the growth in assets less the growth in current liabilities (except the current portion of long-term debt) less the growths in retained earnings. According to this identity, this deficit must be filled by the net sale of new securities. Except for firms at or near their debt capacity, the pecking order predicts that the deficits will be filled entirely with new debt issues. Authors in this field find that the estimated coefficient on the deficit variable is close to one and interpret this result as evidence

supporting the pecking order theory because a shortfall in funds is first met by debt (Shyam-Sunder and Myers, 1999; Frank and Goyal, 2003).

2.5 Capital structure theories for Islamic bonds

To state capital structure theories for *ṣukūk*, we begin by analyzing their specific features

2.5.1 Hybrid nature of ṣukūk. The word *ṣukūk* is the plural of Arabic word *ṣakk* which has the literal meaning of legal instrument/certificate, deed or cheque. The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI, 2017) defines *ṣukūk* as follows: "*Ṣukūk* are certificates of equal value representing undivided shares in ownership of tangible assets, usufruct and services or (in the ownership of) the assets of particular projects or special investment activity." In other words, *ṣukūk* provide ownership of a part of the underlying asset to the holders. These certificates are rewarded with a pre-agreed profit-sharing rate and thus avoiding any interest-based transaction.

So, *ṣukūk* combine characteristics of conventional bonds and stocks. Like bonds, they have a face value, a maturity date, a remuneration rate and provide a regular stream of cash flows to investors including capital refunding with a margin. However, unlike bonds, the return on the *ṣukūk* is generated from an underlying asset, not from the obligation to pay interest. Thus, they share some common features with capital-like instruments as they give the right of a stream of revenue from an investment project (Miller *et al.*, 2007; Nathif and Thomas, 2004; Klein and Weil, 2016; Wilson, 2008). This hybrid nature is influenced by the *ṣukūk* types. In fact, some *ṣukūk* are more debt-like *ṣukūk* as *Murābaḥah ṣukūk* and *Ijārah ṣukūk*, while *Mushārakah ṣukūk* and *Muḍārabah ṣukūk* are more partnership-like *ṣukūk*.

*2.5.2 Benefits of ṣ*ukūk*: religiosity and corporate social responsibility. Ṣukūk* are desirable by Sharīʿah-conscious investors and entrepreneurs for their religious content. Hence, *ṣukūk* offer unique benefit of strong adherence to Islamic financial directives. Shafron (2019) and Paltrinieri *et al.* (2019) explain the effect of this religious benefit on the choice of *ṣukūk* investment using the theory of "investor tastes" of Fama and French (2007). According to this theory, "investor tastes" are persistent in nature and exist when certain investors "get direct utility from their holdings of some assets, above and beyond the utility from general consumption that the payoffs on the assets provide". Specifically, investors with a taste for Sharīʿah-compliant investments achieve a higher utility from investing in Sharīʿah-compliant investments even with lower expected cash flows, than they would if they had instead held non-Sharīʿah-compliant investments with higher expected cash flows. The investors' tastes of religiosity should encourage firms to meet these needs by issuing *ṣukūk*. Moreover, the Islamic entrepreneurs may themselves have a taste for Sharīʿah-compliant financing and thus a higher utility from issuing *ṣukūk*, than they would if they issue instead non-Sharīʿah-compliant securities. So, religiosity influences the behavior of stock market investors and issuers. These unique benefits should encourage firms to choose to issue *ṣukūk*.

Besides, *ṣukūk* presents another unique benefit of Islamic CSR. CSR is the recognition on the part of management of an obligation to the society it serves not only for maximum economic performance but for humane and constructive social policies as well (Heald, 1957). The most notable theory inherent to this concept is Freeman's (1984) stakeholder theory. This theory assumes that sharing values with stakeholders is necessarily and explicitly a part of doing business (Freeman, Wicks and Parmar, 2004). Islamic finance implements a variation of the conventional CSR, the Islamic CSR. Indeed, it is based on the ethical principles embodied in the Sharīʿah (Islamic legal and ethical system), where its underlying objective are generally aimed at realizing overall human wellbeing and social justice (Ullah and Jamali, 2010). One of the most important ethical principles is the ban of interest. Thus, investors of *ṣukūk* are paid dividends on the outcome of profit-sharing agreements between issuers and investors instead of fixed interest installment payments as in normal bonds (Siddiqi, 1987). Therefore, *ṣukūk*

integrate social concerns building justice between the money holder and the entrepreneur. On the one hand, the *ṣukūk* holder is not unfairly assured of a positive return without doing any work or sharing in the risk, while the entrepreneur, in spite of his management and hard work, will bear all the risk to provide guaranteed return to the capital provider. On the other hand, Islamic finance presents schemes of risk management and insurance of *ṣukūk* respectively by special purpose vehicle (SPV) and Takaful. The SPV maintains the underlying asset to ensure the returns stream while Takaful alleviates the risk of asset loss. So, Islamic bonds further social benefits beyond financial interest with requests for collective welfare.

Empirically, authors focusing on ethical activities prove the beneficial effect of social responsibility on the raise of the corporate value through an increase in additional equity investment from the external investors. They find significant relation between CSR indicators and measures of financial performance such us ROA, ROE, market-to-book ratio, Tobin's *q* and cost of equity (Jensen *et al.*, 2002; Heinkel *et al.*, 2001; Graff Zivin and Small, 2005; El Ghoul *et al.*, 2011; Lee and Faff, 2009; Eccles *et al.*, 2013; Dixon-Fowler *et al.*, 2013; Marti *et al.*, 2013; Hu, 2019). Other authors deal with the unique benefits of religiosity and Islamic CSR. Shafron (2019) shows that investors with Islamic beliefs tend to invest more in *ṣukūk* than they would without such beliefs. Specifically in Ramadan, Klein *et al.* (2017) and Bialkowski *et al.* (2012) assert that religiosity can influence the investor behavior and find that investors react more positively to the *ṣukūk* issuance than conventional bonds. Similarly, some authors suggest positive market reaction to *ṣukūk* issuance (Nagano, 2010; Mohamed *et al.*, 2017). Although other authors find evidence of negative market reaction to ṣukūk issuance (Ahmed *et al.*, 2018; Ameer and Othman, 2010; Modirzadehbami and Mansourfar, 2011; Godlewski *et al.*, 2013; Hasib *et al.*, 2017). Mohamed *et al.* (2017) relate these latter findings to the longer time taken by investors to absorb the information from the *ṣukūk* announcement. Indeed, they prove a significantly positive reaction 30 days after the announcement of *ṣukūk* issuance.

2.5.3 Capital structure determinants of ṣukūk. The hybrid nature of *ṣukūk* and their unique benefits of Islamic CSR and religiosity address the issue of whether capital structure theories can explain *ṣukūk* issuance. Some authors argue that the profit-sharing type of this financing tool depends on greater internal information of the issuers when investors would like to receive maximum dividends. Therefore, the information cost of *ṣukūk* issuance is predicted to be between normal debt finance and equity issuance. Thus, the choice of *ṣukūk* is accordingly subordinated to normal debt finance but prior to equity issuance according to pecking order theory (Nagano, 2010; Nagano, 2016; Azmat *et al.*, 2014). However, other authors reject the pecking order theory and claim that firms choose to issue *ṣukūk* independently of the internal funding and the information cost. So, according to the trade-off theory, the firm opts for a target ratio of *ṣukūk* to assets to maximize its value. This optimal leverage is determined by a trade-off between the marginal costs and benefits of the *ṣukūk* (Shahida and Saharah, 2013; Mohamed *et al.*, 2015). As *ṣukūk* benefits are inherent to religiosity and social responsibility, the trade-off prediction supposes that issuing firms balance the costs and the benefits of religiosity and social responsibility benefits of *ṣukūks*.

2.6 Researches dealing with determinants of Islamic bonds issuance

Very few studies focus on the determinants of *ṣukūk* issuance. Islamic corporate finance research has investigated whether capital structure theories explain *ṣukūk* issuance. Some authors have performed logit and probit models to analyze the determinants of *ṣukūk* and conventional bonds issuance. They have tested if these determinants relate to pecking order, trade-off or timing theory. One of these researchers, Nagano (2010) finds evidence that Malaysian firms choose to issue *ṣukūk* prior to bank borrowing and other external

financing tools. He shows that *ṣukūk* issuance does not relate to the issuer's internal funds or to the information cost, but that Islamic bank borrowing always does. The author explains the results by the fact that firms issue *ṣukūk* to obtain other benefits no matter how large the information cost is. He shows that firms obtain an increase in the corporate value by issuing *ṣukūk*, which must be due to its ethical benefits. He concludes that *ṣukūk* issuance is preferentially chosen as a funding scheme because it brings unique financial and ethical benefits.

Nagano (2016) did not find any evidence of the pecking order theory in a comparative study concerning Malaysia, Saudi Arabia and the United Arab Emirates. His findings show that the possible determinants of *ṣukūk* are firm size and past *ṣukūk* issuance. The insignificant relationship with other variables also indicates that *ṣukūk* is considered to be chosen prior to the normal bond issuance regardless of the availability of firms' internal funds. In another study concerning Malaysia and Indonesia, Nagano (2017) proves that the pecking order theory explains *ṣukūk* issuance decision in case of large funding demand. Indeed, he finds that, under high information asymmetry, a firm with a high stock price and a large demanding fund prefers *ṣukūk* issuance to conventional debt. Focusing on specific *ṣukūk* type, Azmat *et al.* (2014) performed probit model on utility function to test Malaysian issuers' choice of Islamic bonds. They show that Islamic joint venture bonds do not align with debt-equity target, while secured against real estate these *ṣukūk* do not always represent ownership of the underlying asset. Shahida and Saharah (2013) use OLS, fixed effect and random effect models to prove that *ṣukūk* issuance depends on firm size, past *ṣukūk* issuance experiences and finally the government tax incentive. These findings are consistent with trade-off theory; however, leverage and profitability remain insignificant for *ṣukūk* issuance decisions.

Hanifa *et al.* (2014) perform the partial adjustment model to find the firm specific determinants of target debt ratio. Using *ṣukūk* and conventional bond issuance dataset for the period 2000 to 2012, the results of the dynamic panel data estimators provide strong support for trade-off theory. However, when the authors took consideration of bond and *ṣukūk* types, they show, on the one hand, that partnership-based *ṣukūk* and convertible bonds follow pecking order theory. On the other hand, straight bonds and exchange-based *ṣukūk* align toward a target debt.

In GCC countries, Grassa and Miniaoui (2018) use capital structure determinants and find mixed results. Aligning with the pecking order theory's predictions, they document a positive relation between growth opportunity and *ṣukūk* issuance and a negative correlation between size and *ṣukūk* issuance. However, concerning asset tangibility, their results support the positive sign of the trade-off theory.

These studies provide little evidence that capital structure theory can explain *ṣukūk* issuance.

3. Methodology

In this paper, we test first the trade-off theory and the pecking order theory using capital structure determinants. Second, we apply the target debt model to verify the trade-off theory. Third, we use the fund flow deficit model to test the pecking order theory. In the current section, we present the methods of each model. To deal with the problems of heteroscedasticity and serial correlation in the residuals, we use techniques of panel estimation: fixed effects model and random effects model. We also use the instrumental variable technique to resolve the problem of lagged independent variable

3.1 The capital structure model

This model aims to verify if *ṣukūk* issuance is explained either by trade-off theory or by pecking order theory using capital structure determinants. We will examine if *ṣukūk* amount

is influenced by determinants of capital structure, which are profitability, growth opportunities, tangibility, non-debt tax shields, volatility and size.

3.1.1 Hypotheses. Some authors argue that the profit-sharing type of *ṣukūk* depends on internal information of the issuers when investors would like to receive maximum dividends. However, the information cost of *ṣukūk* issuance is predicted to be inferior to equity issuance. Thus, the choice of *ṣukūk* is prior to equity issuance according to pecking order theory. However, according to trade-off theory, the firm opts for a target ratio of *ṣukūk* to assets to maximize its value. This optimal leverage is set by a trade-off between the marginal costs and benefits of the *ṣukūk* (Nagano, 2010; Nagano, 2016; Shahida and Saharah, 2013; Azmat *et al.*, 2013).

The trade-off theory anticipates a positive relation between leverage and the capital determinants tangibility, size and profitability and a negative relation with growth opportunities, non-debt tax shields and volatility. However, the pecking order theory predicts that leverage depends positively on growth opportunities and negatively on profitability, tangibility, size and volatility.

Hence, we posit the following hypotheses:

H1. According to the trade-off theory, *ṣukūk* issuance is positively influenced by tangibility, profitability and size and negatively related to growth opportunities, non-debt tax shields and volatility.

H2. According to the pecking order theory, *ṣukūk* issuance is positively influenced by growth opportunities and negatively related to size, profitability, tangibility and volatility.

3.1.2 Econometric models. To test Hypothesis 1, we regress *ṣukūk* on these lagged determinants using the following model

$$\Delta \text{ṣukūk}/\text{assets}_{it} = a + b_1\,\text{Profitability}_{it-1} + b_2\,\text{Tangility}_{it-1} + b_3\,\text{nondebt tax shields}_{it-1} + b_4\,\text{Volatility}_{it-1} + b_5\,\text{Size}_{it} + b_6\,\text{Growrh}_{it} + \varepsilon_{it}$$

To test Hypothesis 2, we regress *ṣukūk* on these lagged determinants using the following model

$$\Delta \text{ṣukūk}_{it}/\text{assets}_{it} = a + b_1\,\text{Profitability}_{it-1} + b_2\,\text{Tangility}_{it-1} + b_3\,\text{Volatilit}_{it-1} + b_4\,\text{Size}_{it} + b_5\,\text{Growth}_{it} + \varepsilon_{it}$$

3.1.3 Variable measures. In the two econometric models, the dependent variable is *ṣukūk*, while the independent variables are capital structure determinants, notably profitability, growth opportunities, tangibility, non-debt tax shields, volatility and size.

(1) *Ṣukūk*

Ṣukūk is measured by the ratio of the amount of *ṣukūk* divided by total assets

(2) Profitability

This variable is measured by the ratio of earnings before interest and taxes to the total assets (Following Titman and Wessels, 1988; Rajan and Zingales, 1995).

(3) Growth opportunities

Following Rajan and Zingles (1995) and Bevan and Danbolt (2002, 2004), we use the ratio of market-to-book value as a proxy for growth opportunities.

(4) Tangibility

We adopt the ratio of fixed assets to the total assets in line with Rajan and Zingales (1995) and Bevan and Danbolt (2004).

(5) Size

As well as Titman and Wessels (1988) and Rajan and Zingales (1995), we employ the natural logarithm of total assets as proxy for the size of the firms.

(6) Non-debt tax shields

We calculate it by the ratio of annual depreciation to total assets as done in prior researches (Titman and Wessels, 1988; Ozkan, 2001).

(7) Earning volatility

Following Titman and Wessels (1988), we use the standard deviation of return on assets as measure of volatility of earnings, where the return on assets for each year is measured by the ratio of earnings before interest and taxes to the total assets.

3.2 The debt target model

The debt target model aims to verify if *ṣukūk* issuance is explained by the trade-off theory using the target debt prediction.

3.2.1 Hypothesis. The trade-off theory indicates that a firm aims to achieve an optimal capital structure of debt and equity that is determined by the trade-off between marginal costs and benefits. We suppose that the marginal social responsibility benefits of *ṣukūk* issuances also impact a firm's capital structure. So, according to the trade-off theory, the firm opts for a target ratio of *ṣukūk* to assets to maximize its value. This optimal leverage is generated by a trade-off between the marginal costs and benefits of the *ṣukūk*. The prediction of this model assumes that firms target a particular leverage. If the actual ratio differs from the target, the firm would adjust its *ṣukūk* to achieve the target. We will examine if the *ṣukūk* change is linked to the deviation from a *ṣukūk* target.

Thus, we propose the subsequent hypothesis:

H3. According to the trade-off theory, *ṣukūk* change is significantly linked to the deviation from a *ṣukūk* target.

3.2.2 Econometric model. Hypothesis 3 will be verified using the partial adjustment model of debt (Gaud *et al.*, 2005; Drobetz and Wanzenried, 2006; Flannery and Rangan, 2006). This model is specified as follows:

$$\Delta \text{Debt}_{it} = a + \gamma\left(\text{Debt}^{*}_{it} - \text{Debt}_{it-1}\right) + \varepsilon_{it}$$

Where Debt^{*}_{it}: the target debt level for firm i at time t.

We replace debt by *Ṣukūk* and set the following model

$$\Delta \text{Ṣukūk}_{it} = a + \gamma\left(\text{Ṣukūk}^{*}_{it} - \text{Ṣukūk}_{it-1}\right) + \varepsilon_{it}$$

Where Ṣukūk^{*}_{it}: the target debt level for firm i at time t.

$\text{Ṣukūk}^{*}_{it} = \beta X_{it} + \varepsilon_i$, X_{it}: Vector of explanatory variables, identified by the capital structure theories. So, we use the same explanatory variables of the precedent models, profitability, growth opportunities, tangibility, non-debt tax shields, volatility and size.

This model measures the change in debt between two periods. The first term on the right side of the equation is the speed of adjustment, γ; the speed by which firms adjust toward their

target *ṣukūk* ratio from their *ṣukūk* ratio in the previous period. To deal with the endogeneity problem, we use as instrument the sector of activity.

3.2.3 Variable measurement. The dependent variable is change in *ṣukūk*, while the independent variable is the difference between target *ṣukūk* and *ṣukūk*.

(1) Change in *ṣukūk*

It is the difference of *ṣukūk* in two successive periods. However, for many cases the amount of *ṣukūk* of the year before issuance is zero. This would create problems in the measurement of this variable. Therefore, we scaled *ṣukūk* by total assets.

(2) The difference between target *ṣukūk*/assets and *ṣukūk*/assets. The target *ṣukūk* ratio is measured as:

$ṣukūk/\text{Assets}^{*} = bX_{it}$, where X_{it} is a vector of the capital structure determinants used.

3.3 The fund flow deficit model

This model tests the pecking order theory using the funds flow deficit model.

3.3.1 Hypothesis. This model predicts that the firm will only issue or retire equity as a last resort. It fills its deficit by using only debt. Therefore, the coefficient of the regression of debt change on funds flow deficit would be close to one (Shyam-Sunder and Myers, 1999; Frank and Goyal, 2003). We predict that this model can be applied for *ṣukūk*. As *ṣukūk* have hybrid nature of debt and equity, they can be appropriated to fill firms deficit, thus letting equity issuing as a last resort. We set the Hypothesis 4.

H4. The coefficient of the regression of debt change on funds flow deficit is close to one

3.3.2 Econometric model. We test Hypothesis 4 using the following model:

$$\Delta Ṣukūk_{it} = \alpha + \beta \,\text{po}\,\text{DEF}_{it} + \varepsilon_{it}$$

Where DEF is the funds flow deficit

3.3.3 Variables measurement. The independent variable is the *ṣukūk* change, while the dependent variable is the funds flow deficit.

(1) Change in *ṣukūk*

This variable should be calculated as the variation of the amount of *ṣukūk* scaled by total of assets.

(2) The funds flow deficit DEF

The funds flow deficit DEF which is measured as follows:

$$\text{DEF}_t = \text{DIV}_t + X_t + \Delta W_t + D_{it} + R_t - C_t$$

Where, DIV_t: dividend payments; X_t: capital expenditures; ΔW_t: net increase in working capital; R_t: current portion of long-term debt at start of period; C_t: operating cash flows, after interest and taxes. D_{it}: is the amount of debt issued or retired.

3.4 Statistical tools

We use techniques of panel estimation: fixed effects model and random effects model to deal with the problems of endogeneity of lagged dependent variable, heteroscedasticity and serial correlation in the residuals. The random effects model can be viewed as a regression model with a random constant term. This model assumes independence between the error term and the explanatory variables. However, the fixed effect model is a regression model with a fixed

constant term. This model assumes correlation between the error term and the explanatory variables and uses deviations from individual averages to eliminate persistent differences between firms. The Hausman test allows us to choose the appropriate model for the sample. For each regression we perform the two methods. Then, we perform the Hausman test to choose the appropriate model for the sample. We also use the Wooldridge autocorrelation to verify if there is a need for autoregressive panels. To deal with the endogeneity problem, we use the instrumental variable technique. We perform these estimations using STATA tool.

4. Sample and data

The sample of the study includes *ṣukūk* issuing firms of GCC countries with available requested data. Thus, the retained countries are KSA, UAE, Oman and Qatar. Three firms were excluded for non-available data. We observe 19 issuing firms from 2004 to 2016. These firms are included only at the year of issuance, so we obtain an unbalanced sample of 36 observations. As demonstrated by Arellano (2003), the results provided by unbalanced panels are as reliable as those based on balanced panels. Furthermore, we believe the sample size is suitable according to Austin and Steyerberg (2015) who proved that the number of subjects per variable required in linear regression analyses for adequate estimation of regression coefficients, standard errors and confidence intervals is only two. So, the minimum required sample size in our case would be 12. Moreover, we reviewed all studies dealing with minimum sample size for panel data using fixed effects and random effects models. There are no studies determining the minimum individual-level sample size. However, researches examining the group-level sample size show that predictors at either level are unbiased with 30 clusters and remain unbiased with as few as 15 clusters (Baldwin, S.A and Fellingham, 2013; Bell *et al.*, 2014; Maas, C and Hox, 2004, 2005). By analogy, as we have 19 firms, we believe our results are unbiased. As we include 84% of the firms of the population of issuing firms, then our sample is representative.

We collect data from DATASTREAM.

Table 1 presents the list of the issuing firms and the types of *ṣukūk*, when available.

5. Descriptive statistics

We compute in Table 2 the descriptive statistics of the three models of study: the capital structure determinants, the target level and the fund flow financing.

Concerning the capital structure model, we remark that the standard deviation of the part of *ṣukūk* in assets, the economic profitability, the ratio of depreciation to assets and the return to equity are inferior to 0.1. This indicates that issuing amount, profitability, non-debt tax shields and earning volatility are relatively heterogeneous among the sample. However, the standard deviation of (ln assets) and the market-to-book ratio are superior to 1. Indeed, the market-to-book ratio varies from 0.230 to 15.730 and (ln assets) varies from 8.020 to 19.577. This indicates that the firms of the sample have different size and growth opportunities.

Regarding the target leverage model, Table 2 shows that change in *ṣukūk* varies from −0.327 to 0.327, with an average of 0.057 and a standard deviation of 0.090. This indicates that the sign of this variable is not the same for all the firms, but it doesn't have a big variation. Concerning the difference between *ṣukūk* and the target *ṣukūk*, it varies from 0.856 to 2.349, with an average of 1.868 and a standard deviation of 0.789. This indicates that this change has the same sign in the sample and it has a big variation.

The descriptive statistics of the dependent and independent variables of the fund flow deficit model show that *ṣukūk* varies from 0 to 0.327, with an average of 0.058 and a standard deviation of 0.071. This indicates that *ṣukūk* does not have a big variation in the sample.

Firms	Issuance date	Type
KSA		
SABIC	9 July 2006	NA
	22 July 2007	
	26 May 2008	
Dar Al Arkan	28 May 2014	*Wakālah*
	24 May + 25 Nov 2013	
	18 Feb 2010	
	April 2009	
	March 2007	
Saudi International Petrochemical Company	06 Jul 2011	*Muḍārabah*
Saudi Electricity Company	01 Apr 2014	*Ijārah*
	08 Apr + 4 Aug 2013	
	04 Apr + 26 Jun 2012	
	10 May 2010	
	06 Jul 2009	
	01 Jul 2007	
National Petrochemical Company (Petrochem)	01 Jun 2014	*Murābaḥah*
Fawaz Abdulaziz Alhokair Company	26 May 2014	NA
Advanced Petrochemical Company	18 Nov 2014	NA
Najran Cement Company	14 Jun 2015	NA
National Shipping Company of Saudi Arabia (Bahri)	30 Jul 2015	*Murābaḥah*
Almarai	17 Sep 2015	NA
	30 Sep 2013	
	07 Mars 2012	
UAE		
Aldar Properties	03 Dec 2013	*Ijārah*
Damac	22 Sep 2015	*Ijārah*
DP World	29 May 2016	Hybrid
Emaar	15 Sep 2016	*Murābaḥah*
	18 Jun 2014	
	18 Jul 2012	
	03 Aug 2011	
Drake and Scull International	12 Nov 2014	*Murābaḥah*
Majid Al Futtaim	03 Nov 2015	*Wakālah*
	08 Feb 2012	
Qatar		
Ezdan Holding	18 May 2016	*Wakālah*
Ooredoo QSC	12 Mar 2013	*Murābaḥah*
Oman		
Omantel	03 Feb 2016	*Wakālah*

Table 1.
The issuing firms and the types of *ṣukūk*

Concerning the fund flow deficit, it varies from −0.408 to 75,661, with an average of 12,809 and a standard deviation of 0.789. This indicates that this variable does not have the same sign in the sample and it has a big variation, which would have an important effect on the sign of its coefficient.

6. Estimation results

We present first the estimation results relative to capital structure determinants model. Then we report the results of the target leverage model and finally we show the results of the fund flow deficit model.

The descriptive statistics of the capital structure determinants	Observations	Av	St.d	Min	Max
Ṣukūk/assets	36	0.058	0.071	0.000	0.327
EBIT/total assets	36	0.075	0.062	−0.002	0.222
Fixed assets/total assets	36	0.411	0.292	0.0004	0.874
Depreciation/total assets	36	0.019	0.026	0.000	0.114
Market-to-book ratio	36	2.264	2.368	0.230	15.730
Sd ROA	36	0.036	0.052	0.001	0.296
ln assets	36	16.528	2.724	8.020	19.577
The descriptive statistics of the target leverage model	**Observations**	**Av**	**St.d**	**Min**	**Max**
$Ṣukūk_t$-$Ṣukūk_{t-1}$/assets	36	0.057	0.090	−0.327	0.327
$Ṣukūk^*$-$Ṣukūk_{t-1}$/assets	36	1.868	0.789	0.859	2.349
The descriptive statistics for the fund flow deficit	**Observations**	**Av**	**St.d**	**Min**	**Max**
DEF_t	36	12.809	9.456	−0.408	75.661
$Ṣukūk_t$	36	0.058	0.071	0.000	0.327

Note(s): $Ṣukūk^*_{it}$: the target debt level for firm i at time
$Ṣukūk^*_{it} = \beta X_{it} + \varepsilon_{it}$; X_{it}: Vector of explanatory variables, identified by the capital structure theories

Table 2.
The descriptive statistics

6.1 Results of capital structure determinants

Table 3 verifies if *ṣukūk* issuance is explained by capital structure determinants. Specification 1 presents the results relative to the trade-off theory while specification 2 reports the results relative to the pecking order theory.

The results of specification 1 show that Wooldridge autocorrelation test rejects serial collinearity, so there is no need to perform autoregressive panel. Besides, the Hausman test recommends using fixed effect models. Two variables are significant to the 5% level;

Dependent variable *Ṣukūk*/assets Independent variables	Specification 1	Specification 2
EBIT/total assets	−1.17	−1.16
	(0.058)	(0.037)*
Fixed assets/total assets	0.116	0.125
	(0.716)	(0.500)
Depreciation/total assets	0.144	–
	(0.972)	–
Market-to-book ratio	0.019	0.019
	(0.306)	(0.286)
sd ROA	3.006	3.0017
	(0.002)**	(0.001)
ln assets	0.105	0.104
	(0.095)	(0.082)
Constant	−1.78	−1.77
	(0.1)	(0.088)
R^2	0.57	0.118
Hausman test chi2	217.71	8.59
lProb > chi2	(0.007)**	(0.0001)**
Wooldridge autocorrelation	(0.0085)**	(0.0319)*

Note(s): *Significant at 5% level, **Significant at 1% level

Table 3.
Determinants of *ṣukūk* issuance Model 1: $Ṣukūk^* = \alpha_{i+} \beta_i X_{it-1} + \varepsilon_i$

profitability measured by the ratio (EBIT/assets), earnings volatility proxied by earnings standard deviation and size measured by (ln assets). However, the signs of these variables do not confirm the trade-off theory. In fact, the sign of profitability is negative, which is contrary to the trade-off theory. Besides, the sign of volatility is positive, which is contrary to the predicted sign. Hypothesis 1 is rejected, *ṣukūk* issuance is not positively influenced by tangibility, profitability and size and negatively related to growth opportunities, non-debt tax shields and volatility.

Specification 2 shows the results concerning the capital structure determinants of the pecking order theory. Wooldridge autocorrelation test rejects serial collinearity, so there is no need to perform autoregressive panel. Besides, the Hausman test recommends using fixed effect models. The same variables of specification 2 are significant to the 5%; profitability measured by the ratio (EBIT/assets) and earnings volatility proxied by earnings standard deviation and size measured by (ln assets). Also, the signs of these variables do not all confirm the pecking order theory. In fact, the sign of profitability is negative, which is confirming to the pecking order theory. Nevertheless, the signs of volatility is positive, which is contrary to the predicted sign. Hypothesis 2 is rejected, and *ṣukūk* issuance is not positively influenced by growth opportunities and negatively related to size, tangibility and volatility.

6.2 The results of the leverage target model

We present the results in Table 4. Wooldridge autocorrelation test rejects serial collinearity, so there is no need to perform autoregressive panel. Besides, the Hausman test is significant, thus recommending fixed effect model. The variable ($Ṣukūk^*_{it} - Ṣukūk_{it\text{-}1}$) is significant to the 1% level. Hypothesis 3 is confirmed, *ṣukūk* change is significantly linked to the deviation from a *ṣukūk* target. So, the amount of *ṣukūk* converges to a target level following a trade-off between marginal costs and benefits of *ṣukūk*. Therefore, we find evidence of trade-off theory.

6.3 The results of the funds flow deficit model

These results are reported in Table 5

We notice in Table 5 that the Hausman test is not significant, which recommends random effect model. Wooldridge autocorrelation test rejects serial collinearity, so there is no need to perform autoregressive panel. The coefficient of the variable (funds flow deficit) is positive but not close to one. It is also not significant. Hypothesis 4 is rejected, the coefficient of the regression of debt change on funds flow deficit is not close to one. So, funds deficit is not filled by using only debt. Thus, the pecking order theory is rejected.

Table 4.
Target debt prediction Model 2: $\Delta Ṣukūk_{it} = a_i + \gamma(Ṣukū\ k^*_{it} - Ṣukū\ k_{it-1}) + \varepsilon_{it}$

Dependent variable Independent variables	$\Delta Ṣukūk_{it}$
$Ṣukūk^*_{it} - Ṣukūk_{it-1}$	0.062 (0.000)**
Constant	−0.33 (0.000)
R^2	0.6831
Hausman test chi2	20.37
Prob > chi2	0.000
Wooldridge autocorrelation	(0.00)**
Instrumented $Ṣukūk^*_{it} - Ṣukūk_{it-1}$	
Instruments	activity

Note(s): *Significant at 5% level, **Significant at 1% level

7. Robustness check

We check the robustness of our results in many ways. First, we use techniques of panel estimation: fixed effects model and random effects model to deal with the problems of endogeneity of lagged dependent variable, heteroscedasticity and serial correlation in the residuals. For each regression we perform the two methods. Then, we perform the Hausman test to choose the appropriate model for the sample. We also use the Wooldridge autocorrelation to verify if there is a need for autoregressive panels.

Second, we test capital structure theories using three models to corroborate our findings. The model of capital structure determinants tests if *ṣukūk* change depends on capital structure determinants. The debt target model verifies if the firm targets a ratio of *ṣukūk* to assets determined by a trade-off between the marginal costs and benefits of the *ṣukūk*. The fund flow deficit model predicts that the firm will fill its deficit by using only debt only letting issuing equity as a last resort. We deal with the endogeneity problem using the instrumental variable technique. The capital structure model fails to prove either the trade-off theory or the pecking order theory. The debt target model proves the trade-off theory, while the funds flows deficit model rejects the pecking order theory. Thus, our findings are robust.

However, we do not use alternative measures of the significant independent variables. Indeed, the variables measures are chosen according to the review of previous researches, which used specific measures.

8. Discussion of results

We test if capital structure theories can explain *ṣukūk* issuance using three models; the capital structure determinants model, the debt target model and the fund flows deficit model. The model of capital structure determinants fails to confirm either trade-off theory or pecking order theory. We find that some of the coefficients of the variables measuring these determinants present signs conform to the predicted signs while other coefficient have signs contrary to the predicted signs. These mixed results are in line with those of Grassa and Miniaoui (2018). In fact, the authors document a positive relation between growth opportunity and *ṣukūk* issuance and a negative correlation between size and *ṣukūk* issuance, which confirm the pecking order theory's predictions. However, they report a positive sign of asset tangibility, which verify the trade-off theory while leverage and profitability remain insignificant for *ṣukūk* issuance decisions. Our results conform also those of Nagano (2010) and Nagano (2016) that *ṣukūk* issuance is not related to the issuer's internal funds or the information cost and that size is a possible determinant of *ṣukūk*. Though, our findings differ from the one of Nagano (2016) that, under high information asymmetry, a firm with a high stock price and a large demanding fund prefers *ṣukūk* issuance to equity, thus proving the pecking order theory. Our findings are also different from those of Shahida and Saharah (2013) that *ṣukūk* issuance depends on firm size.

Dependent variable Independent variables	Ṣukūk$_{it}$
DEF$_{it}$	0.003 (0.248)
Constant	1.89 (0.006)**
R2	
Hausman test chi2	
Prob > chi2	

Note(s): *Significant at 5% level, **Significant at 1% level
DEF$_{it}$ (Funds flow deficit)$_{it}$

Table 5.
Fund flow deficit model
Model 3: $Ṣukūk_{it} = a_i + \gamma \text{DEF}_{it}$ (Funds flow deficit)$_{it}$ + ε_i

But unlike them, we do not prove that *ṣukūk* issuance depends on past *ṣukūk* issuance experiences and the government tax incentive.

To deal with our mixed results, we perform the leverage target model and then the fund flow deficit model. The results of the target *ṣukūk* model show that the amount of *ṣukūk* converges to a target level confirming the trade-off theory. This evidence implies that *ṣukūk* is a desirable financing tool and the firm aims to have a mixed financial structure of equity and *ṣukūk*. We explain this attraction by the unique benefits of *ṣukūk*. In fact, the hybrid nature of *ṣukūk* and its interest-free scheme of outcomes made them an Islamic CSR way to rise funds. This suggestion aligns the findings of authors focusing on ethical activities, which have proven that social responsible activities not only improve the consumer's credibility, but also increase corporate value through an increase in additional equity investment from the external investors (Jensen *et al.*, 2002; Heinkel *et al.*, 2001 and Graff Zivin and Small, 2005; El Ghoul *et al.*, 2011; Lee and Faff, 2009; Eccles *et al.*, 2013; Dixon-Fowler *et al.*, 2013; Marti *et al.*, 2013; Hu, 2019). Nagano (2010) and Mohamed *et al.* (2017) have also suggested that *ṣukūk* brings unique benefits by increasing issuer's stock returns.

However, the results of the fund flows deficit model reject that funds deficit is filled by using only debt. So, pecking order theory is rejected. These findings are contrary to those of Shyam-Sunder and Myers (1999) and Frank and Goyal (2003) that fund deficit is filled by the net sale of new conventional debt securities.

As our results confirm the trade-off theory and reject the pecking order theory, we assume that firms do not choose to issue *ṣukūk* because of asymmetric information or its cost, but for their social unique benefits that other external financing don't afford.

9. Conclusion

In this paper, we verify if *ṣukūk* issuance is explained by theories of capital structure. We extend the literature testing these theories for Islamic bonds. Previous research failed to find evidence of any capital structure theory outlining *ṣukūk* issuance in GCC countries. Our study further tests these theories and adds theoretical and empirical contributions. Theoretically, we highlight the specific features of *ṣukūk* that would bridge their issuance to capital structure theories. *Ṣukūk* are couched in the ethical principles embodied in the Sharīʿah (Islamic legal and ethical system). The underlying objectives of Sharīʿah are generally aimed at realizing overall human wellbeing and social justice. Indeed, *ṣukūk* conform to the principle of no interest and risk sharing. This principle promotes social justice between *ṣukūk* holders and issuing firms. Indeed, investors are not allowed to realize financial gains without being exposed to the risk of potential loss. So, in case of profits, they are paid dividends on the outcome of profit-sharing agreements. Therefore, Islamic bonds (*ṣukūk*) have hybrid nature between debt and equity. Besides, they offer unique benefits of religiosity and socially responsible financing. This hybrid nature as well as the social and religious benefits are the specific features linking *ṣukūk* issuance to capital structure theories.

Methodologically, this study adds empirical evidence by using three models, in contrast to previous studies dealing with only one model. Using the model of capital structure determinants, our results show that *ṣukūk* issuance is negatively and significantly linked to profitability. This sign confirms the pecking order theory. Nevertheless, *ṣukūk* issuance is positively and significantly linked to earnings volatility, which is contrary to both trade-off theory and pecking order theory. Thus, the model of capital structure determinants does not permit to confirm or reject capital theories. So, we used the debt target model to test the trade-off theory and the fund flow deficit model to test the pecking order theory. Our results show that *ṣukūk* converge to a target level determined by a trade-off between the cost and the social responsibility benefits of *ṣukūk*. These findings are consistent with the trade-off theory. In addition, the test of the fund flow deficit shows that funds deficit is not filled by using only

debt, thus rejecting the pecking order theory. Overall, we find evidence of the trade-off theory. We suggest that firms aim to have a target level of *ṣukūk* in their financial structure due to their unique benefits of religiosity and Islamic CSR.

Our findings present a number of implications for theory and practice. From the theoretical side, this paper contributes to the corporate finance theory and CSR. It highlights the important contribution of corporate Islamic finance to the development of CSR. Indeed, Islamic finance is embedded in ethical and social principles. One important principle is the ban on interest in financing and its replacement by profit-and-loss-sharing. The adoption of this principle in *ṣukūk* induces unique social benefits with claims of social justice between *ṣukūk* holders and issuing firms. These unique benefits, that other financing schemes do not give, link capital structure theories to CSR. Our research enhances the concept of Islamic CSR. Tying the capital structure theories to CSR would also help developing Islamic finance theory as a unique socially responsible framework. The socially responsible aspect is obvious as the unfair features such as the interest and risk bearing are replaced by the ethical principles of no interest and risk sharing. Therefore, the core of Islamic finance theory is to tailor conventional finance to socially responsible aims.

The main practical implications relate to the actors intervening in the financing process. One important outcome is to encourage managers and investors to further contribute to promote this Islamic financing tool for its unique social and Sharī'ah-compliance benefits. Our results would encourage governments to enhance firms to adopt this socially responsible financing. Moreover, it would motivate them to issue sovereign *ṣukūk*, which constitutes a pricing benchmark and an anchor security for portfolio management and secondary trading. Furthermore, rating agencies would be motivated to evaluate *ṣukūk* and ascertain the quality of issuance and subsequently attract more investors. To get the best rating, firms would improve the quality of disclosure and the relevance of their accounting information. This would reasonably lead to socially responsible financing development.

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Economic growth and financial performance of Islamic banks: a CAMELS approach

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Abstract

Purpose – The purpose of this paper is to investigate the link between the financial performance of Islamic finance and economic growth in all of Malaysia, Indonesia, Brunei, Turkey and Saudi Arabia within the endogenous growth model framework.

Design/methodology/approach – This study applied dynamic panel system GMM to estimate the impact of the financial performance of Islamic finance on economic growth using quarterly data (2014:1-2018:4). CAMELS system parameters were employed as variables of the financial performance of Islamic finance and gross domestic product (GDP) as a proxy of economic growth. The sample contained all Islamic banks working in the five countries.

Findings – The findings demonstrated that the only significant factor of the financial performance of Islamic finance, which affects the endogenous economic growth, is profitability through return on equity (ROE). The experimental findings also indicated the necessity of stimulating other financial performance factors of Islamic finance to achieve a significant contribution to economic growth.

Practical implications – The analysis in this paper would fill the literature gap by investigating the link between financial performance of Islamic finance and economic growth, as this study serves as a guide for the academians, researchers and decision-makers who want to achieve economic growth through stimulating Islamic finance in the banking sector. However, this study may well be extended to investigate the link between the financial performance of Islamic finance and economic growth over the Z-score model as another measure for the financial performance of Islamic finance.

Originality/value – This paper is the first that investigates the link between financial performance of Islamic finance and economic growth empirically using CAMELS parameters within the endogenous growth model to provide robust information about this link based on a sample of the top pioneer Islamic finance countries.

Keywords Islamic finance, Financial performance, Economic growth, CAMELS model, Endogenous growth model, Panel system GMM

Paper type Research paper

Introduction

Islamic finance has been one of the fastest rising industries over the last ten years, which was estimated to be worth US$2.4 trillion in 2017 and forecast to grow by 6% CAGR to reach US$3.8 trillion by 2023 (Reuters, 2020). This optimistic tall growth degree of Islamic finance assets year after year attracts the attention of all policymakers, bankers and financial academics to look into the Islamic finance industry. Lately, in the last decade, one of the main debates among financial scholars and policymakers besides the relationship between Islamic finance and economic growth is whether the financial performance of Islamic finance contributes to economic growth. According to Bourke (1989), high profitability banks persist well-capitalized and their access to funds is easy.

JEL Classification — C23, G21, G32, O47. **KAUJIE Classification** — I3, I5, L4

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Certainly, the financial institutions that operate well play a weighty role in economic growth and financial performance (Rabaa and Younes, 2016). Moreover, the banking sector performance and profitability power the economy's growth and boost it to contain negative shocks, also Bikker and Hu (2002) and Demirgüç-Kunt and Huizinga (1999) have stated a positive supportive relationship between economic growth (GDP) and the performance of banks. Furthermore, according to Tabash and Anagreh (2017), Islamic banks have effected significantly the growth of GDP and investments of countries in the Middle East.

Currently, the Islamic banking sector comprises 71% of all Islamic finance assets with a portion of 1.721 trillion US$ (*Islamic Finance Development Report 2018*, 2018; Reuters, 2020) and could reveal its stability in and after the 2008 global financial crisis (Tabash and Dhankar, 2014; Olson and Zoubi, 2017).

According to Reuters (2020), Malaysia is the leading country in Islamic finance's best performance with a Global Islamic Economy Indicator (GIEI) score equal to 111 and an Islamic Finance Development Indicator (IFDI) score equal to 132 according to *Islamic Finance Development Report 2018* (2018). Besides, Brunei and Indonesia were the most improved performers in Southeast Asia, Brunei was the biggest gainer in Southeast Asia and finished in 9th position with an IFD indicator score of 50 while Indonesia ranked 10th. Moreover, the 2018 global Islamic economy report stated that Saudi Arabia ranked fourth as one of the best Islamic finance countries with a GIE indicator score of 54, while Turkey ranked in the top 15 countries with a GIE indicator score of 31 (State of the Global Islamic Economy Report 2018/19, 2018).

Furthermore, this enormous success of the Islamic finance industry in Malaysia, Indonesia, Brunei, Turkey and Saudi Arabia synchronized a high level of economic growth, while Malaysia economy enhanced 4.9% year-on-year in the second quarter of 2019, succeeding a 4.5% rise in the earlier three-month cycle and a 4.8% spreading business prospects (Trading Economics Report, 2019a), although Indonesia economy is predictable to expand at 5.1% in 2019 and then increase to 5.2% by 2020 (World Bank, 2019). In addition, Brunei GDP rose by 0.1% compared with 2017 (*Brunei GDP - Gross Domestic Product 2018*, 2018). While the GDP in Turkey rose by 1.20% over the previous quarter in the second quarter of 2019, the GDP growth rate in Turkey ranged 1.09% between 1998 and 2019 (Trading Economics Report, 2019b). Although GDP in Saudi Arabia extended 1.66% year-on-year in the opening quarter of 2019, it diminished from 3.59% in the previous period (Trading Economics Report, 2019c).

Because of the limited studies that investigated the link between financial performance of Islamic finance and economic growth and the lack of understanding this link (Tabash, 2019), the contribution of this study is to investigate this link in a framework of endogenous growth model through international evidence from Malaysia, Indonesia, Brunei, Turkey and Saudi Arabia as the top pioneer Islamic finance countries. Therefore, this study answers the following question: "Does the financial performance of Islamic finance affect economic growth in the frame of the endogenous growth model?"

Literature review

Banking performance and economic growth

Endogenous growth theory was established in the 1980s by Romer; the endogenous growth model is described with the lasting growth pace which well-defined by factors inside the model and not by the exogenous degree of technological advancement as in the neoclassical growth model (Romer, 2011). Jhingan (2011) clarified that the endogenous growth model reinforces technical evolution emerging from the investment degree and the human capital stock size, and both Tabash and Anagreh (2017) have confirmed that Islamic finance has affected significantly the economic growth and investments of countries in the Middle East.

Thus, based on the endogenous growth model, when investments are increased due to the finance and banking performance that leads to higher economic growth (Petkovski and Kjosevski, 2014). Moreover, Bourke (1989) has confirmed that banks with higher profitability keep on strongly capitalized and have fast access to funds. As a result, the increase in capital stock in the banking sector due to the banking and finance profitability leads to economic growth according to the endogenous growth theory. In conclusion, economic growth is determined by banking sector performance because of its significant impact on increasing investments and capital stock.

CAMELS system

CAMELS is an acronym for six parameters, capital adequacy (C), asset quality (A), management efficiency (M), earnings (E), liquidity (L) and sensitivity to the market risk (S), to measure the banking and finance performance (Wanke *et al.*, 2016). As it is shown in Table 1, CAMELS is an extended approach to the CAMEL model which has been used in the USA since 1979 to judge the soundness of banks (Christopoulos *et al.*, 2011; Roman and Şargu, 2013). Later, CAMEL has been extended and used as a method to assess the soundness and financial performance of banks for the supervisory authorities in different countries (Roman and Şargu, 2013). The financial weakness and soundness were measured by the International Monetary Fund (IMF) using five major handful parameters of financial system soundness with shortening of CAMEL (capital adequacy, asset quality, management quality, earnings size and liquidity). Nevertheless, it has been extended to include the sixth parameter "S" which reflects the bank sensitivity to the deviations in the market (Roman and Şargu, 2013). This "S" measures the sensitivity to market risks like interest rate, foreign exchange and inflation risk which captures the organization's risk (Gasbarro *et al.*, 2002; Karim *et al.*, 2018). Currently, CAMELS becomes an evaluation tool for bank performance (Roman and Şargu, 2013). According to the report of IMF (2000), the IMF and world bank advocated the use of CAMELS as a valuable measure for financial system stability.

Previous empirical studies

Pure studies on the financial performance and economic growth nexus are limited, most of them have agreed on that there is a link between financial performance of the banking sector

Parameter	Definition
Capital adequacy (C)	Capital Adequacy is a calculation of the capital required to control the risk based on the bank asset value
Asset quality (A)	Asset quality is the instability of soundness banking induced by unsettled bank assets affected by high nonperforming loans
Management efficiency (M)	Management measures the efficiency of the company to minimize and reduce costs and increase profits to prevent the possibility of bank failures
Earnings (E)	Earning is a measure of profitability and there is an assessment of earnings and their level of relationship with peers in which the objective is to evaluate the effect of internally produced funds on the capital of the bank
Liquidity (L)	Liquidity is the capacity and ability of banks to repay and reimburse short-term obligations
Sensitivity to market risk (S)	Sensitivity to market risk is the measure of how resilient the assets, liabilities and net worth values of the bank are to changes in market conditions such as rate of interest, foreign exchange and inflation risk

Source(s): Retrieved from (Sahut and Mili, 2011; Altan *et al.*, 2014; Peltonen *et al.*, 2015; Munir *et al.*, 2017; Karim *et al.*, 2018)

Table 1.
CAMELS parameters

and economic growth of any country, but all of them were focused only on the conventional banking sectors. Therefore, this study is one of the limited studies that investigate the link between financial performance of Islamic finance and economic growth, and it is the first that linked the financial performance of Islamic finance in a structure of CAMELS model with economic growth in a framework of endogenous growth. Thus, it is believed that this study will make a noteworthy contribution to the literature.

In a study, Rabaa and Younes (2016) surveyed the influence of the financial performance of Islamic Banks on the economic growth in terms of financial liberalization through the use of Islamic banks in all of Abu Dhabi, Saudi Arabia, Bahrain, Great Britain and Tunisia over the period 2001–2012. They used panel fixed effect and GLS regression with variables of GDP, return on assets (ROA), return on equity (ROE), a ratio of the performance of Zakat, a ratio of Islamic earnings vs. not Islamic earnings, industrial production index (IPI), consumer price index (CPI) and money market rate. They resolved that Islamic banking performance had a significant influence on economic growth.

Tabash (2019) also came to a similar conclusion, which found that there is a constructive significant relationship between financial performance of Islamic banks and economic growth in the UAE; he used pooled ordinary least square with variables of GDP, ROA, ROE and the net revenue margin (NRM) on a sample of all full-sized active Islamic banks in the UAE covering a period from 2000 to 2014.

In the same vein, Alkhazaleh (2017) demonstrated the correlation between the financial performance of commercial banks in Jordan and economic growth. He used (ROA), deposits and credit facilities as independent variables, and GDP as a dependent element. He used the pooled regression examination to test the associations between variables. He settled that commercial banks' performance contributes to the economic growth in Jordan.

In another empirical study of evaluating how profitability which is the main proxy for the financial performance in the banking sector influences Nigeria's economic growth, Adekola (2016) showed the existence of a straight connection between banks' profitability and economic growth in Nigeria. He used a pooled regression technique for all banks occupied in Nigeria under the period 2005–2014 using the GDP, ROE and return on capital employed (ROCE).

In a similar study, Yazdani (2011) explored the effect of private banks' financial performance on economic growth in Iran. He adopted GDP, ROA, cash and investments as research variables. His results showed that bank performance had a positive effect on the economic growth of Iran.

Concerning studies of the financial performance of Islamic finance determinants measured by the profitability, Khan *et al.* (2014) have examined factors that affect Islamic banking profitability which was adopted as a measure for the financial performance in Pakistan. They employed a sample of five Islamic banks in Pakistan from 2007 to 2014. They employed capital adequacy ratio, bank size, nonperforming loans (NPL) ratio, gearing ratio, asset composition, operational efficiency, asset management, deposit ratio, (GDP) and (CPI) as exogenous variables, ROE, ROA, earnings per share (EPS) as endogenous variables. Their results showed that the profitability of Islamic banking was impacted by bank-specific aspects such as asset management, NPL ratio, deposit ratio and exterior factors such as CPI.

Further, Djalilov and Piesse (2016) have investigated bank financial performance with profitability determinants in the early transition countries of Central and Eastern Europe; they applied GMM system, random-effects regression on a sample of 275 banks from 16 transition economies, eight are from the ex-Soviet Union, other countries are from the CEE and the States of Baltic covering the period of 2000-2013. They adopted capital, credit risk, cost, bank size, bank market share, GDP growth, inflation, government spending, fiscal freedom, monetary freedom as independent variables, and ROA as the dependent variable. They noticed that the effect of credit risk on bank profitability in the early transition countries

was favorable, and government spending and well-capitalized banks in the early transition countries were more competitive.

In another special case of Indonesia, Setyawati *et al.* (2017) evaluated both of internal and external factors affecting the financial performance of Islamic banking. They applied panel multiple regression on a sample of all the Islamic banks in Indonesia for a period ranging from 2004 to 2012 and adopted internal determinants (NPF, capital strength (CS), external determinants (GDP, inflation, dummy variable of the financial crisis) as independent variables, and ROA as a dependent variable. Their findings revealed that the performance of Islamic banks has been greatly affected by nonperforming finance and inflation, and has been much better since the crisis.

Moreover, Alharbi (2017) studied the determinants of the financial performance of Islamic banks through profitability using a simple of 110 Islamic banks in 25 countries that were members in the Organization of Islamic Cooperation (OIC) from 1992 to 2008 by applying panel fixed-effects regression; he used all of Islamic banks profitability, return on assets average (ROAA), internal variables (operating income (OOI), capital ratio), external variables (GDP per capita, GDP and oil) and regulation variables of bank taxation and financial structure (market capitalization to GDP) as independent variables, and net profit revenue average over earning assets as the dependent variable. His results indicated that equity, bank size, operating income, oil prices and GDP per capita had a positive impact on Islamic banks.

Another study of Zarrouk *et al.* (2016), they investigated whether Islamic banks profitability is motivated by the same factors of conventional banks in the MENA. They used panel system GMM on a simple of 51 Islamic banks in all of Jordan, UAE, Turkey, Egypt, Yemen, Kuwait, Sudan, Bahrain, Saudi Arabia and Qatar from 1994 to 2012, and they adopted bank-specific factors (risk and solvency, efficiency ratios, liquidity, asset quality, annual stock data and capital), macroeconomic factors (gross domestic product, consumer price index, investment ratio of GDP, dummy variable of inflation) as exogenous variables and profitability ratios (ROA, ROE, NPM) as dependent variables. They resolved that profitability was affected by the asset quality, cost-effectiveness and capitalization of both banks.

Another similar study of Olson and Zoubi (2017), they examined whether the global financial crisis (GFC) led to the convergence of the financial performance of Islamic and commercial banks in the MENASA region (22 countries) from 1996 to 2014, and they applied dynamic panel model using performance ratio which is the ROA as an endogenous variable, bank-specific accounting ratios such as ROE and financial variables as independent variables; they stated that Islamic banks firstly weathered the outbreak of the global financial crisis better than conventional banks in 2007-2008.

Regarding studies that have used CAMELS model to measure and analyze the banking financial performance, most of them have found that the CAMELS is pretty useful in terms of arbitrating the financial performance, Rashid and Jabeen (2016) examined the determinants of both Islamic and commercial banks in Pakistan; they have created the financial performance index (FPI) based on CAMELS ratios and then applied the calculated index on the CAMELS determinants. They applied GLS regression on an unbalanced yearly panel data covering the period 2006–2012. Operating efficiency, reserves and overheads were found to be significant factors in the performance of conventional banks, while operating efficiency, market concentration, and deposits were significant at explaining Islamic bank performance.

Similarly, Rashid *et al.* (2015) assessed the financial performance of Islamic banks and conventional banks in Pakistan using the CAMELS system to assemble the FPI. Their results demonstrated that the financial performance of Islamic banks was better in 2012 comparing to 2006.

Another study of Rodica-Oana (2014) used CAMELS approach to detect the development of the banking system in Romania for the period of pre-crisis before 2007 and post-crisis after

2007; the study concluded that there are cross-sectional effects between the banking indicators that contributed a cautionary signal about the evolution of the banking system. Another similar study of Karim *et al.* (2018), they used all of CAMELS model and Z-score to measure the stability of 50 banks in Malaysia from 1999 to 2015; they found that both Islamic and commercial banks were satisfactorily listed on a general bank solidity scale.

An additional study of Masood *et al.* (2016), they applied the CAMELS rating model to evaluate the performance of the operating Islamic banks in Pakistan for the year 2015. They found that two of the Islamic banks had a good position, while the others were in a reasonable position.

Another equivalent study, Rostami (2015) applied CAMELS model to assess the Iranian bank performance for the period of 2009–2014. The results indicated that CAMELS is an effective tool to judge the bank performance.

In the same frame, Rozzani and Rahman (2013) examined the performance of both the Islamic and conventional banks in Malaysia between 2008 and 2011. Their results showed that performance levels were extremely parallel for both the conventional and Islamic banks.

Concerning studies of Islamic finance and economic growth nexus, Kassim (2016) explored the effect of Islamic finance on the performance of important macroeconomic indicators on a sample of all Islamic banks in Malaysia covering a quarterly period from 1998 to 2013 by applying the ARDL approach. Kassim (2016) adopted industrial production index (IPI) as a proxy for economic growth and total deposit of the Islamic banks, total financing by Islamic banks, gross fixed capital formation, general government expenditure and inflation as independent variables. The results revealed that by funding investment projects, Islamic banking system contributes to the real economy. Besides, Boukhatem and Moussa (2018) presented clear empirical evidence that the implementation of the Islamic financial system has stimulated economic growth in the 13 selected MENA region; they applied panel cointegration and FMOLS regression on a sample of Islamic banks in the MENA region for a period ranged from 2000–2014, and they used GDP per capita growth as dependent variable and loans by Islamic banks/GDP, education, inflation, government consumption/GDP, trade openness, domestic credits to private sector/GDP, regulatory quality and rule of law as independent variables.

This study adopted, according to the literature, the most appropriate empirical model and the most common variables for both the financial performance of Islamic finance and economic growth determinants. Moreover, unlike the previous studies, this research associated the financial performance of Islamic finance within a structure of the CAMELS model with the economic growth in a framework of endogenous growth; therefore, this is the first study that examines the link of the financial performance of Islamic finance and economic growth with this methodology. Thus, it is believed that the results were more effective and accurate than other studies.

Research methodology

Sample and data collection

This study used a balanced panel data of all full-fledged Islamic banks working in five countries of Malaysia (16 Islamic Banks), Indonesia (11 Islamic Banks), Brunei (two Islamic Banks), Turkey (four Islamic Banks) and Saudi Arabia (four Islamic Banks) covering a period range from the first quarter of 2014 until the last quarter of 2018 (2014Q1 to 2018Q4). The data of Islamic finance were drawn from quarterly datasets of the Islamic Financial Services Board (IFSB) database. Other data were collected from the IMF database, the Indonesian central bank and the Brunei Ministry of finance and economy. Since all countries (Malaysia, Indonesia, Brunei, Turkey and Saudi Arabia) have different currencies, all the quarter financial values were converted in the US dollar using proper average exchange rates according to the IMF database for each quarter.

Experimental variables

Financial performance of Islamic finance variables based on CAMELS model. Table 2 shows all the variables of the financial performance of Islamic finance based on the CAMELS model.

Concerning earning ability in CAMELS model, we have focused on this parameter by using three major indicators since most studies have focused on the profitability (earnings) by using three earning indicators of ROA, ROE and NPM as proxies for the financial performance of banking and finance, ROA and ROE based on the literature (Yazdani, 2011; Khan *et al.*, 2014; Adekola, 2016; Djalilov and Piesse, 2016; Rabaa and Younes, 2016; Zarrouk *et al.*, 2016; Alharbi, 2017; Olson and Zoubi, 2017; Setyawati *et al.*, 2017; Tabash, 2019), in which higher ratios of ROA and ROE indicate better performance (Zarrouk *et al.*, 2016).

The third indicator is NPM (or net revenue margin), according to the studies of (Yazdani, 2011; Zarrouk *et al.*, 2016; Alharbi, 2017; Olson and Zoubi, 2017; Tabash, 2019) in which net profit margin (NPM) explores the effectiveness of bank investment decisions related to its debt situations and represents the efficacy of the intermediation of bank funds (Zarrouk *et al.*, 2016). Thereby, the higher (NPM) ratio also reveals better financial performance. Whereas, the remaining parameters of the CAMELS model were adopted by a single individual indicator based on the previous studies as shown in (Table 2).

The economic growth variable. All reviews in this study have settled on the use of GDP as a proxy for economic growth when it is analyzed with the financial performance of Islamic finance. Thus, this empirical study has adopted the GDP as a proxy independent variable for economic growth.

CAMELS parameters	CALCULATION	literature (source)
Capital adequacy	Capital Adequacy Ratio (CAR) = BASEL Ratio $\text{CAR}\ (\%) = \frac{\text{Total regulatory capital}}{\text{Risk} - \text{weighted assets}}$	(Altan *et al.*, 2014; Wanke *et al.*, 2016; Karim *et al.*, 2018)
Assets quality	Asset Quality (AQ) = Gross nonperforming financing ratio $\text{AQ}\ (\%) = \frac{\text{Gross nonperforming financing}}{\text{Total financing}}$	(Sahut and Mili, 2011; Altan *et al.*, 2014; Lahrech *et al.*, 2014; Alqahtani *et al.*, 2017)
Management	Management (MAN) = Cost to Income $\text{MAN}\ (\%) = \frac{\text{Operating costs}}{\text{Gross income}}$	(Dincer *et al.*, 2011; Peltonen *et al.*, 2015; Alqahtani *et al.*, 2017; Munir *et al.*, 2017)
Earnings	Return on assets (ROA) $\text{ROA}\ (\%) = \frac{\text{Net income}}{\text{Total assets}}$	(Dincer *et al.*, 2011; Wanke *et al.*, 2016; Alqahtani *et al.*, 2017; Karim *et al.*, 2018)
	Return on equity (ROE) $\text{ROE}\ (\%) = \frac{\text{Net income}}{\text{Equity}}$	(Dincer *et al.*, 2011; Altan *et al.*, 2014; Lahrech *et al.*, 2014; Peltonen *et al.*, 2015; Munir *et al.*, 2017; Karim *et al.*, 2018)
	Net profit margin (NPM) $\text{NPM}\ (\%) = \frac{\text{Net income}}{\text{Gross income}}$	(Altan *et al.*, 2014; Wanke *et al.*, 2016; Karim *et al.*, 2018)
Liquidity	Liquidity assets ratio (LIQ) $\text{LIQ}\ (\%) = \frac{\text{Liquid assets}}{\text{Total assets}}$	(Dincer *et al.*, 2011; Altan *et al.*, 2014; Lahrech *et al.*, 2014; Peltonen *et al.*, 2015; Alqahtani *et al.*, 2017; Karim *et al.*, 2018)
Sensitivity to market risk	Sensitivity to market risks (SEN) = Net foreign exchange (FX) open position to capital $\text{SEN}\ (\%) = \frac{\text{Net foreign exchange(FX)open position}}{\text{Total regulatory capital}}$	(Gasbarro *et al.*, 2002; Dincer *et al.*, 2011; Roman and Şargu, 2013; Erol *et al.*, 2014; Hofstetter *et al.*, 2018; Karim *et al.*, 2018)

Source(s): Retrieved from the literature

Table 2. The widely used parameters within CAMELS Model

Macroeconomics variables. To avoid the issue of bias due to excluded variables, other variables were included in the model to monitor the potential effects of other growth determinants that will be implemented based on the previous studies, trade openness (Trade) (Boukhatem and Moussa, 2018), gross fixed capital formation (GFCF) (Kassim, 2016) and consumer price index (CPI) as a proxy for inflation (Djalilov and Piesse, 2016; Kassim, 2016; Rabaa and Younes, 2016; Zarrouk *et al.*, 2016; Setyawati *et al.*, 2017).

Thus, the estimation variables are:

(1) Dependent variable: GDP.

(2) Independent variables: ROA, ROE, NPM, CAR, LIQ, MAN, SEN.

(3) Control variables: Trade, GFCF, CPI.

Estimating model

According to the literature review, most studies have agreed to adopt panel regression models such as Panel GMM, Panel regression (fixed-effects), thus, this study applied the panel GMM estimation.

A basic problem in the empirical analysis of economic growth in which control variables must be included in the model. This is the result of what Brock and Durlauf (2001) described as an open-ended theory or causal relationship between a variable and economic growth, this theory indicates that the link between another variable and economic growth cannot be controlled out, that's what Durlauf and Quah (1999) verified before, they introduced over 90 variables for probable economic growth variables.

However, the primary objective in this research is not to contribute to all theories of economic growth, but to examine whether and how financial performance Islamic finance affects economic growth in the frame of endogenous growth. For this purpose, we have specified the minimal model for economic growth. Therefore, following previous studies related to the topic, we have adopted the potential macro-economic factors as control variables to avoid the issue of bias. Therefore, the general model to be estimated within the frame of the endogenous growth model is (Figure 1):

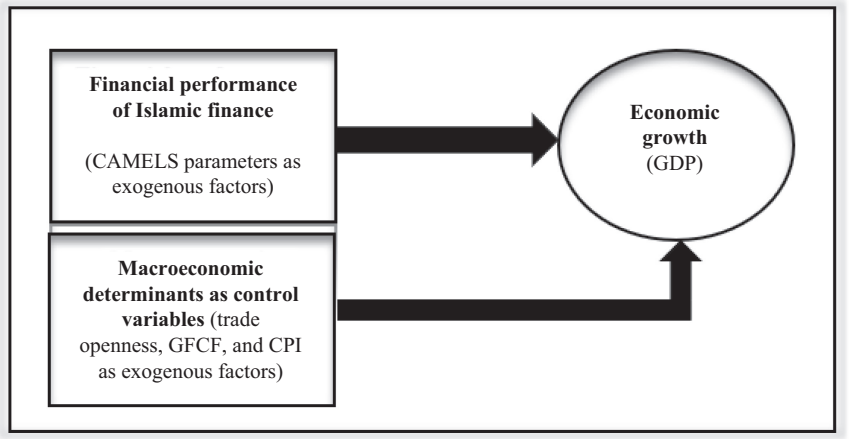

Figure 1.
Summary of the empirical investigation in a frame the endogenous economic growth model

Source(s): Prepared by the authors

$$Y_{it} = \alpha_0 + \alpha_i P_{it} + \beta_i X_{it} + \xi_{it} \; \forall \; \xi_{it} = v_i + \mu_{it} \tag{1}$$

In which:

Y_{it} is the Economic growth measure for country i at time t. P_{it} are the financial performance of Islamic finance variables for country i at time t.

X_{it} are the variables of macroeconomics for country i at time t. α_0 is a constant term, α_i and β_i are coefficients.

ξ_{it} is an error term, with v_i is the unobserved financial performance of Islamic finance effect and μ_{it} the idiosyncratic error.

financial performance of Islamic finance has shown a tendency to persevere over time, due to obstacles to asset quality, market structure failures, and/or macroeconomics shocks on GDP (Athanasoglou *et al.*, 2008). Hence, we adopt a dynamic specification of the model by including a lagged dependent variable among the regressors (Arellano, 2003; Croissant and Millo, 2019), the regression of Eqn (1) augmented with lagged GDP has become:

$$Y_{it} = \alpha_0 + \partial Y_{i,t-1} + \alpha_i P_{it} + \beta_i X_{it} + \xi_{it} \tag{2}$$

Where $Y_{i,t-1}$ is the one-quarter lagged GDP and ∂ is a coefficient.

Econometric methodology

The estimation problem raised by the potential existence of unobserved individual effects, the endogeneity, and the correlation between regressors and lagged variables, make fixed or random effects unsuitable for the estimation. Such methods generate bias and inaccurate results (Baltagi and Kao, 2001). Arellano and Bond (1991) estimated the specific model for the first difference, which can remove the unobserved individual effect, in which the estimation uses all existing lagged values of the dependent variable and lagged values of the exogenous regressors as an instrument.

Blundell and Bond (1998) indicated that when the dependent variable and the explanatory variables are determined across time, the lagged levels of these variables are weak instruments for the regression equation of differences. Later they developed a new method called the GMM system estimator that included lagged stages and lagged differences as instruments.

Roodman (2009) and Bond (2002) specified GMM as a system estimation that can resolve the problems correlated to endogeneity, unseen heterogeneity and autocorrelation. Therefore, in this study, the system GMM estimator was applied to conduct the empirical investigation.

According to Roodman (2009), the GMM model is:

$$Y = x'\beta + \varepsilon \; \forall \; E(\varepsilon|z) = 0 \tag{3}$$

In which:

β is a support vector of coefficients, y and ε are random variables, $x = (x_1, \ldots, x_k)'$ is a column vector of k regressors, $z = (z_1, \cdots, z_j)'$ is a column vector of j instruments, x and z can share elements and $j \geq k$. We use X, Y, and Z to signify matrices of N observations for x, y, and z, and we state $E = Y - X\beta$. Given an estimation, $\widehat{\beta}$, the experimental residuals are $\widehat{E} = (\widehat{e}_1, \cdots, \widehat{e}_N)' = Y - X\widehat{\beta}$. We make no statement at this point about $E(EE'|Z) = \Omega$ excepting that it exists.

In the GMM, one states that magnitude through a generalized metric, based on a positive semidefinite quadratic form. Let A be the matrix for such a quadratic form. Then the metric is:

$$\|E_N(z\varepsilon)A = \left\|\frac{1}{N}z'\widehat{E}\right\| \equiv N\left(\frac{1}{N}z'\widehat{E}\right)' A\left(\frac{1}{N}z'\widehat{E}\right) = \frac{1}{N}\widehat{E}' z_A z'\widehat{E} \tag{4}$$

To derive the indicated GMM estimate, call it $\widehat{\beta}_A$, we resolve the minimization problem: $\widehat{\beta}_A = \underset{B}{\operatorname{argmin}} \|z'\widehat{E}\|A$ whose solution is determined by $0 = d/(d\widehat{\beta})\|z'\widehat{E}\|A$.

The extension of this derivative with chain law is:

$$0 = \frac{d}{d\widehat{\beta}}\|Z'\widehat{E}\|A = \frac{d}{d\widehat{E}}\|Z'\widehat{E}\|A\frac{d\widehat{E}}{d\widehat{\beta}} = \frac{d}{d\widehat{E}}\left\{\frac{1}{N}\widehat{E}'(ZAZ')\right\}\frac{d(Y - X\widehat{\beta})}{d\widehat{\beta}} = \frac{2}{N}\widehat{E}'ZAZ^1(-X) \tag{5}$$

The last step is to use identity matrix $d\frac{Ab}{db} = A$ and $d\frac{(b'Ab)}{db} = 2b'A$, where b is a column vector, and A is a symmetric matrix. Dropping the factor of $-2/N$ and transposing,

$$0 = \widehat{E}ZAZ'X = (Y - X\widehat{\widehat{\beta}}_A)'ZAZ'X = Y'ZAZ'X - \widehat{\beta}'X'ZAZ'X \Rightarrow X'ZAZ'X\widehat{\beta}_A$$
$$= X'ZAZ'Y \Rightarrow \widehat{\beta}_A = (X'ZAZ'X)^{-1}X'ZAZ'Y \tag{6}$$

This is the GMM estimator is defined by A, it is linear in Y, whereas A weights moments (Roodman, 2009).

Results and discussion

Table 3 showed that the effect of return on assets (p-value of ROA: $0.048 \approx 0.05$) on economic growth is statistically very closer to the p-value 0.05, so we could not decide whether ROA is strongly significant to the economic growth in a significance level of 5%, but based on a significance level of 10%, we could consider the return on assets significant to the economic growth.

Concerning the impact of return on equity on economic growth (GDP), the impact is statistically significant and positive (p-value of ROE: 0.029 is strongly fewer than 0.05) reliably with what Bourke (1989) had confirmed that banks with high profitability remain well-capitalized which cause an increase in capital stock due to the banking profitability, which leads to economic growth according to the endogenous growth theory (Romer, 2011), besides, both studies of Rabaa and Younes (2016) and Tabash (2019) demonstrated the same significant positive link between ROE and GDP.

Variables	Coefficients	Standard Error	t – stat	$P > \|t\|$
Logged GDP	0.3651691	0.2462917	1.48	0.142
ROA	−1.28e+07	6391176	−2.01	0.048
ROE	1344551	606424.5	2.22	0.029
NPM	−200432.1	130696.4	−1.53	0.129
CAR	798193.6	441092.5	1.81	0.074
AQ	−58645.37	806866.3	−0.07	0.942
MAN	−19133.63	81741.79	−0.23	0.816
LIQ	29910.16	84740.73	0.35	0.725
SEN	−73015.72	150586.6	−0.48	0.629
Trade	−117574.8	81208.04	−1.45	0.152
GFCF	0.192758	0.3104096	0.62	0.536
CPI	−762.346	372.2433	−2.05	0.044
Constant	185295.1	178750.7	1.04	0.303

Note(s): Number of obs = 92 Obs per group: min = 16; Number of groups = 5 Number of instruments = 40; F (12, 79) = 145.81 avg = 18.40 Prob > F = 0.000 max = 19
Source(s): Panel system GMM output using STATA 16

Table 3.
Panel system GMM estimation output

For the effects of other CAMELS financial ratios parameters, (net profit margin (NPM), capital adequacy ratio (CAR), asset quality (AQ), management (MAN), liquidity assets ratio (LIQ), sensitivity to market risks (SEN)) were not statistically significant on economic growth (GDP).

For other macro-economic variables, only the CPI was significant and negative to economic growth reliable to the economic conception (p-value of CPI: 0.044 is fewer than 0.05), while trade openness (Trade) and gross fixed capital formation (GFCF) were not significant to the economic growth also, both coefficients of lagged GDP and the constant were not statistically significant.

Regarding the one-step system GMM diagnostics, we have performed the Sargan test of over-identifying restrictions proposed by Arellano and Bond (1991) to test the validity of the instruments as shown in (Table 4).

According to the Sargan test of over-identifying restrictions in Table 4, the p-value is insignificant (Prob > χ^2 = 0.849), so all the instruments as a group are exogenous, and the overall validity of instruments is significant.

According to Arellano-Bond test outputs, the error term of the differenced equation is not serially correlated at both of the first order AR (1) (Pr > Z = 0.099) and second-order AR (2) (Pr > Z = 0.379) (see Table 4).

Conclusion

While most studies have indicated that financial performance of Islamic finance is determined by profitability (Al Khulaifi *et al.*, 1999; Yazdani, 2011; Djalilov and Piesse, 2016; Rabaa and Younes, 2016; Alkhazaleh, 2017; Olson and Zoubi, 2017; Setyawati *et al.*, 2017; Tabash, 2019), this study measured the financial performance of Islamic finance by the CAMELS method to get robust estimated results from the connection between the financial performance of Islamic finance and economic growth in a frame of the endogenous growth model. By applying the panel one-step system GMM method, this study found that only ROE was statistically significant and positive to economic growth (GDP). Therefore, this paper concluded that the financial performance of Islamic finance through profitability had a significant positive impact on economic growth. However, the financial performance of Islamic finance through capital adequacy, assets quality, management, liquidity, sensitivity to market risk, it was not significant to economic growth. As a result, those ratios of the financial performance of Islamic finance are still insufficient to make a positive contribution to economic growth; therefore, Islamic banks should stimulate those performance factors to provide a significant impact on the economic growth.

Serial correlation tests			
Arellano – Bond test for AR (1) in first differences		$Z = -1.65$	$Pr > Z = 0.099$
Arellano – Bond test for AR (1) in first differences		$Z = -0.88$	$Pr > Z = 0.379$
The overall validity of the instruments			
Sargan Test of over-identifying restrictions		$\chi^2\ (27) = 19.55$	$Prob > \chi^2 = 0.849$
Difference-in-Sargan tests of exogeneity of instrument subsets			
GMM Instruments for levels	Sargan test excluding group	$\chi^2\ (9) = 6.54$	$Prob > \chi^2 = 0.685$
	Difference (null H = exogenous)	$\chi^2\ (18) = 13.01$	$Prob > \chi^2 = 0.791$
IV (trade GFCF CPI)	Sargan test excluding group	$\chi^2\ (24) = 12.83$	$Prob > \chi^2 = 0.969$
	Difference (null H = exogenous)	$\chi^2\ (3) = 6.72$	$Prob > \chi^2 = 0.081$

Source(s): Dynamic panel one-step system GMM diagnostics outputs using STATA 16

Table 4. Dynamic panel One-step system GMM diagnostics outputs

Choosing to focus on the relationship between financial performance of Islamic finance and economic growth, this paper controlled the empirical model with other macro-economic variables to avoid possible bias; the empirical investigation found that the CPI, which is the proxy variable for inflation is statistically significant and negative for economic growth consistent with the economic conception.

According to this research, which measured the financial performance of Islamic finance using the CAMELS model, profitability (earnings) of Islamic finance is the real explanatory factor that contributes to economic growth. Therefore, by adopting only the profitability as a measure of the financial performance of Islamic finance, this study concludes that there is a positive relationship between financial performance of Islamic finance and economic growth in general consistently with what Tabash (2019) and Rabaa and Younes (2016) had determined. When they employed only the profitability as a measure for the financial performance of Islamic banking sector, they found a positive relationship between the financial performance of Islamic banking sector and economic growth.

In conclusion, as an answer for the question of whether the financial performance of Islamic finance affects economic growth in the frame of the endogenous growth model, the financial performance of Islamic finance contributes and promotes economic growth only through profitability. This result confirmed the concept of endogenous growth theory when the Islamic banks' profitability increases and stimulates investments and the capital stock which leads to economic growth. Correspondingly, the indicated result is an extension for the classical concept of the supply-leading hypothesis of Schumpeter identifications (Schumpeter and Redvers, 1934), and the theory of financial repression which determined that financial development leads to economic growth (McKinnon, 1973; Shaw, 1973). However, the financial performance of Islamic finance does not contribute to economic growth through other factors of capital adequacy, assets quality, management, liquidity and sensitivity to market risk.

Implications for research and practice:

This study has some implications for research and practice as the following:

(1) This study aims to investigate empirically the link between the financial performance of Islamic finance and economic growth using CAMELS parameters as a robust measure for the financial performance of Islamic finance in a frame of the endogenous growth model. Thus, the empirical investigation in this paper would fill the literature gap by addressing the effect of the financial performance of Islamic finance on economic growth. Therefore, this study could support the academians, researchers and decision-makers who want to achieve economic growth through stimulating Islamic finance in the banking sector.

(2) Regarding methodology, this study may well be extended to investigate empirically the link between the financial performance of Islamic finance and economic growth over the *Z*-score model as another measure for the financial performance of Islamic finance.

(3) In terms of practical implication, this paper provides important evidence for policymakers, regulators, associated authorities and decision-makers across countries to enhance other financial performance factors of Islamic finance (capital adequacy, assets quality, management, liquidity and sensitivity to market risk) to reach a significant economic growth through Islamic banks' channels in the financial market.

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Organic global cryptocurrency: towards a stable international monetary system that is closer to Maqāṣid Sharīʿah

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Abstract

Purpose – The most prominent and persistent problems of our global monetary system are instability and imbalances. We propose an international monetary model to solve these problems while at the same time move the model closer to Maqāṣid Sharīʿah (objectives of Sharīʿah). We name this an organic global monetary model or abbreviated as OGM. OGM is an international monetary model directly built on the national monetary system of each member country so that the two can co-exist.
Design/methodology/approach – Model design, theory and literature.
Findings – The model can eliminate interest rates at the central bank level, create non-tradable international money, and make a more stable international monetary system.
Originality/value – Original.

Keywords Global currency, Zero interest rate, Non-tradable money

Paper type Conceptual paper

1. Introduction

1.1 Problem of instability

The most prominent and persistent problems of the global monetary system are instability and imbalances. Since the collapse of the Bretton Woods, financial markets have grown faster than any other market in the world. In 1996, Kruger (1996, p. 17) found that currency transactions were 40–50 times bigger than global trade. That means a very large part of currency transactions were without real economic activity or, as often called, "noise transaction."

Based on his research, Hayward (2018) stated that noise transactions and excessive speculation lead to overshooting and increased risk. Money trade sucks up huge amounts of capital, while on the other hand, it does not add value to output. Instead, it increases fluctuations and uncertainties. Various countries around the world have experienced such speculative attacks, including European countries (Eichengreen *et al.*, 1994), Southeast Asia (Zhang, 2001), Latin America (Reisen, 1998) and so on. Countries in the world have to build strong and expensive forex reserves to face the threat. They sometimes raise interest rates to slow down the economy to do so. All of those efforts are very expensive both monetary and economically.

JEL Classification — E40, E50, F40. **KAUJIE Classification** — Q0, U0

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The floating exchange rate that is used by almost all countries in the world today causes fluctuations. Fluctuations open up speculation opportunities. Various banking and financial institutions also issue derivatives that ultimately enlarge the speculation market. The money market is growing bigger than any other market on earth, turning over 6.6 trillion dollars each day (BIS, 2019). There is no other market on earth of this size. Most of this huge transaction is speculative. Real transactions are like surfing on a "giant tide" of noise transactions. It is impossible to make international monetary stable this way.

The imbalance is not much different. Global imbalances always grow consistently and globally, causing crises in many countries and only shrinking when crises occur (Obstfeld and Rogoff, 2010). The imbalance is an inherent part of our international monetary system for decades.

Various international monetary reform ideas emerged to solve the problem. The most radical and comprehensive is the "Keynes Plan" or "Bancor", which was propagated by the most prominent modern economist, John Maynard Keynes. Bancor is supposed to be a symmetrical and democratic monetary system in which all countries have equal access to international currencies and all countries have proportional quotas. The value of the currency is stable because it is pegged to gold. Exchange rates between currencies are also stable because all currencies are pegged to a fixed value. The external balance should be maintained because countries that experience surpluses or deficits more than a certain limit get disincentives (Keynes, 1969). It's just that, as we know, Keynes's plan was not approved.

After Keynes, dozens of other proposals emerged. To reduce the adverse effects of rapid capital flows and transactions between currencies, Tobin (1978) proposed a tax on currency transactions which became well-known as "Tobin Tax". Mundell (2003) proposed the merge of the dollar, euro and yen into a single powerful reserve currency, DEY. The three economies, at the time (before the emergence of China as a global power), controlled almost 50% of the global economy. By combining the largest currencies in the world, frictions will be significantly reduced and the international monetary system will be more stable. Another merging idea was proposed by Cooper (2006) by combining the currencies of all OECD countries. Moore (2004) proposed the adoption of the US dollar and the euro by all countries in the world to become international currencies and at the same time national currencies so that there are only two currencies in the world. He called the idea "Dollarization and Euroization". Bonpasse (2006) proposed a "radical" single global currency that replaces all currencies in the world. He called the idea a single global currency with 3G (global central bank, global currency and global union). Greenwald and Stiglitz (2009) proposed the formation of a global reserve fund (GRF) which is jointly managed by countries that join the "club". Each member country contributes capital to the GRF and in return, they get a "global greenback" (reserve currency). In a moderate form, the global greenback is only held by the central bank, while in a radical form it is held by the public or becomes an actual hard currency. Exchange rates may use the current system. The most widely discussed proposal is the extension or empowerment of the SDR that was proposed by many experts inside and outside the IMF (IMF, 2010) and (IMF, 2011). This is since SDR has been effectively used as a supplement of global reserves for decades and was issued by a very credible international institution, the IMF.

1.2 Closer to Sharīʿah principle

Choudhury (2018) defined the money in Islam as micro-money. Micro-money is simply defined as money that is only used in real economic activity. The function of money that is not related to real activities such as currency trading, derivative transactions, even the interest rate, is not included in the micro-money. The definition of micro-money by Choudhury is still at the conceptual phase and may continue to develop more definitively.

We propose a shared-international monetary model that can be built on a regional or global scale that is closer to the definition of "micro-money" or money that only carries out a real

economic activity. We call it organic global monetary model (OGM) or simply call it an organic model. The organic model is built and managed by all member countries in the world so that it becomes both democratic and symmetrical. The model aims to eliminate instabilities, imbalances, inefficiencies and incoherencies in the current international monetary system. In doing so, the organic model follows basic theories in the open economy. Assessed from this direction, the organic model is on its way to achieve the *Maqāṣid* Sharīʿah.

First, the organic model makes global monetary system more symmetrical; that is managed jointly by all countries in the world and is organically connected with the national currencies of all member countries. Therefore, the organic model is more symmetrical and more democratic than the current model. Thus global imbalances can be eliminated and global inequality can be reduced significantly. We believe that eliminating imbalances, inequality, and injustice is part of the *Maqāṣid* Sharīʿah.

Second, the organic model can be controlled directly so that it does not require the interest rate at the central bank or government level. We believe that in the absence of the interest rate at the central bank level, eliminating the interest rate at the lower level will be more likely than in the current model. Without the interest rate, the cost of monetary control becomes more efficient.

Third, the model uses an exchange rate system that can eliminate both volatilities and spreads while on another hand still maintain flexibility. With the loss of volatility and spreads, the organic model removes currency speculation from the very basics: the opportunity. This is a very deep achievement in the *Maqāṣid* Sharīʿah.

1.3 Development

For implementation, this new model requires technologies that currently exist, namely cryptographic technology and is decentralized. Further development of models, systems and technology is needed and can be done openly.

By using a fully flexible exchange rate as will be explained later, the organic model does not require economic integration, so it can start anywhere in the world and any country may join. The organic model can start on a small scale or regional such as ASEAN, East Asian, Middle East, South Asian, East Africa, West Africa, Latin America and many others. It can also start from interconnected regions or multi-regions. It can also start on a global scale. Wherever the organic model begins, it can be opened to all countries in the world; all countries may join; no need for economic integration.

The stages of development from the initiative to the implementation are as follows:

(1) Initiative, further research and development

Since the organic model is "infant", further developments and initiatives are still needed. The purpose of the initiative is conducting further research and development of models, theories and technology; inviting all parties, both individuals and institutions and so on to take apart. Under the principle of decentralization used in the organic model, the initiative is also carried out with the same principle, decentralized. Everybody in all corners of the world is free to take part. Relationships between initiatives are cooperative and mutually coordined.

(2) Governments to take control

At present, money is only valid if issued by the agency that has the greatest authority in the world, namely, the government. Therefore, at some point, the initiative must be able to invite each government to take over. Furthermore, the initiatives continue under the coordination of the government of each country. The final goal of the next initiative is for the governments of these countries to establish an "official inter-governmental body" to materialize a joint international monetary system. The body should ideally coordinate with the UN and/or the IMF. The main task of the body is to prepare all the necessary regulations, establish the global central bank, outline and control its journey.

To be effective, countries that join the "official inter-governmental body" are only countries that want to join, while those that are not interested can stay out. Since the organic model is fully open; it is free for all countries to join or not.

(3) To establish a global central bank

The last milestone of the initiative is to establish a global central bank. The global central bank is the official body that issues organic international cryptocurrency and regulates its circulation in all member countries. The global central bank is responsible to the official inter-governmental body. The global central bank has branches in each country that work closely with the national central bank to regulate the circulation of organic cryptocurrency and exchange rate with national currencies.

1.4 Provide choices

This research aims to provide an alternative for a stable-and-symmetrical international monetary system that operates all international monetary functions while maintaining the external balance of each country in all conditions. The organic model distributes an international cryptocurrency to all member countries freely; there is no need for any country to buy currencies from others. The model provides an international monetary system that is independent of the state budget and national interest of certain countries. The model provides an international monetary system that is very different from today's system, where it is more stable, efficient and symmetrical; it opens up the opportunity to increase economic growth and global welfare in the new boundary. And it is closer to the *Maqāṣid* Sharīʿah.

2. The model

Organic global monetary model (OGM) is an international monetary system that is democratically developed by all member countries in the world directly on the national monetary system of each member country and becomes part of them (Rahman, 2020, Section 6.1). Since OGM uses cryptographic technology, we can call the currency as "organic global cryptocurrency" or OGC.

OGC is only used for international transactions between member countries. Domestic transactions still use the national currency of each country. The relationship between the OGC and the national currency is organic (part of) and hybrid (interchangeable). The organic currency is controlled by a global central bank that is jointly managed, while national currency remains controlled by each country. This makes member countries not to lose sovereignty. They still use the national currency and fully control the national monetary system.

The organic model uses an auto-balancing exchange rate system that follows the economic fundamentals of each member country so that it does not cause fluctuations on one side and also does not cause an asymmetric shock and external imbalances on the other side. By following each country's fundamentals, organic monetary model does not require economic integration or OCA properties as required in the single currency model such as euro. So the OGM can be applied to all countries in the world in their current conditions and without overhauling national monetary systems.

2.1 Organic

The relationship between the OGC and the national currency is organic (part or organ). OGC does not stand alone but becomes part (organ) of the national currency of each member country and is an extension of it. Countries that join the organic model extend their national currencies as much as they need for international transactions between them. This extended national currency is then replaced by the OGC. The extended national currency which is

replaced is kept as collateral, whereas the OGC is used as international currency between members (see Figure 1).

As a guarantee, national central banks of member countries give back their respective national currencies to the global central bank. The global central bank holds those national currencies as collateral. The total value of the OGC given to member countries and national currencies used as collateral is always the same. When the national currency depreciates against the OGC, the member country sends the shortfall to the global central bank so that the value is the same again. And vice versa. As a result, the value of the OGC circulating through member countries is always the same as the guarantees (national currencies) that they deposited. The guaranteed value and OGC that is always the same is called a "one floating value" (Rahman, 2020, Section 6.8).

The amount of OGC circulating in all member countries is determined by the global central bank following the needs of international trade, investment and other transfers among member countries. This number is called the "ideal number".

2.2 Open membership and closed system

Membership in the organic model is fully open. All countries may join without the need for economic integration. Since the organic model uses an exchange rate that is fully flexible following economic fundamentals (which will be explained later), it does not require economic integration.

The organic model uses a closed system. OGC only circulates among member countries and cannot be used for transactions outside members.

2.3 Distribution to the public and control system

OGC distribution from the national central bank to the public is done directly. To issue, the national central bank sells OGC to the public using the national currency. Revenue (seigniorage) becomes government revenue. Conversely, to withdraw, the national central bank buys OGC from the public using the national currency. Withdrawal costs (purchases) become an expense (negative seigniorage) for the government.

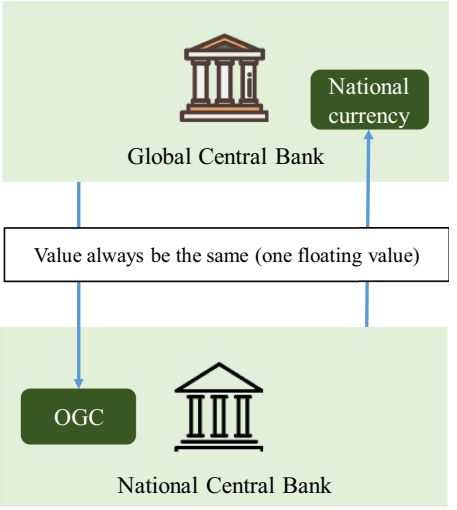

Figure 1.
OGC distribution model to member countries

When the amount of OGC in circulation is below or equal to the "ideal number", the central bank exercises "passive control". This means that the central bank only accepts "purchases and sales" from the public. No intervention needed.

When the amount of OGC in circulation exceeds the ideal amount, i.e. when the people of that country use the organic currency for domestic transactions or to store domestic assets, the local government exercises "active control". Active control can be in the form of recommendations for the use of national currencies; it can also be in a more progressive fashion such as the "tax of holding organic cryptocurrency".

As mentioned earlier, OGC is only intended for international transactions, not for domestic transactions and not to replace the national currency. However, such direct prohibitions are difficult to implement. Therefore, the solution is through disincentives. And the disincentive is done by the local government. Excessive use of OGC for domestic transactions is detrimental to the country itself because it will reduce the use of national currencies, while excessive use of OGC to import or for international transfers is not possible because the auto-balancing exchange rate system always balances the external balance, as will be explained later.

This (circulation) control system is called the "direct control". Thus, the organic model does not require interest rates (zero-interest rate) to control monetary flow. Instead, it uses direct control, as the picture below describes (Rahman, 2020, Section 6.6) (see Figure 2).

2.4 Digitization and decentralization

To get more accurate calculations and controls of money circulation (speed and volume), the organic model uses digital cryptocurrency or cryptographic technology and is decentralized. Digital systems can make transactions between countries as fast as light, literally. The most popular current international transactions between countries, wire transactions, take between 3–5 business days at a significant cost. The transactions require a lot of human interventions and reconciliations. All these cost resources and time, while digital transactions can be done in just minutes or seconds. Many human touches can be skipped. Digitation can accelerate global transactions thousands of times at a much lower cost.

Cryptocurrency is a digital currency or assets created to be a medium of exchange or digital assets, using cryptographic technology (Chohan, 2017). Cryptography itself is the use of mathematical techniques to secure digital information, systems and networks from attack or hacking (Katz and Lindell, 2015). Simply put, the cryptographic technique allows the creation of digital currency units in which each unit has a serial number and only circulates in the main network and is well protected. The implementation of cryptographic technology in the organic model is different from current cryptocurrencies, such as bitcoin, because bitcoin is made not to be controlled, whereas the OGC, with the same technology, is made to be fully

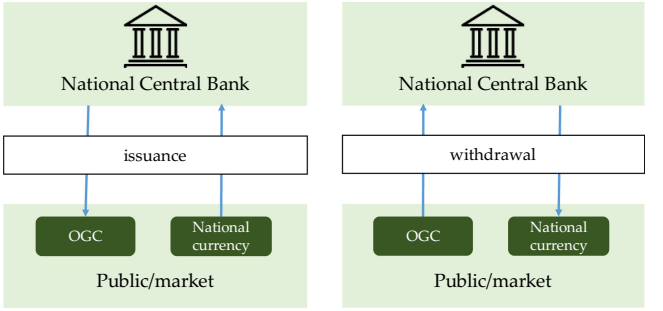

Figure 2.
OGC in circulation and direct control

controlled by governments. In digital form, OGC circulation can be fully controlled and fully recorded accurately. No single unit can leave the network or be unrecorded.

In the cryptocurrency world, decentralization, or better known as a decentralized organization (DA) or a decentralized autonomous organization (DOA) is "an organization that, under predefined rules, operates autonomously or semi-autonomously in an open-source software which is distributed across all (computers) stakeholders, transparent, secure and auditable" (Aste *et al.*, 2017). While according to Hsieh *et al.* (2018), DAO is an "organization that uses software rules to execute organizational routines, plus votes from some class of members to alter and extend those routines. No direct management is required".

Decentralization in the organic model is slightly different from what is in the cryptocurrency world. In the organic model, the member class that becomes a core, has voting rights and makes regulations is the government, whereas the public only receives services. So decentralization in the organic model is only up to the government level of each country that runs a decentralized system.

Simply put, decentralization is a system that is run by all members (governments) based on consensus without a center and thus does not have a dependency on a particular center or member. When a failure occurs in some systems or even most systems, other systems that are still working can run normally. Each member country is a "core" that runs at least one supercomputer in each country. All of these supercomputers are connected to a "backbone" network which is also managed together in a decentralized way. System failure in one country or several countries (cores) will not cause failure in other countries (cores) (see Figure 3)

At present, many stable cryptocurrency systems that are backed up with liquid valuable assets such as dollars, precious metals, commodities or other assets, which use cryptographic technology, both centralized and semi-decentralized are operational. According to Clark (2020), as of early 2020, 41 crypto-platforms that were backed up with gold are operational. Another cryptocurrency model that is backed up with commodities is Terra or Trade Reference Currency (TRC) developed by Lietaer (2017) or metal-backed cryptocurrency proposed by Ajouz *et al.* (2019).

The development of cryptographic technology for the organic currency that is interchangeable with national currencies can also be done using the same method. The development may be more complicated because it is embedded with an exchange rate system that uses national price indices and global in real-time. The technology will process very large amounts of data throughout the world or member countries in real-time, transparently, and in a decentralized manner.

2.5 Value

Since the organic cryptocurrency is not attached to the state budget of any particular country, its value can be made very stable, far more stable than all currencies that have ever existed in

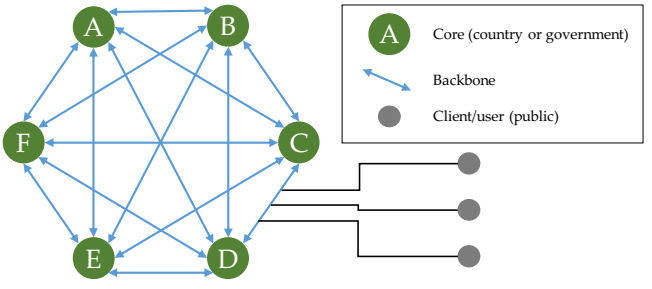

Figure 3.
OGM decentralized system: governments as cores and public as users

the world, namely "zero depreciation" and "zero appreciation". To achieve such a perfect level of stability, the OGC is pegged to the average prices for goods and services worldwide or more easily called a global price index. Thus, the value of OGC never depreciates nor appreciates. The value this year, next year, 10 years to come, even 100 years to come will remain the same.

To maintain the desired zero-depreciated value, OGC's supply is based solely on the need for the money, i.e. for international transactions. The amount of OGC needs in each country is determined by the global central bank by calculating the international trade and transfers between fellow member countries.

2.6 Exchange rate

The exchange rate is the most critical part of the organic model. There are two exchange rate systems in the world today, namely fixed and floating exchange rates. Each has advantages and disadvantages. The fixed exchange rate has high stability but is not flexible, while the floating has high flexibility but is not stable (fluctuating). Most countries in the world use a combination of the two, namely, corrected fixed exchange rates or floating exchange rates with interventions; Krugman and Obstfeld (2003, p. 482) call it the "hybrid" model, not pure fixed, nor floating.

The organic model does not use the two exchange rates above or a hybrid of the two but uses its own called "auto-balancing". The auto-balancing exchange rate is, in principle, the advancement of a real exchange rate that is enhanced with an automatic external balancing factor. Simply put, the auto-balancing aims to create a "true exchange rate" and always maintains "external balance equilibrium" in all conditions. There are two variables in the auto-balancing model, namely the "price variable" and the "external-balance variable".

2.6.1 First, variable: price. As the name implies, the auto-balancing model aims to create an automatic counterweight in global trade. The ideal exchange rate is when the trade power of each country, when connected to global markets, is in a "balanced state". Trade between countries will be balanced if the average prices of all tradable goods and services in those countries are equal. With the balance of trade power of each country, a global balance can be formed. So the similarity of average prices is a powerful tool to balance the trade and finally global balance. The exchange rate in the auto-balancing model is set when the national tradable-price-index is the same as the global tradable-price-index. The equation is as follows (Rahman, 2020, p. Section 7.4):

$$M_{\text{Global}} = E.M_{\text{Local}} \text{ if } \text{PI}_{\text{Local}} = \text{PI}_{\text{Global}}$$

E: Exchange rate
M_{Global}: Global currency value (OGC)
M_{Local}: National currency value
$\text{PI}_{\text{Global}}$: Global price index
PI_{Local}: Local price index

The first variable makes each country's trade power balanced; exports and imports are balanced. When the efficiency of the production system in a particular country increases, the national price index will decrease against the global. The country can produce goods cheaper than others. At that time, the country will export more than it imports. Its trade becomes unbalanced. The auto-balancing model then responds by raising the value of the national currency so that the national price index rises and gets back to being equal to the global price index. Thus, the country's trade returns to a balanced state. The same thing happens when the country experiences an increase in production costs. The organic model responds by lowering the value of the national currency so that its competitiveness remains balanced.

Simply put, the first variable makes international trade in all countries to be balanced, in all conditions, not surplus and not a deficit.

2.6.2 Second, variable: external balance. The true external balance in all countries is neutral, which is, not a deficit and not a surplus. The parameter is "neutral external balance". If a particular country has a surplus cumulative trade balance, for example, the auto-balancing exchange rate reduces the national currency exchange rate from its original state on a certain scale. And vice versa, if the country has a deficit cumulative balance sheet, the auto-balancing will reduce the national currency exchange rate. Thus the country's external balance tends to return to the "neutral state" or not a deficit and not a surplus. In this case, the scale we use is GDP. The second variable equation is as follows (Rahman, 2020, Section 7.6):

$$\text{EBV} = \frac{\text{GDP} + \text{Deficit(trade} + \text{investment} + \text{transfers)}}{\text{GDP} + \text{Surplus(trade} + \text{investment} + \text{transfers)}}$$

Simply put, the second variable makes external balances of all countries tend to the "neutral state" or not a deficit and not a surplus.

If the two variables above are combined it will become an auto-balancing equation, i.e.:

$$\text{Autobalancing} = \text{Price var } x \text{ External balance var}$$

or

$$M_{\text{Global}} = (E.M_{\text{Local}} \text{ if } \text{PI}_{\text{Local}} = \text{PI}_{\text{Global}}).\left(\frac{\text{GDP} + \text{Deficit(trade} + \text{inv} + \text{trans)}}{\text{GDP} + \text{Surplus(trade} + \text{inv} + \text{trans)}}\right)$$

Theoretically, the auto-balancing exchange rate will make the competitiveness of all countries in the world balanced. Thus, the country's international trade will also be balanced. No matter how big or how small a country's trade, its international trade competitiveness will always be the same. It does not matter how efficient a country's production system is or how bad it is: its international trade competitiveness will always be the same.

The auto-balancing exchange rate also puts the external balance of each member country in the "true equilibrium state". Countries that have a surplus cumulative external balance, their currencies' value will be reduced so that it reverses the balance. And vice versa. Thus, each country's external balance sheet will tend to be "neutral". A neutral external balance is a true equilibrium.

The exchange rate system is integrated with digital systems and works automatically like "smart contracts" in the current cryptography. All member country policies that affect trade between countries such as barriers (import barriers) or dumping (export subsidies) are automatically neutralized by the system. Thus, the trade balance is always in a balanced state, in all conditions.

By pegging the exchange rate to the price index and external balance to the true equilibrium, the auto-balancing makes the exchange rate follow the actual economic fundamentals, as idealized by Mundell (1961), more than the current floating exchange rate. The current floating exchange rate is flexible by following the money market, while money markets are influenced by many factors that cause a gap between the exchange rate and fundamentals or make the exchange rate not follow actual fundamentals. While in the auto-balancing model, by making the price index and true equilibrium as a parameter, the exchange rate follows the actual economic fundamentals, the organic model is fully flexible, by following the actual economic fundamentals. Thus, the organic model does not require

economic integration or OCA properties. The external balance between countries is always well maintained in a true external equilibrium in all conditions.

3. Towards global stability

One of the main objectives of the organic model is to push global stability up to the maximum level, the stability of the international currency itself, the exchange rate, and the whole system.

3.1 Zero depreciation and zero appreciation

Since 1913, the US dollar has been depreciating by more than 95.5%. Today's value is only 4.5% of its value in 1913 (Fred ST Louis, 2020). The euro, since it was first released in 1999, has been depreciating 29% of its initial value (Inflationtool, 2020). All currencies in the world have been depreciating, both international (major currencies or key currencies) and national currencies. The stronger the currency, the smaller the depreciation, and the weaker the greater.

At least, two things cause all currencies in the world to depreciate:

First, all currencies are attached to the budget of the state issuing them. Currently, all countries utilize expansionary monetary policy (deficit) to increase growth. The deficit is then closed with debt and printing money. As a result, their currencies depreciate (Meltzer, 2004).

Second, countries in the world also use currencies for competitiveness purposes. To increase the competitiveness of international trade, countries in the world maintain the value of their currencies stay low against major currencies so that their export power remains strong. This strategy triggers other countries to do so to prevent competitiveness loss. According to Rodrik (2008), undervaluation of the currency stimulates economic growth. The undervaluation strategy is especially effective for developing countries. Since the United States maintains US dollar depreciation in the range of 2% per year (Brown, 2016), then all countries in the world are also trying to depreciate their currencies equal to or below the dollar so that their competitiveness is maintained. In the end, all currencies depreciate.

While the OGC is not related to the state budget of any country nor the competitiveness, therefore, the OGC can be designed to be perfectly stable, not depreciate nor appreciate at all.

The following is the OGC value equation (Rahman, 2020, Section 6.8):

$$M_v = K.\mathrm{PI} \text{ if } \mathrm{PI}_{n-1} - \mathrm{PI}_n = 0 \text{ or } \Delta\mathrm{PI} = 0$$

M_v: OGC value

K: Constants (determined when the first value of OGC is set)

PI: price index

$\mathrm{PI}_{n\text{-}1}$: price index of the previous year

PI_n: current year's price index

ΔPI: changes in price index

When illustrated with a graph, the shape is as below: (see Figure 4).

As seen in the bell curve above, the value of the OGC (the blue line) is equal to the peak (mean) curve of the global price index. If the price index goes down, the OGC value will go down. And vice versa. If the price index rises, the OGC value also follows. This means that the OGC value always follows the global price index.

How could the OGC value follow the price index chart above?

First, the global central bank makes a benchmark of OGC value that follows the price index. Then *second*, the exchange rate system determines the OGC price against the real value of the national currency based on the "auto-balancing exchange rate". In these two ways, the OGC currency value effectively follows the benchmark value.

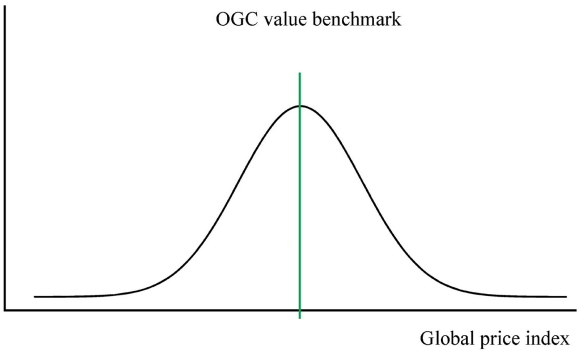

Figure 4.
OGC value benchmark

Based on QTM (quantity theory of money) theory, the value of money follows the economic value in which the money is used. The simplest money value equation was introduced by Fisher (1911). The equation is:

$$M.V(\text{money value}) = P.T(\text{economic value})$$

Since OGC is only used for international transactions, P.T is replaced by an international transaction. The equation becomes:

$$M.V(\text{money value}) = P.T(\text{international transactions value})$$

As mentioned above, the organic model utilizes digital currency technology. With such digital technology, all money in circulation is recorded and controlled. No single unit is unrecorded. Accordingly, then variable V (speed of money), P (price of goods/services in international transactions) and T (number of international transactions) all can be calculated precisely. Thus, V (value and money supply) can be determined precisely. Thus, the value of the OGC, which is zero depreciated and zero appreciated, as desired, can be achieved precisely.

This way, the value of the OGC will always follow the global price index in all conditions precisely. Thus, the value of the OGC will be very stable both in the short term and long, far more stable than all currencies that have ever existed in the world, even gold.

The condition, where the international currency is zero depreciated while national currencies are free to depreciate depending on the preferences and conditions of each country, is something new in global monetary affairs. This has never happened before. It is still the subject of further research on how it impacts on global economic stability and growth.

3.2 Zero-interest rate

In the current model, interest rates at the central bank are part of the money itself. All central banks in the world use interest rates as one of the instruments to regulate money. In Sharīʿah commercial banking, the interest rate is replaced with profit-sharing (Rahman, 2007, p. 123). For central banks or government, there are *sukuk* as a substitute for conventional debt securities. Sukuk are securities with variable-return Sukuk (VRS) and fixed-return Sukuk (FRS) accompanied by underlying real assets or pools of mixed assets (Ayub, 2007, pp. 389-390) and (Siddiqi, 2006, pp. 11-15). According to Afshar (2013), conventional sukuk and debt securities are different because sukuk use collateral of real assets, while conventional uses money (debt). However, according to Wilson (2008, p. 2), sukuk are still widely criticized because they are usually benchmarked to the London Inter-bank Offer Rate (LIBOR) on US dollar funds which are interest rates.

Simply put, it is very difficult to eliminate interest or yields at the level of the central bank or government in the current model, some of which are caused by several things below:

(1) To control the circulation of money

The central bank uses interest rates to control money circulation. To reduce the money supply and create a contraction effect, the central bank raises interest rates. Conversely, to reduce the money supply and create an expansionary effect, the central bank reduces interest rates. According to Litterman (1982), using the theory of optimal control of money, a central bank can make an optimal combination of interest rate and money supply so that it can reduce both fluctuations and ultimately maximize employment.

Since the OGC control system is a direct way, interest rates are not needed. OGC circulation is entirely left to the market. If they need it for international transactions they will buy it from the central bank. When they do not need it they just sell it to the central bank. The reason the public use OGC for international transactions is efficiency and convenience: no exchange fees and transfer cost apply. This reason is more than enough for the use of OGC. No additional stimulus is needed. So OGC circulation is very efficient.

Active control is only needed when the public overuse organic currency. Under such conditions, the local government can impose a "tax of holding organic currency". The tax revenue becomes a public fund (government revenue). The interest rate is still not needed.

(2) To control prices (inflation)

Based on the theory of the international Fisher effect (IFE), also known as the Fisher hypothesis (Fisher, 1930), interest rates affect inflation. The higher the interest rate, the higher the inflation, so that real interest rates tend to be constant. Furthermore, in the long run, the relationship between interest rates and inflation is one in one (Westerlund, 2008, p. 195). Various researches were carried out by many parties to test the consistency of Fisher's hypothesis. Most of the last tests were carried out using more complete methods, and in the long run, the consistency was fairly high. Among these tests are Carneiro *et al.* (2002); Mignon and Lardic (2003); Muse and Alimi (2012), and others.

Simply put, interest rates affect prices and inflation. Therefore, many central banks and governments in the world use interest rates as a tool to control inflation or to achieve a certain level of inflation.

As explained earlier, the organic model fixes the value of the OGC with the global price index so that it is zero depreciation and zero inflation. Thus, the organic model does not require interest rates to control prices (inflation). Inflation is already zero.

(3) To control exchange rates

"The foreign exchange market is in equilibrium when deposits of all currencies offer the same expected rate of return" (Krugman and Obstfeld, 2003, p. 341). The interest rate market tends to equilibrium; that is, the real interest rate throughout the world tends to be the same (interest parity). The reason is, any difference in the real interest rate will cause capital flows between countries, resulting in an adjustment. In this way, the interest rate and the exchange rate affect each other. In this way, governments and central banks use the interest rate to influence the exchange rate, directly or indirectly.

During the Asian monetary crisis in 1997–1998, all the central banks of the affected countries raised interest rates to control the crisis. The increase in interest rates in some countries reached the "ethal level" for the business entities. In Indonesia, for example, interest rates at the time were above 40% pa. No business entity can survive with that "lethal interest". In a simulation made by Claessens *et al.* (1999) it was mentioned that the combination of the fall in exchange rates and rising interest rates caused 31% of the 400 large companies, that were

sampled in Indonesia, Malaysia, Korea, the Philippines and Thailand, to become insolvent. Governments have to execute a "deadly interest rates" to save the exchange rate so that further fall does not occur. In most conditions, the interest rate is effective to influence the exchange rate as desired.

In the organic system, the exchange rate uses the auto-balancing system so that it is not affected by speculative actions and other impurity factors, including government policies themselves. Even the money exchange transactions themselves do not affect the "price". The exchange rate in the organic model fully follows the (fundamentals) price index and true external balance. Therefore, organic currency does not require interest rates to control exchange rates. Likewise with the host country, the national central bank also does not need to adjust the interest rates of its national currency to control its exchange rate with organic currency. The exchange rate is always in true equilibrium.

Under such conditions, the OGC does not require interest rates at the central bank or government level. As for commercial banks, the policy is subject to each bank. In the absence of interest rates at the central bank level, and the absence of depreciation, commercial banks have greater freedom to determine the level of yield or profit-sharing. Commercial banks that operate according to *Sharī'ah* principles also have greater freedom to determine the profit-sharing system. There is no minimum risk-free rate; risk-free rate = 0.

The condition, where the international currency is zero interest rate at the central bank level and is zero risk rate, is something new in global monetary affairs. Apart from our belief that it will make international monetary more efficient and more neutral, it is still the subject of further research on how its impact on international bank's intermediation functions.

3.3 Zero volatility

As mentioned above, the organic model uses its own exchange rate model called auto-balancing. The auto-balancing is the exchange rate that uses the price index and neutral external balance as a parameter. The exchange rate between the OGC and the national currency is set at a parameter that "the national price index equals the global price index" and "external balance is neutral". There are three implications:

First, auto-balancing will create a global trade balance more than ever. The global imbalance that has been persistent so far can be eliminated. No country has a large surplus or a large deficit. All of their external balances are in equilibrium.

Second, the auto-balancing exchange rate follows the actual economic fundamentals in the true equilibrium of external balance. There is no gap or variance between monetary and real economy. In the absence of a gap, fluctuations are also gone. The exchange rate depicts the real value of the national currency and international (organic). Thus, the real-value changes of the national currency, such as inflation, will be fully and automatically adjusted by the exchange rate, in real-time.

Random walk to "certain direction"

The relationship between inflation or the price index with the exchange rate has long been a concern of economists because it is the basis of one price theory which is the building block of many other theories in an open economic model. However, although the theory is "theoretically *per se*" elegant, this is not the case with the proof. No one can prove the theory of one price holding globally and precisely as predicted. The relationship between the price index and the exchange rate remains a very long "puzzle".

As far as we know, all tests conducted by economists did not find a strong relationship between the price index and the exchange rate in the short term. Therefore they call exchange rate movements as "random walks" (Dornbusch, 1976); (Miller, 1984); (Daniel, 1986); (Engel and West, Exchange Rates and Fundamental, 2005); (Kulkarni and Nandakumar, 2011). However, in a longer or very long period, the relationship becomes

stronger (Abuaf and Jorion, 1990); (Cheung and S.Lai, 1993); (Enders and Hum, 1994); (Papell and Theodoridis, 1998) and (Sarno and Valente, 2006).

In common, various tests of the consistency between the exchange rate and the price index by many parties show the following results:

(1) The "random walk" of the floating exchange rate against the price index occurs in the short term,

(2) while in the long term, most test results indicate variants are lower. When the test method is strengthened and the period is extended, the relationship strengthens. And when the period is very long, which is a century, as in the Sarno and Valente (2006) test, the relationship is very strong.

This means, the exchange rate does not actually run randomly without direction but randomly goes in a certain direction. And that particular direction is the price index. In other words, the exchange rate, randomly and with some degree of variance, goes in the direction of the price index.

The current floating exchange rate is following the equilibrium of money markets, while the money markets are influenced by many factors that are not part of the fundamentals, such as speculative transactions, government intervention, imperfect information and so on. Rogoff (1996, p. 653) and Engel and Rogers (2001, p. 1) mentioned factors that cause a variance are transportation costs, barriers (tariff and non-tariff), non-tradable cost components, consumer fanaticism and rigid pricing systems. These factors cause the deviation between the exchange rate and the fundamental.

In the organic model, with the auto-balancing pegging the exchange rate directly on the price index and neutral external balance, the various volatile factors above are completely removed. Those factors no longer affect the exchange rate. Even the currency transaction itself does not affect the exchange rate. Whatever the demand or supply of OGC, the exchange rates with the local currency is not affected. The exchange rates always follow economic fundamentals. The volatility and variance are gone.

3.4 Zero spreads

Spread is the cost of currency exchange. The greater the spread the greater the cost of exchanging money. And conversely, the smaller the spread the smaller the cost. Dominant currencies usually have smaller spreads. This is because the currency is liquid or it has a larger economy of scale and thus lower exchange costs.

Besides, the spread is also related to volatility. Experts have been researching the relationship between spreads and volatility for a long time. Generally, they conclude the same thing, namely, the strong relationship between volatility and spreads. Among those researchers were Black (1991); Lyons (1993); Bollerslev and Melvin (1994); Wei (1994); Melvin and Tan (1996) and Ding (1999). Generally, their conclusions are the same, that is, the greater the volatility, the greater the spreads. In other words, the relationship is strong.

Why do spreads always exist in currency exchanges? Spreads come from two things:

First, profit margin.

The profit margin makes money-exchange services feasible on a business basis. Without spreads, money exchange services are not feasible in business so there will be no money exchange services, while the public requires money exchange markets for efficient exchange.

Second, risk of volatility.

The money exchange service provider is a passive party. They cannot decide when to sell or buy money. They only accept the exchanges made by economic agents who need money changers. So they are directly exposed to exchange rate volatility. Therefore they need an additional margin, above the profit margin, to cover the risk.

As explained above, *first*, OGC is all digital and only circulates in the backbone network run by the central bank of each member country at the cost of them. As such, no additional fees are required for currency exchange services. So, the first point, the profit margin is not needed. The money exchange services do not need a profit margin. *Second*, as explained above, the auto-balancing can eliminate volatility. Thus, the second point, to cover the risk of volatility, becomes unnecessary. Thus, OGC does not require additional spread to provide profit margin or to cover the risks. In the organic model, spreads are not required in exchanging money.

In the organic model, money exchange services do not require a third party because they can be directly carried out on the backbone network operated by the central bank. In an advanced system in the future, exchange services by third parties still can be done without margins with the operating system as in the current social media where service providers only utilize advertising services and various other services to run their business. With this operational model, money exchange services by third parties are still possible with zero spread. New opportunities remain widely open.

Interchangeable and interconvertible

Organic currency is fully interchangeable or interconvertible. National currencies and international (organic) currency can be converted to each other without affecting exchange rates and without the need for spreads. Thus, the OGC and national currency cannot and do not need to be traded. Organic cryptocurrency is naturally non-tradable. Speculation will not exist.

The condition where exchange rates between international currency and national currencies are zero volatile and zero spreads is something new in global monetary affairs. Apart from our belief that it will make international monetary more stable, it is still the subject of further research on how it impacts on the money market, global trade and investment and global stability.

4. The road to Sharīʿah principle

The organic model aims to eliminate instabilities, inefficiencies, incoherence and imbalances in the current international monetary model. In doing so, the organic model follows basic theories in the open economy. Assessed from the direction, the organic model is on its way to achieve the *Maqāṣid* Sharīʿah.

First, the organic model makes global monetary more symmetrical: the global currency that is managed jointly by all countries in the world and is organically connected with the national currencies of all countries in the world, or at least member countries. Therefore, the OGC currency is more symmetrical and more democratic than the current model.

Our current international currencies are not the real international currency but the currencies of certain countries or regions that are adopted and used as international payment instruments. Thus, they give rise to global monetary asymmetry. Some countries or regions can print money from a piece of paper at almost no cost, while others must buy it with gold or real goods. Global monetary asymmetry creates widespread and permanent imbalances. The asymmetry of global monetary is the largest economic asymmetry in the world that causes permanent global imbalances, inequality and injustice. Many poor countries have to buy papers from the richest countries on earth with gold and any real goods that they badly need.

With the system which is controlled by all countries in the world or at least member countries democratically, the global monetary system will be more open and symmetrical. Countries in the world will have the same rights and equal opportunities to manage and create a common international currency. Thus, global imbalances can be eliminated, and global inequality can be reduced significantly. We believe that eliminating imbalances, inequality and injustice is part of the *Maqāṣid* Sharīʿah.

Second, the OGC can be controlled directly so that it does not require the interest rate at the central bank or government level. We believe that in the absence of the interest rate at the central bank level, eliminating the interest rate on a fixed-rate basis at the lower level will be more likely than the current model. Without the interest rate, the cost of monetary control becomes more efficient.

In this model, interest rates can be eliminated only at the central bank level. For commercial banks, it is the subject of each bank. In the absence of the interest rate at the central bank level, and accompanied by zero depreciation, commercial banks have greater flexibility to reduce the costs of money "rent". Sharīʿah banks and other Sharīʿah-based financial institutions will have greater flexibility, more spaces, to create a revenue-or-profit-sharing model that is closer to Sharīʿah principles. Various researches and breakthroughs in the future might be able to open the way on how to utilize money of zero-interest and zero-depreciation to increase growth and at the same time be closer to *Maqāṣid* Sharīʿah.

Third, with the loss of volatility and spreads, the organic model removes currency speculation from the very basics: the opportunity. Trillions of US dollars of capital that have been circulating on the money market and only become "pseudo-and-volatile transactions" can be transferred and utilized for more useful real investments and consumptions that give real value addition to society. This model also eliminates the risk of fluctuations that each year cost the global economy hundreds of billions USD (Bonpasse, 2006, p. 161). By removing money trading opportunities, the organic model calls money back to its main function as a transaction tool, not as a commodity. The organic model can flow trillions of US dollars of capital which has so far only polluted global transactions back to the real sector so that it becomes more beneficial for humanity. This is a very deep achievement and a fundamental of the *Maqāṣid* Sharīʿah.

5. Conclusion

We believe that the global economic and monetary system is always evolving towards better. There is no fixed and complete system. Evolution will continue throughout history into a more effective, more efficient, fairer and more stable system. We see that the organic model is part of the evolutionary process towards this good.

Likewise with Sharīʿah economics. The principle in Sharīʿah is fixed. It has been established in the Quran. But, creating a large monetary-economic system, which involves the interests of hundreds of millions and even billions of people, approaching the fixed principles of Sharīʿah, we also believe, it is a process that will continue to evolve. We will never reach the final touch. But we do make it closer.

One of the main weaknesses of the current call for international monetary reform in various parts of the world, including those initiated by the IMF, is over-reliance on "agreements of countries and regions that control global currencies (the United States and the European Union) and the countries that control largest surplus in the world (China and Japan)". International monetary reform proposed today can only be carried out if all of those countries sit at one table and make a high-level agreement. And we all know reaching such a high level of agreement is impossible. Global monetary reform will never come from the top.

The organic model uses a completely different path. The organic model does not require the cooperation of all countries and has no dependency on the major player countries. The organic model only depends on the countries concerned. Then the concerning countries can start the initiative, establish the system and open it to all countries in the world. Then the reform will proceed naturally, gradually and give birth to disruption in global monetary system. The reform will proceed easily and naturally because it does not require economic integration.

The journey to the ideal model and towards the *Maqāṣid* Sharīʿah is a long journey, maybe even forever. What we can achieve in the organic model is part of the journey towards the ideal model and the *Maqāṣid* Sharīʿah. As a new model, the OGM will continue to develop to achieve the optimum model, to achieve the stability and efficiency of monetary functions based on basic theories in an open economy, and at the same time increase its suitability for *Maqāṣid* Sharīʿah. We are widely open to any input and cooperation from various parties, in all respects, to achieve the ideal model that becomes a legacy for mankind in the future, as *rahmatan lil-alamin. Wallahu a'lam*.

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The business financial inclusion benefits from an Islamic point of view: a qualitative inquiry

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Abstract

Purpose – This study explores the benefits of business financial inclusion from the Islamic perspective in Nigeria by selecting Kano state as a case study.
Design/methodology/approach – Primary data were generated through semi-structured interviews with experts who comprised professional accountants/consultants and experienced traders. Thematic analysis was applied to examine the data collected. In addition, observations were made in some selected stores and shops to complement the interview results.
Findings – The study finds that the benefits of business financial inclusion include recordkeeping improvement, reduction of the risks of bad debts, reduction of the risks associated with cash, enhancing business *zakāh* for poverty alleviation, sales improvement and business growth, getting supports from government and other development organizations and the provision of employment opportunities.
Research limitations/implications – This study is purely qualitative, and, as such, it has some limitations in terms of generalization.
Practical implications – The practical implication of this study is that the use of electronic payment methods, especially point of sales, enhances the business financial inclusion, which consequently maximizes their wealth and contributes to the reduction of poverty to the barest minimum in the society.
Social implications – The social implication of the findings is that businesses that are financially included are in a better position to discharge religious, philanthropic and other benevolent activities, such as *zakāh*, qard hasan, waqf and sadaqah, for the welfare of the ummah.
Originality/value – The study points out the benefits of financial inclusion not only to businesses but also to other members of the society at large.

Keywords Business, Financial inclusion, Recordkeeping/bookkeeping, *Zakāh*, Employment, Poverty alleviation

Paper type Research paper

1. Introduction

Financial inclusion is believed to be a central objective of many developing economies (Sharma and Kukreja, 2013). Recently, enhancing access to financial services enjoys special consideration on the agenda of many economies in the world (Brekke, 2018; Naceur *et al.*, 2015; Seman, 2016). It has become a universal activity and concern for policymakers and regulators for developing the financial sector in order to achieve a maintainable long-term economic objective (Zulkhibri, 2016). According to the World Bank's 2014 Global Financial Development Report (GFDR), more than 50 nations have formally established their targets for enhancement of financial inclusion (Naceur *et al.*, 2015).

JEL Classification — E24, E58, M40 I30. **KAUJIE Classification** — H52, J42, E23

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Nigeria is not an exception in struggling for achieving a higher financial inclusion rate. Several measures, such as agent banking, tiered Know-Your-Customer (KYC) requirements, financial literacy, consumer protection, linkage banking, the implementation of the Micro, Small and Medium Enterprises Development Fund (MSMEDF) and credit enhancement programs, among others, have been put in place by the Central Bank of Nigeria (CBN) in collaboration with other organizations with a view to attaining a financial inclusion rate of 80% by the year 2020 (Zauro *et al.*, 2017a). A survey conducted in 2018 showed that over 60% of the Nigerian adult population has become financially included (Enhancing Financial Innovation and Access (EFInA), 2018). Perhaps, this motivated the governor of the CBN and chairman of the National Financial Inclusion Steering Committee to set further higher the next target of achieving a 95% financial inclusion rate by the year 2024 (CBN, 2019).

Meanwhile, Islamic banking serves as an instrument for achieving financial inclusion (Naceur *et al.*, 2015). In 2011, the CBN approved the establishment of an Islamic bank (IB) with a view to providing alternatives to conventional finance that are Sharīʿah-compliant for economic growth and development (Zauro *et al.*, 2017b). Currently, another full-fledged IB, named Taj Bank Limited, has emerged and commenced operation in Nigeria on December 2, 2019. Also, a Nigerian conventional bank that earlier had an Islamic window is making all the necessary preparations for conversion into a fully Sharīʿah-compliant bank. These show the potential contributions of the Nigerian Islamic banking industry in enabling Nigerians to have access to Islamic financial services.

Many empirical studies were conducted on the link between Islamic finance and financial inclusion defined with different objectives in different countries, such as Beg and Mullick (2016), Brekke (2018); Demirguc-Kunt *et al.* (2014); Er and Mutlu (2017); Naceur *et al.* (2015); Zulkhibri (2016); Ali (2015) and Umar *et al.* (2019). These studies failed to clearly point out the advantages and benefits of business financial inclusion.

Given this background, the objective of the present study is to explore the benefits of accessing business financial services from an Islamic point of view in Nigeria by selecting Kano state as a case study. Kano was selected as a case study for four reasons. First, it is the most populated state in Nigeria. Second, historically, it is the Nigerian center of commerce. Third, it is not only dominated by Muslims but also has the highest number of Muslims among the Nigerian states. Fourth, after releasing the revised Nigerian Financial Inclusion Strategy in January 2019, the CBN organized a stakeholders' forum in each of the six zones of Nigeria to educate Nigerians on the provisions of the strategy and fashion out implementation activities at the grassroots level. Kano was selected in the North-West Geo-Political Zone (CBN, 2019). Hence, the forum is expected to improve the financial inclusion rate in the state.

The remainder of the paper is divided into four sections: literature review, methodology, research findings and conclusion.

2. Literature review

2.1 A brief history of the case study

"Centre of Commerce" is the slogan of Kano, which is among the 36 states of the country. McDonell (1964) describes it as the largest city in Western Sudan, and for many centuries, commercial relations have existed between the state and North African and European regions [1]. Trading activities and other contacts between the community and North African countries were considerably developed, and at the same time, Songhai Empire came to the west of Hausa land (Kano is a part of the area), which brought about development in the social, economic and political activities in the community (Dan-Asabe, 1987). In the same way, historically, since the 7th century, different types of markets have existed in Kano, some of which attracted people in neighboring countries, such as Benin, Burkina Faso, Cameroun, Central Africa Republic, Chad, Ghana, Niger and Togo (Ibrahim, 2015).

Further, Kano is the most populated state in Nigeria, with a population of 10 million during the 1991 census (Muktar, 2013). But now the population is estimated to be around 15 million, and the Muslim population in the state is estimated to be about 95% or 8.06% of the estimated Nigerian population of 186 million people in 2016 (Mustafa *et al.*, 2018). Therefore, being an Islamic state, its affairs are guided by the Sharīʿah. Besides, the state is blessed with an uncountable number of successful entrepreneurs, who engage in different businesses located in the state, other states in the country and abroad. Even the richest person in Africa, Alhaji Aliko Dangote, hails from the same state. His maternal family members are very rich and popularly known as "Alasawa."

2.2 The concept of financial inclusion

Financial inclusion has an all-encompassing definition. It has many dimensions, which depend on the stages of development and its degree varies among different countries (Sharma and Kukreja, 2013). Seman (2016) defined it as a means of delivering financial services at a cost that can be afforded by the less-privileged, weaker and low-income earners of the society, both individual households and small and medium enterprises (SMEs). It could be seen as the provision of financial services at affordable costs to the underprivileged and low-income earners of the society (Kelekar, 2009; Sharma and Kukreja, 2013). Similarly, Umar *et al.* (2019) described financial inclusion as a situation in which individual and corporate entities get easy access to formal financial services like credit, formal savings, formal payments, insurance and pension-saving products at affordable costs.

In Islamic finance, financial inclusion entails access to finance from two points: promotion of risk-sharing contracts through the provision of feasible and non-interest finance and the provision of income redistributions instruments for poverty alleviation (Mohieldin, *et al.*, 2012; Mirakhor and Iqbal, 2012; Zulkhibri, 2016). *Mushārakah* is an example of a Sharīʿah-compliant and risk-sharing contract, which is commonly practiced by IBs, though it could be formed by individuals or non-IBs (Umar, 2019a). Any form of *mushārakah* (whether with an Islamic or a non-IB) needs to be sustained to provide employment opportunities, redistribute incomes, maximize business *zakāh*, discharge *waqf* activities and so forth, to alleviate poverty and maximize the welfare of the *ummah* as well as achieve economic growth and development at large. Besides, to encourage *mushārakah* business in Islamic society, Umar and Kurawa (2019) recommend the admission of heirs into the inherited business in order to allow the business to remain a going concern. Further, *zakāh* and *waqf* are common examples of the instruments for the redistribution of income in society toward poverty alleviation in Islamic society. Umar (2019b) and Umar *et al.* (2020) support the integration of *waqf* into a going concern business for the welfare of heirs and non-heirs and the sustainability of the business. Consequently, as long as the business exists, business *zakāh* would be paid for eradicating poverty. However, Islamic microfinance and micro-insurance are found to have a more significant contribution in improving the financial inclusion rate than Sharīʿah-complaint contracts (Beg and Mullick, 2016). This is because Islamic microfinance provides funds to the poor members of the society in line with the *Sharīʿah,* which enables them to become self-dependent (Ali, 2015). The poor and the needy are the majority in developing countries.

Further, Shaikh *et al.* (2017) suggest three ways of enhancing Islamic financial inclusion through Islamic banking: the application of information technology to accommodate those that are excluded because of distance barrier, the use of equity-based modes of financing to support those that have no collateral security and giving entrepreneurial capital and other sources of income and paying special attention to Islamic microfinance for supporting the poor members of the society. In Nigeria, since the majority of people are poor, Islamic microfinance, if judiciously applied, would significantly contribute to the achievement of Nigeria's target financial inclusion rate, particularly by the year 2024.

2.3 Empirical studies

Many empirical studies on financial inclusion were carried out in both Muslim and non-Muslim countries. Some studies are regional, while others are limited to one country. Some of the regional studies include Andrianaivo and Kpodar (2012); Demirguc-Kunt *et al.* (2014); Naceur *et al.* (2015); Ocampos (2015); Zulkhibri (2016) and so forth. Andrianaivo and Kpodar (2012) assessed the relationship between mobile phone and economic growth in some selected African nations between 1998 and 2007. They found that mobile phones have significantly contributed to economic growth in the countries, part of which emerged as a result of financial inclusion. Demirguc-Kunt *et al.* (2014) utilized novel data with the objective of exploring access to financial services by drawing on a sample of 65,000 Muslim adults across 64 countries. The study discovered that Muslims are notably less likely than non-Muslims to formally open bank accounts or deposit their funds at conventional banks when individual- and country-level characteristics are controlled for. Naceur *et al.* (2015) investigated the association between Islamic banking and financial inclusion in member countries of the Organization of Islamic Cooperation (OIC). The result revealed that access to financial services has been improved physically but at a slow rate, and a tentative and an insignificant positive link to household credit and firms for financing investment is found. Moreover, this study made the following vital recommendations with the view to improving the contribution of IBs toward financial inclusion: i) IBs should establish a section for the SMEs, and their staff need to be trained more on contracts that are fully Sharīʿah-compliant, ii) all the potentials of Islamic microfinance should be utilized, and Islamic equity funds for the SMEs should be established and iii) improvement in financial infrastructure and the quality of credit information and encouraging competition in the banking industry, among others, could increase financial inclusion of the public.

Furthermore, Ocampos (2015) utilized data generated from the IMF and the World Bank databases on financial inclusion indicators with the view to assessing the contribution of IBs to financial inclusion. It was discovered that the IBs have insignificantly influenced financial inclusion. Besides, the results showed that the citizens of the members of the OIC do not have access to financial services, and, as such, they make less use of them if compared to the citizens of non-member countries. Ali (2015) sought to find out whether Islamic microfinance could eradicate poverty in Islamic countries. The study established that unlike conventional microfinance, Islamic microfinance offers not only financial inclusion but also social inclusion (through the provision of *ṣadaqah, waqf* and *zakāh* to the poor and needy members of the society) to satisfy the basic needs of the society before credit is granted. Social inclusion here serves as a motivator to the underprivileged members of the Islamic society. Therefore, Islamic microfinance plays a significant role in eradicating poverty. Zulkhibri (2016) applied a qualitative method to ascertain the relationship between financial inclusion and the Islamic financial services industry in the Muslim world. The study revealed that a lot of individuals and businesses are yet to be financially included, and cost, distance, documentation, trust and religious adherence are found to be among the major factors hindering the achievement of financial inclusion. Specifically, more than 40 million Muslims have no formal access to financial services solely for religious purposes.

Other studies on Islamic financial inclusion, which are limited to one country, include Er and Mutlu (2017); Brekke (2018) and so forth. Er and Mutlu (2017) undertook their study to find the level of the financial literacy of financial inclusion in Turkey. The study found the general index of Islamic financial literacy to be 58%. Brekke (2018) collected data in Norway between 2015 and 2016 and discovered that the banks in the country did not offer products that were in line with the Sharīʿah, which is considered to be a principal factor hindering the integration of Muslims in the country. More so, through interviews and focus group discussions, he established that Muslims in Norway agreed that, over the years, there was a high demand for Islamic financial products as a result of the increase in the awareness of Islamic economics.

Further, some studies were carried out in Nigeria on financial inclusion. For example, Achor and Robert (2013) surveyed the opinions of businessmen, university students and civil servants about Nigeria's cashless policy. The study revealed the acceptance of the policy by the public since it tends to minimize cash robbery and corrupt practices as well as other related offenses, but it exposed them to cybercrime; also, there is a high rate of illiteracy. Similarly, Okoye and Ezejiofor (2013) administered questionnaires to assess the development of the cashless economy policy in Nigeria. The study disclosed that the majority of the respondents are aware of the policy, and they believe that it could be used to combat corruption in Nigeria as well as eliminate the risk of taking cash from one place to another. But cybercrimes and illiteracy have been discovered as the factors hindering the achievement of the cashless policy. Oyewole *et al.* (2013) investigated the impact of the various methods of electronic payments on the growth of the Nigerian economy between 2005 and 2012. The study established that automated teller machines (ATMs) have positively contributed to the economic growth of Nigeria, whereas online payment, POS terminals, mobile payments and checks have negative relationships with the growth.

Another study undertaken by Bayero (2015) established that awareness, consumer/user value proposition and infrastructure have significant relationships with financial inclusion, whereas the business model of financial services providers has an insignificant relationship with financial inclusion in Nigeria. Zauro *et al.* (2017a) administered questionnaires in order to find the effect of attitude, religiosity and ethnicity on financial inclusion in Nigeria. The study found that these variables (impact attitude, religiosity and ethnicity) have significant relationships with financial inclusion. Therefore, special consideration should be given to them in order to enhance financial inclusion. More recently, Umar *et al.* (2019) explored whether religion (interest) in Nigeria hinders the achievement of Nigeria's financial inclusion target rate of 80% by the year 2020. The data for the study were generated through semi-structured interviews and documentary evidence. It established that almost all the programs of the Nigerian Central Bank that enhance financial inclusion are not Sharī'ah-compliant, as they involve interest. However, the majority of Muslims are still participating in these programs. Therefore, interest is not a factor hindering Nigeria's financial inclusion target set to be achieved by the year 2020. But they recommend for the provision of Islamic windows before Muslims begin to shun these programs because many influential Muslim preachers are now preaching against interest.

3. Methodology

This study utilized a semi-structured interview method that was adapted from previous studies (Eldabi *et al.*, 2002; Horton *et al.*, 2004; Nor and Hashim, 2015; Thaker, 2018). It is a qualitative method that emphasizes more on understanding and describing a process instead of behavioral outcomes (Bakar and Yusof, 2016; Nor and Hashim, 2015). Moreover, it enables the researcher to seek further in-depth explanations on some responses with the view to resolving apparent contradictions (Horton *et al.*, 2004). Hence, this approach is considered to be a way of finding social reality from the subject, not from the observer (Eldabi *et al.*, 2002).

Professional accountants (working in audit and consultancy services firms) and experienced traders were interviewed in order to achieve the objective of the study. Purposive sampling technique was applied to select the respondents. It is the most common sampling technique used for pre-selecting respondents based on a particular research question (Thaker, 2018). Nowadays, it is widely used as a method of sampling in qualitative research (Gentles *et al.*, 2015). This is applied to ensure that experienced and qualified respondents were selected to provide answers to research questions. In the case of sample size, six respondents were selected based on the principle of data saturation as used by Thaker (2018). The purpose of data saturation is to avoid oversampling of interviewees which

tends to make the data become redundant (Marshall *et al.*, 2013). Thus, the sample of the six participants was assumed to be enough. Similarly, unlike quantitative research where a large sample size is preferred, in qualitative research, a small sample size is recommended with the view to acquiring information that could enable one to understand the complexity, depth, variation or context surrounding a phenomenon (Gentles *et al.*, 2015).

The data collected through the interviews with the participants were transcribed into field notes and analyzed by the application of thematic analysis, as applied by Thaker (2018). Table 1 presents the profile of the respondents:

Table 1 shows that there are six respondents. The first three (A1-A3) are professional accountants/consultants, who have been rendering accounting/auditing and other consultancy services to businesses for many years. The next two (A4 and A5) are traders with accounting and finance background. The last one (A6) worked as an accountant for one of the stores that are financially included in the state.

In spite of financial inclusion as a contemporary and topical issue, prior studies have not yet clearly pointed out the comprehensive benefits of business financial inclusion. However, the literature on cashless policy and financial inclusion was reviewed to explore the expected benefits of business financial inclusion, which would serve as a basis for developing the categorical themes of the interviews. According to the CBN (n.d.), the anticipated benefits of the cashless economy would, among others, include faster access to capital, reduction in cash-related crimes, increased convenience, access to adequate credit facilities (by business), faster access to capital (by businesses), reduced revenue leakage and cash handling costs, among others. Similarly, Achor and Robert (2013) established that the cashless economy has the potential to reduce cash-related robberies, corruption and other fraudulent practices. Hence, eight expected benefits of business financial inclusion could be pointed out. It is worth noting that some benefits would serve as the drivers of others.

First, when a business is financially included, most of its receipts and payments will be done through banks. This implies that bank statements will provide substantial information concerning receipts and payments for the preparation of the comprehensive financial statements of businesses. A bank statement is one of the essential source documents needed to prepare the financial statements of a business (Umar, 2019a). Second, effective financial inclusion provides various alternative means of electronic payments, such as online payment, credit transfer, debit cards and POS, which enable customers to make payment when they have no cash in hand. Consequently, this would contribute to the reduction of bad debts. Third, financial inclusion is likely to contribute to minimizing the risks associated with carrying cash. Fourth, if a business has access to adequate credit facilities, it has its revenue leakage fraudulent activities reduced. Thus, it has the potential to grow and increase its revenue. Fifth, when a business grows and has its revenue increased as well, there is a tendency to pay more *zakāh*. Sixth, as the business grows, it would provide more employment opportunities. Hence, it is believed that successful financial inclusion would increase employment (Dixit and Ghosh, 2013; Ali, 2015; Er and Mutlu, 2017).

Table 1.
Profile of the interviewees

No	Profession / Occupation	Code
1.	Professional accountant/ Consultant	A1
2.	Professional accountant/ Consultant	A2
3.	Professional accountant/ Consultant	A3
4.	Trader	A4
5.	Trader	A5
6.	Accountant	A6

Seventh, for about a decade, the Nigerian government has adopted the cashless economy, which greatly contributes to the increase in the financial inclusion rate. This is because many Nigerians have bank accounts through which they make and receive payments. It has now become a rule that for any individual or organization to benefit from the Nigerian government and NGOs (both local and international), they must operate bank accounts through which payments and receipts are done. Eighth, it is worth noting that businesses that grow (size) and earn higher profits are likely to increase and disclose more CSR activities in their annual reports and accounts. These findings are based on the survey and content analysis of 76 empirical studies conducted in both developed and developing countries (Ali *et al.*, 2017).

Briefly, eight benefits of business financial inclusion could be pointed out. All benefits are not independent – some are the drivers of the others. For example, when a business grows and its revenue increased, it is likely to pay more *zakāh* for poverty alleviation. It is also expected to employ more workers. Table 2 shows the eight categorical themes based on the issue discussed above.

Table 2 shows the eight categorical themes and the interview questions about the benefits of business financial inclusion. In line with Thaker (2018), the responses were transcribed into field notes. Besides, observations were made in various stores and shops that are financially included, such as Jifatu Stores, Sahad Stores and Sammanin Fatihu Stores, in order to support the interview results.

4. Research findings

It has been observed that the most common and popular means of making electronic payments in the stores and the shops is the point of sales (POS) terminal. The POS has now become a powerful instrument that significantly enhances the financial inclusion of business. Also, all the sample stores and the shops have barcode machines, which are used to record all the inventories purchased and sold. The machines print invoices for the purchases made by customers.

The results of the interviews based on the eight major themes and the observations are presented below.

No	Categorical themes	Interview questions
1.	Recordkeeping improvement	Can financial inclusion improve the recordkeeping of the business?
2.	Reduction of the risks of bad debts	Do you think financial inclusion can reduce, if not eliminate, the business exposure to bad debts?
3.	Reduction of the risks associated with cash	How can financial inclusion minimize cash exposure to risks?
4.	Enhancing business *zakāh* for poverty alleviation	Can business *zakāh* be enhanced for poverty alleviation through financial inclusion?
5.	Sales improvement and business growth	Do you believe that financial inclusion leads to sales improvement and business growth?
6.	Support from government and other development organizations	Can financial inclusion enable businesses to have access to the support of government and other development organizations?
7.	Provision of employment opportunities	Do you agree that financial inclusion can improve employment opportunities in Nigeria?
8.	Corporate social responsibility (CSR)	Do you believe that financially included businesses are likely to discharge more CSR than the others?

Table 2.
Categorical themes and interview questions

4.1 Recordkeeping improvement

The records to keep comprise those of assets, liabilities (debts), incomes and expenses. Moreover, the proper recording of business transactions is one of the vital functions of Islamic accounting. The views of the respondents were sought on whether financial inclusion could enhance the recordkeeping of the business. All the respondents ($n = 6$) replied in the positive. The following are the responses with respect to the role of the financial inclusion on improving the recordkeeping of the business:

> [. . .] businesses that use POS terminals and barcode machines could easily determine their total sales, total purchases, inventory balances [. . .] on a real-time basis. (A1)
>
> Financial inclusion improves the recordkeeping of the businesses by the use of POS and barcode machines [. . .] in order to prevent fraudulent activities and ensure the reliability and the accuracy of the records. The attendants/cashiers/sales representatives should not be granted administrative access to the barcode machines and they should also be rotated regularly without notice. (A2)
>
> Traders that are not financially included should keep single entry records, i.e. incomplete records [. . .] the use of POS could enhance the recordkeeping of the business since most of the receipts and payments of the business are going to be reflected in the bank statement. (A3)
>
> [. . .] those that use POS and other cashless payment methods tend to keep complete records more than the others that do not. (A4)
>
> Business financial inclusion could enhance its recordkeeping [. . .] the use of POS and barcode machines could enable businesses to develop the culture of recordkeeping. (A5)
>
> Financial inclusion of the business boosts its financial records because substantial receipts and payments are made through bank [. . .] the business also uses barcode machines to capture sales, purchase of inventories [. . .]. It also enables the business to generate total sales, purchases and inventories balances any time the need arises. (A6)

The above responses show that financial inclusion would definitely lead to the enhancement of the recordkeeping of the business. Substantial transactions of the business involving receipts and payments could be captured in the bank statement. Hence, businesses that are serious about financial inclusion are likely to have more complete records than others. Similarly, based on the observations made in the visited shops and stores, some staff were found to have been primarily employed to take charge of recordkeeping and accounting functions. In addition, it has also been observed that all the purchases made by customers must be entered into the barcode machine with a view to printing invoices/receipts for them. Hence, the machine could be used to generate reports for purchases, sales and inventory balances at any time.

Moreover, the importance of the recordkeeping for planning, controlling and decision-making toward achieving the objectives of the business, especially profit and wealth maximization, is very profound. Recordkeeping provides the information needed for applying various management accounting techniques such as budgeting standard costing, marginal costing techniques (such as make or buy decision, the acceptance or rejection of a special order, allocation of scarce resources, etc.) and standard costing and variance analysis. in order to achieve the objectives of the organization efficiently and effectively. This is only possible if there are sufficient and accurate records of the business transactions.

Recordkeeping of the business has been emphasized in both the Noble Qur'an and the *Sunnah* of the Prophet Muhammad (SAW). Allah (SWT) decrees that contracting a debt for a fixed period between two parties should be written down (Al-Baqarah, 2:282). The importance of keeping records is also established by the Sunnah of the Prophet (SAW), as reported by Abdullahi Bin Umar, who said it was not allowed for a Muslim to spend two consecutive nights without having his will in written form with him (Sahih Bukhari, Vol. 4, Book 51, No. 1; and

Sahih Muslim, Book 013, No. 3987). This *hadith* could provide a good lesson to traders to adopt the system that would enable them to keep records of their business transactions regularly.

4.2 Reduction of the risks of bad debts

Excessive credit sales lead to a high amount of bad debts, which tend to reduce the profit and the wealth of the business or even make it collapse. In financial reporting, the amount of bad debts is expensed, which consequently reduces the profit and the wealth of the business. Hence, the views of the respondents were sought on whether or not financial inclusion of business reduces or eliminates bad debts. They all ($n = 6$) viewed that the financial inclusion of the business could reduce business exposure to bad debts as a result of credit sales. They provide the following responses:

> [. . .] sales are almost made based on cash and carry basis by financially included business and therefore bad debts are eliminated or minimized to the barest minimal. (A1)

> [. . .] some of these traders make a few credit sales to trusted Allies/ customers in such a way that the other customers do not know [. . .]. It reduces the incidents of bad debts because the credit sales are reduced to the barest minimal. (A2)

> It minimizes the exposure of the business to the risks of bad debts since there are little or no credit sales to the customers [. . .]. (A3)

> Businesses that are financially included are not exposed to the risks of bad debts because most of their sales are made based on cash and carry basis. (A4)

> [. . .] they are less likely to be exposed to the risks of bad debts because they mostly make credit sales to very few numbers of customers who are mostly government and corporate bodies. (A5)

> Most of the sales are based on "cash and carry" (either to pay by using POS terminal or in cash) [. . .] the credit sales which are only made to the tested and trusted customers are very low and are mostly payable within few days (usually 3 days) [. . .] as such the exposure of the businesses to the bad debts is very low. (A6)

The responses confirm that businesses that use POS terminals are not exposed to the risks of credit sales. Customers that want to purchase goods from them must either use POS terminals to make the payment or pay cash instantly. Similarly, throughout our stay in the shops and the stores during the observations, we could not see a single credit transaction made openly.

4.3 Reduction of the risks associated with cash

Cash is the most important asset of the business, which is exposed to various risks. Economically, there are three motives for holding cash: transaction, precautionary and speculative. It needs to be properly managed with the view to utilizing it in such a way as to maximize the wealth and the profit of the business. The interviewees were asked if business financial inclusion could reduce cash-related risks. The participants ($n = 6$) agreed that financial inclusion is a strong instrument for minimizing the risks associated with cash. The responses are as follows:

> [. . .] incomplete cash balances could be avoided [. . .] there is also control over cash sales as it (business) always sets aside imprest (petty cash) with the view to avoiding spending directly from cash sales. (A1)

> Financial inclusion of the business could assist in minimizing cash pilferages [. . .]. (A2)

> [. . .] it enables the business to have control over the cash by preventing the staff from making fraudulent spending and pilferages [. . .]. (A3)

> Financial inclusion could prevent the business against cash shortage, pilferages, etc. In fact, many cases have been established (some are still going on) whereby employees were found guilty of conniving with

> armed robbers to snatch the cash kept in the office by force or even using deadly weapons [. . .] many employees and other innocent persons lost their lives during the operations/attacks. (A4)
>
> Cash shortage and pilferages of daily sales could be reduced to the barest minimal [. . .] during fire accidents in some market in the state such as Sabon Gari Market, Singa Market, Farm Centre Market [. . .] traders that are not financially included are the ones that suffer most because they mostly keep their cash in their offices [. . .] one culture of the financially included business is that at the end of every week (usually Friday) they pay their cash sales into their businesses accounts. (A5)
>
> Financially included business is less likely to be exposed to the risks that are related to cash such as fire, pilferages [. . .] because at least 50% of the sales are received by using POSs and even the cash sales are banked within not more than 24 hours [. . .] therefore cash pilferages is reduced to the barest minimal. (A6)

In addition to the above responses, many traders, especially the ones that travel to other states, are exposed to the danger of armed robbers along the way or even at the markets. In fact, some of them not only loss their monies but also their lives. This risk forced many Nigerian traders to open bank accounts with a view to making cashless payments for their purchases. Businesses that have many years of relationship with their suppliers could place their orders both in the country and abroad and make payments online; the goods would be delivered to them at the time agreed with the suppliers. This signifies that the use of POS and other non-cash payments provides safer ways of making payments to suppliers/sellers. It is therefore remarkable that Nigerians prefer e-payments to cash payments (Oyewole *et al.*, 2013). In addition, it is not uncommon to find disagreements between entrepreneurs and their employees over cash shortages, which leads to sacking many employees. Some of the cases were taken to court and those found guilty were imprisoned. This finding is in line with the findings of the previous studies like Achor and Robert (2013) and Okoye and Ezejiofor (2013), who believe that non-cash payments minimize the robbery of cash and corrupt practices and other related offenses.

Another form of risk associated with cash is fire outbreaks. Some international and regional markets in Kano state like Sabon Gari Market, Kurmi Market and Farm Center (GSM) Market experienced fire accidents, which led to the collapse of many businesses. For example, in Sabon Gari Market, a fire outbreak destroyed at least 6,000 shops (including makeshift stall) within 12 hours, and many traders not only lost their goods but also cash (Adeyemi, 2016). In another report, a fire accident burnt down about 75% of the market, destroying 3,800 shops containing goods and cash worth ₦ 2 trillion (Nigerian currency) (Daily Trust, 2016). Also, the management of Singa Market (another popular one in the state) revealed that over 200 shops (Ikeke, 2016) and 1,200 makeshift stalls were lost to the fire and the total value of the goods and cash lost was more than ₦ 3 billion (Muhammad, 2016). According to the fire service boss, between January 2015 and March 2016, the total value of the wealth lost to fire accidents in various markets in Nigeria was about ₦ 5.30 trillion (Omokhunu, 2016). Moreover, it has been established that those that suffer most were the ones that substantially kept cash in their shops and offices. Hence, the emir of Kano State (the former governor of the CBN) advised the traders to stop keeping their monies in their shops and to adopt Islamic insurance (Takaful) with the view to recovering the losses suffered as a result of the fire outbreak and other accidents (Daily Trust, 2016).

Based on the above, it is understandable that the financial inclusion of the business could serve as a powerful tool for reducing risks that are related to cash.

4.4 Enhancing business zakāh for poverty alleviation

The participants in the interviews were asked whether financial inclusion could contribute toward enhancing business *zakāh* to eradicate poverty. The interviewees ($n = 6$) strongly believe that financial inclusion is likely to play a vital role in the improvement of business *zakāh*. The collected responses are as follows:

> *Zakāh* could easily be calculated since the records for *zakātable* assets are kept [. . .] it is believed to be a powerful instrument for eradicating poverty [. . .]. (A1)
>
> [. . .] it makes it easy to determine the value of assets subject to *zakāh* because of complete records for the assets [. . .]. *Zakāh* is considered to be very useful in reducing poverty to the barest minimum in Islamic society. (A2)
>
> [. . .] it tends to increase the *zakāh* payable by the business since there is control over cash, inventory and receivables. (A3)
>
> [. . .] the records of *zakātable* assets of the businesses that are financially included are more complete than those that are not [. . .] which implies that they are likely going to pay more *zakāh*. (A4)
>
> As a result of recordkeeping improvement, the financially included are expected to pay more *zakāh* than those that are financially excluded [. . .] this could greatly contribute to maximizing *zakāh* for various poverty alleviation programs. (A5)
>
> [. . .] the use barcode machine and POS could enable the business to ascertain the balances of the inventories and cash balances at banks respectively which make it easier and convenient to calculate the business *zakāh* for poverty alleviation [. . .]. (A6)

The general finding from the above responses show that financial inclusion is an instrument for poverty alleviation, which is in line with the assertions of Mirakhor and Iqbal (2012) and Ocampos (2015). In specific terms, since the financial inclusion of the business enhances its recordkeeping, there is the likelihood of having complete records for *zakātable* assets by the business. This implies that the amount to pay by the business as *zakāh* would be maximized to eradicate poverty in Islamic society. Therefore, the higher the amount of business *zakāh* collected, the higher the chance of alleviating poverty. *Zakāh* has been proved to be a strong instrument for poverty alleviation in the Muslim world (Mirakhor and Iqbal, 2012; Dixit and Ghosh, 2013; Sharma and Kukreja, 2013; Ismail Abdel Mohsin, 2013; Nadzri *et al.*, 2012; Raimi *et al.*, 2014; Shirazi, 2014; Hoque, 2015; Ocampos, 2015; Zulkhibri, 2016).

Recently, a report released by the Brookings Institution disclosed that at the end of May 2018, about 87 million Nigerians were living in extreme poverty and six persons became poor every one minute (*Vanguard, 2018*). Hence, it is time to use *zakāh* efficiently and effectively for poverty alleviation in Nigeria, because Muslims are the majority there.

4.5 Sales improvement and business growth

The maximization of sales revenue and the growth of the business are among its major objectives, more especially in a competitive environment. All the interviewees ($n = 6$) agreed that financial inclusion could lead to sales improvement and business growth. The following are the excerpts of their opinions:

> Sales of these businesses grow at a faster rate because mostly their prices are cheaper than the other traders. This enables them to periodically open more branches, not only in the state but in other states of Nigeria. Sometimes other traders that run out of stock do purchase the goods from these businesses (financially included). (A1)
>
> Businesses that are financially included are easy to be located on their corporate addresses [. . .]. They operate like corporate bodies (even if they are not registered as companies) [. . .]. This enables them to attract corporate customers that purchase goods in large quantities usually more than the individual customers [. . .] because they issue them with documents for recordkeeping such as receipts, invoices, etc. These documents are needed for bookkeeping purposes by corporate customers. In other words, government and big companies prefer to transact with these businesses (financially included) that look like companies even if they are not registered as legal entities. (A2)
>
> [. . .] customers that are out of cash could use their ATM cards to purchase what they want. There are many instances whereby the customers see some products that they want but they could not because

they have no cash. In this case, the customers could use their cards to make the purchase whenever they have no cash to pay for what they intend to buy. (A3)

[. . .] sales could be improved because the business provides alternative and convenient means of making payment for the purchases [. . .]. Customers are now afraid of carrying cash to the market. They prefer to use POS and ATM to make payments. This contributes a lot towards improving the sales values and opening more branches of the business. (A4)

Most of the businesses that are financially included have standard prices compared to the others. Consequently, they attract more customers [. . .] grow and expand faster than those that are financially excluded. (A5)

[. . .] sales are always improved and the businesses grow faster than those that are not financially included [. . .] new branches are not only opened in the state but also in other states [. . .]. (A6)

It has also been established through the observation that the businesses that use POS as an alternative means of making payment attract more customers than those that do not. One good thing for the business is that the price of each product is marked on it. Hence, once a customer picks the product, there is no bargain. More customers are attended by cashiers/sales attendants within a short period. These businesses comparatively charge low selling prices and ensure their products are qualitative and standard as well. Another factor that greatly contributes to their sales is that they hardly run out of inventories because the barcode machine could be used to set minimum inventory, maximum inventory and reorder levels. Consequently, the businesses do not only retain their existing customers but also attract new ones.

4.6 Supports from government and other development organizations

There are many programs initiated by Nigerian state and federal governments, government agencies, NGOs, International Donors (such as World Bank, UNESCO, DFID, etc.) to assist micro, small and medium enterprises (MSMEs) toward the provision of employment opportunities, poverty alleviation and economic growth and development at large. Hence, the respondents were asked on the role played by financial inclusion toward getting support from both government and other development organizations. The majority ($n = 5$) are of the view that financial inclusion enables businesses to have access to the supports. The following are the views of the respondents:

Businesses that are financially included have many chances of getting assistance from the government and its agencies and other development organizations [. . .] (A1)

Financially included businesses are likely to have easy access to credit facilities and grants from various sources such as government, banks and other organizations for development. These bodies do not normally give cash to the beneficiaries; rather through banks [. . .], they have access to the accounts of the businesses for monitoring purposes. In some cases, bank account balances could serve as collateral securities for accessing the loans. (A2)

[. . .] government and other development organizations usually prefer to transact and deal with the businesses that are financially included. These businesses also stand to have the chance of getting support and assistance from the government and other organizations in form of grants or loans as a result of accidents and other calamities such as fire accidents (which is the most common accident that occurs in the Nigerian markets). (A4)

[. . .] they are considered first when it comes to getting support and assistance from the government and other development agencies. This is because they are likely to provide more reliable and adequate information about their operations, assets and liabilities. (A5)

Businesses that are financially included find it easy and convenient in any relationship with the government agencies and other development organizations as they look like corporate entities [. . .]

> they can easily get tax clearance certificate, clearance from custom for the importation of inventories [. . .]. (A6)

Similarly in Nigeria, it is very common to find that one of the essential requirements for benefiting from most of the government or any development organization programs is that the beneficiary (whether a business or an individual) must have a bank account. Perhaps, this is a major reason why a lot of Nigerians open accounts.

4.7 The provision of employment opportunities

It is believed that the government alone could not provide full employment to the people. Therefore, in both developing and developed economies, the private sector provides the most employment opportunities. Here, the respondents were asked to mention their views on whether the financial inclusion of the business could lead to the provision of employment opportunities. All interviewees ($n = 6$) strongly believe that the financial inclusion of the business contributes greatly to the provision of employment opportunities. The excerpts of their responses are as follows:

> Financially included businesses employ sales representatives, cashiers, securities, etc. [. . .]. Therefore, they provide more employment than those that do not adopt the use of the POS terminal and the barcode machine. (A1)

> [. . .] they provide employment opportunities to the populace if compared to those that are financially excluded. (A2)

> [. . .] as a result of sales improvement and business growth, more employment opportunities would be provided to different types of employees. (A3)

> [. . .] businesses that are financially included provide more employment opportunities than the others. (A4)

> [. . .] they comparatively provide employment opportunities more than those that do not adopt the policy of the financial inclusion [. . .] some traders have employees who solely assist their customers in making online payments to them (the businesses). Thus, they provide more employment opportunities to the public such as cleaners, securities, agents, cashiers, sales representatives, etc. Some of them are graduates. (A5)

They provide employment opportunities to both skilled labor and unskilled labor more than those that do not adopt the policy of financial inclusion. It is not uncommon to find many businesses that have the capacity to employ at least 15 employees but employ not more than four [. . .]. However, most of those that are financially included employ cleaners, securities, cashiers, counter attendants, sales attendants, accountants, legal practitioners, etc. (A6)

Similarly, the observation results reveal that firms that are financially included are far ahead of those that do not comply with the financial inclusion policy in terms of the provision of employment opportunities to the teeming population. It has been found in the visited shops and stores that people were employed to carry out different responsibilities, such as that of security, sales attendants, drivers, cleaners, cashiers and accounts. This is in line with the finding of Osikena and Uğur (2016), who explored how advancement in financial inclusion services assists in improving competition and the integration of economic sectors, which have all the potentials to drive employment growth across Africa. Sykes *et al.* (2016) also believe that access to financial services by youth could play a direct role to support the transition to the provision of employment opportunities provided that their ability to use the services is strengthened.

4.8 Corporate social responsibility

Finally, the respondents were asked to mention the benefits of financial inclusion other than the ones mentioned above. The majority ($n = 4$) agreed that the financially included

businesses carry out social responsibilities in one form or the other. They expressed the following responses:

> [. . .] as a result of their growth and development, they discharge various corporate social responsibilities for the welfare of members of society. (A2)

> They earn profit and as such, they have the chance to discharge Corporate Social Responsibility (CSR) for the benefits of the members of the society. (A2)

> They have concerns for discharging CSR mostly for the welfare of the community in which they are located [. . .] which make them be recognized and respected by members of the community. They can do so because they earned higher profits [. . .]. (A3)

> They contribute tremendously towards the development of the society inform of philanthropic activities such as scholarships, donations to securities agencies, payment for patients' medical services and outstanding bills, donations to the orphanage [. . .]. (A6).

It has also been observed that the studied businesses perform various religious activities in the form of donations to Islamic schools and mosques and sponsoring various religious programs on radio and television, more especially during the month of *Ramadhan* (fasting). In fact, financial inclusion is considered to be among the major factors that enhance the profitability of businesses. As earlier mentioned, the review of 76 empirical studies by Ali *et al.* (2017) found that higher profits stimulate businesses to spend and disclose huge amounts of CSR expenditure in their annual reports and accounts.

5. Conclusion

Financial inclusion is a central point to both Islamic and non-Islamic states as well as developed and developing countries. The objective of this paper is to explore the benefits of business financial inclusion for wealth maximization and poverty alleviation in Nigeria. This study utilized primary data by conducting interviews with experts comprising professional accountants/consultants and experienced traders. Also, observations were made in some selected stores and shops that were believed to be financially included. The study reveals the benefits of business financial inclusion to include recordkeeping improvement, the reduction of the risks of bad debts, the reduction of the risks associated with cash, enhancement business *zakāh* for poverty alleviation, sales improvement and business growth, getting support from government and other development organizations and the provision of employment opportunities. Other benefits are carrying out religious and other philanthropic activities which greatly contribute to the welfare of the *ummah*.

Note

1. The Western Sudan is a historic region in the northern part of West Africa, not simply the present-day country Sudan.

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