# Mediating role of Knowledge Sharing on antecedents of Social Exchange Apparatuses, Exchange Characteristics and Services Innovation: A banking industry perspectives

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**Abstract:** *The objective of this study is to empirically examine the direct relationship between negotiation, reciprocity, exchange characteristics and knowledge sharing on one hand, knowledge sharing and bank service innovation on the other. The study also seeks to investigate the mediating effect of knowledge sharing on the aforementioned relationship. 298 valid data were collected from senior staff of deposit money banks in Nigeria and analysed using partial least squares structural equation modeling (PLS-SEM). Result of the analysis indicated that the all hypothesized relationships were found to be statistically significant. The outcome of the study underscores the importance and contributions of these variables towards efficient bank services innovation. Also, this research has great theoretical implication that linked knowledge sharing and bank service innovation. Whereas, the practical contributions of the study are on its capacities to promote service innovation in among bank employees. Similarly, banks seek to invest in building internal these capabilities of its employees via beneficial social exchange relationship, profitable reciprocal exchange and employee participation in knowledge sharing.*
*Keywords: Banks, Knowledge sharing, PLS-SEM, Social exchange apparatuses, Service innovation.*

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## I. Introduction

The banking industry is one of the dynamic sectors for the growth and development of any economy world over. It is regarded a treasured path for development and achievement (Olotu, Maclayton, & Opara, 2010; Oparaocha & Bitsch, 2015). The banking industry has continued to improve in its performance through a double edge strategy of one, managing evolving risk and two, service innovations. In other word, banks all over the world have recognised the importance of services innovation as a way forward. This is obvious, especially as competition stiff up from both traditional and non-traditional market entrants continue to increase. Similarly, as the pressure on banks mounts, fresh thinking, creativity and innovation must be improved to meet expectations of customers and stakeholders across the value chain (Govindarajan & Ramamurti, 2011;Halim, Ahmad, Ramayah, Hanifah, Taghizadeh, & Mohamad, 2015; Johnson, Simmons, & Sullivan, 2017).

Banks are therefore, adopting varied methods ranging from radical to incremental approaches to meet up these competitive challenges to stay afloat (Ashok, Narula, & Martinez-Noya, 2016; Kim, Park, & Lee, 2014; Norman & Verganti, 2014; Wang & Noe, 2010). In this sense, most banks are creatively investing in building internal capacities and capabilities of their employees through knowledge sharing, social interaction, negotiation and reciprocity and information exchange among colleagues.

In recent time, knowledge sharing has received foremost consideration from practitioners and researchers, due to its position as one of the primary pillars in knowledge management (KM) efforts that speed up creativity and innovation. Thus,allowed banks stay ahead of competition in the emerging market, (Lee & Al-Hawamdeh, 2002; Park, Lee & Lee, 2015; Wang & Noe, 2010; Wu & Lee, 2017). Also, knowledge sharing issues attracted the attention of industry practitioners because there has been multiple of pressure on banks in particular, to increase their effectiveness, efficiency and agility (Serenko & Bontis, 2013). Therefore, finding talents among employees to share their knowledge will not only be cost effective, but a means of encouraging and fast tracking their creativity and innovativeness for the benefits of the organization. Moreover, knowledge sharing involves two parties i.e. the knowledge giver and the knowledge receiver. In other word, it may take place between two parties in a one-to-one relationship such as a conversation over a bank service. It may as well, be a one-to-many interaction such as a round-table meeting, or a presentation by retail group in a bank over the introduction of certain products or services. In all these cases, knowledge sharing requires employees to socially interact, consciously and actively participate in an exchange of know-how or skills (Ipe, 2003; Lin, 2007; Park, et al., 2015; Wu & Lee, 2017).

The bases of the exchange relationship in this study will be guided by the social exchange mechanisms of negotiation and profitable reciprocation, being elements of social exchange theory (Blau, 1964; Cropanzano & Mitchell, 2005; Emerson, 1976; Oparaocha & Bitsch, 2015; Park et al.,2015; Serenko & Bontis, 2016).

Undeniably, the need to build strong social relationships between individuals in a team, or group is crucial in motivating members to share knowledge. The study therefore, draws inspiration from the social exchange modes of negotiation and reciprocity to understand the factors that drive employee's participation in knowledge sharing. However, despite the variety of studies that examined these variables viz: negotiation exchange, reciprocity, exchange characteristics and knowledge sharing, there appears to be scanty literature that links it with bank employees and invariably bank services innovation. Thus, this research attempt to fill this gap.

This subsequently drives the objectives of the study i.e. determining knowledge sharing among the employees of banks through the application of negotiation, reciprocal mechanisms and exchange characteristics as well as developing new ways of conducting banking, through continues service innovation, being a modern banking driver. Thus, the study reviewed relationship between social exchange mechanisms, exchange characteristics and bank service innovation, with knowledge sharing as mediating variable of the relationship. Furthermore, the study examined extant literatures on banking service innovations that enabled the construction of the frame work of the study (Park et al., 2015; Halim et al., 2015; Lin & Lee, 2004). This shows the various relationship of the research variables, hypotheses and the mediating role of knowledge sharing, as well as its predictive influence to enhancing innovativeness. Finally, the study integrated these variables to serve as modern banking drivers that catapult banking services innovation.

## II. Theoretical Background

Banking is service based and depend heavily on information, knowledge and innovation. This study pointed out that the strategic survival of banks and their ability to remain competitive is reliant on strength of employee's knowledge, and experts among them, who effectively, efficiently and frequently communicate, share and exchange critical knowledge with other co-workers. Moreover, banks and bank managers need to understand these constructs and systematically put them to practice, in order to improve service quality, service delivery and service innovation.

Global Banking Outlook (GBO), (2018) reported the dynamics global business challenges and stiff competitions for service innovation in banking industry. These challenges also made information and knowledge sharing for banks, veritable source of knowledge, and dominant way of ensuring creativity and sustaining innovative services (Izogo et al., 2017).

In contrasts to innovation, the place of knowledge is recognized as paramount and distinctive, likewise input of knowledge workers and expertise of employees of organizations is considered necessary for any successful innovative outcome. Thus, knowledge sharing researchers such as Wang & Noe (2010), suggests a robust organizational culture of innovation that encourages sharing of knowledge among employees and influence management attitude towards creativity and innovation.

Meanwhile, development in information technology (IT) being a product and facilitator of knowledge sharing (Park et al., 2015) has revolutionized banking sector, through product development and efficient services innovation (Del Giudice & Della Peruta, 2016). IT has significantly changed, for instance, delivery channels of banking services. These new delivery channels have affected banking in many ways, such as the introduction of automated teller machines (ATMs), electronics banking (e-banking) facilities, (Adewuyi, 2011; Ayo, Oni, Adewoye & Eweoya, 2015; Kaushik& Rahman, 2015); and through personal computers, internet banking and the recent expansion into the mobile banking (m-banking) that uses smartphones to provide retail banking services (Curran & Meuter, 2005; Shaikh & Karjaluoto, 2014), in both developed and developing world.

Although, social exchange theory established the idea of reciprocation and negotiation in relation to individual actions using cost-benefit analysis to prove the employee-organizational knowledge sharing relationship (Cook, Cheshire, Rice & Nakagawa, 2013; Curtis & Taylor, 2018; Helfers et al., 2018). The contributions of each of these forms of exchange (i.e. reciprocal exchange and negotiation exchange), has been well documented in classical literatures (Blau, 1968; Cropanzano & Mitchell, 2005; Emerson, 1976; Molm, 2003; Surma, 2016).

However, the focus of this current research is investigating themediating role of knowledge sharing on antecedents of social exchange apparatuses, exchange characteristics and services innovation highlighted. Similarly, the study reviewed the extent perceived norms of reciprocity and negotiated exchange agreements influenced knowledge sharing behaviours among bank employees. The research also identified, the effect of these forms of exchange on bank service innovation.

**2.1 Knowledge Sharing**
Knowledge is unarguably one of the most expensive and valued assets of corporate bodies. In fact, most firms have embraced knowledge management practices to increase amongst other things their performance, efficiency, effectiveness, and competitive advantage (Davenport & Prusak, 1998; Spender & Grant, 1996). Thus, knowledge management includes the ability of firms to identify those employees that have knowledge and expertise, provide guide and enabling environment for sharing of this vital asset (knowledge) from one employee, unit or group to another. Hence, knowledge sharing is the most important pillar in knowledge management practice, which ensure employees contribute to knowledge application, transfer of expertise, ideas, innovation and ultimately better decisions that benefits the whole organisation (Chiu, Zhu, & Infante Holguin-Veras, 2017; Zamani, Abdul-Talib, &Ashari, 2016; Wang & Noe, 2010).

Furthermore, knowledge sharing allows employees to willingly share acquired or created knowledge for the benefit of their organisation (Curtis & Taylor, 2017). This practice is particularly important in banking industry, because banks depend on quality services provided by passionate, result oriented and innovation driven workforce. In other word, successful banks explore internal sources of knowledge for both radical and incremental services innovation (Ashok et al., 2016; Norman & Verganti, 2014). Accordingly, banks ensure that knowledge sharing among their employees is embedded in policies, rules and training manuals, since sharing of knowledge largely depends on good working relationship between knowledge workers, experts and less experience employees (Curtis & Taylor, 2017). Moreover, this ultimately leads to continues knowledge, skills, and exchange of ideas among employees that afterward contributes to bank services innovation.

**2.2 Negotiation**
Apparently, negotiation takes place daily in personal lives of people, businesses, and critically in conflict situation (Vandeputte, 2015). Negotiation as in knowledge sharing involves two or more parties, group or organisations (Chapman, Miles, & Maurer, 2017). It is a critical element in business exchange process, where parties move to influence each other through either face-to-face, or round table communications (Brett, 2017; Kharbanda & Stallworthy, 1991). Accordingly, an important component of negotiation in business is reaching agreements. In other word, negotiation could be described as some acts of communication between varied parties that have different views on subjects of interest, but who are making concertedefforts to collaborate in order to reach some agreements (Age & Eklinder-Frick, 2017; Pedler, 1977).

The purpose of negotiation is to achieve own or common goals (Agndal, Age, & Eklinder-Frick, 2017). For example, the goals of exchange of services, products, skills, information or knowledge sharing etc. Furthermore, researchers such as Cropanzano & Mitchell (2005) have agreed that negotiated agreements tend to be very explicit because duties and responsibilities as well as obligations for exchange are detailed and understood.

It suffices to mention that, negotiation exchange has been used in knowledge sharing at individual or employee 's level, to interchange their knowledge according to clearly agreed and jointly accepted terms. But, at organizational level it has been found to help negative attitudes toward knowledge sharing, which results in negative actions and behaviours, such as knowledge sharing hostility, knowledge hoarding and knowledge hiding (Thompson et al., 2010). Additionally, some other studies have shown negotiation as a weak variable in the process of building image for constructive knowledge sharing, which could contribute to bank products and service innovation.

However, in practice most banking transactions between banks and customers are conducted basically on negotiated terms and conditions as well as mutual agreements. For example, all bank loans and advances are rigorously negotiated. In this sense, terms and conditions are set by both the lending banks and the customers and then agreements reached are signed by the parties involved.

**2.3 Reciprocal Exchange**
Social life whether public or private is structured with some inherent features that consist of certain behaviours, believed to have positive impact at both individual and organisational level. These characteristics can neither be captured in employment contract or enforced authoritatively (Koster & Sanders, 2006). Previous research Molm (2010) on this subject of employee social behaviour, described such cooperation among employees as reciprocal in nature. In this sense, reciprocity is seen as an important component of social exchange that explain beneficial relationship between parties receiving some benefits in return for benefits received.

In their empirical research Koster & Sanders, (2006), also suggest that reciprocity has played an important role toward cooperative behaviours of employee in organisations, especially where management create the enabling environment that support and encourage this social behaviour among co-workers. The result of research by Miller, Galloway & Smith (2015) offer robust positive evidence of reciprocal exchange behaviours, characterised through repeat interactions of Venture Capitals and Underwriters. The subsisting repeat interaction produced handsome outcome for the initial public offer of the company.

Thus, reciprocity as a social exchange apparatus proposed a mutual knowledge exchange among employees in any given organization, because every employee is assumed and recognized to be knowledgeable ((Abu Bakar, Abdul-Talib & Hashim, 2014; Sanders & Schyns, 2006). To this extent, the contributors to sharing of knowledge expect a fair deal of the costs and benefits of sharing their knowledge. However, these expected benefits were not expressly agreed to be reciprocated, rather implied evidenced with repeat interactions.

The norm of reciprocity of the social exchange theory has been investigated in some previous researches that had bearing with knowledge sharing on social networks, social interactions and social relationship (Abu Kashef, Ginige&Hol, 2018; Pai & Tsai, 2016; Serenko & Bontis, 2016). Thus, practically customers become loyal to certain services of banks, because they believe that repeat patronage reciprocate the good service offering of the banks, and encouraged the banks to continuously provides innovative services.

### 2.4 Relationship Benefits and Investments

A number of factors are believed to influence employee's participation in knowledge sharing. Bank employees share experiences, knowledge and expertise amongst colleagues, with expected benefits that includes friendship, personal recognition, social relationship and mutually beneficial reciprocal exchange (Molm, 2010).

These benefits connect the receiver of knowledge with the giver of knowledge, and eventually reciprocation of benefits occur. Thus, relationship benefits are regarded important in constructing strong relationships, since it has been proved to reduce ambiguity of service offered, improve perception of trust among fellow employees and generally boost expectation of co-workers in exchange relationships (Park et al.,2015).

On the other hand, relationship investment consists of expenditure on employees, equipment and processes that developed a mindset among employees to sustain social relationship. Similarly, relationship investment encourages profitable reciprocal knowledge exchanges, which inspire employees 'confidence to negotiate and reciprocate shared knowledge with co-workers. Hess et al., (2011) suggest that stable relationships with customers could be developed, where there is clear understanding of exchange relationship characteristics.

In this sense, relationship investment is established to evaluate conceivable relationship benefits based on reciprocation of economic cost and benefits, described in previous researches (Hess et al., 2011; Rusbult et al., 1988). Furthermore, this study also measured relationship investment in the light of knowledge sharing and its impact on bank services innovation.

### 2.5 Bank Service Innovation

The impact of financial liberalization and internationalization, has reveals new method of looking at the business environment, particularly the banking industry. For instance, banking currently hinges on knowledge workers to deliver excellent and qualitative products and services (Shih et al., 2010). In fact, the changes in global business has raised up new challenges and set stiff competitions for service innovation in banking industry (Global Banking Outlook (GBO), 2018). These challenges also make information and knowledge sharing for organizations, a foremost means of guaranteeing creativity and sustaining innovative services (Izogo et al., 2017).

The World Bank has launched its knowledge sharing initiative through a platform that shares knowledge with development communities around the world (Egan & Kim, 2000; Cummings, 2003). In Europe and Asia, countries such as Greece, Iran and Malaysia are looking inward for ways to discern their banking product and services to stay afloat and competitive (Abuazoum, Azizan, & Ahmad, 2013; Ahmadi, Daraei, & Kalam, 2012; Chatzoglou & Vraimaki, 2009).

Meanwhile, in Africa and Nigeria in particular, most banks are on red alert for their desire to internally source for employees with talents and knowledge that could be shared to increase service efficiency, creativity and continues services innovation (Chigada & Ngulube, 2015; Oluikpe, 2012; Sodiya et al, 2006).Generally, banks have continued to protect their business environment against possible negative effects of financial slumps, and ensured continuous corporate existence, through complete transition from regulatory driven transformation to innovation-led change (G.B.O., 2018).

Though, scholars have agreed that defining the term innovation is difficult, because it is a multidimensional activity. At the same time, measuring innovation is even more complex, thus requires composite measures that relates innovation capabilities, culture and all the novel activities that leads to developing the best ideas into practical products and services (Gamal, Salah, &Elrayyes, 2011). On the other hand, the place of knowledge is supreme, because know-how and expertise of employees of organization is required for any successful innovative outcome. Accordingly, bank service innovationis premise onstrong organizational culture that encourages sharing of knowledge among employees and influence management attitude towards knowledge sharing.

**2.6 Hypotheses Development**
    This research outline is characterized with negotiation and reciprocity of the social exchange theory, in addition to relationship benefits and relationship investment of the exchange characteristics as the main independent variables. Knowledge sharing is the mediating variables of the framework, while bank service innovation is the dependent variable representing the outcome of the various relationships.

**2.6.1 Knowledge Sharing and Bank Service Innovation**
    Knowledge sharing has been established to have positive effect for both organisations, customers and employees (Constant et al., 1994; Van Den Hooff et al., 2012; Taghizadeh, et al., 2018). Research findings provide empirical evidence and highlights that shows attitudes, emotions and willingness to share have influence on behaviours of co-workers, organisations and customers in terms of knowledge sharing (Wang & Noe, 2010; Pee & Lee, 2015). Ahmadi et al., (2012) studied factors that impact on knowledge flow between employees and various organizational department, units and group. The result of their study provided useful information and understanding of what banks need to do in order to motivate their employees, to engage in knowledge sharing practices, that positively influences service innovation and efficient service delivery. Thus, the following hypothesis is proposed:

**H₁** There is significant positive influence of Knowledge Sharing on Bank Service Innovation

**2.6.2 Negotiation and Knowledge Sharing**
    The under-pinning theory of this research is the social exchange theory, which proposed that social behaviours results from exchange process that involves series of interactions and generates obligations among two or more parties (Surma, 2016). These interactions are interwoven and dependent on the actions of parties involved, for the purpose of exchanges that maximize benefits and minimize costs of investments (Cropanzano & Mitchell, 2005). Accordingly, Emerson, (1976) postulates that relationship is for exchange of some economic value and or utility which drive relationship for mutual benefits of parties in the interactions.
    Moreover, business exchange involves collaboration and negotiation between two parties, for instance buyers and sellers. In the case of banks, the negotiation is between customers and the bank employees each trying to influence the other for a favorable terms and conditions. Similarly, negotiation provides efficient method of resolving issues of social interaction between individual employee, units or group. Consequently, past studies (Agndal, Åge, & Eklinder-Frick, 2017; Brett, 2017; Chapman et al., 2017; Kharbanda & Stallworthy, 1991; Preuss & van der Wijst, 2017; Serenko & Bontis, 2016; Vandeputte, 2015;) shows that negotiation is a factor that played important role in social interaction, business environment, consummation of business deals and sharing of vital explicit and implicit knowledge among employees of organisations. Thus, this study proposed:

**H₂** There is significant positive influence of Negotiation on Knowledge Sharing.

**2.6.3 Reciprocity and Knowledge Sharing**
    Research on reciprocal social exchange mechanism shows some beneficial outcome, because it tends to produce trust and high sense of mutual obligations among employee, organisation and all exchange partners (Larry Reynolds & Skoro, 1996; Shores et al., 2009;). Although, reciprocal form of exchange suggests future return and the time in which reciprocation takes place cannot be specified. Blau (1964) argued that people do expect favours from exchange partners, and return favours done to them.
    Likewise, reciprocity as a social exchange mode advocates that knowledge sharing is mutual, and perceived to be fair by parties involved in the exchange (Randhawa, et al.,2017; Razmerita, 2016). Thus, participants expect mutual reciprocity that warrants costs of sharing, equal to benefits of efforts and time expended in sharing their knowledge (Blau, 1964; Chiu et al., 2006; Davenport & Prusak, 1998). Consequently, this study proposed the following hypothesis:

**H₃** There is significant positive influence of Reciprocity on Knowledge Sharing

**2.6.4 Relationship Benefit - Relationship Investment and Knowledge Sharing**
    Prior empirical evidence by Shore et al. (2009) argued that economic exchange is squarely the result of collaboration between two parties sharing for some financial benefits. However, this contradicts other studies on exchange characteristics i.e. relationship benefits and investment such as Hess et al., (2011), Molm (2010) andPark et al., (2015); who suggest other benefits, such as personal recognition, social relationship, and other constructs that encourage the development of positive mindset between parties and sustainable socialrelationship among employees in organisations. Similarly, participants in knowledge sharing perceives certain benefits which facilitate decision to share knowledge. Previous research has addressed the benefits

accrued to organization in relationship with consumers and employees (Gummesson, 1999). Additionally, an exploratory research (Sweeney & Webb, 2002), established that benefits accrued at both organizational and individual levels.

Whereas, relationship investment generates strong customer relationship by promoting relationship quality, strong commitments and loyalty between buyers and sellers and then between employees and their organisations (De Wulf, et al., 2001;2003; Dagger, David & Ng, 2011; Dagger & O'Brien, 2010; Park, et al., 2015; Shi, et al., 2016; Vázquez-Casielles, et al., 2017). In some recent studies (Deb, 2018;Chiou, Chou & Shen, 2017), also confirmed and provided some empirical evidence of the impact of relationship investment on relationship quality.

Consequently, the following hypotheses have been developed to support the investigations of exchange characteristics and knowledge sharing:

$H_4$There is significant positive influence of Relationship Benefit on Knowledge Sharing
$H_5$There is significant positive influence of Relationship Investment on Knowledge Sharing

**2.6.5 Mediating role of Knowledge sharing**
These constructs combined were used as vehicle in analyzing knowledge sharing among bank employees, and to assess impact of knowledge sharing activities on bank service innovations. Prior research by Davenport & Prusak (1998), has shown that effective sharing of tacit knowledge andexperience have significant impact on organizational innovative outcomes.

Banks seek ways to increase sources of generating new knowledge and distributing knowledge among its most vital asset − employees. This is in order to enhance their knowledge repository, and also to ensure continuous service improvement and innovation for sustainable business development (Al-Busaidi & Olfman, 2017; Ahmad & Daghfous, 2010).

Thus, this study proposes knowledge sharing as mediating between social exchange mechanism i.e. negotiation and reciprocity, exchange characteristics and bank service innovation, hence the following hypotheses are formulated:

$H_6$The relationship between Negotiation and Bank Service Innovation is mediated by Knowledge Sharing
$H_7$The relationship between Reciprocity and Bank Service Innovation is mediated by Knowledge Sharing
$H_8$The relationship between Relationship Benefit and Bank Service Innovation is mediated by Knowledge Sharing.
$H_9$Therelationship between Relationship Investment and Bank Service Innovation is mediated by Knowledge Sharing.
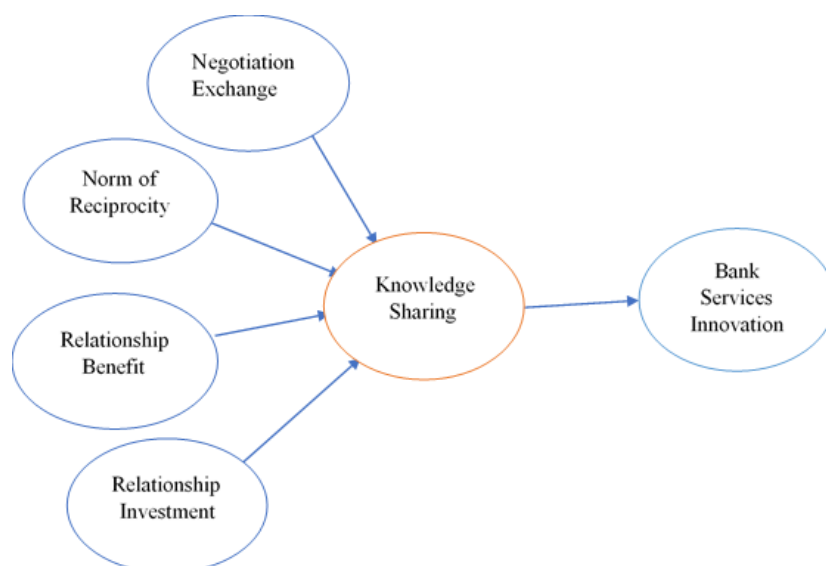


Research Model - figure I.

# III. Methodology
The six (6) variables of the study namely; Bank Service Innovation, Knowledge Sharing, Negotiation, Reciprocity, Relationship Benefit and Relationship Investment were measured using items adapted as follows: Six (6) items that measured knowledge sharing construct were adapted from Park et al., (2015); Eleven (11)

items that measure bank services innovation construct were adapted from De Brentani, (1993), Menor & Roth, (2007) and Chen et al., (2012); Three (3) items that measured reciprocity construct were adapted from, Serenko & Bontis, (2016); Similarly, three (3) items that measured negotiation construct were also adapted from Serenko & Bontis, (2016). Furthermore, six (6) items that measured relationship benefits were adapted from Sweeney & Webb, (2002); while three (3) items that measured relationship investment construct were adapted from De Wulf et al., (2001), respectively. These items were answered on a 7-point Likert scales, ranging from entirely disagree to entirely agree. Data was collected using printed and online questionnaire which contained statements and questions about the study variables and demographic information about the respondents and their respective banks.

The population of the study is a total of 77,690 (NBS, 2017), senior staff of deposit money banks in Nigeria. Hence based on Krejcie and Morgan (1970), the sample was collected using a multi-stage cluster sampling technique (Sekaran & Bougie, 2009). The sample size is adequate, based on number of parameters and rule of thumbs such as Cohen's statistical power (Cohen, 1988) and Hulland' 10x rule (Hulland, 1999). Based on the above therefore, a total of 540 printed and online questionnaires were sent to the respondents through onlineemail addresses, traditional postage and physical delivery. 298 valid responses were collected and analyzed.

The collected data were analyzed using Partial Least Squares Structural Equation Modeling technique, with Ringle, Wende, and Will (2013) SmartPLS 3.2.8 software. Measurement model assessment was conducted to measure the desirability of the items in measuring the constructs, while structural model assessment was conducted to test the direct as well as the mediating hypotheses of the study (Ramayah, Cheah, Chuah, Ting, & Memon, 2016).

## IV. Results

Prior to assessment of measurement and structural models, data were subjected to preliminary screening using SPSS version 22. Data were checked for magnitude of missing values. The missing data was found to be negligible, thus were replaced using mean of the variables(Hair et al., 2010; Pallant, 2010). Data were further checked for outliers using Mahalanobis distance as against Chi-square value. It was found that the cases with Mahal distance greater than the Chi-square value, suggesting the presence of multivariate outliers (Tabachnick & Fidell, 2007). However, the cases were retained.

Normality was also assessed using Kolmogrov-Smornov and Shapiro-Wilk statistics (Razali & Wah, 2011). It was found that the data is not normally distributed, because the variables were found to be statistically significant, suggesting violation of normality assumption. This justifies the use of PLS-SEM analysis technique in this study (Hair, Hult, Ringle, & Sarstedt, 2014).

**Table 1**
**Internal Consistency Reliability and Convergent Validity**

| Constructs | Items | Loadings | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|---|---|---|---|---|---|
| **Bank Service Innovation** | BSI01 | 0.78 | 0.919 | 0.933 | 0.561 |
| | BSI02 | 0.857 | | | |
| | BSI03 | 0.851 | | | |
| | BSI04 | 0.75 | | | |
| | BSI05 | 0.812 | | | |
| | BSI06 | 0.872 | | | |
| | BSI07 | 0.655 | | | |
| | BSI08 | 0.605 | | | |
| | BSI09 | 0.66 | | | |
| | BSI10 | 0.613 | | | |
| | BSI11 | 0.716 | | | |
| **Knowledge Sharing** | KSH01 | 0.859 | 0.920 | 0.936 | 0.711 |
| | KSH02 | 0.792 | | | |
| | KSH03 | 0.891 | | | |
| | KSH04 | 0.882 | | | |
| | KSH05 | 0.836 | | | |
| | KSH06 | 0.794 | | | |
| **Negotiation** | NEX01 | 0.676 | 0.777 | 0.871 | 0.696 |
| | NEX02 | 0.92 | | | |
| | NEX03 | 0.885 | | | |
| **Reciprocity** | NOR01 | 0.797 | 0.750 | 0.848 | 0.650 |
| | NOR02 | 0.77 | | | |
| | NOR03 | 0.851 | | | |
| **Relationship Benefit** | RBN01 | 0.897 | 0.886 | 0.889 | 0.579 |
| | RBN02 | 0.868 | | | |
| | RBN03 | 0.793 | | | |
| | RBN04 | 0.74 | | | |

| | | | | | |
|---|---|---|---|---|---|
| | RBN05 | 0.693 | | | |
| | RBN06 | 0.514 | | | |
| **Relationship Investment** | RIN01 | 0.872 | 0.867 | 0.918 | 0.788 |
| | RIN02 | 0.938 | | | |
| | RIN03 | 0.851 | | | |

### 4.1 Measurement Model Assessment

PLS standard algorism was run and factor loadings were obtained. Based on Table 1, all the items have met and exceeded a minimum benchmark according to Hair et al. (2014). Similarly, the composite reliability and average variance extracted (AVE) have exceeded 0.7 and 0.5 thresholds respectively. Therefore it is safe to conclude that internal consistency reliability and convergent validity have been achieved (Chin & Todd, 1995; Hair, et al., 2011).
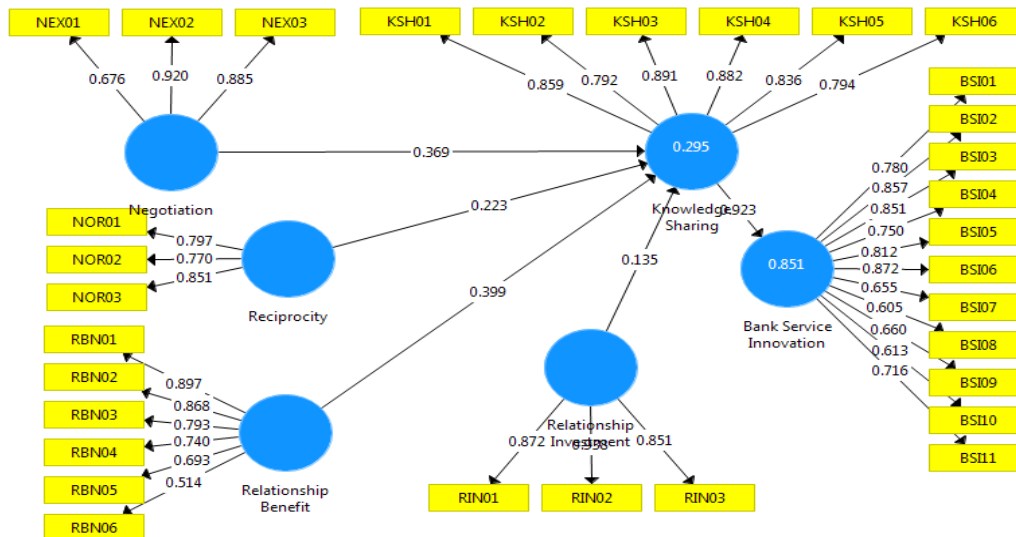


**Figure 2:** Measurement Model

In the same vein, the discriminant validity was assessed using Fornell and Larcker (1981)'s criteria, where the square root of the AVE was compared to the correlation between the constructs. The criterion is that the square root of the AVE should be greater than the correlation between the constructs and any other construct in the model Fornell and Larcker (1981). As evidenced in Table 2, the criterion has been met.

**Table 2**

Discriminant Validity

| Constructs | 1 | 2 | 3 | 4 | 5 | 6 | AVE |
|---|---|---|---|---|---|---|---|
| 1) Bank Service Innovation | 0.749 | | | | | | 0.561 |
| 2) Knowledge Sharing | 0.923 | 0.843 | | | | | 0.711 |
| 3) Negotiation | 0.329 | 0.311 | 0.834 | | | | 0.696 |
| 4) Reciprocity | 0.231 | 0.197 | 0.291 | 0.806 | | | 0.650 |
| 5) Relationship Benefit | 0.366 | 0.297 | -0.228 | -0.272 | 0.761 | | 0.579 |
| 6) Relationship Investment | 0.123 | 0.134 | -0.235 | -0.187 | 0.318 | 0.888 | 0.788 |

### 4.2 Structural Model

To test the hypotheses in this study, a bootstrapping procedure was conducted in SmartPLS 3 as demonstrated in Ramayah et al. (2016) and values for path coefficient, standard error, t value and p value were obtained. As depicted in Table 3, based on 95% confidence interval, the direct relationship between Knowledge Sharing and Bank Service Innovation was found to be statistically significant (p. 0.000). Also, statistically significant are the direct relation between Negotiation, Reciprocity, Relationship Benefit, Relationship Investment and Knowledge Sharing (p. <0.005). These findings are consistent with several extant studies (Serenko & Bontis, 2016; Sweeney & Webb, 2002; De Wulf et al., 2001; Park et la., 2015) respectively.

**Table 3**

DirectPaths Hypotheses

| Direct Hypotheses | Path Coefficient | Std Error | T Statistics | P Values |
|---|---|---|---|---|
| $H_1$ | 0.923 | 0.008 | 110.835 | 0.000 |
| $H_2$ | 0.369 | 0.052 | 7.114 | 0.000 |
| $H_3$ | 0.223 | 0.044 | 5.101 | 0.000 |
| $H_4$ | 0.399 | 0.081 | 4.941 | 0.000 |
| $H_5$ | 0.135 | 0.057 | 2.355 | 0.019 |

Furthermore, $R^2$ was used to assess the extent to which the exogenous constructs are responsible for the changes in the endogenous constructs. As shown in Figure 1, the $R^2$ values are 0.295 and 0.851 for Knowledge Sharing and Bank Service Innovation respectively. Three levels of $R^2$ assessment were recommended by Cohen (1988) and Chin (1998).These are substantial (0.26 and 0.67), moderate (0.13 and 0.33) and weak (0.02 and 0.19) respectively. Therefore, based on the two criteria, the variance explained is substantial.

**Table 4**

Mediating (Indirect) Hypotheses

| Mediating (Indirect) Hypotheses | Path Coefficient | Std Error | T Statistics | P Values | Bootstrapped Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | 95% LL | 95% UL |
| $H_6$ | 0.341 | 0.048 | 7.111 | 0.000 | 0.247 | 0.435 |
| $H_7$ | 0.206 | 0.041 | 5.074 | 0.000 | 0.125 | 0.286 |
| $H_8$ | 0.368 | 0.075 | 4.913 | 0.000 | 0.221 | 0.515 |
| $H_9$ | 0.125 | 0.053 | 2.365 | 0.018 | 0.021 | 0.228 |

The four (4) hypothesized mediating effects were also tested. In this regard, Hayes (2009) method of bootstrapping the indirect effect was used to assess the mediating effect. As depicted in Table 4, all the hypotheses are accepted at p. value <0.05. Similarly, for all the four indirect paths, zero does not straddle between the upper and the lower bounds. This further signifies that there is mediating effect according to Preacher and Hayes (2008).
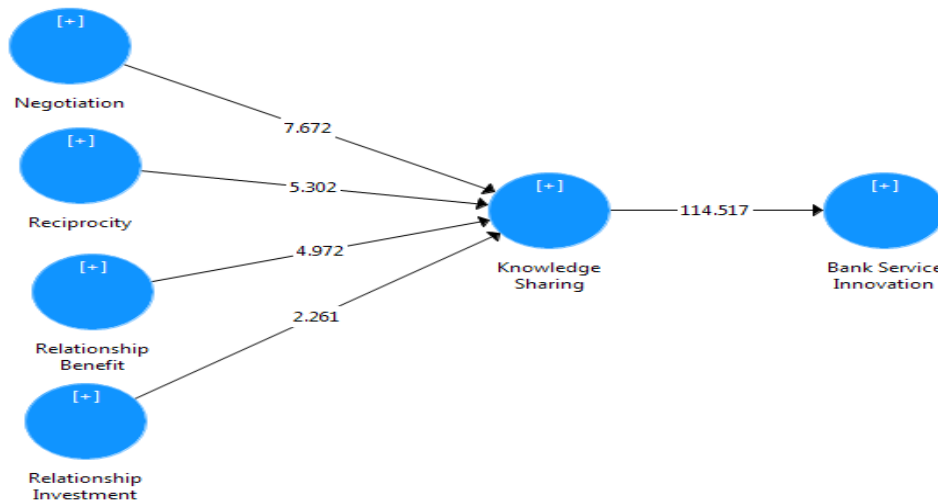


**Figure 3:** Structural Model

## V.    Discussions and conclusion

Based on the phenomena highlighted in the background of study and the objectives of the study, relevant extant literatures were reviewed. The objective of the research is to explore knowledge sharing as the mediating variable of the various relationships between social exchange apparatuses of the social exchange theory, exchange characteristic and bank service innovation. From the result of the analyses, it is evidently clear that there is significant direct positive relationship between the predictor variables; negotiation, reciprocity, relationship benefit, relationship investment and knowledge sharing on one hand, and the outcome variable bank service innovation. It is therefore safe to conclude that bank's ability to innovate distinctive service offerings depends largely on the extent to which their employees engage in rigorous negotiation. The additional lessons learnt from this study clearly shows that both norm of reciprocity and negotiation exchange constructs are

substantially used in business dealings, family life and public and private sector organisations, to achieve their diverse goals. This is supported by the research measurement and structural model analysis.

Furthermore, bank service innovation capability is contingent on how employees' social interactions results into mutually beneficial exchange of information among bank employees. Similarly, innovative capability of deposit money banks' service offerings depends on the employees' perceived efforts in establishing social interaction and the subsequent outcome of such relationship.

It is further substantiated that knowledge sharing among bank employees has significant mediating effect on the relationship between negotiation, reciprocity, relationship benefit, relationship investment and bank service innovation. This indicates knowledge sharing is an important intervening variable which helped in generating quality ideas, stimulating healthy social relationship and strategically developing new ways of ensuring commitment to continuous bank services innovation. To sum up, based on literature reviewed and the findings of this study, banks with proper mix of social behaviours among its employees, strong negotiation and reciprocation elements, dynamic relationship benefits and evolving investment profile in knowledge sharing can stimulate rapid innovative services. Hence, banks that effectively embrace these variables are better positioned to lead in service innovation as predicted in the research.

It is therefore imperative that banks formulate and implement deliberate policies and programs that improve their social relationship, strengthen collaboration among knowledge-workers and knowledge-recipients, enhance banks' ability to provide qualitative, efficient and innovative services. In the same vein, implementing this study will assist banks employees cement the existing mutually beneficial social relationship among them, hence results into guaranteed continuous services innovation in banking industry. Furthermore, bank executive management can use these findings to encourage knowledge sharing among employees as a strategic means towards enduring services innovation.

## VI. Conclusion

Inconclusion, the current study reveals some emerging theoretical and practical contributions on the topic discussed. Thus, several research theories have been used to study the concept of knowledge sharing, but the social exchange theory used in this study has been found to be superior in explaining knowledge sharing. Also, this research has great theoretical implication by linking knowledge sharing and bank service innovation. Similarly, the practical contribution of this study is on its capacities to promote service innovation in banks.

Furthermore, the current study has assembled some definite constructs i.e. norm of reciprocity, negotiation exchange, relationship benefits, relationship investment,which helped to determined knowledge sharing among bank employees, through empirical test that supported our predictions and stated objectives of the study. Notwithstanding its many contributions, the current study may be improved in a number of ways, which may include investigating the phenomena from different methodological and/or contextual perspectives.

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