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# KNOWLEDGE APPLICATION, KNOWLEDGE PROTECTION AND STRATEGIC PERFORMANCE OF NIGERIAN INSURANCE COMPANIES

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**Abstract**: In the strategic management literature, knowledge resources have been acknowledged as a tool for gaining competitive advantage by firms when effectively deployed. However, corporate restructuring efforts by most Nigerian firms seem to have downplayed on this fact. While they spend so much on knowledge acquisition, they care less about knowledge application and knowledge protection. This is expected because empirical studies are yet to rigorously test the nexus between knowledge application, knowledge protection and firm performance. This perceived gap is the fulcrum of this paper. Using the insurance sub-sector of the financial services sector as a reference point, primary data were generated by means of questionnaire administered on a sample of 240 employees randomly selected from six listed insurance firms. Ordinary least square framework was applied based on the results of both Variance Inflation Factor test and Ramsey Reset test that confirmed the suitability of linear regression. The simple equation model revealed a positive and statistically significant relationship at the 5% and 1% levels respectively between knowledge application and firm performance, and knowledge protection and firm performance. The result of the multiple model also showed positive influence of the independent variables on the dependent variable. However, only knowledge protection was statistically significant at 1%. The F-value which was significant at 1% showed the fitness of the model. Based on these results, the study concluded that knowledge application and protection have influence on firm's strategic performance. It is recommended that firms should give due attention to knowledge application and knowledge protection as dimensions of knowledge management.

**Keywords:** Environmental performance, competitive advantage, intellectual capital, innovative knowledge

## 1. INTRODUCTION

Knowledge is information that changes something or somebody either by becoming grounds of action or by making an individual or organization capable of performing different, or more effective actions. It is reflected in the form of ideas, judgments, talents, relationships, and concepts and it is stored in the individual's brain, or encoded in organizational processes, documents, products, services, facilities, and systems (Drucker, 1999; Grey & Newman, 2002). Knowledge as a resource needs to be managed. Knowledge management therefore, is a process of finding, selecting, organizing, disseminating, and transferring of important information and expertise required for problem solving, dynamic learning, strategic planning, and decision making (Gupta, Iyer, & Aronson, 2000).

Knowledge management is a critical driver of competitive advantage as it enhances the capacity of an organization to innovate, thereby differentiating it from competitors (Osazevbaru & Osayande, 2022). Today's globalized world emphasizes the need for knowledge management as organizations seek effective methods for acquiring, sharing, applying and protecting knowledge over many structural and cultural barriers. Accordingly, managing knowledge across countries and continents is called for (Desouza, 2011).

Aging workforce brings to light how knowledge leaves the organization. This requires that intellectual capital be captured. Reinventing knowledge will ensure that the

work environment is not under threat (Epetimehin & Ekundayo, 2011). The loss of knowledge resources due to corporate restructuring and downsizing could also impact on strategic performance. When an organization fails to improve on knowledge management process, its competitive strengths are hard hit if knowledgeable employees suddenly leave the organization (Ethiotok & Walter, 2016). This therefore is an issue of organizational learning which to a large extent is still new in developing economies like Nigeria. Therefore, there is need to investigate knowledge management and firm performance.

Undoubtedly, knowledge management has as its expected end the application of knowledge or the turning of knowledge into actions to drive the organization to attaining competitive advantage and optimal performance. Though there are scanty studies on knowledge management in Nigeria, majority of these few studies have focused extensively on knowledge collection, storage, and transfer (see Akpotu & Lebari, 2014; Nnabuife, Onwuka, & Ojukwu, 2015; Odiri, 2014). Clearly, whether knowledge is applied and protected has not been measured and this constitutes a gap in the literature. Specifically, how does knowledge application affect firm performance? And to what extent does knowledge protection influence firm performance? At some points, firms struggle with knowledge loss due to employee turnover, retirement, dismissal, restructuring, job transfer and alternative work arrangement. This is quite visible in the financial services sector of the Nigerian economy. The frequent retrenchment of permanent staff and subsequent recruitment of contract staff in this sector in the context of corporate restructuring has led to loss of knowledge resources. In the insurance sub-sector, the September 2020 deadline which requires general and life insurance companies to increase their paid-up minimum share capital to N10 billion and N8 billion respectively in order to improve on their performance will accentuate corporate restructuring. The role knowledge resources will play in the performance improvement process needs investigation. This is against the backdrop that the insurance sector requires knowledgeable employees to drive performance.

From the foregoing, the objectives of this study are to: (a) ascertain the effect of knowledge application on firm performance, (b) examine the influence of knowledge protection on firm performance, and (c) investigate the combined influence of knowledge application and protection on firm performance. From these objectives, the paper hypothesized the following. (a) There is no significant relationship between knowledge application and firm performance. (b) There is no significant relationship between knowledge protection and firm performance. (c) Knowledge application and protection do not significantly influence firm performance.

This study is significant in the following ways: (a) it brings to fore the fact that knowledge application and protection are strategic instruments for attainment of competitive advantage by firms especially in a knowledge driven economy. (b) It contributes to the knowledge management literature from the perspective of developing countries as the result of the investigation can be compared with those on developed countries. This will facilitate the construction of a comprehensive theory of knowledge management.

## 2. REVIEW OF RELATED LITERATURE

### 2.1 Concept of Knowledge

Knowledge is the insight, understanding and practical know-how that we all possess that allows us to function intelligently. It is a fundamental resource that permits an organization to acquire competitive advantage and sustain core business processes (Siri & Lorsuwannarat, 2020). Knowledge is an intangible asset requiring complex cognitive processes of perception, learning, reasoning, communication and association to acquire (Akinyemi, 2007). Allameh and Abbas (2010) classified knowledge into three levels, namely: (a) core knowledge; minimum amount of knowledge which is necessary for the completion of work activities. (b) Advanced knowledge; knowledge that helps the organization to be competitive. (c) Innovative knowledge; knowledge that enables the organization to govern its industries and competitors.

The Organization for Economic Co-operation and Development OECD (2010) and Fairoz, Hirobumi, and Tanaka, (2010) divided knowledge into the following types: (a) Procedural knowledge (know-how) which includes the skills and the capability of making things or doing them. (b) Cognitive knowledge (know-what) which means knowing facts and achieving the highest experience in the problem or the subject. (c) Causative knowledge (know–why), meaning the scientific knowledge of the principles and it requires deep thinking. (d) Knowledge of (know-who), which is

concerned with who knows what things are done and who knows how things are done.

According to Bounfour (2005), knowledge management is the collection, distribution and efficient use of knowledge resources. It is a set of procedures, infrastructures, and managerial tools that create, share, and leverage information within and across organizations. Gold, Malhotra, and Segars (2005) identified key aspects of knowledge management processes to include: (a) Knowledge capturing, transferring and use, acquiring, collaborating and integrating experiment. (b) Create, transfer, assemble, integrate, and exploit. (c) Create, transfer and use. These various aspects can be grouped into four broad areas of process capability: acquiring knowledge, converting into useful form, applying it and protecting it. However, this study focuses on knowledge application and protection.

**2.2 Knowledge Application**

Knowledge application is the process involving the actual use of knowledge for decision making and problem solving (Gold et al., 2005). Its procedures are those expected for genuine utilization of learning. When in place, it can enhance overall performance of organizations (Ahmed & Mohammad, 2017; Madhoush, Sadati, Delavari, Mehdvard, & Mihandost, 2011). Learning application qualities are capacity, recovering, application, commitment and sharing (Abdel, Gawaher, & Mohamed, 2012). The value of individual information and knowledge management controlled by an organization largely determines how successful the organization will be. Learning encourages organizations to continually change their authoritative capability into material yields (Lekhanath & Santosh, 2017; Stojanovic-Aleksic, Eric-Nielsen, & Boskovic, 2018; Zain & Tabogu, 2007).

Bhatt (2004) states that applying and sharing knowledge means making it more active and relevant for the organization in creating values. When an employee fails to share his knowledge it is of little or no value to the organization (Siri & Lorsuwannarat, 2020). Knowledge application involves storage, retrieval and sharing. Note that effective retrieval mechanisms enable a firm to quickly access knowledge. Akram and Hilman (2018), and Onyango (2018) found that effective application of knowledge do help organizations improve their efficiency and effectiveness. It can also help an organization to enhance its business performance (Seyed, 2017). This is done by having up-to-date information and knowledge. It also helps to produce commercial value by solving problems. Solving of problems could happen through a process of exchange of explicit or tacit knowledge between two agents. Agents could be individuals, a team, an organizational unit, the organization itself or a cluster of organizations (Aygul & Bahtisen, 2017; Hayfa & Abdullah, 2018).

Knowledge application leads to knowledge transfer. Kumar and Ganesh (2009) see knowledge transfer as the process by which one unit (group, department or division) is affected by the experience of another. To increase the value of information and to enable knowledge sharing, information should be transferred freely within the organizational context. This means that knowledge transfer affects organizational performance.

**2.3 Knowledge Protection**

Learning can stimulate effective performance when there is a calculated attempt to sustain and protect knowledge. This can take the structure of printed records, materials stored away in electronic documents, ordered human information stock-piled in expert framework composed of authoritative practices. To an organization, knowledge is considered an important foundation of sustainable competitive advantage.

To this end, increasing attention should be given to the protection of knowledge so as to prevent imitation by competitors. The use of certain knowledge protection processes such as patents, trademarks, trade secrets or non-disclosure contracts are essential in order to allow knowledge to be secured (Choi & Korte, 2014; Roy & Sivakumar, 2011). Kimaiyo, Kapkiyai and Sang (2015) opined that all processes of knowledge management are very important in enhancing the firm's performance. They suggested that firms should apply knowledge management conscientiously by creating new knowledge, learning from previous experience, and protecting their knowledge in order to achieve superior performance.

Lekhanath and Santosh (2017), Onyango (2018) argued that protection of knowledge asset remains an essential task in the organization's knowledge management implementation. This is because security is always the major concern in any organization's management information system. To protect the corporate knowledge requires clear and detailed policies. This is to ensure that knowledge asset is always in its safe place. This is done to safeguard copyrights and patents along with information technology systems. By allowing

knowledge to be secured by filename, user name, password and file-sharing rules and procedures these would strengthen its security. This will ascribe rights to authorized users. Knowledge protection is aimed at preventing illegal and inappropriate use of knowledge by unauthorized individuals or other organizations against imitation and to establish and sustain a competitive advantage over competitors.

**2.4 Concept of Firm's Strategic Performance**

Firm's strategic performance involves a series of complex actions that integrate skills and knowledge to produce valuable results (Santos & Brito, 2012). In some instances, the performer could be an individual, or a group of people who are collaborating. Performance is a journey and not a destination. Different locations in the journey provides for different levels of performance. Each level defines the efficiency, quality and effectiveness of performance (Martin, Nakhchian, & Kashami, 2013).

Organization's strategy of achieving excellent performance includes actions that engage positive emotions through employees. Examples of such are setting challenging goals and allowing learning by experience as a natural part of attaining high performance. Santos and Brito (2012) submit that firm performance is the ability of the firm to prevail under certain circumstance and to achieve positive results. Using a stakeholder's approach, Venkatraman and Ramanujam (1986) have put forward a multidimensional model of firm performance encompassing a two-order dimension: financial dimension and operational or non-financial dimension. Santos and Brito (2012) called the operational dimension strategic performance and its facets are: employees' satisfaction, customers' satisfaction, environmental performance, and social performance.

Storey (2001) has also identified various dimensions of firm performance which aligns with strategic performance of Santos and Brito (2012). These are:

(a) Commitment: This is simply viewed as relating to loyalty, support for the organization, strength of identification with the organization, a belief in the organization's value and goals, and the readiness to put in the required effort for the organization to achieve it set goals. Commitment is expected to result in better quality, lower staff turnover, greater capacity for innovation, and more flexible employees. These are some of the factors that are seen to enhance the ability of the organization to achieve competitive advantage. Greater commitment can lead to good industrial climate, low absenteeism, reduced labour turnover and increasing individual performance.

(b) Empowerment/Motivation of employees that harmonizes both the employee and the organization values and needs in the same line or direction.

(c) Leadership that create the vision and strategy in such a way that the employees feel enthusiastic and also excited by it.

(d) Culture that assembles all employees behind the stated goals of the organizations.

(e) Learning (Training). For a business to survive, the extent of learning must be greater than or equal to the extent of change which it faces. There is little doubt that both organizational and individual learning are associated with organizational performance. For an organization to be more effective, learning has to be on a continuous basis despite the fact that it is a bit difficult.

(f) Flexibility and good interpersonal relationship**.** Individuals and organization should not be seen to be rigid but flexible in order to cope with the dynamic environmental changes that occur regularly in business. Good interpersonal relationships among employees have direct positive effect on organizational performance.

**2.5 Empirical Review**

In this section, a summary of some empirical studies on knowledge application, protection and firm performance is presented.

| S/N | Author | Location of study | Research Issues | Data type/ Instrument | Findings |
|---|---|---|---|---|---|
| 1. | Hayfa & Abdullah (2018) | Jordan | The impact of knowledge management on organizational performance on Pakistani banks | Primary data-Questionnaire | That knowledge acquisition, application and protection are vital to organizational performance |
| 2. | Gangaram (2018) | Nepal | Knowledge management and employee job performance in Nepalese banking sector | Primary data-Questionnaire | Knowledge acquisition, conversion and transfer have significant effects on employee job performance. |
| 3. | Stojanovic-Aleksic, Eric-Nielsen, & Boskovic (2018) | Serbia | Knowledge management as it affects banking sector | Primary data-Questionnaire | Knowledge acquisition and application have significant effects on the banking sector of Serbia |
| 4. | Salman & Sumaiya (2017) | Pakistan | Operationalization of knowledge management in knowledge intensive Pakistani banks | Primary data-Questionnaire | Knowledge acquisition and application have significant influence on the operations of Pakistani banks |
| 5. | Lekhanath & Santosh (2017) | Nepal | Knowledge management, employee satisfaction and performance: Empirical evidence from Nepal | Primary data-Questionnaire | Knowledge acquisition, application, and protection have significant effect on employee satisfaction and performance of financial institutions in Nepal |
| 6. | Elliott, Patacconi, Swierzbinski, & Williams (2016) | Aberdeen | Knowledge protection in firms theory and evidence from Hp Labs | Archival data sources. | Clients protection was established when it relates to government as the utmost important element especially in the area of technical information – which may result to be significant variable across knowledge items. Penalties were provided as inbuilt mechanisms for any exposure of sensitive information (including criminal liability in certain cases). |

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| | | | | | |
|---|---|---|---|---|---|
| 7. | Godfrey & Stephen (2015) | Kenya | Effects of knowledge conversion and knowledge application on performance of money deposit banks in Kenya | Primary data-Questionnaire | Established that knowledge conversion and knowledge application significantly influenced performance |
| 8. | Nnabuife, Onwuka, & Ofukwu (2015) | Nigeria | Knowledge management and organizational performance | Primary data-Questionnaire | Knowledge acquisition has a significant effect on performance |
| 9. | Alkasasbeh (2014) | Jordan | The role of knowledge management application in the adoption of e-business in business organizations. | Primary data-Questionnaire | The level of the employees' assessment to knowledge management application dimension was high. That the level of the employees' assessment to the adoption of e-business dimension was also high. |
| 10. | Abdel, Gawaher and Mohamed (2012) | Egypt | The role of knowledge management in enhancing organizational performance | Questionnaire administration | All elements of knowledge management capabilities have a positive significant relationship with all measures of performance at 1% level of significance |
| 11. | Stefanescus & Stefanascus (2008) | England | Factors that motivate in sharing knowledge before implementing any knowledge management strategy to sustain the successful implementation of re-engineering projects | Primary data-Questionnaire | Organizations should possess and share knowledge in facets of it process. Improvement of performance of re-engineering projects come through IT capabilities and knowledge management strategy |

Source: Authors' Compilation

## 3. DATA AND METHODS

Specifically, this study adopted the cross sectional survey research design due to the large number of respondents who participated through questionnaire administration within a particular period of time. The unit of analysis was two hundred and forty (240) employees as respondents from six (6) randomly selected insurance firms out of the twenty-three (23) listed firms. Questionnaire was administered to the respondents to generate the primary data needed for analysis. The questionnaire contained structured questions placed on the modified Likert five-point scale. The response scoring weights were; strongly agree 5 points, agree 4 points, strongly disagree 3 points, disagree 2 points, undecided 1 point.

To ensure the reliability of the instrument, a pilot study was conducted. A total of 30 copies of the questionnaire were used. This number was not part of the sample size, but from the same population. The Cronbach Alpha test

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that examines the internal consistency and reliability of the instrument showed a mean value of 0.79 and signifies that the instrument is reliable. The statistics used in the study include descriptive statistics that elucidate the distributional characteristics of the data, correlation matrix, variance inflation test for regression diagnostic, and ordinary least square regression for test of hypotheses.

**3.1. Model Specification**

The models to be estimated are:

$$perf = \alpha_1 + b_1 kapp + e_i \quad (1)$$

$$perf = \alpha_2 + b_2 kpro + e_i \quad (2)$$

$$perf = \alpha_3 + b_3 kapp + b_3 kpro + e_i \quad (3)$$

$bi > 0$, implying that an increase in knowledge application and protection are expected to lead to an increase in firm's strategic performance.

$kapp$ = Knowledge application; operationally defined as the actual use of knowledge in decision making and problem solving.

$kpro$ = Knowledge protection; is operationally defined as when knowledge is secured or prevented from getting into an unauthorized hands or being imitated or pirated.

$perf$ = Firm's strategic performance; is operationally defined as the end result of business activities. It is the mirror that reflects the organizations ability in achieving its productivity and goals. However, non-financial measure of performance was adopted in this study because of our interest in primary data.

All tests are carried out at 5% level of significance and the analytical tool used is Stata 13.0.

**4. DATA PRESENTATION AND ANALYSIS**

The analysis of data begins with the descriptive statistics that illuminate the data. Analysis is based on the 207 useable questionnaire retrieved from the respondents. Table 2 presents the summary statistics.

**Table 2: Descriptive Statistics**

```
. summarize perf kapp kpro
```

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| perf | 207 | 3.993237 | .5602987 | 2.2 | 4.8 |
| kapp | 207 | 3.972947 | .4630445 | 2.8 | 4.8 |
| kpro | 207 | 3.957488 | .402576 | 3 | 4.8 |

**Source: Authors' Output**

Table 2 shows the mean value of each variable. The mean value of performance (perf) is 3.993273, while that of knowledge application (kapp) and knowledge protection (kpro) are respectively 3.972947 and 3.957488. These mean values are by approximation equal 4.000000 which implies on the average, respondents agree with the statements relating knowledge application and protection to firm performance. The standard deviation which measures how far the observations are from the average value is 0.5602987 for performance. For knowledge application, it is 0.4630445 while it is 0.402576 for knowledge protection. These values are small, implying that the individual observation clusters around the mean value. It shows that there is a high level of agreement in the responses.

To examine the correlation among the variables, the correlation matrix is computed and the result shown in Table 3. The two independent variables (kapp and kpro) have positive correlation with the dependent variable (perf). This suggests that the independent variables are capable of exerting influence on the dependent variable though, the values are not too high.

**Table 3: Correlation Result**

```
. correlate perf kapp kpro
(obs=207)
```

| | perf | kapp | kpro |
|---|---|---|---|
| perf | 1.0000 | | |
| kapp | 0.1446 | 1.0000 | |
| kpro | 0.1672 | 0.1990 | 1.0000 |

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**Source: Authors' Output**

**Regression Diagnostic Test**

Before implementing the regression model, it is necessary to perform some diagnostic tests to ascertain the fitness of the data or the appropriateness of the model. For this purpose, the Ramsey Reset test and Variance Inflation Factor test were computed. Ramsey Reset test ascertains whether non-linear combinations of the fitted values help explain the response variable.

```
Ramsey RESET test using powers of the fitted values of perf
       Ho:  model has no omitted variables
                 F(3, 201) =      1.35
                  Prob > F =      0.2604
```

**Source: Authors' Output**

The probability value of the F-statistic is 0.2604. This is greater than the 5% level of significance meaning that the null hypothesis that model has no omitted variables is not rejected. Hence, the model formulated is adequate for analysis.

To perform a multiple regression, it is necessary to ensure that no multicollinearity exists between the independent variables. The Variance Inflation Factor (VIF) that is computed for this purpose shows a mean value of 1.04 in Table 4. Generally, if mean VIF is less than 10, there is no problem of multicollinearity. Since the result meets this criterion, the data is free from multicollinearity and can be used to run a multiple regression model.

**Table 4: Regression Diagnostic Test**

```
. estat vif
```

| Variable | VIF | 1/VIF |
|---|---|---|
| kapp | 1.04 | 0.960397 |
| kpro | 1.04 | 0.960397 |
| Mean VIF | 1.04 | |

**Source: Authors' Output**

**4.1 Testing the Hypotheses**

**Testing hypothesis 1:** There is no significant relationship between knowledge application and firm performance.

To test this hypothesis, model 1 is implemented and the regression result is presented in Table 5.

**Table 5: Simple Regression (Performance and Kapp)**

```
. regress perf kapp
```

| Source | SS | df | MS | | |
|---|---|---|---|---|---|
| Model | 1.35008414 | 1 | 1.35008414 | Number of obs | = 207 |
| Residual | 63.3204512 | 205 | .30888025 | F( 1, 205) | = 4.37 |
| | | | | Prob > F | = 0.0378 |
| | | | | R-squared | = 0.0209 |
| | | | | Adj R-squared | = 0.0161 |
| Total | 64.6705353 | 206 | .313934638 | Root MSE | = .55577 |

| perf | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| kapp | .1748333 | .0836255 | 2.09 | 0.038 | .0099569 | .3397096 |
| _cons | 3.298633 | .3344778 | 9.86 | 0.000 | 2.639176 | 3.958091 |

**Source: Authors' Output**

From Table 5, the coefficient of the independent variable (kapp) is 0.1748333. This value is positive indicating that knowledge application has positive influence on firm performance (the dependent variable). Again, the probability value of the t-statistic for the estimate of kapp is 0.038. This value is smaller than 0.05 which is the 5% significance value. In this connection, the estimate is statistically significant and implies that larger knowledge application is related to higher firm performance. In addition, the F-value (0.0378) which indicates the model fitness is less than the 5% level of significance and shows that the model is appropriate. In the light of this result, the null hypothesis of no significant relationship between knowledge application and firm performance is not accepted. Hence, for one unit increase in kapp, we would expect a 0.2 unit increase in perf.

This finding is in consonant with Aygul and Bahtisen (2017), Akram and Hilman (2018), Onyango (2018), Hayfa and Abdullah (2018), Stojanovic-Aleksic, Eric-Nielsen, and Boskovic (2018) that knowledge application has significant relationship with firm performance. It further supports Seyed (2017) that information management and intelligence gathering are relevant to knowledge application.

**Testing Hypothesis 2:** There is no significant relationship between knowledge protection and firm performance.

The result of the implementation of model 2 formulated for this hypothesis is as shown in Table 6.

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**Table 6: Simple Regression (Performance and Kpro)**

```
. regress perf kpro
```

| Source | SS | df | MS | | |
|---|---|---|---|---|---|
| Model | 8.7180566 | 1 | 8.7180566 | Number of obs = | 207 |
| Residual | 55.9524787 | 205 | .272938921 | F( 1, 205) = | 31.94 |
| | | | | Prob > F = | 0.0000 |
| | | | | R-squared = | 0.1348 |
| | | | | Adj R-squared = | 0.1306 |
| Total | 64.6705353 | 206 | .313934638 | Root MSE = | .52244 |

| perf | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| kpro | .5110088 | .0904172 | 5.65 | 0.000 | .3327418 | .6892757 |
| _cons | 1.970926 | .3596629 | 5.48 | 0.000 | 1.261813 | 2.680038 |

**Source: Authors' Output**

From Table 6, the coefficient of the independent variable (kpro) is 0.5110088. This value is positive and shows that knowledge protection and firm performance move in the same direction. Specifically, higher knowledge protection will lead to higher firm performance. However, the statistical significance of this relationship is ascertained by the probability value of the t-statistic. This value is 0.000, meaning that the estimate of the independent variable is significant at the 1% level. Therefore a strong statistical positive relationship exists between knowledge protection and firm performance.

Again, the probability value of the F-statistic is 0.0000 and implies that it is significant at 1% level which means that the model is statistically significant. Based on these results, the null hypothesis of no significant relationship between knowledge protection and firm performance is rejected. This result accords with Elliott et al (2016), Hayfa and Abdullah (2018) and Onyango, (2018) that protecting knowledge leads to competitive advantage which results to optimum performance.

**Testing Hypothesis 3:** Knowledge application and protection do not significantly influence firm performance.

This hypothesis tests the combined influence of both knowledge application and protection on firm performance. It is necessary to examine this so that we can obtain deeper insight into knowledge management activities and firm performance. For this purpose, model 3 is implemented and the result presented in Table 7.

**Table 7: Multiple Regression (Performance, Kapp, Kpro)**

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```
. regress perf kapp kpro

      Source |       SS       df       MS              Number of obs =     207
-------------+------------------------------           F(  2,   204) =   16.62
       Model |  9.06152581     2  4.53076291            Prob > F      =  0.0000
    Residual |  55.6090095   204  .272593184            R-squared     =  0.1401
-------------+------------------------------           Adj R-squared =  0.1317
       Total |  64.6705353   206  .313934638            Root MSE      =   .5221

------------------------------------------------------------------------------
        perf |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        kapp |   .0899834   .0801633     1.12   0.263    -.0680716    .2480383
        kpro |   .4904118   .0922042     5.32   0.000     .3086164    .6722072
       _cons |   1.694939   .4354821     3.89   0.000     .8363156    2.553562
------------------------------------------------------------------------------
```

**Source: Authors' Output**

The result in Table 7 shows the coefficients of the two independent variables, kapp and kpro, to be 0.0899834 and 0.4904118 respectively. The two coefficients are positive suggestive of larger values of both variables relate to larger value of firm performance. However, the probability value of the t-statistic for kapp is 0.263 and is greater than 0.05.This suggests that this estimate is not statistically significant. On the other hand, the estimate for kpro is statistically significant at 1% level as the probability of the t-value is 0.000 and less than 0.05.

Notwithstanding the above, the joint statistical significance of the two independent variables measured by the F-value, shows significance at 1% given the probability value of 0.0000. Again, the variance of firm performance accounted for by the model as determined by $R^2$ is 14%. Based on the statistical significance of the model estimates, the null hypothesis is rejected. This finding is consistent with Lekhanath and Santosh (2017). Therefore, knowledge application and protection together influence performance, though with the higher influence coming from knowledge protection.

## 5. CONCLUSION AND RECOMMENDATIONS

This study has examined the influence of knowledge application and protection on firm's strategic performance using the Nigerian insurance sub-sector as a reference point. It found knowledge application and protection practices to have significant positive relationship with strategic performance. In a knowledge driven economy, firm that can use their knowledge in the right way to gain strategic advantage could be more successful. Identifying and leveraging the individual and collective knowledge in an organization to support the organization in becoming more competitive is the essence of knowledge application and protection. Because employees in the workplace are drivers, their knowledge should be pooled together to build unique knowledge to enhance firm's activities.

Arising from the findings of this study, the following recommendations have been made. Firstly, firms should ensure the application of their acquired knowledge within the organization so as to gain better performance. Secondly, knowledge protection is required to ensure the promotion of competitive advantage in their operation. Therefore, appropriate technological infrastructure should be provided to facilitate knowledge storing and knowledge protection within the firm.

The outcome of this study has implication for research in knowledge management. For emerging economies research, it provides a springboard for aligning institutional factors in financial services sector with strategic performance. This will make the construction

of an integrated link between knowledge management process and its infrastructures with strategic performance seamless. Notwithstanding the efforts made by this study, the rather low value of reported $R^2$ (14.01% in the multiple linear model) calls for more variables. Further studies should therefore include knowledge management infrastructure (cultural, structure and technology) as control variables to improve the $R^2$.

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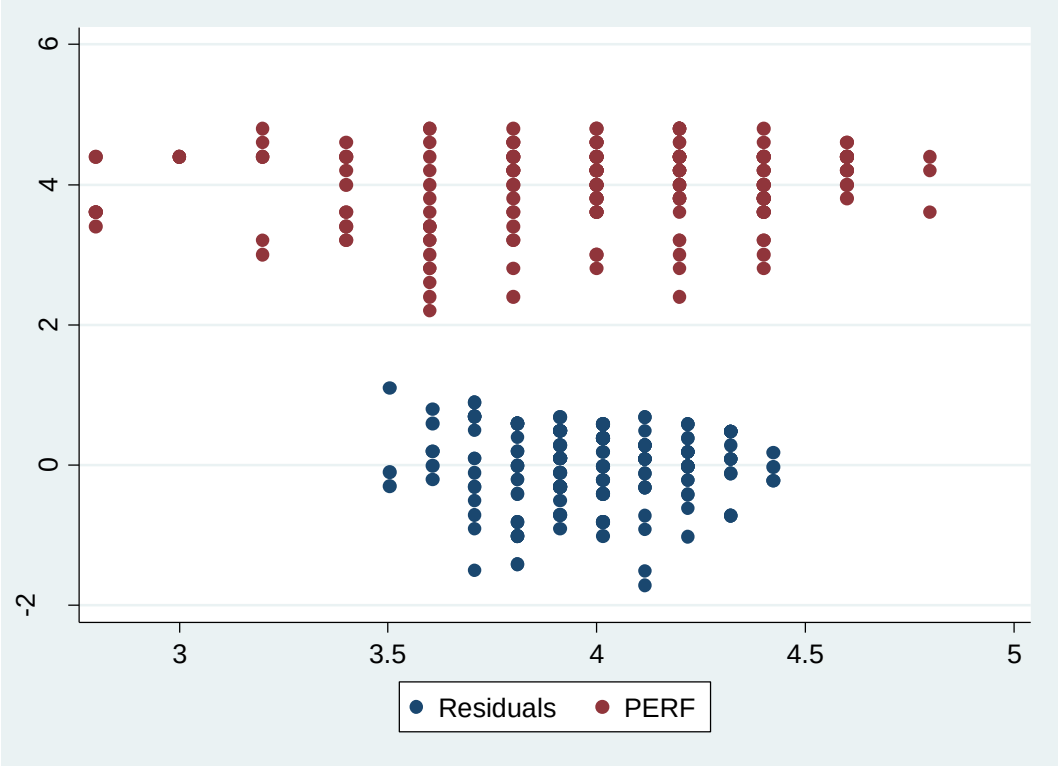
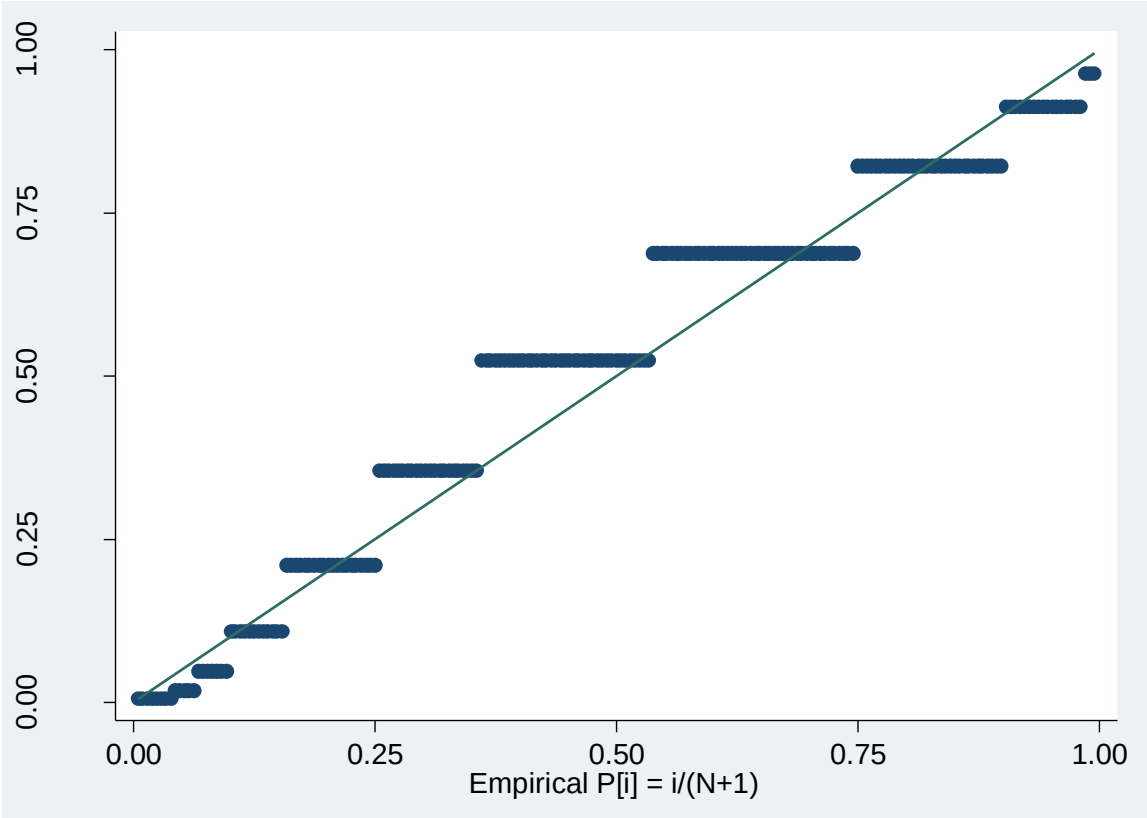
## APPENDIX

**Residual vs. Fitted-Plot**




**Distributional Plot**

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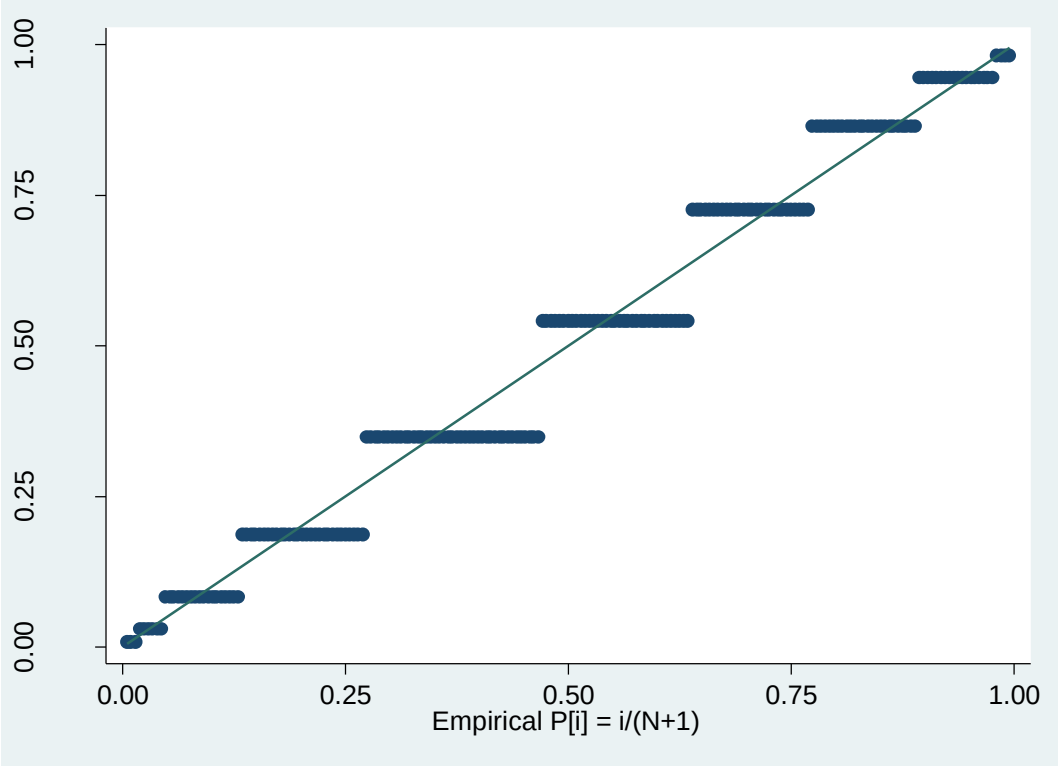
**Distributional Plot**




**Distributional Plot**