

Examining the Moderating Role of External Environment on the Firms' Resources and Performance of SMEs in Nigeria: A Pilot Study

Buba Musa Pulka¹, Azahari Ramli², Armanurah Mohamad³.

¹Division of General Studies, University of Maiduguri, Nigeria

^{2,3}School of Business Management, College of Business, Universiti Utara Malaysia

Corresponding Author: Buba Musa Pulka

Abstract: Reliability and validity are relevant and essential in any given research. Reliability and validity are commonly used at the pilot study and preliminary analysis stage by the researchers. Therefore, the paper provide the reliability and validity results on external environment, firms' resources and the performance of SMEs in Nigeria. Survey approach was used to conduct the study. The data were collected from the SMEs operating in north eastern Nigeria. Multistage sampling technique was used in selecting the sample of the study. The questionnaires were personally administered to the respondents. SPSS 24 and PLS-SEM3.0 were used in the analysis of the data. The pilot study found that the instruments adapted for the study are reliable and valid. Therefore, the researcher proceeded with the full scale data collection.

Keywords: SMEs Performance, Pilot Study, External Environment, Entrepreneurial Competencies, Entrepreneurial Orientation, ICT, Entrepreneurial Network, Government Business Support.

Date of Submission: 17-11-2018

Date of acceptance: 04-12-2018

I. Introduction

Pilot study is one of the essential phase in conducting a research (Hassan, Lancaster, Dodd & Williamson, 2004; Kraemer, Mintz, Tinklenberg & Yesavage, 2006). Pilot study is been conducted to aid in identifying possible problems and deficiencies in the research instruments that might create serious distortion in the main research work (Kraemer et al., 2006). Similarly, pilot study is a study been conducted by researchers to ascertain the reliability and validity of the instruments that the researcher intends to use in main research prior to the main research. While Gay, Mills and Airasian (2006) see a pilot study as a trial test on small scale carry out by researchers before conducting the real study. Churchill (2002) stated that pilot study is the testing of the instruments of a research on a small number on the real sample of the study to aid in identifying and eliminating possible problems that might interfere with the reliability and validity of the instruments. Hassan et al., (2006) stated that the results of the pilot study validate the effectiveness of the instruments by detecting defects in the questionnaire.

Therefore, Hassan et al., (2006) argued that some of the benefits of the pilot study include; firstly, to establish the feasibility of conducting a research work and ascertain weaknesses that might exist in the instruments of the study. Secondly, to assess whether the research instruments is inquiring the anticipated questions, whether the format is understandable and whether the selected tools are suitable for the sample. Thirdly, to test the suitability of the technique for data collection using self-administered questionnaire. Fourthly, to assess the data collection process which include; time required to complete the questionnaire and the respondents' inclination to take part in the study. Fifthly, to examine the data entry, coding of the responses and suitability of the statistical tests. And sixthly, to acquire preliminary data for the primary outcome of the measurements.

As a result, a pilot study is meant at noticing, controlling, managing and spotting loop holes or problems that might be presenting the research instruments of a particular study, so as to effect necessary corrections (Cooper & Schindler, 2006; Zikmund, 1991). Bradburn, Norman, Sudman, Seymour and Wansink (2004) suggested that in conducting a pilot study, the real sample or respondents' should participate. It is done to actually determine and safeguard the reliability, validity, wording, format, readability, arrangement and simplicity of questions in the questionnaire. It is also used to establish the correctness and suitability of the research design and instrumentation. Additionally, it also make available a proxy data for selection of a sample (Saunders, Lewis, & Thornhill, 2009). Established on the responses and results of the pilot study, corrections were appropriately made to make the questionnaire simple and suitable for the main study.

In the process of the pilot study, the respondents were call to pin point any misleading, irregularities and ambiguous words, phrase and statements that they might come across. The returned questionnaires were then checked for unanticipated problems with the question sequence and question structure. Hence, to determine the reliability of the instruments for the study, reliability coefficient of Cronbach's alpha was employed (Saraph & Benson, George, Schroeder, 1989). It is argued that Cronbach's alpha is commonly used in social and management science studies to estimate the internal consistencies of the instruments.

Consequently, SPSS 24 was used to determine the reliability of the instruments using the Cronbach's alpha values. Several researchers have argued that there is certain level at which the reliability coefficient can be accepted. To determine the reliability of the instruments, the instruments are reliable when the reliability coefficient value is 0.70 and beyond and moderately reliable when the coefficient is 0.60 (Hair, Black, Babin, Andersen, & Tatham, 2006; Nunnally, 1978; Sekaran & Bougie, 2010). Likewise, George and Mallery (2003) argued that the value of alpha greater than 0.50 is considered as been satisfactory and should be accepted. As a result, 70 questionnaires were distributed to conduct the pilot study in accordance with previous research (Dillman, 2007; Gorondutse, 2014; Guo & Wang, 2014).

In relation to the validity, Sekaran and Bougie (2010) observed that validity is the extent to which instruments adapted for measuring variables in a research measure what it supposed to be measured. Hair, Wolfinger and Ortinall (2008) and Sekaran and Bougie (2010), expressed that validity is the process involving the consultation of selected panel of experts to evaluate and review the suitability of all the items selected to measure the constructs used in a particular study. As a result, the objective of this study is to present the reliability and validity results of an ongoing research on entrepreneurial competencies, entrepreneurial orientation, information and communication technology, entrepreneurial network, government business support, external environment and SMEs performance in Nigeria.

II. Literature Review

2.1 SMEs Performance

SMEs performance refers to how well the SMEs create and provide values to their owners, customers, government agencies and the host society or societies. Neely, Gregory and Platts (1995) see SMEs performance as the processes of measuring SMEs activities by looking and evaluating the accomplished aims and objectives. While, Ricardo and Wade (2001) regarded SMEs performance as the ability of the SMEs to be successful in accomplishing its defined objectives and purposes.

2.2 Entrepreneurial Competencies

Man, Lau and Chan, (2002) see entrepreneurial competencies of the SMEs as the whole ability of the SMEs towards achieving performance successfully. While Bird (1995) explained that entrepreneurial competencies are fundamental qualities possess by the entrepreneurs that include motives, specific knowledge, traits, social roles, self-images, and skills, that could tremendously assist in establishment, survival and growth of the SMEs.

There is extensive acknowledgement and consensus that entrepreneurial competencies play vital role in achieving SMEs' performance, success, and SMEs growth (Barney, 1991; Grant, 1991; Mitchelmore, Rowley, & Shiu, 2014). They further added that SMEs need competencies and diverse skills to survive and for prosperity. Therefore, they concluded that entrepreneurial competencies are crucial for the SMEs in achieving performance. That make it imperative to initiate and develop good and wide understanding of competencies in the context of SMEs especially in developing country like Nigeria.

Several studies exist that have linked entrepreneurial competencies with the success and performance the SMEs. Some of these studies revealed that there is positive and significant influence of entrepreneurial competencies on the performance of the SMEs, such studies include; Barazandeh, Parvizian, Alizadeh, and Khosravi (2015), Mitchelmore et al., (2014), Sarwoko, Surachman, and Hadiwidjojo (2013) and Tehseen and Ramayah (2015). Hence, it is sufficient evidence to ascertain that entrepreneurial competencies is vital to the SMEs. On the other side, inadequate entrepreneurial competencies in a SMEs could constitute a major problem and barrier toward achieving a better performance in the SMEs.

2.3 Entrepreneurial Orientation

The significance of EO in achieving performance of SMEs is extensively acknowledged in the literature (Brouthers, Nakos, & Dimitratos, 2015; Covin & Slevin, 1991; Covin & Miller, 2014; Gupta & Batra, 2015; Wiklund & Shepherd, 2003). Covin and Slevin, (1991b), Covin and Slevin, (1989) and Miller, (1983) explained that entrepreneurial orientation refers to the process, practice, and decision making activities that lead to new entry of the SMEs. EO is also perceived as the various strategy making processes that provide the SMEs with the foundation for taking decisions and actions in the SMEs that are strategic to the survival of the SMEs (Lumpkin & Dess, 1996; Wiklund & Shepherd, 2003).

Therefore, the meta-analysis study of Rauch, Wiklund, Lumpkin and Frese (2009) of 51 studies on entrepreneurial orientation and firm performance discovered that EO is significantly related to SMEs performance. This indicates that EO is one of the essential resources of the SMEs that could help in generating the required level of competitive advantage and superior performance. Furthermore, entrepreneurial SMEs engage in innovative activities, introducing new products/services, new technologies, and new process and enhances the SMEs performance and economic growth and development of the economy at large.

2.4 Information and Communication Technology

The radical changes in information and communications technology (ICT) has brought about several changes to the techniques of processing, producing, coordinating of various SMEs activities, and methods of processing data by the SMEs (Liao, 2015; Zhang, Van Donk, & Van der Vaart, 2011; Xuan Zhang, Donk, & Vaart, 2016; Uhlenbruck, Meyer, & Hitt, 2003). The progress in the ICT has likewise assisted in restructuring and redesigning of the SMEs business practices in relation to the approaches use in collecting and analysing information, development of strategic SMEs vision, search and implementing the best procedure for the process of redesigning and collaborative teamwork (Akhavan, Jafari, & Ali-Ahmadi, 2006; Attaran, 2004).

Therefore, ICT is defined "as a family of technologies used to process, store and disseminate information, facilitating the performance of information-related human activities, provided by, and serving both the public at-large as well as the institutional and business sectors" (Salomon, & Cohen, 1999).

ICT resources is of several importance to the SMEs. According to Liang, You and Liu, (2010), ICT resources help the SMEs to improve internal control capabilities, reinforce teamwork performance among the units and departments in the SMEs and it also assist in improving capacity of the systems in the SMEs. Similarly, ICT resources according Bhakoo and Choi, (2013) act as the channel through which transactions, information sharing, coordination of the SMEs activities and establishment of governance structures among the SMEs are been facilitated.

2.5 Entrepreneurial Network

There is a growing research interest and recognition of the importance and role of entrepreneurial network in achieving SMEs performance. The term entrepreneurial network refer to "the structure of exchange relationships and interdependencies within which a process of interaction among actors takes place" (Ford & Mouzas, 2010). The SMEs are operating in the network of interconnected business, formal and informal relationships with suppliers, customers and competitors, government agencies, large enterprise and other SMEs.

Hence, this type of relationships that exist among different actors, organizations are beneficial to the SMEs. The network serve as an effective avenue for obtaining the required resources, enhancing marketing opportunities and making beneficial collaboration (He & Wei, 2013). Similarly, it has been argued that entrepreneurial network resources are essential and serve as a source of competitive advantage and overall performance of the SMEs. Gulati (1999) contended that entrepreneurial network resources of the SMEs do provide valuable and needed resources and it promote the value-creation process of the SMEs.

Furthermore, the SMEs can tremendously benefits from the entrepreneurial network resource. These benefits varies from knowledge, advice from members of the network, trust and solidarity (He & Wei, 2013). Entrepreneurial network also assist the SMEs in assessing and collecting information about present and future demands of customers, marketing activities and changes in technologies, strategies and capabilities of their competitors and overall changes occurring in the external environments of the SMEs. These would further assist the SMEs to procure the needed resources that are external to the them (Adler & Kwon, 2002; Ellis, 2000; Zhou & Wu, 2010).

2.6 Government Business Support

Government business support resources (GBS) has been recognized as one of the areas that provide vital resources to SMEs and at the same time aid in enhancing the SMEs productivity, innovative capacity and performance (Jones & Parry, 2011; Samujh, 2011; Wei & Liu, 2015). Similarly, GBS is vital and it create high motivation and encourage the innovation and performance among SMEs (Herrera & Nieto, 2008; Wei & Liu, 2015). Literature has shown that the effect of GBS on SMEs is has attracted the interest of various government across the globe (Acs, 1999; Guellec & Van Pottelsberghe De La Potterie, 2003; Jones & Parry, 2011). Therefore, GBS would tremendously help SMEs in acquiring the resources needed to prosper and achieve success.

Furthermore, Storey and Tether (1998) have argued that there are two types of GBS, the direct support (i.e. financial assistance, guarantees, loans, grants and tax relief) and the indirect GBS (i.e. access to information and business advisory services, consultants, accountants, banks, university collaborations and networks). Hence, the studies that have been conducted on the effect of GBS on the performance of the SMEs indicated that SMEs need GBS to withstand competition from other SMEs and large firms, to get rid of market failure, to achieve

research and development activities, (Berube & Mohnen, 2009; Guellec & Van Pottelsberghe De La Potterie, 2003; Xu, Huang, & Xu, 2014).

III. Methodology

3.1 Sample

Thus, a pilot study need a small sample size since is feasibility study (Fink, 2003). Therefore, Sekaran, (2003), argued that researchers should use minimum of 30 respondents, Malhotra (2008) and Johanson and Brooks(2010)recommended 15 to 30 respondents, whereas Dillman(2007) contended that it may perhaps be up to 100. Therefore, the sample of the study consist of 70 owners/managers of SMEs operating in north eastern Nigeria. Multistage sampling technique was used to compose the sample from the population of the study. Firstly, the SMEs were grouped into six clusters according the six existing states in the geopolitical zone using data from (SMEDAN, 2012; SMEDAN & NBS, 2013). Secondly, proportional to size simple random sampling was used in determining the number of subsample in each cluster. Thirdly, simple random sampling technique was employed in selecting the SMEs that participated in the survey. Out of the 70 questionnaires that were administered, 59 were successfully collected. Out of the 59 questionnaires 4 were established to be invalid, whereas 55 questionnaires were valid and used for the reliability analysis. As a result, the response rate of 78.57% was realised. Therefore, the data was subjected to reliability and validity assessment using SPSS 24 and PLS 3.0. Specifically, SPSS was used for testing Cronbach's alpha reliability, while PLS 3.0 was used for testing the composite reliability of the data.

3.2 Measurement

The study used instruments adapted from previous studies to measure all the variables used in the study on 5 point Likert scale ranging from strongly disagree to strongly agree. All the variables in the study were operationalized as one dimension. The questionnaire is divided into eight sections. The first section is demographic information of the respondents. The second section measures the SMEs performance. The third section measure entrepreneurial competencies. The fourth section measure the entrepreneurial orientation. The fifth section measure the information and communication technology. The six section measure entrepreneurial network. The seventh section measure government business support and the eight section measure external environment. Therefore, table 1 present the summary of instruments used in the study.

Table 1: Summary of Measurement of the Research Variables

Variables	Dimension	Items	Sources
SMEs Performance	Unidimensional	16	Brito and Santos (2012)
Entrepreneurial Competencies	Unidimensional	16	Ahmad (2007) and Man (2001)
Entrepreneurial Orientation	Unidimensional	14	Covin and Slevin (1989)
Information and Communication Technology	Unidimensional	12	Bayo-Moriones, Billon & Lera-Lopez (2013)
Entrepreneurial Network	Unidimensional	11	Naala (2016)
Government Business Support	Unidimensional	13	Shamsuddin (2014)
External Environment	Unidimensional	17	Chi (2006)

IV. Validity and Reliability Results of the Pilot Study

As earlier discussed, a pilot study refers as a small studyconducted to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a larger study. Therefore, the next sections present the results of the validity and reliability from the pilot study.

4.1 Validity Results of the Pilot Study

Validity test was conducted, the validation process is vital and is discussed in this section. Therefore, the supervisors and proposal reviewers were presented with the instruments. Some of the items were found to be double barrel, which were immediately corrected. Similarly, panel of experts were consulted to assess the validity of the instruments of the study. The experts include three professors from the Faculty of Management Sciences (Departments of Business Administration and Banking and Finance) and one from Department of Languages and Linguistics from University of Maiduguri (Chi, 2006). Thereafter, the instruments were refined and fine-tuned to suitably measure all the constructs in the study.Hence, the research instruments were pre-tested on the real respondents of the study. As a result, the weaknesses of the questionnaires were detected and necessary corrections were made to make the instruments more valid and reliable.

4.2 Reliability Results of the Pilot Study

The reliability results from table 1 indicated that all the research instruments have a Cronbach's alpha coefficient value from 0.836 to 0.969. Specifically, SMEs performance has a value of 0.836, entrepreneurial competencies 0.969, entrepreneurial orientation 0.955, information and communication technology 0.925, entrepreneurial network 0.879, government business support 0.893 and external environment is having coefficient value of 0.905. Similarly, the composite reliability was further tested using PLS 3.0. The results indicated that SMEs performance has a value of 0.860, entrepreneurial competencies 0.979, entrepreneurial orientation 0.965, information and communication technology 0.953, entrepreneurial network 0.923, government business support 0.909 and external environment is having coefficient value of 0.924. Therefore, the results of the reliability tests has conformed to the guideline and suggestion made by previous researchers on the reliability test coefficient values (Hair et al., 2008; Nunnally, 1978; Sekaran & Bougie, 2013). So, table 2 and figure 1 present the reliabilities of the pilot study.

Table 2: Reliability Test Results

Constructs	Number of Items	Cronbach's Alpha	Composite Reliability
SMEs Performance	16	0.836	0.860
Entrepreneurial Competencies	16	0.969	0.979
Entrepreneurial Orientation	14	0.955	0.965
Information and Communication Technology	12	0.925	0.953
Entrepreneurial Network	11	0.879	0.923
Government Business Support	13	0.893	0.909
External Environment	17	0.905	0.924
Total	99		

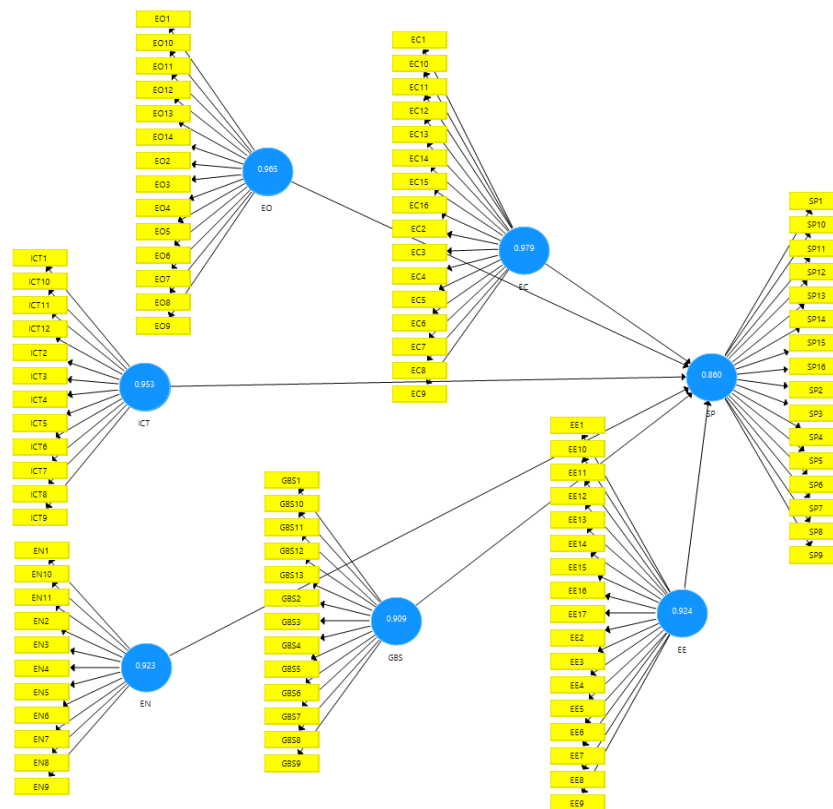


Figure 1: SmartPLS Results showing the composite reliability of the pilot study

V. Conclusion

As stated earlier, the objective of the pilot study is to determine the validity and the reliability of the instruments used in the study to prepare for the main study ahead. Using SPSS 24, the study determined the reliability of the instruments. The instruments were found to be reliable. Additionally, the instruments were further subjected to further analysis using PLS 3.0. The results from the PLS confirmed the earlier results. When the actual study is conducted, it will reveal the main analysis, results and implications of the study on the population. The values of all the variables in the study have met the criteria to be used for the actual study.

References

- [1]. Acs, J. Z. (1999). *Are Small Firms Important? Their Role and Impact.* Kluwer Academic Publishers, Boston, MA.
- [2]. Adler, P. S. ., & Kwon, S.-W. (2002). Social Capital : Prospects for a New Concept. *The Academy of Management Review*, 27(1), 17–40.
- [3]. Akhavan, P., Jafari, M., & Ali-Ahmadi, A. R. (2006). “Exploring the interdependency between reengineering and information technology by developing a conceptual model”. *Business Process Management Journal*, 12(4), 517–34.
- [4]. Al Mamun, A., Subramaniam, P., Binti Che Nawi, N., & Raihani Binti Zainol, N. (2016). Entrepreneurial Competencies and Performance of Informal MicroEnterprises in Malaysia. *Mediterranean Journal of Social Sciences MCSEER Publishing*, 7(3), 20399340. <http://doi.org/10.5901/mjss.2016.v7n3p273>
- [5]. Attaran, M. (2004). “Exploring the relationship between information technology and business process reengineering”. *Information Management*, 14(5), 585–96.
- [6]. Barazandeh, M., Parvizian, K., Alizadeh, M., & Khosravi, S. (2015). Investigating the effect of entrepreneurial competencies on business performance among early stage entrepreneurs Global Entrepreneurship Monitor (GEM 2010 survey data). *Journal of Global Entrepreneurship Research*, 5(1), 18. <http://doi.org/10.1186/s40497-015-0037-4>
- [7]. Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99–120. <http://doi.org/10.1177/014920639101700108>
- [8]. Berube, C., & Mohnen, P. (2009). “Are firms that receive R&D subsidies more innovative?”, Canadian ., *Journal of Economics/Revue Canadienne D'economique*, 42(1), 206–225.
- [9]. Bhakoo, V., & Choi, T. (2013). “The iron cage exposed: institutional pressures and heterogeneity across the healthcare supply chain”, *Journal of Operations Management*. *Journal of Operations Management*, 31(6), 432–449.
- [10]. Bird, B. (1995). Towards a theory of entrepreneurial competency. *Advances in Entrepreneurship, Firm Emergence and Growth*, 2(1), 51–72.
- [11]. Bradburn, Norman M, Sudman, Seymour, Wansink, B. (2004). Asking questions: the definitive guide to questionnaire design--for market research, political polls, and social and health questionnaires: John Wiley & Sons.
- [12]. Brouthers, K. D., Nakos, G., & Dimitratos, P. (2015). SME Entrepreneurial Orientation, International Performance, and the Moderating Role of Strategic Alliances. *Entrepreneurship: Theory and Practice*, 39(5). <http://doi.org/10.1111/etap.12101>
- [13]. Chi, T. (2006). *A Study of the Relationships between Business Environment Characteristics, Competitive Priorities, Supply Chain Structures, and Firm Performance in the U.S. Technical Textile Industry*. A Dissertation Submitted to the Faculty of The Graduate School at The University of North Carolina at Greensboro.
- [14]. Churchill, G. A. (2002). *Marketing Research: Methodological Foundations*. Chicago: Dryden Press.
- [15]. Cooper, D. R., & Schindler, P. S. (2006). *Marketing Research*. New York: McGraw- Hill Irwin.
- [16]. Covin, J. G., & Miller, D. (2014). International Entrepreneurial Orientation: Conceptual Considerations, Research Themes, Measurement Issues, and Future Research Directions. *Entrepreneurship: Theory and Practice*, 38(1), 11–44. <http://doi.org/10.1111/etap.12027>
- [17]. Covin, J. G., & Slevin, D. P. (1989). Strategic Management of Small Firms in Hostile and Benign Environments. *Strategic Management Journal*, 10(1), 75–87.
- [18]. Covin, J. G., & Slevin, D. P. (1991a). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship: Critical Perspectives on Business and Management*, 3, 5–28.
- [19]. Covin, J. G., & Slevin, D. P. (1991b). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship: Critical Perspectives on Business and Management*, 3, 5–28.
- [20]. Dillman, D. A. (2007). *Mail and Internet Survey: The Tailored Design Method*, (John Wiley & Sons Inc., Hoboken.
- [21]. Ellis, P. (2000). “Social ties and foreign market entry”. *Journal of International Business Studies*, 31(3), 443–469.
- [22]. Fink, A. (2003). *The survey handbook (Vol. 1)*. Sage.
- [23]. Ford, D., & Mouzas, S. (2010). “Networking under uncertainty: concepts and research agenda”. *Industrial Marketing Management*, 39(6), 956–962.
- [24]. Gay, L., Mills, G., & Airasian, P. (2006). Educational research: Competencies for analysis and application, 8(1).
- [25]. George, D., & Mallery, P. (2003). *SPSS for windows step by step: A sample Guide & reference*. Boston: Allyn & Bacon.
- [26]. Gorondutse, A. H. (2014). *Effect of business social responsibility (BSR) on Performance of SMES in Nigeria*.
- [27]. Grant, R. M. (1991). The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation. *California Management Review*. <http://doi.org/10.2307/41166664>
- [28]. Guellec, D., & Van Pottelsberghe De La Potterie, B. (2003). “The impact of public R&D expenditure on business R&D”. *Economics of Innovation and New Technology*, 12(3), 225–243. <http://doi.org/10.1080/10438590290004555>
- [29]. Gulati, R. (1999). “Network location and learning: the influence of network resources and firm capability on alliance formation”, *Strategic Management Journal*, 20(5), 397–420.
- [30]. Guo, B., & Wang, Y. (2014). Environmental turbulence, absorptive capacity and external knowledge search among Chinese SMEs. *Chinese Management Studies*, 8(2), 258–272. <http://doi.org/10.1108/EL-01-2014-0022>
- [31]. Gupta, V. K., & Batra, S. (2015). Entrepreneurial orientation and firm performance in Indian SMEs: Universal and contingency perspectives. *International Small Business Journal*, (April 2015), 1–23. <http://doi.org/10.1177/0266242615577708>
- [32]. Hair, J. F., J., Black, W. C., Babin, B. J., Andersen, R. E., & Tatham, R. L. (2006). *Multivariate data analysis (6th ed.)*. Upper Saddle River, NJ: Pearson Prentice.
- [33]. Hair, J. F., Wolfinbarger, M. F., & Ortinnall, D. . J. (2008). *Essential of marketing Research*. Boston: Hill/Irwin.
- [34]. Hassan, Z. A., Schattner, P., & Mazza, D. (2006). Doing A Pilot Study : Why Is It Essential? *Malaysian Family Physician*, 1(2–3), 1–5.
- [35]. He, X., & Wei, Y. (2013). Export market location decision and performance. *International Marketing Review*, 30(6), 559–590. <http://doi.org/10.1108/IMR-09-2011-0232>
- [36]. Herrera, L., & Nieto, M. (2008). The national innovation policy effect according to firm location. *Technovation*, 28(8), 540–550. <http://doi.org/10.1016/j.technovation.2008.02.009>
- [37]. Johanson, G. ., & Brooks, G. B. (2010). Initial scale development: Sample size for pilot studies. *Educational and Psychological Measurement*, 1–7.
- [38]. Jones, R., & Parry, S. (2011). Business support for new technology-based firms: a study of entrepreneurs in north Wales. *International Journal of Entrepreneurial Behavior & Research*, 17(6), 645–662. <http://doi.org/10.1108/13552551111174710>
- [39]. Kraemer, H., Mintz, J. N. A., Tinklenberg, J., & Yesavage, J. (2006). Caution regarding the use of pilot studies to guide power calculations for study proposals. *Arch Gen Psychiatry*. *PubMed*, 65(5), 484.
- [40]. Lancaster, G. A., Dodd, S., & Williamson, P. R. (2004). Design and analysis of pilot studies : recommendations for good practice.

- Journal of Evaluation in Clinical Practice*, 10(2), 307–312.
- [41]. Leroy, M. T. (2012). *The Impact of Networking on Access to Finance and Performance of SMEs in the Buffalo City Municipality, Eastern Cape, South Africa*. University of Fort Hare.
- [42]. Liang, T. P., You, J. J., & Liu, C. C. (2010). "A resource-based perspective on information technology and firm performance: a meta-analysis", *Industrial Management & Data Systems*, 110(8), 1138–1158.
- [43]. Liao, P.-H. T. C.-H. (2015). "Supply chain integration, information technology, market orientation and firm performance in container shipping firms. *The International Journal of Logistics Management*, 26(1), 82–106.
- [44]. Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the Entrepreneurial Orientation Construct and Linking It to Performance. *Academy of Management Review*, 21(1), 135–172.
- [45]. Malhotra, N. K. (2008). *Marketing research: An applied orientation*, 5/e. Pearson Education India.
- [46]. Man, T. W., Lau, T., & Chan, K. F. (2002). The competitiveness of small and medium enterprises: A conceptualization with focus on entrepreneurial competencies. *Journal of Business Venturing*, 17(2), 123–142.
- [47]. Miller, D. (1983). The Correlates of Entrepreneurship in Three Types of Firms. *Management Science*, 29(7), 770–791.
- [48]. Mitchelmore, S., Rowley, J., & Shiu, E. (2014). Competencies associated with growth of women-led SMEs. *Journal of Small Business and Enterprise Development*, 21(4), 588–601. <http://doi.org/http://dx.doi.org/10.1108/MRR-09-2015-0216>
- [49]. Neely, A. D., Gregory, M., & Platts, K. (1995). "Performance measurement system design – a literature review and research agenda", *International Journal of Operations and Production Management*, 15(4), 80–116.
- [50]. Nunnally, J. C. (1978). *Psychometric Theory*. New York: McGraw-Hill.
- [51]. Rauch, A., Wiklund, J., Lumpkin, G. T. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, 33(3), 1–54. <http://doi.org/10.1111/j.1540-6520.2009.00308.x>
- [52]. Ricardo, R., & Wade, D. (2001). *Corporate performance management: How to build a better organization through measurement driven strategies alignment*.
- [53]. Salomon, I. and Cohen, G. (1999). "ICT and urban public policy: does knowledge meet policy?", *Serie Research Memoranda, Faculteit der Economische Wetenschappen en Econometrie, Vrije Universiteit Amsterdam, Amsterdam*.
- [54]. Samujh, R. H. (2011). Micro-businesses need support : survival precedes sustainability.
- [55]. Saraph, J. V., & Benson, P. George, Schroeder, R. G. (1989). An instrument for measuring the critical factors of quality management. *Decision Sciences*, 20(4), 810–829.
- [56]. Sarwoko, E., Surachman, A., & Hadiwidjojo, D. (2013). Entrepreneurial characteristics and competency as determinants of business performance in SMEs. *International Organization of Scientific Research Journal of Business and Management*, 7(3), 31–38.
- [57]. Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students 5th Edition*.
- [58]. Sekaran, U. (2003). *Research methods for business: A skill building approach (4th ed.)*. New York: John Wiley & Sons Inc. Sekaran,.
- [59]. Sekaran, U., & Bougie, R. (2010). *Research methods for business. A skill building approach (5th ed.)*. UK: John Willey.
- [60]. Sekaran, U., & Bougie, R. (2013). *6th edition. Research Methods for Business*.
- [61]. SMEDAN. (2012). *Smedan 2012 annual report*. Retrieved from http://www.smedan.gov.ng/images/SMEDAN_2012_Annual_Report.pdf
- [62]. SMEDAN, & NBS. (2013). *SMEDAN and National Bureau of Statistics*.
- [63]. Storey, D. J., & Tether, B. S. (1998). "Public policy measures to support new technology-based firms in the European Union", *Research Policy*, 26(1037–57).
- [64]. Tehseen, S., & Ramayah, T. (2015). Entrepreneurial Competencies and SMEs Business Success: The Contingent Role of External Integration. *Mediterranean Journal of Social Sciences*, 6(1), 50–61. <http://doi.org/10.5901/mjss.2015.v6n1p50>
- [65]. Uhlenbruck, K., Meyer, K. E., & Hitt, M. A. (2003). "Organizational transformation in transition economies: resource-based and organizational learning perspectives", *Journal of Management Studies*, 40(2), 257–82.
- [66]. Wei, J., & Liu, Y. (2015). Government support and firm innovation performance: Empirical analysis of 343 innovative enterprises in China. *Chinese Management Studies*, 9(1), 38–55. <http://doi.org/10.1108/IJRDM-04-2015-0056>
- [67]. Wiklund, J., & Shepherd, D. (2003). Knowledge-based resources, EO, and the performance of small and medium-sized businesses. *Strategic Management Journal*, 24(13), 1307–1314. <http://doi.org/10.1002/smj.360>
- [68]. Xu, K., Huang, K. F., & Xu, E. (2014). Giving fish or teaching to fish? An empirical study of the effects of government research and development policies. *R and D Management*, 44(5), 484–497. <http://doi.org/10.1111/radm.12087>
- [69]. Zhang, X., Donk, D. P. Van, & Vaart, T. van der. (2016). The different impact of inter-organizational and intra-organizational ICT on supply chain performance. *International Journal of Operations & Production Management*, 36(7), 803–824.
- [70]. Zhang, X., Van Donk, D. P., & Van der Vaart, T. (2011). "Does ICT influence supply chain management and performance? A review of survey-based research", *International Journal of Operations & Production Management*, 31(11), 1215–1247.
- [71]. Zhou, K. Z., & Wu, F. (2010). Technological capability, strategic flexibility, and product innovation. *Strategic Management Journal*, 31(5), 547–561.
- [72]. Zikmund, W. G. (1991). *Business Research Methods (3rd ed.)*. Orlando, FL: Dryden.

Buba Musa Pulka. "Examining the Moderating Role of External Environment on Firms' Resources and Performance of SMEs in Nigeria: A Pilot Study." *IOSR Journal of Business and Management (IOSR-JBM)* 20.11 (2018). 2018, pp. 20-26.