

Bridging the Gap: Game Theory and Information Asymmetry in SME Financing in Kaduna

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ABSTRACT

The SMEs (small and medium-sized enterprises) a basically is economic lifeline, for majorly in developing economies growth. Similarly, the funding challenges negatively impacted the smooth advancement of sustainable entrepreneurship. Collaborations between enterprises and banks constitute the sole reason why SMEs' is constraint in receiving finances; the banking sector lack the full knowledge of the challenges face by SMEs such as their daily running cost and their credit incur nor turnover increment and so on. This paper used game theory to analyses financing growth strategies of SMEs in the city of Kaduna with the problem associated with sustaining the economic development of competitive market within the city.

Keywords: Game Theory, SMEs, Transition Economies, Sustainable Growth. Environment factors.

I. INTRODUCTION

Nigeria is a country in Western part of Africa, it operates a mixed economy with capitalism as it major economic ideology. its implement the principles of a free market economy since independence in the early 60's. As the most populous country Africa, its market is from small and medium size firms even though oil and gas is the major source of foreign exchange. In spite, the economic development of Nigeria which is the largest economic in Africa, small and medium firms is now a prominent issue for the government and was majorly a new happening for the market, it went farther beyond the economic impact alone, it was majorly a new happening for the market expansions while creating jobs too, it went farther beyond the economic benefits but political and social life as well, Nigeria inherited her economic from Britain after more than a century of colonialization the western economic system was fully in operation paving way for small scale economy system to dominate the whole country. Various researchers and policy makers reveal the importance of small firms. This paper tackled the challenged of: what are the problems face by SMEs when funding a viable profitable SMEs over a long period of time in? This is in context of implementation of a strong legislation for guideline in pro competition, the increase of effectiveness of a strong cooperation, more transparency by the civil authority, will create a more open and transparent market for levelling playing ground for all investors especially the SMEs sector of the economic. Majority of worldwide entrepreneurship and all kinds of businesses will basically be labelled under the auspices of SMEs which is the hub of business existence globally. more than 90% of every continent both developing and developed are under SMEs. (Ayyagari et al., 2007; Jamali et al., 2015; Storey, 1994; M. Taylor & Murphy, 2004). The further elaborate this point just discussed, even though SMEs seem to be similar everywhere they are set-up the have specific uniqueness depending on the environment they are located, but basically their function and mode of operating is always the same (Deshmukh & Chavan, 2012; T. Gibson & Van der Vaart, 2008).

II. LITERATURE REVIEW AND HYPOTHESES

1. SMEs sector and transition process

A lot of scholars have rightly defended the fact that SMEs contribute a great deal to the transformation of any economies globally. All the developed economies went through a transition process of privatization stages which caused them to greatly increased their small, and medium companies sector. More so, SMEs had proven to be fundamentally instrumental in adding to the labour force while still contributing to exports and all kinds of innovation, local and national growth of any society. It is well identified in theory and empirically that SMEs have also contributed to the labour market, in tends of exports, innovation, regional and national growth generally.

SMEs instigates healthy competitions, while creating and effecting competitive environment and very efficient business environment. Statistical contribution of world Bank proved how SMEs sector as a whole greatly contributes to the increased in jobs creations and thereby increasing the GDP on majority of the countries around the world. (Ayyagari et al, 2003).

Majority of the theory base on economic activities focused more on the relationship that occurs between growth and size of the companies and the healthy existence occurring between growth and firm size eventually will

create an economies of scale (Cook et al, 2002). The need for small and medium size businesses are incapacitated with small in sizes which mean very limited in resources to operate in economies of scale, funding is literally unavailable for the running and expansion of their businesses and lack updated information that will lead to creation of wealth. Similarly, lack of capacity to evolved through innovation, which also create lack of managerial skill to hire and managed human resource capital and other complex matters like taxation systems etc. For real development to take effect and desired changed attain over time, there is the need to consider the aforementioned factors serious and formulate policy that will promote industrial transition of the underdeveloped economies worldwide. For example, in Eastern Europe, the small and medium size enterprises were undergoing a process of transition of privatization process and the same time restructuring procedure. A lot scholars argued that SMEs there are some major barriers that hinders SMEs some transition countries. "In most transition economies there is a surplus of new firm entry" (Bartlett, 2002). Even though some countries are on transition and implemented various policies and agreed with the principles, they tend to still reserved and protect their socialist heritage which is capable to become an impediment to progress (Sturm, R., Muller, M.M. and Dieringer, J., 2000).

Some vital SMEs merits include:

- The motivation of pursuit and carry out businesses;
- The usage of high innovation in technologies which positively create jobs for the masses;
- The capacity to make great fast profit as well;
- The possibility to go beyond a geo-location to farther market even intercontinental with no limit;
- The perception has always been there in the mind of numerous scholars who argued that a time will come when SMEs can have formed an alliance that will be able to favourably compete with powerful and bigger firms. confirm the importance of the role of SME's in the economic growth in transition countries. (Gruda S.and Milo L.,2010)

Multiple obstacles prevent the advancement of SMEs those demerits include: -

- Bureaucratic bottle-necks;
- Inability of a micro-firm to harness it resources and forge ahead economically;
- Disadvantageous factors or influences that are originating from outside the company;
- Inadequate funding to expand and rapidly develop.;
- Lack of strategies to collaborate with other firms. (Smallbone 2003; Bartlett and Bukovic, 2001)

Experts are of the viewed that there are attributes or features that accelerate or hasty the advancement of SMEs:

- Environmental factors and Regulations, as enforced by the state agencies (The vast numbers of policies and guidelines to enlist a business entity, the fee to be pay, the legal document to sign, the mode of which such business can be allow to operate and law governing property and so on etc.);

Business expertise and investment skills (enterprise knowledge, business skills, entrepreneurial information and so on.); Aidis (2003) states: "...productive entrepreneurship cannot be taken for granted in transition countries, and is influenced both by the current institutional weakness, as well as by historical legacies." Societal interactions and business laws (those are laid down laws in tends how business must legislations on who can set up business, how to register and begin, what is the business obligation to the society and so on.); Funding aid or grant to SMEs, micro-ventures (these are basic funding that promote business existence such as low interest rate loans, interest-free loans, tax-holidays or tax waivers are various ways of encouraging entrepreneurship) Free business consultant services for SMEs (experts advise can be helpful to new entrepreneurs or struggling SMEs to recovered and yield better results, networking with others firms and updating information every now and then to keep up with trends.) Ability for a company to penetrate the market by supplying constantly to already available consumers is vital for the SME survival and efficient and effective in business. Soft landing ground to motivate SME new entry (if the chance to profit more than loosing is high, more investors will be motivated) while the obstacles should be far less for the starters (SME that are struggling to cope after a while should allow to quit if they decided to leave unconditionally) they level competition should among firms should be transparent enough for every firm to survived in business. Equally opportunity should be given to every firm as well. Greener pastures are constantly being seek for by all investors. Therefore, SME is not an exception in terms of entrepreneurs always on a look-out for opportunities because of the dynamics of business world. Schumpeter (1954) argued most innovations of a nation and its technical skill derived through technologies are spear-headed by bigger enterprises because they are the driving force in every society due sizes and ability to invest heavily into research and development and compete favourably worldwide. (Gal, 2004). Gal (2003) opined that a big enterprise is able to spear-head innovation by investing heavily to achieved breakthrough, however, he pointed out that the spreading or distribution of the technology to the end-users. therefore, the

larger firm might not be effective in that aspect. Having known the theoretical composition of this study, it's easier to acknowledge the great windows of chances abound for SME-s in Kaduna as regards to funding process and long terms strategies to establishment and develop a viable lucrative business.

2. Hypotheses of Development via Game Theory Approach (GT)

Principal aim of these hypotheses formulation is the applicability of game theory in solving SMEs financial challenges

H1: Bank's account statements in respect to SMEs is void of consistency

H2: Scarcity modern technology hinder SMEs capability to payback loan(s) received.

H3: SMEs abused their permitted privileged to operate their various ventures.

H4: Utilization of SME 's owner bank's savings and f-Links is adversely non correlation with business size.

H5: Utilization of SME 's owner bank's savings and f- Links is adversely non correlation with age

III. METHODOLOGY

1. Research Goal

The major focus of this study is to identify the prospect of SMEs businesses can be viable in their operations through robust funding obtainable via accessing of medium term Bank's loans facilities at ease. It can further fostered or boost them through joint collaborations especially in banks branches situated and operating in Kaduna city. We utilised two structured questionnaires to effect the survey.

2. Sample and Data Collection

Both primary and secondary data were used. Instrument used to gather primary data was the questionnaires. 15 bank's workers of difference banks numbering about 5 from various local banks were interviewed. However, the second stage of information gathered via a random means of spreading questionnaires to various sectors of SMEs. Furthermore, questionnaire was subjected to pre-testing and necessary improvement were done before the survey was carry out. Those answered questionnaires were analyzed via SPSS Statistical program including up to five suggested relations were also test using regression analyses. Similarly, variety of secondary data from published officially statistics from National statistics Centre of Nigeria (NSC) annual report of concerned banks such as Cooperative

Bank of Nigeria and the Federal Ministry of Finance, websites etc.

3. Results and Analysis

Variables gotten from A five-point Likert scale statements were utilized to measures as follow: 1- strongly disagree (very low) and 5-strongly agree (very high). Significance test value were tested 0.05 having collected primary data, hypotheses as well.

Table 1: Hypotheses 1.

Confidence Level	Z observed value	Z value	Decision
95%	1.04	1.64	Null hypothesis is
			accepted

The table showed that 46% of investors operating SMEs did not recruit an accountant.

Table 2: Hypotheses 2

Confidence Level	Z observed value	Z value	Decision
95%	2.18	1.64	Null hypothesis is
			rejected

The vital measures employed by the bank before approving loan to SME was the yearly net profit and the age of the business.

Table3: Hypothesis 3.

Confidence	Z observed value	Z value	Decision
95%	2.16	1.64	Null hypothesis is
			rejected

Kaduna city's branches of banks will first and foremost, verified if the SMEs submitting loan application is duly approved. This happened to be the major reason before they are considered.

Hypotheses were tested in table 4 using the regression analysis to conduct the test between variables as follow:

Table 4. Regression Analysis Results on tested H4 & H5 hypotheses

Regression Model	Independent Variables	Depended variables	Standardized 3	Sig.	Adjusted R ²	F Value	Model Sig.
1	Age	Private Account of SME	-,160 **	.027	.540	32.660	,027
2	Size	Private Account of SME	-,160**	.000	.371	29,953	,000

Notes: a LRF – Likert Response Format (Five point: 1=strongly disagree to 5=strongly agree)

Table 4. There is a significant relationship between SME owner that is "f -Links" to private bank savings account of SME owner, as shown, the number of years establishing the firm, Age Firm (P=, 160; p=,027) certainly have significant relationship as regard private savings by SME owner. Furthermore, firm size (3=-,620; p=,000) therefore, private account also has significant relationship as well. However, has showed in As1and 2, as age of the SME firm advances, there is greater reduction of private account by SME owner spent on his business. Therefore, the hypotheses H4 and H5 strongly agreed with the regression analysis outcomes.

At various stages of their relationship and collaborations, the SMEs and the banks can mutually co-exist in the game of business relationship. (Here we tried to look at a complexity in information) SME and Bank are drawn in a simple Game theory (GT) matrix payoff.

The Game of lack of sufficient information

	Interest rate of SME is Zero	SME returns the loan repayment in time
The bank sector do not grant funding to SME	(0,0)	
The banking sector grant funding to SME		(+1, 1+)

Since the information is asymmetric, the above state is difficult to be met in real life. Since the banks use the SMEs official annual statement as evaluation document of financial situation The asymmetric cannot be able to reflect 100% reality but can guide our knowledge, because bank make use of SME yearly net worth profit of bank statement of account for evaluation of their funding. The incident of having two account made the situation a bit complex to simplify. However, there are three likely actions a bank might take to evaluate or inspect a SME trying to get a bank's loan:

1. So long the bank accepts the loan request:
 - i. Can be able to generate returns (having good business strategy SME)
 - ii. high chances of non- profit (faulty business strategy SME)

The might lose a great chance of raking in a great profit for themselves, if the declined to loan out a viable SME business a start-up fund. Seeking relevance information can be very expensive especially when it's come to asymmetric data, this could be counter-productive for a bank's credit unit searching for such information on behalf of SMEs.

IV. CONCLUSION

The real situation which is inadequate information as regards to SMEs financing in Kaduna city is summarized as follows; the survey was conducted on 5 local Banks's head offices branches and also 50 SMEs, were randomly selected and highlighted. Most SMEs establishments in Kaduna city lack formal arrangement and are therefore not well structured, their semi-form ("f linking") in connection with banks can be formalized to eliminates the vacuum created by absence of formality between SMEs and banks. This issues can resolve officially by collaboration and linking SMEs with Banking sector. Similarly, the need to restructure the credit rating system by the Banks in Kaduna city which go a long way of accessing more credible information regarding their SMEs clients. The urgent need to establish a nationwide credit rating Agencies; that is a rational bank that would work hand in hand with the accredited agencies or SMEs representatives will go a long way, in the reduction of excessive cost that could be incur in the process of gathering information for SMEs. Special data's bank can be built to cater only for SMEs needs ensuring a transparent and effective method of identifying SMEs financial status including their credit and many more vital services by optimum utilization of the built system. In this 21st century such a system should be up and running to establish a bond of business friendly atmosphere between banking sector and SMEs. This union can foster greater benefits such as SMEs, can decide to pursuit a long-term business development plan instead if favorable conditions are readily available. Furthermore, having set-up an integrated data base for all SMEs operators in the city, will take the issues such as, unavailability of historical records of SMES, standing credits situation, net/gross profits, quarterly income, past loans, debts and so on. In view of the long term benefits on both sides there is the need for mutual cooperation and collaboration between the SMEs and Banking sector to have a healthy bilateral relationship on a long term basis. According to Lin, this kind of relationship have more favorable outcomes, like elimination of credit risk, enhance credit profit or return, minimize funding cost, facilitate competitions which could generate high quality production among SMEs (Lin,2012).

V. REFERENCES

- [1] Acs, Z. J., Audretsch, D. B. (eds.) (1993), "Small Firms and Entrepreneurship: An East-West Perspective", Cambridge: Cambridge University Press.
- [2] Albania" PECOB's Papers Series, December, 6, 7-10
- [3] Aidis, R., (2003), "Entrepreneurship and economies in transition" Tinbergen Institute Discussion Paper No. 2003, 015/2
- [4] Ayyagari, M., Beck, T. and Demircuc Kunt, A. (2003) "Small and Medium
- [5] Bartlett, W. (2002) "Barriers to SME Development in Bosnja, Macedonia and Slovenia: A Comparative analysis" paper presented in the conference
- [6] Berthon, P., Ewing, M.& Napoli, J. (2008). Brand Management in Small to Medium - Sized Enterprises, Journal of Small Business Management, 46 (1), 27-45.
- [7] California Management Review, Vol.10, No.01, 1967, pp.3-16.
- [8] Covin J.G. (1991): Entrepreneurial Versus Conservative Firms: A Comparison of Strategies and Performance, Journal of Management Studies 28
- Smallbone D and Ram M. (2003), "Policies to Support Ethnic Minority Enterprise: the English Experience", Entrepreneurship and Regional
- [9] Development 15, 2, 151-166 (5), pp. 439- 462.
- [10] D.C., IMF.INSTAT (The Institute of Statistics) (2011) Repertori i Ndermarrjeve Ekonomike (Sipas Prefekturave) 2011 (Reporter on Enterprises according to the counties, 2011), Tirana, The Institute of Statistics.
- [11] Enterprise Development in Central and Eastern Europe "Comparative economic studies. Source: EBSCO Cook, P., Katalunya, D., Nix son, F. and
- [12] Fogel, G., Zapalska, A. (2001) "A comparison of Small and Medium - Size
- [13] Gal, M. (2003) "Competition Policy for Small Market Economies"
- [14] Gal, M. (2004) "Market Conditions Under the Magnifying Glass: General Prescriptions for Optimal Competition Policy for Small Market Economies" working paper, New York University
- [15] Gibb, A., & Scott, M. 1985. Strategic awareness, personal commitment and the process of planning in the small business. Journal of Management Studies, 22(6): 597-630
- [16] Gibus P., Kemp R.G.M. (2003): Strategy and Small Firm Performance, Research Report, Zoetermeer, SCAL ES, Scientific Analysis of Entrepreneurship and SMEs.
- [17] Gruda S. and Milo L. (2010) "SMEs development and competition policy in
- [18] International Monetary Fund (2000a) Albania: Statistical Appendix, International Monetary Fund Staff Country Report No.00/87, Washington,
- [19] INSTAT (The Institute of Statistics) (2008) Registry i Ndermarrjeve Ekonomike (Business Register), Tirana, The Institute of Statistics.

- [20] Kolodko, G., W., (2000), “Transition to a market economy and entrepreneurship: the system factors and policy options”, Communist and Post-Communist studies.
- [21] Lin L.P (2012) Game Analysis of SME Financing, Journal of Financial Risk Management 2012. Vol.1, No.4, 64-67.
- [22] Pearce J.A., Robinson R.B.J. (1985): Strategic Management: Strategy Formulation and Implementation, Homewood, Illinois, Richard D. Irwin, Inc.
- [23] Smallbone D and Ram M. (2003), “Policies to Support Ethnic Minority Enterprise: the English Experience”, Entrepreneurship and Regional Development 15, 2, 151-166
- [24] Steiner, G.A., Approaches to Long Range Planning for Smaller Business, Sturm,
- [25] Quartey P.(2002)“Small Enterprise Development in Developing
- [26] Countries”, Mimeo, University of Manchester Economic Development in South- East Europe: the role of SMEs Inter -University Centre, Dubrovnik Enterprises across the Globe: A New Database”, World Bank Policy Research Working Paper 3127
- [27] R., Muller, M.M. and Dieringer, J. (2000), Economic transformation in Central and Eastern Europe: towards a new regulatory regime? Journal of European Public Policy, Volume 7, Issue 4, 2000, Pages 650 – 662.