

UNIVERSITI PUTRA MALAYSIA

RISK AND NON-RISK BASED CAPITALIZATION EFFECT ON PERFORMANCE OF LISTED INSURERS IN NIGERIA

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GSM 2018 29



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By

AKPAN SUNDAY SUNDAY

Thesis Submitted to Putra Business School in Fulfillment of the Requirements for the Degree of Doctor of Philosophy

March 2018

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DEDICATION

To my late parents and brothers Mr. / Mrs. Sunday A. Edemidiong, Mr. Imoh S. Akpan and Mr. Nsikak S. Akpan and Late Prof. D. B. Ekpenyong and loved ones departed in memory of their love and wishes which have continuously reminded me that education is the key to unlocking one's innate potentials for the benefits of humanity.



Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

RISK AND NON-RISK BASED CAPITALIZATION EFFECT ON PERFORMANCE OF LISTED INSURERS IN NIGERIA

By

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March 2018

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Financial theories and past researches consider a firm's capital structure as comprising debt and equity. However, insurers' capital structure is different; it comprises equity and technical provisions. Particularly, the dynamic tradeoff theory explains the speed of adjustment (SoA) to target capital and associated behavior of firms at trading off irrelevant costs to improve performance. Empirical studies that test this theoretic prediction under different policy regimes within insurance firms are scarce. Risk capital theory says firms that are vulnerable to bankruptcy should hold high capital to be solvent, an idea behind risk based capital (RBC) policy implementation; this seems to have received little empirical attention. Moreover, due to contradictions in past empirical findings, researchers have suggested that the effect of RBC should further be investigated with latent variables as intervening in capital-performance nexus. To date, there is doubt on any existing empirical work in this area. This study was thus conducted to shed these research gaps by examining the direct and indirect effect of capital structure on insurers' performance with corporate risk profile (CRP) as a moderator comparatively during non-RBC (NRBC) and RBC regimes in Nigeria. It also compares and statistically tests if insurers' performance during RBC and NRBC era is significantly different.

To achieve these objectives, direct and indirect 2SLS FE and RE models were applied. It tests the effect of capital structure (measured by equity ratio -EQR and technical provision ratio –TPR) on insurers' performance (measured by return on assets - ROA, return on equity – ROE, and earnings per share - EPS) with CRP (measured by opportunity asset risk - OAR and corporate risk-taking behaviour - CRB) as moderating variables. Also, dependent sample and Wilcoxon signed-rank t-test statistics were applied to analyze insurers' ROA, ROE, and EPS before and after RBC policy implementation. Fifteen (15) listed insurers in Nigeria were studied

eight years (1995-2002) before and eight years (2008–2015) after RBC policy implementation. Empirical results of the direct effect model reveal, in general, that TPR affects insurers' performance significantly and positively than equity in NRBC than in RBC era; equity had a significant positive effect on ROA and EPS, but a significant negative effect on ROE in RBC regime. The indirect effect models reveal generally that, CRP does not moderate insurers' capital structure and performance association; meaning that insurers do not take high risk, especially during RBC regime. The last model reveals that insurers' performance significantly reduced after RBC policy implementation.

Based on these empirical results, this study has demonstrates that RBC does not improve insurers' performance; and that, insurers' risk-taking preferences do not explain their performance beyond the level explained by their financing mix. The theoretical argument is that RBC may not be a bad policy; rather, the manner and strategy of implementation may be inappropriate. Therefore, there is need for strategic policy review to incorporate performance risks, while insurers should focus their strategies on which fund to use for which type of risk to take in RBC scenario to satisfy the interest of all stakeholder. Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

RISIKO DAN MODAL BERASASKAN-RISIKO KESAN PRESTASI SYARIKAT INSURANS YANG BERDAFTAR DI NIGERIA

Oleh

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Teori berkait dengan kewangan dan kajian terdahulu menyatakan bahawa struktur modal syarikat terdiri daripada hutang dan ekuiti. Walau bagaimanapun, struktur modal syarikat insurans adalah berbeza memandangkan struktur modalnya terdiri daripada ekuiti dan peruntukan teknikal. Secara khususnya, teori tradeoff yang dinamik ini menjelaskan tentang kelajuan untuk mencapai modal dan tingkah laku firma pada kos perdagangan yang tidak relevan untuk meningkatkan prestasi syarikat. Didapati, kurangnya kajian empirikal yang mengkaji ramalan teori dalam skop firma insurans. Teori modal risiko mengatakan bahawa syarikat yang berpotensi untuk bankrap dengan mudah harus memiliki struktur modal yang tinggi supaya ia mudah dilupuskan, dimana pandangannya dikaitkan dengan pelaksanaan polisi risiko berasaskan modal yang didedahkan dalam kajian emperikal. Disamping itu, disebabkan wujudnya percanggahan diantara penemuan-penemuan kajian lepas, penyelidik telah mencadangkan kajian lanjut dilaksanakan dengan para menggunakan moderator sebagai pembolehubah dalam hubungan antara modal dan prestasi. Sehingga kini, terdapat banyak keraguan dalam kajian emprikal sedia ada. Sehubungan itu, kajian ini dijalankan untuk mengurangkan jurang penyelidikan tersebut dengan meneliti impak secara langsung dan tidak langsung ke atas struktur modal prestasi syarikat insurans dengan menggunakan profil risiko korporat sebagai moderator semasa pelaksanaan NRBC dan RBC di Nigeria. Kajian in juga membuat perbandingan dan menjalankan kajian secara statistik samaada prestasi insurans semasa pelaksanaan RBC dan NRBS mempunyai perbezaan.

Untuk mencapai objektif-objektif tersebut, modal langsung dan tidak langsung 2SLS FE dan RE telah digunakan untuk menguji kesan ke atas nisbah ekuiti (EQR) dan nisbah peruntukan teknikal (TPR) sebagai pengukur kepada modal pulangan atas aset (ROA); pulangan ke atas ekuiti (ROE) dan perolehan sesaham (EPS) sebagai

pengukur prestasi insurans dengan CRP diukur dengan peluang aset risiko (OAR) dan tingkah-laku korporat berbelah bagi (CRB) sebagai pemboleh ubah moderasi. Selain itu, dependen sampel dan statistik ujian-t Wilcoxon telah digunakan untuk menganalisa ROA, ROE dan EPS ke atas syarikat insurans, sebelum dan selepas pelaksanaan RBC. Sebanyak 15 syarikat insurans tersenarai di Nigeria dikaji dalam tempoh 8 tahun sebelum (1952-2002) dan lapan tahun selepas (2008-2015) selepas pelaksanaan RBC. Keputusan empirikal modal kesan langsung secara umumnya mendedahkan bahawa TPR mempunyai kesan ke atas syarikat insurans secara ketara dan positif berbanding ekuiti dalam NRBC daripada era RBC; ekuiti mempunyai kesan positif yang besar ke atas ROA dan EPS, tetapi kesan negatif ketara ke atas ROE dalam situasi RBC. Modal kesan langsung secara umumnya mendedahkan bahawa, CRP tidak memberi kesan kepada struktur modal syarikat insurans dan prestasti yang berkaitan dengannya, bermaksud syarikat insurans tidak mengambil risiko tinggi, terutamanya dalam tempoh pelaksanaan RBC. Modal yang terakhir mendedahkan bahawa prestasi insurans berkurangan secara ketara, terutamanya dalam tempoh selepas pelaksanaan dasar RBC.

Berdasarkan keputusan empirikal ini, kajian ini telah menunjukkan bahawa RBC tidak mengubah prestasi syarikat insurans; dan keinginan mengambil risiko oleh penanggung insurans tidak menjelaskan prestasi mereka untuk meningkatkan variasi dalam pembiayaan mereka. Oleh itu, wujud keperluan untuk menyemak semula polisi yang strategik untuk merangkumi prestasi risiko, manakala penanggung insurans harus memberi tumpuan untuk menyeragamkan dana yang bersesuaian dengan risiko yang diambil dalam senario RBC untuk memenuhi kepentingan semua pihak berkepentingan.

ACKNOWLEDGEMENTS

My greatest thank goes to God Almighty for preserving my life and giving me the opportunity to attain this fit happily amidst numerous challenges. I am grateful for all members of my supervisory committee comprising Assoc. Prof. Dr. Fauziah Mahat, Assoc. Prof. Dr. Bany Ariffin Bin Amin Noordin, Prof. Dr. Annuar Bin Md Nassir for their objective and constructive comments and suggestions that have added up to making this research a worthwhile academic piece. Special thank goes to my foster father and mentor Prof. Ntiedo J. Umorem for creating, nurturing and working un relentless always to ensure that I have a good career life and personal self contentment. Thank you Prof.

I thank my sponsor – NAICOM and all its staff and leadership for providing funds and data/information for my research, while I thank the Management of the University of Uyo for providing me the platform to benefit from their sponsorship. I acknowledge the contributions of seasoned academics in the persons of Prof. Trenchard O. Ibia, Prof. Leo Ukpong, Prof. Alfah Salleh, Prof. Foong Sieu Yau, Prof. Othman Young, Prof. Sambasivan Murali, Prof. N. I. Ibok, Dr. E. E. Essien and, Assoc. Prof. A. I. Ayandele. As a growing scholar, I have learned so much from great scholars like Dr./Dr. (Mrs.) U. Ubom, Dr.(Mrs.) U. E. Joseph, Dr. M. N. Pius, Dr. N. I. Etukafia, Dr. A. E. Effi, Dr. E. E. Akpanuko. Dr. J. O. Udoidem, Dr.(Mrs.) I. N. Ebito, Mr. M. N. U. Akpan and my colleagues, I thank you all.

Deep in my heart, I owe an immeasurable gratitude to my wife, Mrs. Ndifreke S. Akpan for playing a rare supportive role, showing love, understanding and wisdom when it matters most and exercising patience as I went through this programme; we understand better, thank you. At the bottom of my soul lie my happiness for the support I received from my brothers, sisters and relatives amongst whom are Ms. Esther S. Akpan, Mr. E. S Akpan, Mr. I. S Akpan, Mr./Mrs. V. U. Edoghoeket, Mr./Mrs. G. D. Etim, Mr./Mrs. S. G. Etuk and family, Mr./Mrs. Ofonime A. Edem, Mrs. Julia T. Ebong, Mr./Mrs. P. D. Asuquo, Mr./Mrs. E. F. Udo, Mr./Mrs. M. U. Akpan, Mr./Mrs. S. A. Edemeiding, Mr./Mrs. B. A. Edemidiong, Mr./Mrs. M. O. Ekanem and, all members of their families, immediate and extended inclusive.

 \bigcirc

To my covenant brother and family - Rev./Mrs. Moses Okpok, thank you for your prayers and words of hope and encouragement at all times. My appreciation goes to Mr. Benson Ekpenyong, Hon. Justine Ekong, Mr. Out Nsa, Mr. Napoleon Tam, Mr./Mrs. Livingston, Mr./Mrs. Kufre Sam and families for all their supports, Mr./Mrs. Sunday Muffat. And, to my mates and friends: Dr. B. T. Matemilola, Dr. Peter Adams, Mr./Mrs. Justine Osuagwu, Mr. Ibrahim Garange, Mr. Ibrahim Mammud, Mr. George Agbamese, Mr. Ali Mosin, Mrs. Vani Ananthan, Ms. Shubasini, Mrs. Lee Y. Y., Ms. Ofonmbuk Jumbo, Mr. Boniface Ekanem, and Mr. U. E. Hanson, I am grateful for all your contributions and for being there for me. To those who, by deficiency of my memory, I could not mention, please forgive me and know that I appreciate your contributions and supports.

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LIST OF ABBREVIATIONS

2SLS	Two-Stage Least Square
BAAT	Branch Adequacy of Assets Test
BRP	Business Risk Profile
CAR	Capital Adequacy Ratio
CLRM	Classical Linear Regression Model
CRB	Corporate Risk-Taking Behaviour or Risk-Taking.
CRP	Corporate Risk Profile
DCAT	Dynamic Capital Adequacy Test
DFL	Degree of Financial Leverage
EPS	Earnings per Share
EQR	Equity Ratio of Equity Fund
ERM	Enterprise Risk Management
FCS	Fixed Capital Standard
FE or FEM	Fixed Effect or Fixed Effect Model
FSB	Financial Stability Board
FSC	Financial Services Commission
FSCJ	Financial Services Commission of Jamaica
IAIS	International Association of Insurance Supervisors
ICS	International Capital Standard
IMF	International Monetary Fund
LAE	Loss Adjustment Expenses
MCC	Maximum Capital Ceiling
MCCSR	Minimum Continuing Capital and Surplus Requirements
MCM	Maximum Capital Margin

MCR	Minimum Capital Requirement		
МСТ	Minimum Capital Test		
NAIC	National Association of Insurance Commissioners		
NAICOM	National Insurance Commission		
NBS	National Bureau of statistics		
NIA	Nigerian Insurers Association		
NRBC	Non Risk-Based Capitalization		
NSE	Nigerian Stock Exchange		
OAR	Opportunity Asset Risk		
OSFI	Office of the Superintendent of Financial Institutions		
PCR	Prescribed Capital Required		
RAR	Ruin Asset Risk		
RBC	Risk-Based Capitalization		
RE or REM	Random Effect or Random Effect Model		
RMR	Required Maximum Ratio		
ROA	Return on Assets		
SoA	Speed of Adjustment		
TAAM	Test of Adequacy and Margin Requirements		
TPR or TPF	Technical Provision Ratio or Technical Provision Fund		

CHAPTER 1

INTRODUCTION

1.1 Background to the Study

Theories of capital structure and past researches consider the structure of nearly all organization's capital as consisting of debt and equity. But capital structure of insurance companies is composed of equity and technical provisions which tend to differ from non-insurance firms with significant relation to insurer's risk propensity (Florio & Leoni, 2017; Eling & Marek, 2014; Cheng & Weiss, 2012; Baranoff, Papadopoulos, & Sager 2008). A review of empirical paper by Santosa & Farinellib (2015) reveals that 124 articles have been published on capital structure in reputable journals globally from 2009 – 2014. This confirms that capital structure is a topic that has received an extensive literature in corporate finance (Dhaene, Hulle, Wuyts, Schoubben, & Schoutens, 2015).

The above shows how important capital structure is to every firm and the desire for more studies on how best to optimize it for highest possible profit and wealth maximization. However, Dhaene *et al.* (2015) regret that insurance firms are virtually all the time left out in empirical studies on capital structure and firm performance. The authors identified many benefits of insurance and suggested future pathways for inclusive empirical studies involving insurance capital, its regulation, and links to and with other corporate assets and practices to better understand and appreciate the role of insurance in an economy. Against the startling empirical findings that some insurance reforms seem to be counterproductive and placed high fixed costs of operations in terms of monitoring, negotiations etc (Bikker, 2017), the role of insurance in any economy remains undisputed.

These roles sit primarily in the domain of risk management (RM) and finance researchers consider insurance industry as a good field for studying RM. Therefore, it suffices to say that RM begets insurance, and in turn, insurance fosters and manages risks. Risk may be difficult to define, but it connotes the possibility that events will develop worse than planned. It is the "uncertainty concerning the occurrence of a loss (Redja, 2008, p.3)". Risk is pervasive and ubiquitous; it cannot be stopped but can be managed either by controlling it or by financing it.

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Risk control involves the use of techniques such as avoidance, loss prevention, and loss reduction to reduce the frequency or severity of losses. Avoidance means not acquiring the loss exposure in the first place or abandoning an existing loss exposure; example is avoiding flood loss by not building on a floodplain. Prevention means taking necessary steps to reduce the frequency of a particular loss; an example is preventing vehicular and site accident by strict enforcement of safety rules. Reduction implies adopting measure to reduce the severity of a loss after it has occurred; for example reducing the amount of cash at hand to reduce the loss resulting from robbery or burglary. Risk or loss financing involves using techniques such as loss retention, noninsurance transfers, and insurance to provide for the funding of losses.

Risk retention is about retaining parts or all the losses that can result from a given loss; for example consciously disclosing all properties lost in an events and express decision to share in the loss. Noninsurance involves using methods other than insurance and excluding retention and control techniques to transfer to another party a pure risk and its potential financial consequences; for example contracts, leases etc. Insurance is the pooling of fortuitous losses by transfer of risk to insurers who agree to indemnify the insured for the losses, provide other pecuniary gains on the occurrence, or render services linked to the risk (Redja, 2008).

Insurance is considered the best and potentially effective and efficient means of managing risk due to its characteristics and roles (Akpan, 2011; Redja, 2008). Briefly, insurance as a mechanism, spreads the loss of little among large and many persons. Insurance indemnifies policy owners, and ultimately restores the insured approximately back to normal condition. Regarding its roles, insurance plays a critical role in a well-functioning economy as it provides payment in the event of unexpected losses (Yusuf & Yusuf, 2010). It guarantees security and individual and corporate longevity, generates employment, and reduces the financial implications of disasters (Hamadu & Mojekwu, 2010; Akpan, 2013). Redja (2008) summarizes the importance of insurance to include indemnification for loss, reduction of worry and fear, source of investment funds, loss prevention, and enhancement of credit.

In this contemporary time, concerns are less on whether to have insurance or not because, a business or society without insurance is unimaginable and unthinkable if not inexistent. Rather, one of the most important areas of concern now is making insurance companies sufficiently solvent and capable of fulfilling not only their underwriting risk liabilities; but also their short- and long-run obligations and responsibilities to all stakeholders; and, above all, maintains a sustainable, competitive, and superior overall performance in the financial sub sector of an economy. The liabilities and responsibilities insurance companies owe its stakeholders include indemnification (to the insured), good returns on investment and asset (to the investors and the firm), payment of salaries/wages, allowances and entitlements (to the employees) etc. By these, insurance firms are expected to be solvent and financially strong to play its role and fulfill its obligations. To be solvent, an insurance company can rely on adequate capitalization (NAICOM, 2015), reinsurance, risk trading and securitization (Mutenga & Staikouras, 2007) and several other means (Al-Amri & Gattoufi, 2012; Cheng & Weisss, 2012; Cheng, Elyasiani & Lin, 2010; Fields, Gupta & Praskash, 2012; Hau, 2007)

However, of all these strategies, adequate capitalization has been identified as the primary strategy for reducing insurance insolvency and poor performance. And because insurance companies are 'mechanical' entities, requiring strong institutional and regulatory actions to operate, insurance regulators have usually focused on insurance capital regulation; partly to tackle among others, the problem of weak institutional framework faced by insurance companies in emerging markets, and partly to boost solvency and improve performance. According to Zec (2012), allocating capital is an instrument for managing insurance firms. Consequently, insurance capital base has become the target of reform and regulatory actions in anticipation of better performance

Myers & Reads (2001) refers to capital as "surplus" and aver it as collateral for outstanding policies. The paramount reason for capital is to improve claim-paying ability of firms. Many scholars cited above, joined IAA (2004) in acknowledging the importance of capital position and its regulation in business performance as illustrated in Fig.1 (see Appendix E). However, frequent regulation has become a source of worry and of research interest. Of serious and curious regulation of insurers' capital base is the proscription of fixed capital standards (FCS) on grounds that it is non-risk based and does not guarantee required solvency; and, the introduction of risk based capital (RBC) requirement by EU's and US's international regulatory bodies such as FSB (Financial Stability Board) and the NAIC (National Association of Insurance Commissioners).

RBC is defined as the amount of capital required by a company to protect itself against adverse movements in its risk profile (Oyugi & Mutuli, 2014). According to Hartman, Braithwaite, Butsic *et al.* (1992), the main purposes of RBC requirement are: i) to permit regulatory attention and, ii) change company behavior. Under the first purpose, RBC enables regulators discriminates meaningfully between the insurers that need regulatory intervention due to potential capital inadequacy and those insurers, which do not require such intervention. The second purpose is to lead the management of insurance firms to modify their behavior in order to carry sufficient capital to avoid regulatory intervention. However, it seems that the implementation of RBC in Nigeria is generic; that is, for all insurers regardless of whether an insurer requires intervention or not, because the formula cannot accurately discriminate in every circumstance (Hartman *et al.*, 1996).

Consistent with the theory of risk capital, RBC implies that firms having high risk level must correspondingly have high capital level to provide cushion for the high risk. It restricts the volume of risk a firm can assume. In contrast, FCS does not take into account insurer's risk exposure level. It means a certain fixed amount of capital should be kept by insurance firms depending on the lines of business and regardless of their risk exposure or volume of risk assumed. In this context, FCS is considered non-risk based capital (NRBC) or ex ante capital. Explaining the difference between RBC and NRBC regime, Hartman *et al.* (1996, p. 214) said, "…a risk based capital requirement represents a potentially significant improvement over current capital requirements, which do not effectively respond to the changing riskiness of an

insurance company." For clarity, Fig. 1.1a and Fig1.1b illustrate an outlook of capital structure under NRBC and RBC regimes



Figure 1.1a : Simulation of a Firm's Capital Requirement Source: Inference from Shimpi & Re (2002)



Figure 1.1b : Illustrating capital requirement under NRBC and RBC Era Source: Researchers

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In NRBC regime, regulators used two tools to monitor required capital. These are: i) statutory minimum capital and surplus requirement which have been considered unrealistic and outmoded; and, ii) premium-to-surplus rule-of-thumb, which has been viewed as not reflecting relative riskiness of insurer effectively (Hartman *et al.*, 1996). With these tools, regulators had little or no statutory power to ask any insurer to increase their capital except its surplus falls below the statutory minimum. And to acquire that power and raise insurer's safety net up, RBC requirement became an empowerment tool. Inferring from this and from the study of De Haan & Kakes

(2010), the researcher argues that RBC account for insurer's risk profile or level whereas NRBC does not. There are however, growing criticisms against RBC by all stakeholders (NIA, 2015). Hartman *et al.* said that, experience from similar policy directives (solvency I) was not so good. There are however, other RBC regimes implemented in other climes (see detail in Appendix F)

Some critics say RBC policy is inconsistent and unsuitable for developing economies as it made more insurers inefficient as managers often depend on the resulting excess capital to fulfill any obligation that may arise in the short-run. Excess capital carries cost called rental cost which is defined as an overhead cost that raises the average costs of firms and it grows as excess capital grows (Toporowski, 2008). Except in an oligopolistic market where there is no competition, rental cost of excess capital is a competitive disadvantage to firms in a competitive market like the Nigerian insurance market. Thus under this market condition, it is unprofitable to hold significant amount of excess capital. Therefore, whether such regime change would enable insurers to manage their risk exposures effectively and efficiently in an emerging economy and allows for improved performance as capital increases remain the overarching concern this study seeks to examine in Nigerian insurance sector.

1.1.1 Profiling Nigeria and her Insurance Sector

This study was conducted in the Nigerian insurance sector for both theoretical and country-specific reasons. First, it is imperative to justify why Nigeria is the focus of this study and second why insurance sector is considered for investigation. From theoretical perspective, emerging markets like Nigeria are ideal setting for testing capital structure theories due to the presence of market imperfections that encourage high renting behavior by economic agent (Seifert & Gonenc, 2010). The authors' finding suggests that, environment in which a firm operate affect the firm's choice of financing. This means that economic factors in a country can influence business and as such should be integrated and perhaps controlled in models of capital structure–performance relation.

Additionally, as an emerging market, Nigeria may share such attribute as improved risk measurement and assessment, improved public confidence, consistency with global trend, enhanced competitiveness in the global insurance market, and so on. But, many insurance regulatory regimes in EMs do not call for RBC of developed countries' due to many reasons. Excepting South Africa, Kenya, Japan, and Australia, that had proper system for RBC, other countries in these regions have not had an easy acceptance and adoption of RBC (Contreras, 2013). Factors such as shortage of skilled resources, lack of consistent valuation methods, inadequacy of regulatory authorities, high cost of implementation, lack of data, and lack of cooperation by insurers etc., account for the rejection. With this, many insurers in EMs are likely to rise against regulation that may see them wiped out of the industry (Oyugi & Mutuli, 2014).



In Nigeria for instance, the number of insurance companies dropped from 188 in 1999 to 27 at the end of 2009 following the completion of the 2003 and 2005 capitalization exercises (Ibrahim & Abubakar, 2011). The negative effects of the drop include but not limited to unemployment, poverty, loss of returns on investment, disinvestment, and instability among other problems. The Nigerian insurance sector has thus faced several uphill challenges most of which emanates from frequent regulatory (policy) interventions and attendant constraints

1.1.2 Timelines of Capital Base for Nigerian Insurers

In summary, the timelines of regulatory intervention in the guise of recapitalization in the Nigerian insurance sector is presented in Table 1.1

Class of insurance	Capital requirements				
Class of msurance —	1997	2003	Increase (%)	2005	Increase (%)
Life insurer	N20Mil.	N150Mil	650.0	N2bil	1,233.0
General business	N20Mil.	N200Mil.	900.0	N3bil	1,400.0
Composite	N90Mil.	N350Mil.	288.89	-	-

Table 1.1 : Timelines of Capital Base for Nigerian Insurers

Source: NAICOM, 2015

As shown above, the recapitalization exercise first took place in 1997 and later in 2003, followed by another in 2005 among other exercises such as merger and acquisition, consolidation in 2007 etc. These were specified in Solvency I policy thrust of increased capital base in line with the risks that an insurer assumed. African Business Report (2007) x-rayed the Nigerian insurance sector following series of reform exercises in an attempt to transit to RBC regime. The excerpt below is self-evident of a troubling sector:

Whilst the industry accepted the rationale for the 'reforms', many insurers were not only concerned at the magnitude of the capitalization increases, they felt that the timing was unfair to the sector as it came during the final period of the banking sector's reform and thus after the capital markets had been repeatedly drawn upon by the banks. They feared market fatigue compounded by the grim reality of investor apathy for insurance stocks and the huge cost of taking capital levels to what some operators regarded as stratospheric heights. They believed that regulators had sounded the death knell for many insurers (p. 53) Among other important troubling issue, the above scenario makes the Nigerian insurance sector suitable for a study because her peculiar troubling times that has left a confounded effect on their performance as evidence in occasional liquidation and growing court cases between regulators and practitioners (Duru, 2008). Theoretically, the shift to RBC regime may be justifiable but empirically, a comparative study would not only compliment theory but may also avert criticisms and dangers in the industry. Against this background, it is imperative to investigate, comparatively, the performance of insurers under RBC and NRBC regimes, and how significant is the difference (if any) in Nigeria.

1.2 Statement of Research Problem

Until 2003, insurers in Nigeria operated under FCS regime where capital position was fixed in line with minimum capital requirement (MCR) policy for starting and doing insurance business in Nigeria. In 2003, the US introduced the concept of RBC (*Sic.* solvency I) and recommended it for developing economies. Nigeria, through NAICOM implemented it that same year (NAICOM, 2015). Thenceforth, variant forms of capital requirement reforms considered risk based have been implemented. In the aftermath, the performance of insurers in Nigeria as indicated in Fig 1.2 and 1.3 shows a sector that seems to be far from realizing its potential.



Figure 1.2 : Selected Report on Post-RBC Insurers' External Performance Indices in Nigeria

Source: Computed from NAICOM (2015) data





Source: Computed from NAICOM (2015) data

In both figures, different performance measures in different years exhibit a worrying growth status. For externally oriented performance (Fig 1.2), insurers' penetration rate and contribution to GDP each was less than 1%. Also, 3 out of 175 million Nigerians owning insurance policy; industry gross premium increasing by only 24% from N258bil in 2013 to N319bil in 2014. Further, insurance density pecking at only USD8.9, stock returns and debt yield being 40.48% and 10.95% respectively (NIA, 2015 and NAICOM, 2015). In internally oriented performance (Fig. 1.3), it is shown that insurance firms, on average, recorded significant improvement in net premium, while at the same time, incurring more management expenses, which could even-out the increase in premium. Again, the average growth rate of insurers in Nigeria as presented in Fig. 1.4 is not also encouraging after implementing Solvency I



Figure 1.4 : Trend of Insurers' Growth in Post-RBC Era in Nigeria, 2000 - 2012 Source: Computed from NAICOM (2015) data

As depicted in the above figure, rather than increased, the number of insurance companies between 2002 and 2006 reduced consecutively beginning from 2002 when the policy may have been selectively implemented or announced up to 2006 when the numbers increase probably due to the emergent of new insurance companies through merger and acquisition up to 2008. Afterwards, it shrunk again with the global financial crisis of 2008. The trend appears to reflect a highly unstable sector in spite of the implementation of RBC policy. In similar vein, premium contribution of Nigerian insurers following series of increases in capital base is presented in Fig. 1.5.


Figure 1.5 : Premium Contribution to World by Nigeria and other Countries Source: Computed from IMF data on insurance industry report for Nigeria.

Compared with other countries like South Africa, India, and Brazil as at 2006, the Nigerian insurers contributed less than 1% to world premium growth along with Brazil while countries like South Africa and India contributed more than1percentage. From international comparative perspective, it can be said that in spite of capital increase, the Nigerian insurance sector, from the point of premium contribution has not significantly done well. It still appears that the industry is still circumscribed from achieving any potential development (Okezi, 2013). This is because, in spite of the regulatory actions, insurance sector in Nigeria is rated as weak in terms of capital requirement, low contribution to GDPr etc. (IMF, 2013). Sadly, when assessing the performance of insurers in terms of business coverage by sector as contained in Table 1.2, it may be highly debatable that they are anywhere close to realizing its potentials and participating competitively in global insurance.

Sector classification	Insured		Uninsured		Total
	Number	%age	Number	%age	
Agriculture	353,585	10.71	2,947,193	89.29	3,300,778
Mining & Quarrying	9,596	13.62	60,847	86.38	70,443
Manufacturing	202,896	4.16	4,678,356	95.84	4,881,253
Sewerage, Waste Management and	0	0.00	7,875	100.00	7,875
Remediation Activities					
Construction	52,679	7.20	678,624	92.80	731,303
Wholesale and Retail	856,258	4.21	19,342,835	95.79	20,199,092
Transportation and Storage	198,541	11.83	1,552,913	88.17	1,751,456
Accommodations & Food Services	72,949	3.35	18,748,001	96.65	20,785,951
Information & Communication	33,361	10.17	294,752	89.83	328,113
Administration and Support Services	14,464	5.79	196,364	94.21	210,826
Education	11,192	10.72	93,228	89.28	104,420
Arts, entertainment & Recreation	33,491	1.40	357,117	98.60	390,609
Other Services	143,417	4.78	2,630,411	95.22	2,773,829
Total	1,989,796	5.39	34,910,113	94.61	36,899,909

Table 1.2 : Micro - Enterprises' Business Insurance by Economic Sectors

Source: NBS (2013)

Despite the implementation of several reforms including RBC policy, Table 1.2 reveals that insurance firms in Nigeria are only able to provide coverage to about 5.39% of the micro businesses leaving about 94.61% of these firms uninsured. Micro businesses are critical to a nation's economic development; they serves as a cradle for growth and socioeconomic wellbeing of a nation. Leaving this important sector uninsured may not speak well for insurance sector, not even the reforms. Notwithstanding all of these evidences, though none is specifically on any financial or market performance measures like ROA, ROE, or EPS, the EU and US in conjunction with NAICOM have announced their plan to implement Solvency II (another RBC requirement) anytime, periods 2016-2018 (EU, 2015; NAICOM, 2015 and Persaud, 2015). This announcement has added to the many existing issues such as poor attitude, weak institutional support, poor image that have affected Nigerian insurers (Yusuf, Gbadamosi, & Hamadu, 2009; Usman, 2009).

Against above review of possible low sector performance, statistics also show that, between 1995 and 2011, insurance sectors total claims have fallen short of total premium underwritten as illustrated in Fig. 1.6.



Figure 1.6 : Trend if insurers' total claim and premium in Nigeria, 1995-2011 Source: Computed from CBN data on insurance industry report for Nigeria

Above trend indicates that insurers in Nigeria have consistently had sufficient premium to cover claims except in 2005 when second round of recapitalization exercise was implemented. That year significant number of insurers were either merged or acquired and some went out of business by simply closing doors of business. From the above figure, it appears that eh volume of claim after RBC implementation became higher than before RBC policy. It could be argued that as capital increased, claim also increased. In other interpretation, higher capital could be described as weakening insurers' claim paying ability, otherwise there should not increase in claim. It could have been on this basis that some authors saw RBC defiantly. For instance, Irukwu (2005) decries the results of the exercise and argues that it was wrong for regulators to roll out several rounds of recapitalization in the industry when operators were yet to recover from similar previous exercise.

Nevertheless, other authors claim that the recent capital base is to be seen (which may mean it is not) as possible (and not sure) enabling magnet for local insurers to compete in global insurance market (Ladipo-Ajayi, 2005); yet others averred that in spite of the exercise, the sector has not been able to support the economy (Aghoghobvia, 2005). For Mutenga & Staikouras (2007), "modern insurers are compelled by regulators through some risk based policies [sic RBC] to form a realistic, but baseless view of their business risk exposures... (p. 421)". This implies that the transition to RBC regime may not be necessary; yet, it is being made mandatory. It further implies that higher capital for insurance companies might be of little important for insurers (Muhlnickel, Weiss, & Schmidt, 2016). IAA (2004, p. 4) reports emphatically that, 'it is impossible for RBC to prevent failure by itself'.



The organization argue that the one-year time horizon allowed for estimating solvency is insufficient, and cannot permit robust assessment of assets and obligations of an insurer. This is because most risks (see brief in Appendix D) targeted by RBC are strategic and long term and should require long period. This may lead to incomplete depiction of insurer's obligations. Furthermore, critics says RBC focus on solvency which determination focuses on appraising total balance sheet items on an "integrated basis under a system that depends upon realistic values, consistent treatment of both assets and liabilities and does not generate hidden surplus or deficit" (IAA, 2004, p.4). Apart from the fact that there are off-balance items that RBC does not consider, technically, it does generate surpluses as it was in Malaysia (Lazam *et al.*, 2012). Thus, the system that RBC operates seems to be faulty and incomplete. In addition, the well beyond economic capital generated could promise solvency and concurrently impede capital investment due to perceived added cost of capital sought in the business (IAA, 2004).

RBC policy could overstressed insurers, creates chaos and panic among stakeholders in insurance industry over its future prospect (Mutenga & Staikouras, 2007). It also overstretched financial capacity of an insurers leading, probably, to problems of overcapitalization and excess idle fund. It causes both insurers and regulators to take a suboptimal focus and over-cautious stance on risk or solvency. Such focus leads to overall inefficiency and suboptimal performance, (Mutenga & Staikouras, 2007). These arguments backed by conflicting statistics on insurers' performance amongst other issues call for further empirical study on insurers' capital regulation in order to address some key issues found to constitute gaps in literature as they hardly been properly addressed. These issues are stated and discussed in the section that follows.

1.3 Specific Research Issues and Gaps in the Literature

Amidst the above spectrum of opinions and problematic discourses, are specific issues that past studies hardly gave detail explanations and clarifications. These issues thus constitute the research gap upon which this study was necessitated. They here stated and explained not only to serve the contribution to literature expectation of research studies at this level of scholarship, but also to give practical, theoretical, methodological, regulatory and analytical and conceptual exponentials on the investigated phenomenon. These issues are as discussed below.

Issue No.1: Investors apathy: announcement of further RBC is criticized by investors as experts have said that higher capital requirement for insurers are less important (Persaud, 2015; Muhlnickel *et al.*, 2016).

Dhaene *et al.*, (2015) claim that 'though regulation protects the insured, it may also alter the structure and competition in the sector negatively. No doubt, RBC is meant to protect policyholders; but Dhaene *et al* suggest it should not be detrimental to other groups of stakeholders as well as the insurers themselves. In the same vein,

Bandt, Camara, Pessarossi, & Rose (2014) submitted that "insurance regulations (like RBC) are targeted at protecting policyholders, but it should not be detrimental to the business itself and other stakeholders because capital requirement is a cost for firms and it can have an indeterminable effect on firms' performance." Investors have already seen the policy as inconsistent, mismatch or unfit for implementation in Nigeria as 'given'. This has caused chaos in the market and heightened investor's dilemma as previous RBC regime seemingly failed to improve insurers' bottom lines rather, it killed businesses and made insurance sector unattractive to investors.

Based on the conjectured opinion, the announcement was greeted with outright rejection with court orders (still ongoing) by stakeholders in Nigeria. Even the EU and the US insurers have argued against frequent regulatory action in the industry. According to Persaud (2015), "US insurers with European subsidiaries or European parents are angry about what they see as an additional, unnecessary, and inconsistent level of regulation (p.1)". On the announcement, the IMF (2013) argues that, given the premium volume, the high capital requirement presents a challenge to the attractiveness of the sector, noting that already, the minimum capital requirement under solvency I are asymmetrically higher in some developing countries than others. This implies that even the proponents of this RBC regulation are themselves not convinced of its potency in terms of evading insurance insolvency. The public outrageous expression of resistance has caused crisis in the sector.

Issue No. 2 Findings from empirical studies appears misleading as the belief by many people that more stringent capital requirements will improve the wellbeing of insurers, as the effect of such requirement become ambiguous (Gaganis, Lie & Pasiouras, 2015)

Previous studies on RBC and NRBC capital position in relation to performance focus on bank (Akinsoyinu, 2015 and Goldberg & Rai, 2011) while those on insurance are puzzling in terms of focus and variables. Some studies are on definitive and conceptual rather than performance issues (see Al-Amri & Gattoufi, 2012; Fare, Grosskope & Weber, 2004; Artzner, 2015; Fields *et al.*, 2012 and Ujunwa & Modebe, 2011, etc.). Those on performance either found negative relationship (Wande & Rauch, 2015 and Cheng & Weiss, 2012) or a positive relationship (Yusof, Lau, & Osman, 2015; Cheng & Weiss, 2013 and Lin, Lai & Powers, 2014, etc). Some authors have also studied non-risk based capital (NRBC) position effect and found a positive relationship with insurance performance (Baranoff & Sager, 2003).

Issue No. 3: Literature on insurance regulation is not only scarce, they are incomplete; moreover, existing theoretical and empirical evidence provides conflicting views; and translating the tradeoff and pecking order logic into a contingent insurance claim model is imperative (Dhaene *et al.*, 2015)

There is dearth of comparative empirical analysis of the effect of NRBC and RBC using specific insurer capital structure and performance indices incorporating the intervening effect of its risk profile to evaluate its performance in Nigeria. Theoretically, Modigliani and Miller relevant hypothesis says a firm's financing structure relates to its performance. This hypothesis suggests transaction cost and information asymmetries, which are parts of the inherent business risks profile (BRP) (S&P, 2012) as playing an intervening role in the relationship. S & P (2012) explained further that BRP measures the risk inherent in the insurer's operation. RBC is capital based on asset depreciation risk, credit risk, underwriting risk and off balance sheet risk all of which compounds insurance BRP.

Empirical inference from Majmudar & Parikh, (2008) suggests that for insurance, capital is essentially needed to cover a firm's BRP, which they defined as the risk of business outcome being greater than those predicted are. Thrusting on the bases of RBC identified above, the authors identified risk to include, but not limited to the cost of future claims, settlement relating to business already underwritten and asset held to support those claims and relevant operational costs.

This direction of BRP conformed to areas of risk faced by insurance companies namely, loss, and loss adjustment expense (LAE) reserves, pricing (profitability), credit risk, and asset risk (Heartman *et al.*, 1992). According to the authors, these risks are affected by the characteristics of each insurance company such as rapid growth, small size, and newness of the company, asset/liability mismatch, concentration/diversification and net retention. Therefore, the relationship between insurer capital structure and its performance would better be ascertained when taking into consideration its BRP and characteristics. Since it has been established that firm characteristics affect its performance, their effect are controlled in this study.

To date, there is no known comparative empirical study of the effect of RBC and NRBC requirement regimes on overall performance of insurance companies using specific insurance capital measures like retained earnings, technical provisions, and equity and specific insurance performance in a controlled intervening effect model of firm vis-a-vis economic and risk management factors to determine how significant is the difference, (if any) in performance of insurers during these periods. This gap have been created in literature as past studies excluded controlled and intervening variables and this may account for inconclusive and probable results.

Moreover, most of the studies covered only two years and focused mostly on profitability. In the opinion of the researcher, the period may be too short to measure adequately the effect of a long-term strategic policy such RBC. Again, profitability measures are short-term parameters whereas RBC and NRBC are long-term strategic compliance policies that directly target the risk management capabilities of insurance companies to protect policyholders instead of insurance performance. Therefore, studying the effect of a long-term strategic policy with short-term and indirectly targeted measures may not be appropriate because the results would mirror shadow

of reality instead of reality.

Issue No. 4: Beyond the gap, frequent regulatory focus on insurance capital is excessive, and though capital structure is a topic that has been examined extensively in corporate finance literature, insurance firms are usually excluded (Dhaene *et al.*, 2015)

A gap in literature as found may not be a sufficient justification for a research because it will always exist. No doubt, insurance regulation has some benefits (Yusuf & Yusuf, 2010; Chukwulozie, 2008). Nevertheless, most important issue of research interest is why regulators focused on insurers' capital, as if it is the only means to gauge insurer's bankruptcy risks. When indeed, "the ability of an insurance company to cover risk adequately depends not solely on capital" (NIA, 2015 para. 9)... because meeting (risk based) capital requirement does not guarantee solvency (Hartman *et al.*, 1996). Again, what difference has RBC regime made concurrently to risk management capabilities of insurers and insurers' overall performance compared to NRBC regime? This question deserves empirical response.

Issue No. 5: Statistics used in assessing insurer performance are unlinked to NRBC or RBC and to specific performance variables and lack bases of comparison between the two regimes; such studies are based on the US data with few on international or European evidence (Field *et al.*, 2012; Osipov, 2011)

Statistically, empirical findings presented above show a number of other issues. First, the statistics presented above on insurance sector performance in Nigeria are not linked to either RBC or NRBC effect, although it reportage is not exclusive of either or both periods. Second, in above empirical studies, it was stated that the variables studied were unclear. Additionally, it may follows that the effect of RBC and NRBC may not have been properly assessed in terms of insurer's risk management capabilities which goes beyond insured indemnity to fulfilling its liabilities to other stakeholders; but rather, it is being appraised on measures that neither relates directly to RBC nor to any clear-cut insurer risk profile and performance dimension.

By retrospective inference, it suffices to say that the statistics are probably more of reports than empirical results while empirical results are largely contradictory. Consequently, statistics and variables used in past studies need to be reclassified into specific performance variables and reexamined in relation to insurers' capital positions with relevant intervening variables incorporated. This is because there are dangers when appropriate variable are unused in appraising the effect of corporate action on its performance. It may lead to misinformation; window dressing tendency, unaccountability, lack of transparency, inapt valuation of corporate performance, fair value, and market net worth, and it may lead to a worsening situation in the market.

Issue No. 6: There have been calls for more investigation on NRBC and RBC regime

The above and, most importantly, the need to grow the insurance sector may have been the reason why several authors (Yusof *et al.*, 2015; NAICOM, 2015; IMF, 2015, Communis, Harrington & Klein, 1995) called for further investigation of RBC regulation in insurance sector. For instance Dhaene *et al.* (2015, p. 14) said, "Insurance capital decision is a multi-dimensional optimization process balancing risk, return and regulation...it would be interesting to add competition to the equation." The risk, return and regulation are the principal focus in this study. The risk is represented by opportunity asset risk (OAR) and corporate risk-taking behaviour as moderators; the returns is represented by the insurance performance measures (ROA, ROE and EPS) while regulation is represented by two regimes (RBC and NRBC) in Nigeria. Recognizing the interactive role of risk in capital-performance relation, Zec (2012) said:

Capital... is an instrument for managing an insurance company and is linked with three key dimensions of an insurance firm: pricing, risk management, and performance. It is a tool for strategic management to decide to further invest in or discontinue a business line. The toolbox behind such an exercise contains coherent risk measures as well as coherent allocation principles. These constitute the rigorous axiomatic part of the exercise that may be relaxed for practical purposes (p. 1).

The above excerpts explicitly recognize the idea that risk has an interactive function in capital-performance association. In similar empirical reasoning, Hartman *et al.* (1996, p. 214) said, "risk-based capital requirement will affect behavior...as such care must be taken to assure that unintended changes in behavior do not occur." Again, Wright, Ferris, Sarin & Awasthi (1996) opine that the nature of a firm's risktaking behavior can significantly affect its performance. Zec (2012) laments the near absence of adequate empirical research framework that recognizes risk as playing the interacting role in firm performance analysis. The growing concern for capital regulation in anticipation of better performance has brought to attention the role of risk in the relationship and the need for a moderation research framework. This has also form part of the focus of this research since capital and firm performance may not be properly discussed without integrating risk management.

1.4 Research Questions

In line with the above issues raised and other inherent problems of the study, questions are raised with a view to help in seeking solutions to the problems. Consequently, the following research questions were raised:

- i. What is the effect of capital structure (equity, technical provision) on performance of listed insurers (ROA, ROE, EPS) under RBC and NRCB regimes in Nigeria?
- ii. What is the moderation effect of corporate risk profile on the relationship between capital structure and performance of listed insurers under RBC and NRBC regime in Nigeria?
- iii. Is there any significant difference in performance of listed insurers after the implementation of RBC policy in Nigeria?

1.5 Objectives of the Study

Generally, in this study, the principal objective is to conduct a comparative investigation of the direct and interaction effect of capital structure and performance of listed insurers under NRBC and RBC regime in Nigeria with corporate risk profile as a moderator. Specific objectives are:

 To examine the effect of capital structure (equity, technical provision) on performance of listed insurers (ROA, ROE, EPS) under NRBC and RBC regimes in Nigeria.
 Gap/Contribution: Absence of empirical panel data for comparative

assessment of listed insurers' performance under different global and local policy regimes in an emerging economy, and this study contributes to filling this gap.

ii. To find out the moderation effect of corporate risk profile on the relationship between capital structure and performance of listed insurers under NRBC and RBC regime in Nigeria.

Gap/Contribution: Inadequate empirical proof of when and under what condition would capital structure best explain the performance of firms with different risk level and behavioral aspect of risk management under different policy regimes in an emerging economy may be bridged.

iii.

To examine if there is any significant difference in performance of listed insurers after the implementation of RBC policy in Nigeria.
Gap/Contribution: There is rare empirical evidence and proven theoretical support for differences in performance of listed insurers during different policy regimes in emerging economy. This study contributes in this path

1.6 Significance of the Study

(a) To Future Researchers: Insurance risk management factor interplays in managing insurance business profitably, yet these risk factors are scarcely examined empirically. Some capital structure theories have passively mentioned risk as important in capital-performance relationship, examining the moderating effect of risk falls within the areas recommended for more research by past scholars. Such areas include; the impact of RBC framework (Yusof, Lai & Osman, 2015), impact of EU insurance directives (e.g. RBC) on insurers' performance (Campbell, Geoldberg & Rai, 2003); additional capital adequacy rule (e.g. RBC) to remove unintended consequences, and balancing risk, return and regulation (Dhaene *et al.*, 2015) etc.

A new knowledge on capital structure - performance relation would be added in the area of risk management. As reviewed in the literature, discussion on risk management (*sic* BRP) is rare in such relationship. This allows for vague and bias if not erroneous judgment and believes of capital structure effect on performance. Thus, in light of the findings of this study, insurers are brought into discussion on capital structure, RM and its performance. Findings further deepened knowledge of the workings of the market and how best to carry out insurance and insurance-related businesses in the most economically, socially, culturally, politically and ethically responsible manner for the benefit all stakeholders. Finally, this study provides empirical evidence and direction for further study, while adding to existing stock of empirical materials on risk and non-risk based capitalization in insurance sector.

(b) To Investors: The results of this study will enable stakeholders to reconsider their position with regards to further RBC, and specifically the implementation of the planned solvency II which they fear may lead to further crisis and collapse of insurers in EMs and ultimately a loss in their investment. Persaud (2015) explains, that 'investors in insurance sector have condemned, what they termed as regulatory 'domineering and commandeering' attitude of insurance sector regulators'. They had also blamed the regulators for not taking proper country-by-country impact analysis of policy directive on a comparative basis taking into account country-firm-specific factors before adjusting an existing or developing and implementing a new policy. In the opinion of Ujunwa & Modebe (2011), investors' confidence in the sector has begun to wane and they are planning divesting if the situation is not properly addressed. The dangers of divestment are eminent; there will be increased economic and market instability, macroeconomic and socioeconomic problems such as low GDP, higher unemployment, poverty, hunger and death. These will be more pronounced in EMs like Nigeria where development is still transitional.

(c) To Policyholders: Naturally, policyholders would prefer less bankruptcy risk. This study enables this category of stakeholders to understand that without risk, insurance companies cannot survive to guarantee and protect their interest in the event of any loss occurring. It is hoped that policyholders' risk-averse attitude may be positively impacted and, depending on the outcome of this study, which involves risk-taking, they may encourage and support insurance companies to take up an additional risk to remain in business. In addition, they may involve in ethical and social consumption and attitudinal change, reorientation and adaptation that are not antithetical to the growth of insurance companies and their personal preferences.

(d) To the Government/ Regulators: This study is at the instance of the criticisms over foreign regulatory intervention and the continued weak performance of insurers in Nigeria. It addresses specific questions raised by industry players and stakeholders and respond to calls by previous authors. The comparative investigation of how insurers performed under diverse eras is not only as important as to address the interest of the above users, but also to provide sufficient empirical justification for further adoption, adjustment, or rejection of international regulatory directives. The results from this study constitute key blueprint for developing and implementing reforms that may adequately address the problems of insurers in Nigeria.

As Chen & Wong (2004) said, "As insurance companies in Asian economies are at different stages of development, they require different regulatory guidelines." This means that, it may not be appropriate to adopt regulatory directives meant for developed markets in EMs. Further, the authors argue that international regulatory requirements are specified in line with developed market characteristics such that their implementation in EMS in pursuant of same objectives becomes doubtful. Altuntas, Berry-Stölzle, & Wende, (2015) argued that "...country-specific regulatory capital requirements may not be the worst solution and that a global capital standard – if desired – should be flexible enough to incorporate differences in the institutional environments across countries to avoid market distortions".

The findings of the study identify areas that further regulatory actions may be necessary and country-specific differences to be incorporated into any further global capital regulation policy so that the implementation of such policy is not seen as an attempt to witch-hunt non-compliance but solvent insurers out of the industry rather than consolidate the sector for better performance. It offers regulators additional analytical tools that may aid in financial evaluation of insurers before introducing further RBC-related policy. However, EMs may have the choice to or not to accept such policy though the nature and process of adoption as described by industry players are rather mandatory, forceful which often result in high criticisms.

1.7 Organization of the Study

This study is organized as follows. Chapter one contains the introduction, problem statement and other justifications for the conduct of the study. Chapter two presents conceptual issues on risk and non-risk based capitalization, component of (insurer) capital structure, performance, characteristics, and macroeconomic factors. In chapter three, supporting theories and empirical evidences on the proposed direct and indirect relationships are presented. It also contains information on research variables and hypothesis development. Chapter four contains data and methodology with focus on population, sample, types and sources of data, research design, method of estimation and models and other methodological and econometric issues.

In chapter five, the result of the various tests and analysis conducted over a wide range of data, principally on each of the research objectives, corresponding hypothesis and applied models are presented. This chapter also discusses the findings of the study in line with supporting theories and empirical evidences. Summary of the study and concluding remarks are in chapter six with theoretical, methodological, and practical contributions, policy implications, and areas for future research.

1.8 Chapter summary

As the foundational chapter, the background and other fundamental issues that form the imperatives for the conduct of this study have clearly been carefully orchestrated and discussed in this chapter. Discussion began with theoretical description of the broad concept of capital structure of insurers and non-insurers. This was followed by how importance capital structure is to every firm as well as how it has become one of the most studied areas in corporate finance, but with limited literature within insurance, which is also an area of financial intermediation. Following this were discussions on Nigeria the largest insurance market in Africa; the troubling times of her insurance sector that has led to serial capital based reforms. The problem statement, which is at the instance of the implementing RBC policy while proscribing FCS in anticipation of, improved insurers' performance; and the various issues of contention is also presented. Other things in this chapter are research questions, research objective, significant of the study and organization of the study.

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