

Corporate Finance Alternative and Shareholders' Value Creation in Nigeria

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Abstract: *This study examined the effect of corporate alternative finance choices on shareholder value creation of quoted firms in Nigeria. The study spanned from 2011 to 2020. The study focused on Nestle, Cadubry, and Flour Mill. The study patterned after the Panel data Methodology. Accordingly, the Hausman test was used to determine between the Fixed and Random Effect model. The result concluded that the Random Effect Model is the most efficient model for this study. Specifically, the study indicated that the association between alternative finance alternatives and shareholder value is favorable and significant based on the findings of the analysis. The foregoing research has provided an understanding of the importance of alternative finance alternatives in a company's statement of financial status as it relates to shareholder value. The study recommends that large companies should prioritize debt financing over equity financing because debt financing has a positive impact on their performance. Again, debt capital is tax deductible, resulting in an increase in the firm's performance. Lastly, as the firm's financial performance improves, interest payments can be easily canceled.*

Keywords: Corporate Alternative, Finance Choices, Value Creation, Working Capital, Specific Fixed Effect.

INTRODUCTION

The principal reason of any corporation is to decorate its shareholders' equity. Investors, supervision, and several stakeholders want to be part of the company's overall performance to allow them to make knowledgeable choices in regards to the future. Every rational anticipate precise long-term returns on their investment. Boujjat, (2016) determined that maximizing shareholders' value is turning into a brand new practical standard. Managers attempt to gain this goal with the aid of utilizing rational financing options concerning a mixture of budgets which could reduce the price of funds. Mwenje and Olweny (2016). opines that the advent of shareholder value is turning into an increasing number of difficulties as proprietors and executives are pressured to make suitable economic options that make contributions to the operating management that create value and additionally perceive practices that smash value. In addition, it's essential to enforce powerful devices that are capable of comparing actual values created. Value innovation transpires in an enterprise when its commercial enterprise is capable of generating returns above the needs of buyers or returns of capital invested are greater than the company's capital cost (Mwenje and .Olweny 2016). . However, the focal aim of a corporation is to maximize the shareholder's value. Every corporation is structured in a way that will enable them to render maximum profits and capital appreciation to its owners. Shareholders' value creation is dependent on the options of financing and the financing decisions made or utilized by the management. However, Gounder and Venkateshwarlu (2017) Opines that not all corporations create value, stressing further that while some create value to their shareholder some other corporations destroy their shareholder's value. It has been observed that whenever value destruction persists, it leads to, the fall of stock price, hostile takeover, inability to meet up with financial obligations which turn to the liquidation of the corporation. These various kinds of threats have a great adverse effect on the shareholder's stake in a corporation, inability to make a supply to customers' demands of the product, loss of employment, and inability to expand the economic activities. In (Gounder & Venkateshwarlu (2017) studies, the analysis of financial variables recaptured on a separate note, hence making it more challenging for the total impact shareholders' value creation to be confirmed. Research works on the impact of corporate finance alternative options on shareholders' value creation in developing economies are very few in the literature body. Furthermore the aspect of the moderate impact of various financing alternative options we're not considered. In addition, the majority of the studies utilize accounting ratios which only channel their attention to historical aspects a do not incorporate the capital cost. Hence this study seeks to fill in this literature gap by incorporating equity finance, working capital finance debt finance, and dividend finance and also run analysis on the mixture of financing alternative options impact on the shareholder's value creation utilizing the EVA, which represents an economic value-based metrics as an indicator of shareholders values creation. In this study, the moderating variables considered GDP growth rate, while the company market capitalization was used as a control variables study sheds light on matters regarding the effects of various financing decisions on shareholder value contribution creation.

The result of this study will aid managers to evaluate different financing options' effects on the value of the time in general and majorly on the shareholder's value creation. The study is organized into five phases. Phase one covers the introduction of the study phase two reviews the theoretical and empirical literature on the study topic and the conceptual framework. Phase three outlines the research philosophy and methodology to be used to achieve the study objective. phase four presents and discusses the results of the study. Phase five outlines the summary, the conclusion, and recommendations based on the conclusions from the study.

2.1. Conceptual Clarification.

Financing Alternative Options

In every modern economy, the role of finance cannot be underestimated. Finance plays a key and vital role in any smooth-going nation's economy. Finance refers to the bloodline of any corporation. Olang (2017) discover that for any operation to create economic wealth there must be a place of making good financing option, conversely, every unsound taken by a corporation destroy value which in return leads to threats on the continuation of the corporation. Ishari, and Abeyathna (2016) opines that financing alternative decisions are very significant due to the demand to optimize several organizational sector returns. For any organization to survive in any competitive environment, financing alternative options plays a very important key role to achieves its sustainability. Financing alternative options to a particular financial structure and if the alternative option chosen is not standard, then it will result in corporate liquidation.

Equity financing

The acquisition of funds via the issuance of preferred or common stock is termed 'Equity financing'. Equity financing is utilized by firms based difficulties in raising satisfactory funds, or when they intend to source funds in other to offer their debt. However, one assumption that has been formulated by accountants is that equity finances are termed as free resources. Tan and Hamid, (2016) in his study divulges different positions for corporations to raise equity finance, observing that companies that are listed in the stock exchange are in a more preferable position to raise equity from the securities market large unquoted corporation, should source equity from institutional investors via private placement.

Debt financing

Debt financing can be long or short term; a corporation may prefer long-term debt because interest payments are tax-deductible, which is a significant advantage over equity. The amount of debt a company uses to fund its operations is determined by interest rates on debts, corporate income tax rates, withholding taxes, the cost of financial distress, and financial covenant constraints. Qaisar, and Malik, (2015).. The lower the interest rate on long-term debt, the greater the firm's incentive to incline to it.

Working capital financing

Working capital financing entails funding and managing a company's existing assets. According to Musila (2015), sound working capital management is based on two key decisions: determining the most desirable level of current asset investment and determining the best mix of short-term borrowing to support that investment. Working capital management is the process of managing short-term assets and obligations in a way that strikes a balance between preventing short-term debt insolvency and avoiding keeping unneeded assets (Pandya (2016). Working capital management is critical for a company's short-term solvency and survival since it allows it to tap into hidden resources and reduce working capital requirements. According to Boujjat (2016) effective working capital management contributes to the production of shareholder value. When a company reduces its investment in existing assets, the funds saved can be used to support value-creating projects, improving the company's growth potential.

Shareholder Value Creation

Practitioners, scholars, regulators, investors, and other stakeholders have been interested in shareholder value since the 1990s. According to Mwenje and Olweny (2016), in today's globalized economic scene, competition for shareholders' cash is becoming more severe, thus enterprises must aim to provide a sufficient rate of return to investors to stay relevant and assure continued funding. Investors can quickly change their investments into higher-yielding alternatives as capital markets become more global. Furthermore, investors are becoming more socially responsible by allocating their assets to companies that value all stakeholders. According to Aljamaan (2018). continued internationalization of capital markets, increased focus on cooperative governance, rising shareholder activism, and investors' shift to cash flow-based evaluation have all contributed to a shift toward shareholder value. Furthermore, the corporation that is destroying value is continually trying to raise more money to continue its expansion. Most competitive management teams are embracing new metrics and management methods in response to rising demand to deliver value. Investment funds are scarce and more mobile, according to Shodiya, Sanyalu., Ojenike., and Ogunmefun. (2019). thus enterprises should expose themselves to the scrutiny of all stakeholders in order the money. According to Aljamaan. (2018). compensating shareholders is one of the most effective strategies to ensure that other stakeholders are also served.

Theoretical Underpinning

2.2.1 Modigliani and Miller Theory

The capital structure irrelevancy theory was supported by Modigliani and Miller (1958). The model suggested that a company's capital mix has little bearing on its worth. According to the thesis, a company's value is unaffected by its capital structure or financing decisions. In addition to the risk associated with the investment, the idea maintained that a firm's market value is determined by its future growth prospects. Modigliani and Miller (1963) modified the criteria of Modigliani and Miller (1958) and proved that a firm's worth will improve with increased financial leverage under capital market imperfection where interest expenses are tax-deductible. Profitable enterprises have a greater requirement for tax management in corporate profits, according to models based on the impact of the tax. This method recognizes tax benefits and hence infers that a change in the debt-equity ratio has an impact on The Weighted Average Cost of Capital (WACC), meaning that the lower the debt, the lower the WACC. The main disadvantage is that when debt grows, the likelihood of bankruptcy grows as well. As a result, the optimal capital structure represents a degree of leverage that

strikes a compromise between the costs of bankruptcy and the benefits of debt financing. The study looked at the theory's assertion that the firm's worth is defined by its financial decisions, as well as the argument that the higher the debt, the lower the WACC.

Empirical Review.

Chaleeda, Tunku, and Anas(2019). The effects of corporate financing decisions on firm value in Bursa Malaysia. Panel data regression methodology was adopted the result of the study found that debt-equity ratio negatively but insignificantly impacted on return on equity and return on assets of consumer goods producing companies in Nigeria.

Olang, (2017), Ehiedu, Oditia and Kifordu (2020), investigated the effect of financial leverage on profitability of firms listed in the Nairobi Securities Exchange. The Ordinary Least Square Method (OLS) was adopted in the study. The result of the study reveal that financial leverage has impact on the profitability of firms listed in the Nairobi Security Exchange likewise the firm size;

Oseifuah and Gyekye (2017) examined the relationship between working capital management and shareholder wealth creation from non-financial firms quoted in Johannesburg Stock Exchange. panel data regression methodology was adopted. According to the findings, there is a considerable positive association between company value and inventory and receivables conversion periods.

Khan, Shaikh, Shah, Zahid, and Shaikh (2017) investigate the effect of financing decision on the financial performance of selected 100 firms listed on KSE in Pakistan. The study adopted multiple regression model. The result if the study disclose that debt-equity ratio is insignificantly influenced by return on equity, market capitalization of Pakistani firms and return on asset.

Mwenje and Olweny (2016) studied the impact of private equity on value creation among firms listed at the NSE Kenya. The study adopted a causal research design. The independent variables derived from the three key pillars of the private equity model, namely financial, operational, and strategic parts, were investigated. Financial changes in the capital structure had little or no impact on value creation indicators, according to the study's findings. Both operational and strategic indicators, on the other hand, showed a strong correlation.

Boujjat (2016) study examined the impact of dividend policy on firm performance among 44 quoted firms in Morocco. The data was sourced from the financial statements of sampled firms. a data regression model was adopted. The data reveal that dividends have a strong and favorable link with company performance.

Qaisar (2016) The relationship between financing decision and shareholders value. The study adopted Ordinary Least Square method to test the variables. The result of the study reported a positive but insignificant relationship between debt finance and firm value

Pandya (2016), Ehiedu and Toria (2022), investigated the Impact of Financial leverage on market value added. The study adopted debt finance proxy by debt-equity ratio while interest cover as independent variable. Shareholder value as dependent variable was proxy by Market value added, Residual income, and Refined Economic value added. The multiple regression model was adopted in the study. The result of the study discloses that the debt – equity ratio was found to have a statistically negative association with market value, residual income and refined economic value added.

Ishari and Abeyrathna (2016), The impact of financial leverage on firms' value. The study adopted the multiple regression model as analysis tool. The finding of the study reveals that the debt equity ratio has insignificant effect on the Return on equity and return on assets.

Musila (2015) investigated relationship between equity financing and financial performance of the energy and petroleum companies listed at the Nairobi Securities Exchange (NSE) the study adopted the Ordinary Least Square method as analysis tool. The result of the study reveal that there was no significant relationship between equity financing and financial performance. Methodology

Various scholars have examined the impact of corporate alternative options on shareholder values in the past; however, in performing such analytical techniques, various econometric tools such as panel least square, random and fixed effect, and Hausman statistic will be used to produce results that can be relied upon in making future nces forecasting. The following tools have been carefully deconstructed for easier comprehension.

Variance ratio techniques

The ratio was created by Lo and Mackinlay in 1988, and it is a non parametric test that examines whether a set of data demonstrates a random walk hypothesis, symbolically:

$$VR_{z(q)} = \frac{VR(h) - 1}{\theta \sqrt{h}} \mu(0,1)$$
$$VR_{z(q)} = \frac{VR(h) - 1}{\theta(h)} \mu(0,1) \theta(h)^{0.5}$$
$$\theta(h) = \frac{2(2h-1)}{(h-1)}$$

$$3h(nh)$$

Where:

VR is the variance ratio; $\theta(h)$ represent the asymptotic variance ratio and $n(h)$ is the number of observation

Model specification

The Model is specified into fixed effect model and random effect model accordingly:

Fixed effect model

$$SHV = \alpha_0 + \alpha_1 WC_{sit} + \alpha_2 STD_{it} + \alpha_3 LTD_{it} + \theta_{it} + \delta_{it}$$

Where: SHV=Shareholders Value WC = Working Capital STD = short term debt, LTD = long term debt, θ_{it} = stochastic term, δ_{it} = specific fixed effect.

Random effect model

$$SHV = \beta_0 + \beta_1 WC_t + \beta_2 STD_{it} + \beta_3 LTD_{it} + (X_{it} + \mu_{it})$$

Where X_{it} is the unobserved random effect that varies across the various selected sectors companies in the stock market.

Apariori Expectation

The a priori results refer to the expected or relationship between variables in both models; hence, we predict both long and short term debt to have a direct impact on shareholder value.

Data Presentation and Analysis

The section presents the data and the difference techniques used in analyzing the data to produce better results. The data comprise nine years (2011 – 2019) financial fundamentals of four multinational companies in Nigeria, the different companies were selected on the basis of recent reforms conducted on the sectors. However, the four firms are structured into balanced panel data to ease the analyzing processes; please find the data below.

DATA PRESENTATION

Year	LTF	STF	WCF	SHV
Nestle				
2011	29703474	24814835	(2604430)	51902345
2012	29598012	25178644	1176501	50701988
2013	34379584	33233095	8522713	52203248
2014	25464372	44638052	24034685	58924411
2015	21476122	59731857	10768510	62145788
2016	17674423	121033434	(23297279)	18995802
2017	22245435	79680495	(7175542)	10564332
2018	19996435	92117501	(9383184)	56749473
2019	22281255	125535430	(18497946)	106778910
2020	5085766	166030352	(14628897)	97663810
Cadbury				
2011	13192000	13875181	1093350	6059895
2012	3211728	16905424	34191	7550665
2013	5048027	13546873	12684595	8996978
2014	3759730	12546873	22952627	8958360
2015	4480074	5048027	6356741	7994746
2016	4515939	12836328	987796	7845895
2017	4160745	12529585	1710778	8449307
2018	4766490	10085404	3413517	8738736
2019	5334310	9901393	5272649	8554367
2020	5186467	14474694	5909167	7840202
Flour Mill.				
2011	40876997	52167279	(43963793)	8440528
2012	46726101	84562515	27326130	11113370
2013	39308868	81893576	25143051	7052175
2014	39250960	81893577	25107628	11113366

2015	18762765	116115447	141505096	2718493
2016	18543783	114508685	23104384	78345678
2017	18404858	217412600	8461957	88567430
2018	31083760	140074526	14306262	81993105
2019	36797208	138329706	4247071	63468250
2020	67325900	100624271	24558951	64225696

Source: audited financial report of selected firms.

Fixed Effect Analysis

The fixed effect technique was carried out to ascertain the time fixed effect of the company's performance across the various sectors over time; the result is shown below;

Dependent Variable: SHV				
Method: Panel Least Squares				
Date: 07/28/21 Time: 05:15				
Sample: 2011 2020				
Periods included: 10				
Cross-sections included: 4				
Total panel (balanced) observations: 40				
Cross-section weights (PCSE) standard errors & covariance (d.f. corrected)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6220656.	26118670	0.238169	0.8138
STF	0.397796	0.183063	2.172998	0.0399
LTF	0.055789	0.608734	0.091647	0.9277
WCF	-0.142372	0.182198	-0.781412	0.4422
Effects Specification				
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.671305	Mean dependent var		37042386
Adjusted R-squared	0.465870	S.D. dependent var		33665539
S.E. of regression	24604185	Akaike info criterion		37.16391
Sum squared resid	1.45E+16	Schwarz criterion		37.83946
Log likelihood	-727.2781	Hannan-Quinn criter.		37.40816
F-statistic	3.267730	Durbin-Watson stat		1.588914
Prob(F-statistic)	0.004794			

The global statistic from the result above shows that 46.6% variations in the dependent variable are caused by changes in the independent variables. The akaike criterion and the F statistic show that the model is a good fit for the analysis. Though, the durbin Watson statistics revealed the presence of autocorrelation existing between the models. The individual coefficient reveal that both size of the firm and short term debt are insignificant and inversely related to the shareholders value while long term debt is significance and positive to its shareholders value

RANDOM EFFECT MODEL

Dependent Variable: SHV		
Method: Panel EGLS (Two-way random effects)		
Date: 07/28/21 Time: 05:12		
Sample: 2011 2020		
Periods included: 10		
Cross-sections included: 4		
Total panel (balanced) observations: 40		

Swamy and Arora estimator of component variances				
White diagonal standard errors & covariance (d.f. corrected)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9146986.	4722519.	1.936887	0.0606
STF	0.422745	0.058800	7.189507	0.0000
LTF	-0.062555	0.228153	-0.274182	0.7855
WCF	-0.289423	0.103422	-2.798461	0.0082
Effects Specification				
			S.D.	Rho
Cross-section random			0.000000	0.0000
Period random			0.000000	0.0000
Idiosyncratic random			24604185	1.0000
Weighted Statistics				
R-squared	0.520592	Mean dependent var		37042386
Adjusted R-squared	0.480642	S.D. dependent var		33665539
S.E. of regression	24261578	Sum squared resid		2.12E+16
F-statistic	13.03090	Durbin-Watson stat		1.546830
Prob(F-statistic)	0.000006			
Unweighted Statistics				
R-squared	0.520592	Mean dependent var		37042386
Sum squared resid	2.12E+16	Durbin-Watson stat		1.546830

The global statistic from the result of the random effect shows that individual coefficients are positive and significant to shareholders value 48.1% of variations in the dependent variable is caused by changes in the independent variables. Although the durbin Watson statistic shows also the presence of autocorrelation between the variable

HAUSMAN TEST

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section and period random effects				
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	
Cross-section random	5.309167	3	0.1505	
Period random	1.229435	3	0.7460	
Cross-section and period random	1.224676	3	0.7471	
** WARNING: estimated cross-section random effects variance is zero.				
** WARNING: estimated period random effects variance is zero.				
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
STF	0.517638	0.422745	0.010585	0.3564
LTF	0.370696	-0.062555	0.147593	0.2594
WCF	-0.163797	-0.289423	0.003508	0.0339

Because the Hausman test is based on the chi-square distribution, the probability result of insignificance indicates that the random effect model is correct. To determine the nexus between the variables in the model, we use the random effect.

Conclusion and Recommendations

In Nigeria, a study was carried out on corporate alternative finance choices and shareholder value. The study indicated that the association between alternative finance alternatives and shareholder value is favorable and significant based on the findings of the analysis. As a result, the findings of Oseifuah and Gyekye (2017), Mwenje and Olweny (2016), and Boujjat (2017) are supported (2016). The foregoing research has provided an understanding of the importance of alternative finance alternatives in a company's statement of financial status as it relates to shareholder value. The following advice is derived from the preceding findings:

- i. Large companies should prioritize debt financing over equity financing because debt financing has a positive impact on their performance.
- ii. Debt capital is tax deductible, resulting in an increase in the firm's performance.
- iii. As the firm's financial performance improves, interest payments can be easily canceled.

Reference

- Aljamaan, B. E. (2018). Capital structure: definitions, determinants, theories and link with performance literature review. *European Journal of Accounting, Auditing and Finance Research*, 6(2), 49-72.
- Boujjat, R.W. (2016). The relationship between dividend payment and firm performance; A study of listed companies in Morocco. *European Scientific Journal*. 12 (4) 469-482. Sd up
- CBN (2021). Deposit and Lending Rates in the Banking Industry for the Week ended January 29, 2021. (Retrieved from weekly interest rate as at January 29, 2021.pdf (cbn.gov.ng) on 03 March, 2021).
- Chaleeda, M. A. I., Tunku, S. T. A., & Anas, N. M. G. (2019). The effects of corporate financing decisions on firm value in Bursa Malaysia. *International Journal of Economics and Finance*, 11(3), 127-135. <https://doi.org/10.5539/ijef.v11n3p127>.
- Ehiedu, V.C, and Toria, G. (2022). Audit indicators and financial performance of manufacturing firms in Nigeria. *Linguistics and Culture Review*, 6(SI), 14-41
- Ehiedu Victor C, Odita A.O. and Kifordu A.A. (2020). Financial deepening estimators and economic growthnexus: evidence from a small open economy. *Webology*. 17(1), 1-12.
- Gounder ,G., &Venkateshwarlu (2017). Shareholder Value Creation: An Empirical Analysis of Indian Banking Sector. *Accounting and Finance Research*. 6(1)
- Ishari, M. S., & Abeyrathna, S. (2016). The impact of financial leverage on firms' value (special reference to listed manufacturing companies in Sri Lanka). *International Journal of Advancement in Engineering Technology, Management and Applied Science*, 3(7), 100-104.
- Khan, A., Shaikh, M., Shah, A. B., Zahid, I., & Shaikh, F. M. (2017). Impact of financing decisions on firm's performance: an empirical study of Pakistani listed firms in KSE. *International Journal of Management and Information Technology*, 12(1), 3050-3056. DOI: 10.24297/ijmit.v12i1.6058.
- Khan, A., Shaikh, M., Shah, A. B., Zahid, I., & Shaikh, F. M. (2017). Impact of financing decisions on firm's performance: an empirical study of Pakistani listed firms in KSE. *International Journal of Management and Information Technology*, 12(1), 3050-3056. DOI: 10.24297/ijmit.v12i1.6058.
- Metz, D., Ilieş, L., & Nistor, R. L. (2020). The impact of organizational culture on customer service effectiveness from a sustainability perspective. *Sustainability*, 12(15), 6240<https://doi.org/10.3390/su12156240>
- Musila, P. (2015). The relationship between equity financing and financial performance of the energy and petroleum companies listed at the Nairobi Securities Exchange. Unpublished Dissertation, Department of Finance and Accounting School of Business, University of Nairobi.
- Mwenje J. &Olweny.T. (2016). The impact of private Equity on Value Creation among listed Firms at Nairobi Securities Exchange. *International Journal of Commerce and Management United Kingdom*.4 (2). 84-106.
- Ogundajo G. O., Enyi, P. E., & Oyedokun G. E. (2019). Shareholders' return and value of manufacturing firms listed on the Nigerian stock exchange. *African Journal of Business Management*,
- Olang, M. (2017). Effect of financial leverage on profitability of firms listed in the Nairobi Securities Exchange. *International Journal of Science and Research*, 6(7), 290-295
- Pandey, I. M. (2015). *Financial Management*.(11th, Ed.) New Delhi: Vikas Publishing House PVT Ltd.
- Pandya, B. (2016). Impact of Financial leverage on market value added: Empirical evidence from India. *Journal of Entrepreneurship, Business and Economics*, 4(2), 40-58

- Pandya, B. (2017). Association of financial leverage with cost of capital and shareholder value: An empirical study of BSE Sensex companies. *NMIMS Journal of Economics and Public Policy*, 2(1), 17-28.
- Qaisar, A., & Malik, M. S. (2015). The relationship between financing decision and shareholders value. *International Journal of Economics and Business*, 7(2019), 47-63. DOI: 10.1515/auseb-2019-0004.
- Shodiya, O. A., Sanyaolu, W. A., Ojenike, J. O., & Ogunmefun, G. T. (2019). Shareholder wealth maximization and investment decisions of Nigerian food and beverage companies. *Acta Univ. Sapientiae, Economics and Business*, 7(2019), 47-63. DOI: 10.1515/auseb-2019-0004.
- Tan, S. L., & Hamid, N. I. N. A. (2016). Capital Structure and Performance of Malaysia Plantation Sector. *Journal of Advanced Research in Social and Behavioural Sciences*, 3(1), 34-45.
- Uremadu, S.O., & Onuegbu O. (2018). The impact of capital structure on corporate performance in Nigeria: a quantitative study of consumer goods sector. *Current Investigations in Agriculture and Current Research*, 5(4), 697-705. DOI:10.32474/CIACR.2018.05.000217.