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Abstract—Following the banking consolidation exercise in Nigeria, the effect of capital adequacy on the performance of Access Bank Plc from 1999 to 2012 is examined in this study. The influence also of capital adequacy on the bank’s profitability is evaluated. Data sourced from annual report of Access Bank Plc for the years under scope, CBN Statistical Bulletin and journal articles was analyzed using the desk survey. Analytical technique employed is the multiple regression method. Empirical analysis indicates that there is no significant relationship between core capital and the profitability of Access Bank Plc and also that there is a significant relationship between supplementary capital and the profitability of Access Bank Plc. The study recommended, among others that provision of adequate capital regulation; provision of infrastructural base to support banking services and stability of the institution must be of imperative to the central monetary authority.

Index Terms—Deposit money banks, capital adequacy, bank consolidation, profitability.

I. INTRODUCTION

Background

Capital is of utmost importance for the efficient and effective performance of any business enterprise including a bank [1]. The banking sector has always received upper attention on protection due to the vital role it plays in an economy. That’s why the stability of the banks is of utmost importance to the regulatory body so as to stabilize the economy which will eventually aid towards the growth and development of a nation [2].

Bringing about stability in the banking sector, the apex authority, the Central Bank of Nigeria (CBN) regulates the minimum paid-up capital required to be kept by banking organizations [3]-[6]. In order to meet the capital requirement, banks raise capital from the internal and external sources. The raising of capital internally entails that the principal source of capital is from earnings kept by the bank rather than paid out to stockholders. This has the advantage of not depending on the open market for funds, thus avoiding floatation cost while raising capital externally could be sourced by issuing common stocks to the public, issuing preferred stocks, issuing subordinated notes and debentures, selling assets and leasing facilities etc [7].

The Banking Supervision Accord (recommendations on banking regulations) issued by the Basel Committee on Banking Supervision (BCBS) provides recommendations on banking regulations in regards to capital risk, market risk and operational risk. The first Basel Accord, known as Basel I, was issued in 1988 and focuses on the capital adequacy of financial institutions while Basel II which is to be implemented by 2015 adds supervision and market discipline to the capital adequacy of financial institutions prescribed in Basel I. Under the accord (Basel I), bank capital was divided into two categories – namely Tier I (Core) capital, consisting of common stock, surplus, undivided profit (retained earnings), preferred stock, minority interest in equity account of consolidated subsidiaries and selected identifiable intangible asset and Tier II (Supplementary) capital consisting of allowance (reserves), subordinated debt capital (debenture) and mandatory convertible debt. The Accord according to BCBS is to ensure that financial institutions have enough capital on account to meet its obligations and absorb financial, operating and reputational losses.

In a developing country like Nigeria, banks play an important and sensitive role hence; their performance directly affects the growth, efficiency and stability of the economy [8]. The relevance of banks in the economy of any nation cannot be over-emphasized because they are the cornerstones, the linchpin of the economy of a country [9].

The economy of any nation depends on banking as it contributes to the economic development of the country. According to [10] and [11], banks play a vital role in the economy such as inculcation of banking habits, assisting the government in implementing monetary and credit policies, enhancement of international trade and payment systems through the provision of facilities in this regard etc. the financial system is observed to be the engine of every economy with the roles performed by the banking institution to promote economic growth and development.

Government interest in bank capital adequacy is manifested in government regulatory guidelines concerning the subject. As stated in [12], bank capital adequacy is to “serve as a cushion against the risk of failure or insurance to absorb financial and operating losses that may occur.”

Since loans and advances are the major asset of deposit money banks, banks mobilize the depositor’s funds from the surplus economic unit and channel those funds mobilized to the deficit economic unit which in turn is used for investment purposes.

Regulation no doubt is needed to bring sanity into the banking sectors as well as putting it in an internationally competitive status. Reference [13] suggests that over the period 1952 – 1975 in the banking industry, a relative large number of banks that failed was due to under-capitalization. Reference [1] believed that adequacy of capital will help to enhance the structure and financial resources of an
organization with a view to enlarging the size of long-term funds available to the company. The recapitalization policy as a form of reform of the banking sector aims, among others, at development of more resilient, competitive and dynamic banking system that supports and contribute positively to the growth of the economy with a core of strong and forward looking banking institutions that are technology driven and ready to face the challenge of liberalization and globalization [4], [5], and [14].

The reforms according to [15] had in turn prompted a regulatory induced restructuring in the form of consolidation that would bring the alignment and re-alignment of banks and banking group in determined moves expected to translate into the merge of some banks and the acquisition of others. The recapitalization of the banking sector according to [14], aims to bring sanity to the banking sector and enhance Nigeria banks international competitiveness.

According to [16], banks play very important roles in the economic development of any country. As an important component of the financial system, they channel scarce resources from surplus economic units to deficit economic units. Thus, to a reasonable extent, they exert a lot of influence on the pattern and trend of economic development, through their lending and deposit mobilization activities.

The focus of this study is to investigate the effect of the position of capital adequacy standards on the performance of Access Bank Plc, putting into consideration of Tier I (Core) capital and Tier II (Supplementary) capital – Basel I.

Capital adequacy represents the amount of capital resources by a bank for its operation, consistent with the amount of risk and risk assets it is assuming [16]. Thus, since the risk environment and challenges are always fluid, the level of capital adequacy is also dynamic. A major factor affecting the efficiency of banks in Nigeria is the issue of capital adequacy.

Poor capitalization of Nigerian banks in comparison to other emerging economies is a contributory factor to the distress syndrome in the banking sector. Other factors include poor management which is also one of the problems of Nigerian banking system, lack of human resource management, insider abuses, asset mismatch, poor record keeping, poor accounting system, embezzlement of depositors’ funds, fraudulent practices, weak corporate governance practices, etc. All these interplayed to adversely affect the level of capital adequacy of banks and their ability to adapt to the globalised banking system. The collapse and failure of many banks that were established during the earlier banking of 1937 – 1952, is attributed mainly to poor and ineffective management of banks. Reference [17] states that the factors listed above affecting capital adequacy are very glaring in the banking industry. Despite the regulatory reforms, most significantly, the banking consolidation exercise, the system is still yet to find a sound footing as could be seen in the near back and forth motion of those in charge of regulatory agencies.

Access bank, one of the 24 banks that survived the initial consolidation exercise and is still standing out after the recent categorization of banks by the then Governor of the Central Bank of Nigeria (CBN), Alhaji Sanusi Lamido Sanusi, comes under study in this first part of our alphabetical scrutiny of Nigerian deposit money banks (DMBs) still standing as at time of research. The purposes of this research therefore are:

- to examine the effect of capital adequacy on the performance of Access Bank Plc;
- to evaluate the influence of capital adequacy on the profitability of Access Bank Plc.

Pertinent questions for the subject-matter of this study are:

- how does capital adequacy impact on the performance of Access Bank Plc?
- to what extent does capital adequacy influence profitability of Access Bank Plc?

We hypothesize in the null form thus:

**H0:** There is no significant relationship between Core capital and profitability (Prof) of Access Bank Plc;

**H0:** There is no significant relationship between Supplementary capital and profitability (Prof) of Access Bank Plc.

## II. LITERATURE REVIEW

### A. Theoretical Framework

Capital adequacy is a conception that results from the idea of re-arranging the existing capital structure of banks in order to restructure the banking industry against widespread distress. Adequate capital creates opportunity for a better standard in any business establishment and spurs business exertion towards a great performance [18].

In Nigeria, the concept of recapitalization is a measure adopted by authorities at the period of under-capitalization in order to re-arrange the existing capital structure to meet up with the losses that accrued in the regime of increasing operation. Adequate capital aids recapitalization in the sense that it emerges to meet the need of individual banks in form of increasing the minimum paid-up capital so that banks can carry out their operation efficiently with their customers [19].

Capital adequacy is highly emphasized in the banking management because of the sensitivity of banks to the economy in general and financial system in particular. Recapitalization, according to [20], is a measure that puts out the dubious practice that largely led to the collapse of many banks therefore, acts as cleaning effort in the system.

The effect of capital adequacy on the performance of DMBs cannot be under-estimated since adequate capital directly and automatically influences the amount of funds available for loans and advances (major asset), which invariably affects the level and degree of risk absorption. Despite its many roles and diverse functions, it is clear that bank capital acts as protective cushion against the risk of failures precipitated by certain kind of uncertainties [21]. This is of the view that capital as a constraint to avoid defaults acts as a cushion to protect depositors and other creditors against operating and financial losses and losses at liquidation stage. Reference [22] is of the point of view that as depositors are growing, so must capital also grow.

The effect of capital adequacy lies in the fact that it assists to spread the cost of prudent business conduct and deters the criminally minded. Reference [22] explains that a bank requires capital adequacy for the same reasons other businesses may require capital while [1] emphasized that the
key element of capital for a bank is the only element common to all countries’ banking system. Reference [15] states that, capital adequacy plays a significant role in the banking sector of an economy. The need for capital adequacy for banks is a pressing problem not only in Nigeria but also a very large extent in many other countries globally.

B. Role of Deposit Money Banks (DMBs) in Nigeria

Ref. [23] and [24] assert that the activities of the banking sub-sector have dominated the Nigerian financial system. The economy of any country depends on banking as it contributes to the economic development of the country [10]. According to [18], their roles include: inculcation of banking habits to the populace; mobilization of savings for investment purposes: which is achieved through keeping savings, fixed deposit and current accounts for customers; channeling resources from surplus economic units to the deficit economic units for investment purposes. This consists of the provision of loans and advances to the private and public sectors for various and for the growth of domestic output and promotion of the export trade, agricultural production and provision of infrastructure. DMBs assist the government in the implementation of monetary and credit policies, provision of short-term and long-term credit to the public sector, serving as channel for implementing the various bilateral and multi-lateral trade agreements and policies, constituting avenues for the provision of various finance schemes designed to revamp the economy, providing advisory services, ensuring project conception and management, investment management, acting as agents to the government for dealing in foreign exchange, enhancing international trade, conducting brokerage services i.e. buying and selling of stocks for their clients thereby assisting in the development of the capital market and promotion of investment culture which lead to economic growth and development.

Ref. [25] describes that the role of DMBs is broadly classified into two, namely, the money creating and service rendering role. The more important of these, within the national economy, is the money creating role which is accomplished through the mobilization of capital. The service rendering role of deposit money banks comprises keeping of accounts for their customers, which may be current, savings or time deposit; provision of facilities for domestic and foreign remittances for their customers, including the provision of ordinary cheques, travelers cheques and foreign currency; collection and settlement of national and international debts arising from domestic and external trade for their customers including the provision of letters of credit; provision of facilities for their customers for the saving of their money and for the safe custody of their valuables; undertaking visibility studies and rendering financial and investment advice and other corporate help to their customers; and undertaking of trust and administration of estates, especially for their deceased customers. Invariably, the activities performed by DMBs accelerate the economic development of a nation [6].

C. Banks’ Capital Adequacy Regulation — Basel Review

The regulatory framework of the banking institutions ensures on orderly growth of the system. The imposition by the regulators of minimum capital standards on financial institution was one important part of development in the economy. Most banks regulators see capital adequacy regulation as a means of strengthening the safety and soundness of the banking industry [16].

The capital position of banks has been regulated for generations longer than any other financial firm. Capital adequacy by definition is seen as a quantum of fund, which a financial institution should have and plan to maintain in order to conduct its business in a prudent manner [26], [27]. Adequate capital is regarded as the amount of capital that can effectively discharge the primary function of preventing banking industry failure by absorbing financial and operating losses. The reasons for regulating bank capital are to provide cushion against the risk of failures, preserve public confidence in banks and to limit the losses to the federal government arising from payment of insurance claims [7], [28].

The 1988 agreement known as Basel Accord, the Bank for International Settlements (BIS) established a framework for measuring bank capital adequacy for banks in the group of ten industrialized countries. The Basel Accord provided for a minimum bank capital adequacy ratio of 8 percent of risk-weighted assets for bank that operate internationally. The accord has been critically discussed in the Preamble of the study. However, the accord has some obvious weakness articulated by [29], some of the articulated weaknesses include:

- The accord is a crude measure of economic risk since it does not present a broad-based risk weighting structure. This is primarily because the degree of credit risk exposure is not sufficiently calibrated to adequately differentiate between borrower’s differing default risks. The accord is simply not a good indicator of a bank financial condition.
- There was also the problem of a bank ability to arbitrage their regulatory requirements and exploit the differences between true economic risk and risk measured by the 1988 accord.
- The accord only covered credit risks to the exclusion of other risks attendant to banking operations. The focus is on a single measure of total amount needed for reduction in the risks of insolvency and potential cost of bank failure to depositors. The approach failed to take account of other equally important classes of risk in banking operations.
- The accord also failed to reward risk mitigating efforts. The Basel Capital Accord was generally criticized by practitioners and scholars for the “arbitrary” nature of its provisions – one of such criticisms relates to the unchanging 8 percent minimum capital assigned to risk weighted assets. This and other such criticisms led to the adoption of an amended Basel II Accord which addressed most of the areas of concern. The capital adequacy standard under the Basel Accord has been widely adopted throughout the world by bank regulators.

D. The Need for Capital Regulation

Since banks need capital for variety of purposes, these pose a need for regulation. Regulation is necessary in the case of bank specifically to maintain safe and sound banking system
that can meet its obligation without difficulty. The banking sector is highly prone to volatility and fragility either arising from exogenous or endogenous shocks and are therefore amendable to regulation and supervision [30].

According to [31], the establishment of a strong bank supervision system will be one way out of financial crisis. This view is in line with the negative impact of moral hazard and price shocks on the financial system thereby leading to a reduction in bank distress and failure.

Capital regulation is instrumental in the growth and financial credibility of Nigerian DMBs by making sure that all the financial banks operating in the country has a capital base (required reserves). This help to make sure that bank customers just don’t bear the loss alone, in the event of liquidation. However, capital regulation led to some Nigerian deposit money banks to fail; some banks could not meet up with capital base which was N25billion at the time [2]. These banks that could not meet up had to fold up, while some that could not come up with the money on their own, had to merge together with other banks in order to raise money. This regulation helped solidify the deposit money banks of Nigeria, and made it possible for individuals or organization without financial stability to operate a bank in the country. Today, Nigeria has one of the most advanced financial sectors in Africa, with most of its DMBs having branches in other countries.

III. METHODOLOGY

A. Materials and Methods

The research design for this study is analytical; hence, it adopts the regression approach.

Research documents were sourced from various literature books in areas of finance and related disciplines, journals, internet and annual reports of Access Bank Plc. This simply implies that the source of data to be used is derived from secondary sources.

The secondary source of data will provide the most reliable data for this study and this specific source is the CBN Statistical Bulletin and Annual Report of Access Bank Plc between the periods of 1999 – 2012.

We adopted the desk survey as this assist in the arrangement of data in a tabular form in line with the stated hypothesis.

The method of analysis adopted is the multiple regression analysis in order to determine the relationship and magnitude of relationship between the variables.

B. Model Specification

To test the hypothesis already stated, it is specified that the performance of Access Bank Plc is a function of capital adequacy.

i.e. \( \text{PFM} = f(\text{CAP}) \),

where, \( \text{PFM} \) = Profitability.
\( \text{CAP} \) = Capital adequacy.

Performance of Access Bank Plc is represented with profitability (\( \text{Prof} \)).

Capital adequacy is broken into two forms which are Core capital (\( \text{Cc} \)) and Supplementary capital (\( \text{Sc} \))

where, \( \text{Prof} = \text{Profitability} \)
\( \text{Cc} = \text{Core capital}. \)
\( \text{Sc} = \text{Supplementary capital}. \)

So therefore, \( \text{Prof} = f(\text{Cc}, \text{Sc}) \)

The Regression Model \( \text{Prof}_{t+1} = b0 + b1 \text{Cc}_{t+1} + b2 \text{Sc}_{t+1} + e \)

where, \( \text{Prof}_{t+1} \) = Estimated value of the dependent variable
\( b0 = \) Intercept term
\( b1, b2 = \) The regression plane of the two independent variables
\( \text{Cc}_{t+1}, \text{Sc}_{t+1} = \) The independent variables
\( e = \) Error term

IV. DATA PRESENTATION AND DISCUSSION OF FINDINGS

A. Data Presentation

<table>
<thead>
<tr>
<th>Year</th>
<th>Profitability</th>
<th>Core capital</th>
<th>Supplementary capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>120456</td>
<td>3145353</td>
<td>1105164</td>
</tr>
<tr>
<td>2000</td>
<td>130079</td>
<td>44205.7</td>
<td>152457.2</td>
</tr>
<tr>
<td>2001</td>
<td>77743</td>
<td>75170.6</td>
<td>235462.5</td>
</tr>
<tr>
<td>2002</td>
<td>55245</td>
<td>101276.5</td>
<td>338343.7</td>
</tr>
<tr>
<td>2003</td>
<td>556573</td>
<td>122735.9</td>
<td>414471.9</td>
</tr>
<tr>
<td>2004</td>
<td>637473</td>
<td>142324.5</td>
<td>543752.1</td>
</tr>
<tr>
<td>2005</td>
<td>501515</td>
<td>172321.5</td>
<td>778230.1</td>
</tr>
<tr>
<td>2006</td>
<td>737149</td>
<td>170494.9</td>
<td>105746.9</td>
</tr>
<tr>
<td>2007</td>
<td>6083439</td>
<td>152954.1</td>
<td>179149.1</td>
</tr>
<tr>
<td>2008</td>
<td>16056464</td>
<td>210936.3</td>
<td>2880838</td>
</tr>
<tr>
<td>2009</td>
<td>22885794</td>
<td>219510</td>
<td>2373600</td>
</tr>
<tr>
<td>2010</td>
<td>12931441</td>
<td>249714.6</td>
<td>1037954</td>
</tr>
<tr>
<td>2011</td>
<td>13660448</td>
<td>949925.5</td>
<td>7588998</td>
</tr>
<tr>
<td>2012</td>
<td>36353643</td>
<td>808169.8</td>
<td>12820905</td>
</tr>
</tbody>
</table>

Source: Computed by authors from CBN Statistical bulletin and Access Bank Plc annual reports for years under scope

Table I shows profitability and capital adequacy components of Access Bank Plc from 1999 – 2012 as adapted for this study. It can be observed that the profitability of Access Bank Plc was at its highest in the year 2012 and was at its lowest in the year 2002. Furthermore, it can be observed that profitability increased steadily from the year 2005.

Core capital, which is the shareholders’ fund, was at its highest in 2008. At a glance however, there seems to be a fair and commensurate growth between both category of capital and the bank’s profitability.

B. Data Analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficient</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. error</td>
<td>Beta</td>
<td>T</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-1.081</td>
<td>1.861</td>
<td>-0.581</td>
<td>0.573</td>
</tr>
<tr>
<td>Cc</td>
<td>-1.099</td>
<td>0.958</td>
<td>-0.442</td>
<td>-1.148</td>
</tr>
<tr>
<td>Sc</td>
<td>2.171</td>
<td>0.634</td>
<td>3.139</td>
<td>3.423</td>
</tr>
</tbody>
</table>

\( R^2 = 0.83; R^2\ (Adj) = 0.800; S.E = 0.45082; D.W = 1.553; F-stat = 27.008 \)

The \( R^2 \) (Adjusted) for the multiple regression models for this relationship is 0.800 or 80%. This indicates that the total
variation in the observed demeanor is explained by 80% of the variation in the independent variable. The remaining 20% is unexplained by the model but captured by the error term indicating that there were other variables not captured in the model.

To test for the overall significance of the \( R^2 \), we make use of the F-statistic which gives a value of 27.008 which is higher than the table value of 3.88. This indicates that the high value of \( R^2 \) did not occur by chance and that the variable fits the model.

To test for the parameter estimate, the constant term and Cc is not statistically significant at 1% and 5% given the low value of their t-statistic value. Core capital (Cc) shows an adverse relationship with profitability (Prof) indicating that a 10% increase in Core capital (Cc) will reduce profitability (Prof) by 0.0999 while Supplementary capital (Sc) is statistically significant at 1% and 5% given its high t-statistic value. Supplementary capital (Sc) shows a positive relationship indicating that 10% increase in Supplementary capital (Sc) will increase profitability by 0.217.

The Durbin Watson (D.W) value of 1.553 shows that there exist no autocorrelation in the result and the probability of 0.001 makes it reliable for interpretation.

C. Test of Hypothesis

From our hypothesis stated earlier in the null form and for the purpose of recall is reproduced here:

**Hypothesis I**

H0: There is no significant relationship between Core capital (Cc) and profitability (Prof) of Access Bank Plc.

**Hypothesis II**

H0: There is no significant relationship between Supplementary capital (Sc) and profitability (Prof) of Access Bank Plc.

**Hypothesis I**

t-calculated for (Cc) = -1.148
Degree of freedom \((n-2) = 12\)
t-tabulated at 0.05 two tail test = 2.179

**Hypothesis II**

t-calculated for (Sc) = 3.423
Degree of freedom \((n-2) = 12\)
t-tabulated at 0.05 two tail test = 2.179

D. Decision Rule

Since the t-calculated (-1.148) is less than the t-tabulated (2.179), we accept H0 that there is no significant relationship between Core capital (Cc) and Profitability (Prof) of Access Bank Plc.

**Hypothesis II**

t-calculated for (Sc) = 3.423
Degree of freedom \((n-2) = 12\)
t-tabulated at 0.05 two tail test = 2.179

E. Decision Rule

Since the t-calculated (3.423) is higher than the t-tabulated (2.179), we reject H0 and propose that there is a significant relationship between Supplementary capital (Sc) and Profitability (Prof) of Access Bank Plc.

F. Discussion of Findings

Given the results of the model, the study shows that Core capital has an adverse effect on profitability. This simply means that as shareholders wealth is maximized, there is a dragging effect on profitability. While the Supplementary capital (Sc) shows a positive relationship with profitability indicating that as more Supplementary capital increases, profitability also increases.

V. SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

A. Summary of Findings

From the foregoing, there is no significant relationship between Core capital and profitability of Access Bank Plc while there exist a significant relationship between Supplementary capital and profitability of the bank under study. It was found out that supplementary capital is thus, a backbone of profitability.

B. Conclusions

From the findings of the study, it is pertinent to note that Supplementary capital which is a type of capital reviewed in Basel I plays a pivotal role in the performance of Access Bank Plc which aids towards its profitability while Core capital does not have a significant relationship with its profitability.

However, capital adequacy of banks (Basel I review) has a crucial role to play in the performance of DMBs, from Access Bank Plc point of view, which aids their efficiency and effectiveness through their deposit mobilization and lending activities with respect to granting of credit and giving out of loans and advances.

Finally, the banking sector has always received upper attention on protection due to the vital role it plays in an economy. That’s why the stability of the banks is of utmost importance to the regulatory body so as to stabilize the economy which will eventually aid towards the growth and development of the nation.

C. Recommendations

Based on the entire study especially the findings, we recommend that

1) Government should pay more attention to this sector because it is observed that in a developing country like Nigeria, banks play an important role hence, their performance directly affects the growth, efficiency and stability of the economy;

2) The Central monetary authority should make provisions for adequate capital regulation to reduce the chances of banking distress. This should be on a quarterly basis;

3) Government should make banking environment more enabling by provision of adequate basic infrastructures to support banking services;

4) Efforts should be made in strengthening regulatory and supervisory frameworks;

5) Staff should be adequately informed on the imperatives of banks capital adequacy;

6) Access Bank Plc needs to take adequate care of her supplementary capital as this has a significant relationship with her profitability;

7) The dragging effect that core capital has on profitability needs to be monitored and appraised constantly in order not to reduce shareholders’ confidence in investing in the bank by way of a possible capital shore-up.

APPENDIX

| Regression results (Notes Variables entered/Removed) |
| --- | --- | --- |
| Model | Variables entered | Variables removed | method |
| 1 | Sc, Cc² | | Enter |

a. All requested variables entered.
b. Dependent variable: Prof
MODEL SUMMARY

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<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
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<tr>
<td>1</td>
<td>.911*</td>
<td>.831</td>
<td>.800</td>
<td>.45082</td>
<td>1.553</td>
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ANOVA

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<thead>
<tr>
<th>Model</th>
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<th>df</th>
<th>Mean Square</th>
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<tr>
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<td>5.489</td>
<td>27.008</td>
<td>.000*</td>
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<tr>
<td>Residual</td>
<td>2.236</td>
<td>11</td>
<td>.203</td>
<td>\</td>
<td>\</td>
</tr>
<tr>
<td>Total</td>
<td>13.214</td>
<td>13</td>
<td>\</td>
<td>\</td>
<td>\</td>
</tr>
</tbody>
</table>

a. Predictors (constant), Sc, Cc
b. Dependent Variable: Prof

c. Std. residual

COEFFICIENTS

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>t</th>
<th>Sig.</th>
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<tbody>
<tr>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
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</tr>
<tr>
<td>1. (constant)</td>
<td>-1.081</td>
<td>1.861</td>
<td>-581</td>
<td>.573</td>
</tr>
<tr>
<td>Cc</td>
<td>-1.099</td>
<td>.958</td>
<td>-1.148</td>
<td>.275</td>
</tr>
<tr>
<td>Sc</td>
<td>2.171</td>
<td>.634</td>
<td>3.423</td>
<td>.006</td>
</tr>
</tbody>
</table>

a. Dependent variable: Prof

RESIDUAL STATISTICS

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>N</th>
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<tbody>
<tr>
<td>Predicted Value</td>
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<td>7.8523</td>
<td>6.1502</td>
<td>.91895</td>
<td>14</td>
</tr>
<tr>
<td>Residual Value</td>
<td>-.67529</td>
<td>1.06828</td>
<td>.00000</td>
<td>.41470</td>
<td>14</td>
</tr>
<tr>
<td>Std. Predicted Value</td>
<td>-1.337</td>
<td>1.852</td>
<td>.000</td>
<td>1.000</td>
<td>14</td>
</tr>
<tr>
<td>Std. residual</td>
<td>-1.498</td>
<td>2.370</td>
<td>.000</td>
<td>920</td>
<td>14</td>
</tr>
</tbody>
</table>

a. Dependent variable: Prof

REFERENCES


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