Determinants of Capital Structure of Banks with International Authorization: Evidence from Nigeria

Obi, Henry Kenedunium [1]; and **Ebiringa, Oforegbunam Thaddeus** [2]

[1]Department of Accounting, Nnamdi Azikiwe University, Awka. [2]Department of Entrepreneurship and Innovation, Federal University of Technology, Owerri.

Corresponding author: oforegbunam.ebiringa@futo.edu.ng

Abstract

This paper investigated determinants of capital structure of banks with international authorization in Nigeria. The study is motivated by recent trend of Nigerian banks expanding to the west and central African regions, with increased use of debt instruments to boost their capital base. The study employed purposive sampling technique to identify eight (8) banks listed on the Nigerian Stock Exchange authorized to expand outside Nigeria as holding companies that have required data for analysis variables for the period 2010-2019. The hierarchical regression analysis technique was employed, with results showing that firm size is significant, while working capital and profitability are insignificant determinants of capital structure of banks with international authorization. This paper concludes that that firm size is the major significant determinant of capital structure decision of banks that have international authorization in Nigeria. The paper recommends that Nigerian banks while growing their size as internationalization strategy, must exercise caution in excessive use of debt capital instruments, given their likelihood of exposing banks to leverage risk, base-ownership erosion and management control dilution.

Keywords: Capital Structure, Profitability, Working Capital, Firm Size, Financing Leverage, Management Control.

Introduction

Capital structure decisions of banks play pivotal role in banking system stability, risk management, and ability to support economic growth. With the increasing globalization of financial markets, banks with international authorization face unique challenges as well as opportunities in determining their optimal capital structure. Understanding the determinants of capital structure for such banks is crucial not only for academic discuss, but also for policymakers and industry practitioners seeking to enhance the resilience and efficiency of banking systems and operations.

To maximize the firm's intrinsic value, the cost of capital structure must be reduced to the lowest level. When at this this point, optimum capital structure is achieved. Optimum capital structure is the capital structure (combination of debt and equity) that leads to the maximum value of the firm. Optimum capital structure is the capital structure at which the Weighted Average Cost of Capital (WACC) is minimum, and the value of the firm is maximum (Toader, Vintila. & Gherghina, 2022; Oyedeko & Zubairu, 2019). Deciding the

suitable capital structure, especially for banks is critical decision financial managers of firms must effectively take, as it is closely related to the value of the firm (Awah, Ebiringa & Ugwu, 2020).

In the Nigerian context, where the banking sector has undergone significant regulatory reforms and experienced dynamic changes in recent years, investigating the factors influencing the capital structure choices of management of banks with international authorization holds particular relevance. Nigeria, as one of the largest economies in Africa, serves as a crucial hub for financial intermediation and cross-border capital flows. Consequently, the need for this study that seek to unravel the drivers behind the capital structure decisions of banks with international authorization in Nigeria cannot be overemphasized. The findings of this paper provide valuable insights into the broader dynamics of shaping the Nigeria's banking industry resilience and competitiveness within the globalized financial ecosystem.

Problem Statement

Despite the considerable attention devoted to the study of capital structure determinants of firms (Corporate Finance Institute, 2022; Ismail, 2021; Awah, Ebiringa & Ugwu, 2020; Agyei, Sun, & Abrokwah, 2020; Rahman, 2019), there remains a gap in the literature concerning the specific factors influencing the capital structure decisions of banks with international authorization in Nigeria. Existing research predominantly focuses on developed economies and less attention to the unique characteristics and challenges faced by banks operating in emerging markets, such as Nigeria.

Moreover, the evolving regulatory environment, macroeconomic conditions, and market dynamics in Nigeria necessitate a comprehensive examination of the determinants driving the capital structure decisions of banks with international authorization.

Research Questions

This paper seeks to address the following central questions as it relates to internationally authorized banks operating in Nigeria:

1. What are the critical determinants of capital structure decisions of such banks?
2. How significant is the effect of regulatory requirements, market, and firm characteristics on capital structure decisions of such banks?
3. What are the possible regulatory and policy issues to ensure effective capital structure decisions making for effective by management of Nigerian banks with international authorization?

Paper Objectives

The objectives of this paper include to:

a) identify the key determinants of capital structure decisions of banks with international authorization in Nigeria;

b) examine the effects of regulatory requirements, market, and firm characteristics on the capital structure decisions on profitability of banks operating in the Nigerian banking industry;

c) provide evidence-based recommendations that can guide regulatory reforms and strategic decision-making by banks and policymakers that will enhance the resilience and efficiency of the Nigerian banking sector within the context of the global financial ecosystem.

Literature Review

This section is presented in three parts: Conceptual review, theoretical framework and empirical literature.

Conceptual Review
Capital Structure

During the last quarter-century, one of the most contentious issues in finance theory has been capital structure. According to Mukumbi, Eugine, and Jinghong (2020), the capital structure indicates how a firm finances its entire operations and expansion by mixing multiple sources of equity and debt. Bonds and long-term notes payable are examples of debt, while ordinary stock, preferred stock, and retained earnings are examples of equity, which is commonly measured using debt-to-equity or debt-to-total asset ratios (Ismail, 2021).

Many factors are involved in deciding whether to use debt or equity to finance firms' operations, and it is a challenge to balance the two and find an optimal equilibrium (Corporate Finance Institute, 2022). A firm's capital structure can include long-term debt, short-term debt, ordinary equity, and preference shares. When analysts discuss capital structure, they usually refer to a firm's leverage ratio, which indicates how risk-exposed the firm is. The goal of firm management is to achieve the ideal capital structure, often known as the optimal debt-to-equity ratio. This is often known as gearing/leverage ratio (Ebiringa & Chigbu, 2012).

Large and persistent current account imbalances over the past decade have led to historic highs of countries' net international investment positions and gave rise to concerns about the disorderly unwinding of the resulting stock imbalances (International Monetary Fund, 2019). The deterioration in financial market sentiment caused by the COVID-19 pandemic triggered a sudden capital flow reversal and currency depreciation across numerous emerging market and developing economies. While exceptional monetary and fiscal policy support led to a subsequent improvement in the risk sentiment and stabilized capital flows, the outlook for external positions remains highly uncertain, and risks remain elevated, especially for banks (International Monetary Fund, 2020).

These developments have once again highlighted the importance of understanding the factors that determine countries' external vulnerabilities when exposed to global shocks. Previous research – using mostly cross-country data – found that the composition of foreign

liabilities, that is, the relative shares of items such as foreign direct investment (FDI), portfolio equity, and external debt in a country's gross foreign liabilities, is an important determinant of a country's vulnerability to external crises. Given that liquidity crises are unlikely to be generated by sudden stops in equity flows but are often triggered by sudden stops in debt flows, a large share of equity in total liabilities is usually associated with a lower crisis risk (Hirdinis, 2019). Given that the banking system provides the nexus and mechanisms for the flow of the above financial resources globally, they are often exposed to global uncertainties, shocks and risk.

Determinants of Capital Structure

A number of previous researches have established that capital structure is affected by such determinants, such as working capital, profitability, tax effectiveness, firm size, and firm age (Ismail, 2021; Amatay, 2020; Ebiringa & Chigbu, 2012). Thus, managers of firms are required to consider these determinants, which are generally related to the economic environment, and firm's characteristics. For the purposes of this paper, working capital, profitability and firm size were used as determinants of capital structure.

Current Ratio

This ratio measures total current assets to total current liabilities. Current assets are the assets which can be converted into cash within an accounting year and include short term securities, debtors, bills receivable and stock (Pandey, 2008). Current liabilities on the other hand, are claims from outsiders which are expected to mature for payment within an accounting year and include creditors, bills payable and outstanding expenses (Pandey, 2008). Current ratio is intended to indicate whether short term assets are sufficient to meet short term liabilities. Amatya (2020) assert that current ratio measures the monetary value of current assets available to pay each monetary value of current liabilities.

Profitability

The relationship between capital structure and profitability has been a topic of contemporary research by scholars globally. For instance, Wiyasa and Basyith (2020) examined the impact of capital structure on the profitability of selected telecommunication firms listed on the Indonesian Stock Exchange. The authors found that capital structure variable of debt to asset ratio (DAR) has a negative and significant effect on return on equity (ROE), while, capital structure variable of long-term debt to equity (LTD/E) ratio, has a positive but insignificant effect on ROE.

The relationship between capital structure and the profitability of four major Indian telecommunication firms was also the focus of a research, whose results posits that significant positive relationship exists between profitability measured by net operating profit (NOP) and two capital structure factors: cost of equity (Ke), and cost of debt (Kd) (Kumawat & Morani 2019).

In an earlier related research, the effects of leverage in capital structure on the profitability of ten selected Indian telecom firms was examined. The study concluded that capital structure has a significant impact on the profitability of firms, measured in terms of return on assets (ROA) and return on investment (ROI) (Hirdinis, 2019).

Equally, the result of a panel data analysis of 208 Canadian non-financial firms listed on the Toronto Stock Exchange from 1999 to 2016 suggested that age, liquidity, asset tangibility, size, growth opportunities, and profitability are the significant determinants of capital structure (Amatya, 2020).

In another research, to determine the effect of capital structure on firms' performance in the Indian service sector, the researchers used panel data. The findings revealed that short-term debt to total assets and long-term debt to total assets have a negative and significant association with firms' performance measured by ROA, return on capital employed (ROCE), and earnings per share (EPS) (Farhan, Mosab, Mohammed & Ali, 2020).

Firm Size

There exists the assumption in literature that large-sized firms have less risk of bankruptcy, a diversified portfolio and lower variance of earnings and that makes them more tolerant with high debt ratios, than small sized firms (Ebiringa & Chigbu, 2012). This assumption was found valid in the result of positive relationship between size and capital structure as obtained in Toader, Vintila & Gherghina (2022).

In contrast, the pecking order theory highlights that big firms have the ability to finance their investments through internal funds or through equity issuance (Pandy, 2005). In the context of this paper, the size of the bank is a reflection of the total value of assets holding. This influences the investor's expectation of dividend from the bank (Hirdinis, 2019). Increased demand for shares of a bank will be able to spur on the increase in its stock prices in the capital market. Such increase will imply that such a bank is considered to have greater "value" by investors. Meaning that profit has a positive effect on firm value (Ebiringa & Chigbu, 2012).

Theoretical Framework
Signaling Theory

The signaling theory emanates from information asymmetries between firm management and shareholders. If managers believe that their firms are undervalued, they will issue debt first and then issue equity as a last resort. Conversely, if management believes that their firm is overvalued, they will issue equity first. The signaling theory believes that if managers have inside information, their choice of capital structure will signal information to the market. Leverage may well be influenced by the theoretical premise that increases in debt are a positive sign that managers are confident about future earnings (Qureshi, Sheikh & Khan, 2015). Debt contracts are a commitment by managers to make future interest payments. Failure to repay debt could lead to bankruptcy. This signals confidence to the market that the firm will have sufficient cash flows to service debt (Amatya, 2020).

Empirical Literature

This section of the paper provides summaries of some related studies and findings by previous researchers.

Current Ratio and Capital Structure

In order to understand working capital management proxied by current ratio as a determinant of capital structure, there have been various studies conducted globally. In India business environment, current ratio has been empirically identified as a critical determinant of capital structure. Ramadan (2015) found that significant negative relationships exist between capital structure (leverage ratio) of 80 Indian manufacturing firms during the period of 2000-2014, when subjected to a Panel regression analytics. Equally, Wiyasa and Basyith (2020) conducted a study on capital structure proxied by leverage ratio using 31 non-finance firms as sample. The relationship model they formulated using multiple regression technique showed that current ratio was a negatively significant determinants of capital structure.

On the other hand, Amatya (2020) conducted a panel regression study non-finance firms for the period of 8 years and also found that current ratio was a significantly negative determinant of capital structure.

Equally, current ratio was also used as a determinant of capital structure by Awah, Ebiringa & Ugwu (2020) in a study conducted on 126 consumer goods firms in Nigeria. In this study, capital structure proxied by debt ratio and using ordinary least square (OLS) regression, established that current ratio was a significant positive determinants of capital structure. Further, Farhan, et al. (2020) conducted a Generalized Method of Moments (GMM) regression study using 100 non-finance Indian firms and they also found that current ratio was a significant and positive determinant of capital structure.

Qureshi, Sheikh, and Khan (2015) found that current ratio was a positively significant determinant of capital structure (leverage). Their study was done on 154 non-finance firms for the period of 1992-2007 and used a Panel data regression method.

In another study, conducted by Oyedeko and Zubairu (2019) in Nigeria, the result revealed that current ratio was a positively insignificant determinant of capital structure. Their study was based on a sample of 6 small and medium enterprises (SMEs) for the period 2010 to 2017 and a panel regression analysis was used.

Profitability and Capital Structure

In order to understand profitability as a determinant of capital structure, there have been various studies conducted globally. Awah, Ebiringa and Ugwu (2020) conducted the study titled 'The effect of capital structure decisions on profitability of quoted consumer goods in Nigeria' using leverage as one determinant of capital structure, and found that leverage ratio has negative effect on profitability. Similarly, Farhan, Mosab, Mohammed and Ali (2020), in another study titled 'the relationship between capital structure and firm

performance: Empirical evidence from Indian service sector' found financing leverage as having inverse relationship profitability of service firms in India.

Equally, Ebiringa, Eme, Chigbu and Obi (2013) in a study titled 'Effect of Firm Size and Profitability on Corporate Social Disclosures: The Nigerian Oil and Gas sector in Focus' in which econometric investigation of financing activities of some selected Nigerian oil and gas firms was conducted, and found that profitability was a significant determinant of capital structure in the Nigerian oil and gas industry, though its effect is negative. Ramadan (2015), carried out research titled 'Capital structure and firm's performance of Jordanian manufacturing sector'. And found that profitability was a negative and significant determinant of capital structure. In Malaysia, Abdeljawad, Mat-Nor, Ibrahim and Abdul-Rahim (2013) undertook a study titled 'Dynamic capital structure trade-off theory: Evidence from Malaysia' with those results revealing that profitability was a negative significant determinant of capital structure.

Rahman (2019) found that profitability was a positive and significant determinant of capital structure proxied by leverage. Their study used 27 banks for the period of 2009-2013 and they used a Panel regression method.

Qureshi, Sheikh and Khan (2015) used data of a large sample of manufacturing firms in Pakistan for a period of fifteen (15) years and used Dynamic Panel Data Regression of GMM. Their findings indicated that profitability was a positive and significant determinant of capital structure.

Firm Size and Capital Structure

Oyedeko and Zubairu (2019), in a study titled 'Empirical Test of Trade off Theory and Pecking Order Theory as Determinants of Corporate Leverage: Evidence from A Panel Data Analysis Upon Nigerian SMEs arrived at results the affirmed that firm size was a negative and significant determinant of capital structure. Their study was based on a small sample of SMEs for the period of 2010 to 2017 and the panel regression analysis technique was applied.

Methodology

The population of the study consists of all the listed internationalized banks in Nigeria, listed banks on the Nigerian Stock Exchange (NSE), which as at December 2020, were thirteen (13). The sampling technique employed is purposive, since firms were included in the sample on certain selection criteria. These criteria were based on the banks with consistent published annual financial reports and statement of accounts for the period 2010-2019; there were access to their annual financial reports within the period and they were not firms operating subsidiaries in Nigeria that are not listed in the Nigerian stock exchange and there are banks with international authorization.

Hence, the sample size consists of eight (8) banks with international authorization and availability of financial data for ten years used the compute the financial ratios used as analysis variables. This paper specified relationship model that assessed the nature and

significance of each of the determinants of capital structure identified in the literature. Thus, the paper adapted the model specified by Oyedeko and Zubairu (2019) which was modified for the purpose of establishing the relationship between the dependent variables and the linear combinations of several determining variables captured in the study. Succinctly, the econometric form of the analysis model formulated in this paper is of the form:

$$DETA_{it} = \beta_0 + \beta_1 CUTR_{it} + \beta_2 RETA_{it} + FSIZ_{it} + \mu_{it} \qquad \ldots 1$$

Where:

DETA is Total Debt measured as total liabilities divided by Total asset;

CUTR is Current Ratio measured as current asset divided by current liabilities;

RETA is Return on Total Asset measured as profit after tax divided Total asset;

FSIZ is Firm Size measured as the natural logarithm of total asset;

β_0 is the Constant; β_1- β_3 is the Slope Coefficient;

μ is the Stochastic disturbance;

i is the ith firm; and t is time-period.

The econometric techniques adopted in this study are the panel fixed and Random effect regression techniques. The rationale for its usage is based on the following justifications: the data that will be collected may have time and cross-sectional attributes as well as across the sampled firms (cross-section); panel data regression provides better results since it uses large observation and reduces the problem of degree of freedom (Ezirim, Briggs, Ebiringa & Maclayton, 2004).

Results and Discussions

Results of data analysis are summarized in tables 1-3, and discussed thereof.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
deta	80	83.3295	12.44972	8.63	110.37
reta	80	1.86075	1.957029	-7.83	9.54
curr	80	73.93612	38.39475	0	98.04
fsiz	80	9.34275	.3766104	8.68	11.15

Source: Authors Computations

Table 1 shows the summarized descriptive statistics for this study. As observed from the table, on the average leverage as a proxy for capital structure was 83.33 with a standard deviation of 12.45. We also find that on average, profitability as proxied by return on asset was 1.86 on average with a standard deviation of 1.96. Current Asset ratio on average was 73:94 for the banks under study while bank size on average was 9.34 in terms of asset size.

Fixed and Random Effects Estimators

To justify the choice of model, the Hausman specification test is largely suggested by scholars (Hirdinis, 2019). Actually, this test checks for a more efficient model against a less efficient but consistent model. It ensures that the more efficient model also gives consistent results. The table below provides a summary result obtained from both fixed and random effect models.

Table 2: Panel Regression Estimators

Variables	Profitability	Working Capital	Bank Size
Fixed Effect Model			
Coefficient	2.166	-0.045	-25.500
t_ Statistics	(3.68)	(-1.60)	(-6.38)
Probability_t	{0.000) *	{0.114)	{0.000} *
No. of Obs = 80 Prob. F statistics = 0.0000 R² = 0.4819			
Random Effect Model			
Coefficient	2.098	-0.039	-23.840
z_ Statistics	(3.68)	(-1.42)	(-6.42)
Probability_z	{0.000} *	{0.156}	{0.000} *
No. of Obs = 80 Prob. Wald Chi² = 0.0000 R² = 0.4818			

Hausman = 0.3974

Note: t & z -statistics and respective probabilities are represented in () and {}

*Where: * represent 1% level of significance*

***Source:** Authors' Computations*

Table 2, gives a careful examination of the results provided by the effects models show that both models of interest suggest appropriateness as it relates to the dependent variable of leverage for the period under investigation. However, a look at the p-value of the Hausman test (0.3974) implies that we should accept the alternate hypothesis since the p-values of the Hausman test is not significant at 5% or 1% level. This suggests that the random effect results tend to be more appealing statistically when compared to the fixed effect results. However, to control for the random effects in the model the study employed the hierarchical regression estimator.

Hierarchical Regression

In hierarchical regression, the focus is on the change in predictability associated with predictor variables entered later in the analysis over and above that contributed by predictor variables entered earlier in the analysis. Change in R² (ΔR^2) statistics are computed by entering predictor variables into the analysis at different steps. The results obtain is presented in Table 3.

Table 3: Hierarchical Regression Estimates [3rd Model]

Variables	Profitability	Working Capital	Bank Size
Leverage Model			
Coefficient	1.249	0.040	-17.894
t_ Statistics	(1.77)	(1.12)	(-5.35)
Probability_z	{0.081}	{0.267}	{0.000) *
No. of Obs. = 80 Prob. > chi2 = 0.0000			

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Model   R2        F(df)              p          R2 change  F(df) change
   1:   0.039     3.127(1,78)        0.081
   2:   0.054     2.194(2,77)        0.118      0.015      1.250(1,77)
   3:   0.313     11.522(3,76)       0.000      0.259      28.605(1,76)
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Note: t-statistics and respective probabilities are represented in () and {}
*Where: * represents 1% level of significance*
Source: *Authors' Computations*

Table 3 shows that the model summary obtained from the Hierarchical regression indicates that the addition of the explanatory variable of bank size brought about a significant change in R^2 from 0.054 to 0.313. This indicates that about 31% (0.313) of the change in capital structure is explained by the addition of the explanatory variable of bank size to profitability and working capital as the determinant's variables. Furthermore, a look at the F-statistics reveal an overall increased (28.605) when compared to the previous models. The p-value of 0.000 indicates that this change in the F-Statistics is significant at 1%. From the foregoing, since the explanatory power of R^2 in the third model is significantly better compared to the previous models, we adopt the 3rd model for interpretation and policy recommendation.

The hierarchical regression results presented in the table above reveal the result of the variable of profitability as follows: (Coef. = 1.249, t = 1.77 and P -value = 0.081). Following the results above, it is revealed that the effect of profitability as a determinants of capital structure is positive and statistically insignificant during the period under review. This suggests that the though profitability determines capital structure of listed banks with international authorization in Nigeria, this effect is not significant. Our finding is in not tandem with those of Ramadan (2015); Amatya, (2020); Awah, et al. (2020) as well as Agyei, Sun, and Abrokwah, (2020) that all concluded that Profitability was a negative and significantly determinant of capital structure. Similarly, we negates the studies of Rahman (2019); Mukumbi, Eugine and Jinghong, (2020); Oyedeko and Zubairu (2019); and Yinusa, Odusanya and Olowofela (2017) who found evidence that profitability was a positive and significant determinant of capital structure.

The finding being that working capital is not a significant determinants of capital structure of listed banks with international authorization in Nigeria. The results is revealed as follows:

(Coef. = 0.040, t = 1.12 and P -value = 0.267). Hence the result revealed that the effect of working capital on capital structure is positive and statistically insignificant during the period under consideration. This suggests that working capital does not significantly determine capital structure of listed banks with international authorization in Nigeria. The above result contradicts those made by Ramadan (2015); Agyei, Sun and Abrokwah, (2020); Ebiringa and Chigbu (2012) that all found current ratio as being a significant determinant of capital structure, though of negative effect.

This paper also contradicts the earlier finding of the studies of Ebiringa, et al. (2013) and Qureshi, Sheikh, & Khan (2015), which reported that working capital is a positive and significant determinants of capital structure.

For the variable of bank size, the results is revealed as follows: (Coef. = -17.894, t = -5.35 and P -value = 0.000). Following the result revealed above, this paper found that bank size is a significant determinant of capital structure in Nigeria. More specifically, the size of the banks under study increases the decision to finance their operations through the issue of debt instruments decreases. This finding agrees with those of Oyedeko and Zubairu (2019); Farhan, et al. (2020) that also found that firm size decrease firms' issue of debt instrument to finance their operations. On the other hand, the results of this paper contradict the studies of Hirdinis (2019) and Ismail (2021), that posit that the expansion in size is the main motives for debt financing among firms.

Conclusion

This current study on the determinants of capital sturcure ihave made some unique contributions to knowledge in the area of corporate finance. Firstly, the paper has successfully provided empirical evidences by exploring quoted banks in Nigeria with international authorization, which related studies have sparsely examined before now. Based on the findings made, this paper concludes that combination of debt and equity to form business total capital is a referred capital structure.

Capital structure decisions are critical to the success of banks as it influences their profitability. Implying that capital structure decisions can lead to result in financial distress and the failure of a bank, if not properly structured. Hence, capital structure decisions of banks is a critical and controversial corporate finance issue, which must be strategically managed. Based on the findings of this study, the study concludes that firm size is the key significant determinant of capital structure decision of banks that have international authorization in Nigeria.

Recommendations

Consequent on the above findings and conclusion, this paper recommends as follows:

- That banks internationalize authorized, while growing their size as expansionist strategy, need to exercise caution in excessive use of debt capital instruments, given their likelihood of exposing banks to financing leverage risk, base-ownership erosion and management control dilution, when used excessively;

- Banks with international authorization in Nigeria, should strive to obtain debt capital more through issuance of bonds or long-term notes, while they obtain equity in the order of retained earnings, common stock, and preferred stock. This ensures optimality in capital financing mix, that will likely reduce the level of financing leverage and associated risk;
- Though this paper did not identify working capital as a significant determinant of capital structure for, however it positive relationship with the dependent variable (profitability) indicates that it has the likelihood of enhancing profitability. The recommendation therefore is that banks with international authorization in Nigeria should always strive to maintain optimum working capital level at all time;
- Like most other related previous researches, limitations are inherent in this current study. Hence this paper suggests that futures researches be carrying out focusing on sectors of the Nigerian economy using alternative methodological approaches that may give varying results and alternative explanations.

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