

## Equity Financing and Firm Resilience during Economic Shocks: Evidence from Covid-19 Period in Nigeria

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**Abstract: Purpose:** This study investigates the role of equity financing in enhancing firm resilience during economic shocks, with specific focus on Nigerian firms during the COVID-19 pandemic. It examines how equity capital structure (ECS), access to external equity markets (EEM), and internal equity reserves (IER) influence firms' operational continuity and financial stability amid crisis.

**Methodology:** An ex-post facto research design was employed, utilizing secondary data sourced from 65 firms listed on the Nigerian Stock Exchange (NSE) over a 10-year period (2011–2021). Data were extracted from NSE Factbooks and analyzed using descriptive statistics, Pearson correlation, and multiple regression analysis via E-Views 9.0 software. Structural Equation Modeling (SEM) was conducted to validate model fit and causal relationships among constructs. Reliability and validity of constructs were verified using Cronbach's Alpha, composite reliability (CR), and Average Variance Extracted (AVE), ensuring robustness and credibility of findings. The study hypotheses were tested to assess the influence of each equity financing dimension on firm resilience during the pandemic period.

**Findings:** The results revealed significant positive relationships between all three dimensions of equity financing and firm resilience. ECS had the strongest effect, followed by IER and EEM. SEM model fit indices (CFI = 0.962, RMSEA = 0.041)

confirmed a well-fitting structural model, validating the proposed theoretical framework. These findings suggest that a strong equity base enhances resilience, allowing firms to withstand and adapt to economic disruptions.

**Originality/Value:** This study provides empirical evidence from an emerging market context, highlighting the importance of equity-based strategies for crisis resilience, with practical implications for policy and corporate finance planning.

**Key words:** Equity Financing, Firm Resilience, Economic Shock, COVID-19, Capital Structure, Nigerian Stock Exchange, SEM, Financial Stability.



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## 1. Introduction

The outbreak of the COVID-19 pandemic triggered one of the most profound global economic shocks in recent history, exposing vulnerabilities in firm-level financial structures, particularly in developing economies such as Nigeria. The pandemic caused substantial disruptions in supply chains, diminished consumer demand, and triggered sharp declines in revenue for firms across various sectors. In such times, firm resilience, the ability to absorb, adapt to, and recover from adverse shocks became a crucial determinant of survival and performance (Ivanov & Dolgui, 2020; Altig, Baker, Barrero et al., 2020; Mfreke, Nseobot, Hamid et al., 2020; Nseobot, Simeon, Effiong et al., 2020; Orujekwe, Rahim & Ubaidillah, 2024). Central to this resilience is the mode and structure of corporate financing, particularly equity financing, which provides non-debt-based capital essential for sustaining firm operations without the burden of fixed repayment obligations during economic downturns (Hussein, Sakr & Barie, 2019; Nseobot & Effiong, 2020; Chang, Chen & Masulis, 2023). The study of how equity financing relates to firm resilience is not only timely but vital for informing post-pandemic financial policy and corporate strategy in emerging economies.

Equity financing offers a buffer against liquidity constraints and interest obligations that often exacerbate firm fragility during downturns (Frank & Goyal, 2009; Campello et al., 2010). Unlike debt financing, equity allows firms to endure longer periods of negative cash flows without the threat of bankruptcy. During COVID-19, firms with strong equity positions were observed to demonstrate higher agility in adapting to market changes, adopting digital business models, and retaining workforce capacity (Pagano et al., 2020; Carletti et al., 2020). In contrast, overleveraged firms often faced capital rationing and increased default risks, especially in economies with limited government fiscal support like Nigeria (Ogundipe et al., 2021). Studies from developed markets, including the U.S. and Europe, consistently showed that equity-rich firms were more likely to withstand and recover from the pandemic's shocks (Chetty et al., 2020; Ding et al., 2021; Ramelli & Wagner, 2020). In emerging markets, however, the evidence remains scattered, necessitating deeper empirical exploration in contexts such as Nigeria, where capital markets are shallow and informal financing dominates.

Nationally, Nigerian firms operate within a volatile macroeconomic environment characterized by currency fluctuations, inflationary pressures, and capital market inefficiencies all of which magnified during the COVID-19 period (Onafowokan & Iroham, 2020; Adegbite et al., 2018). Local studies indicate that limited access to long-term equity capital remains a fundamental weakness in Nigeria's corporate finance ecosystem (Uwuigbe et al., 2012; Okoye et al., 2017). Moreover, many Nigerian firms rely heavily on short-term bank loans, which became increasingly inaccessible or expensive during the pandemic, resulting in significant business closures,

downsizing, and halted operations (Oladele et al., 2021; NBS, 2021). In contrast, firms with diversified equity funding, including those listed on the Nigerian Stock Exchange or having foreign direct equity investments, demonstrated relatively higher continuity and adaptive capacity (Bello & Yusuf, 2022). This suggests that equity financing may have provided strategic insulation against pandemic-induced financial shocks in Nigeria, in line with international evidence.

From an international standpoint, equity financing is increasingly viewed as a strategic tool for enhancing firm resilience, particularly in crisis-prone environments. Studies by Demirgüç-Kunt et al. (2020) and Beck et al. (2008) emphasize that firms in countries with well-developed equity markets were more likely to receive investor support during the COVID-19 shock, allowing them to maintain liquidity and restructure operations. Furthermore, cross-country analyses reveal that firms in nations with higher equity-to-debt ratios had superior post-crisis performance and stock price recovery (Fahlenbrach et al., 2021; Alfaro et al., 2020). In contrast, firms in developing countries with underdeveloped equity markets were significantly constrained, highlighting the systemic role of equity markets in building macro-level economic resilience. These findings underscore the relevance of examining Nigeria's equity financing landscape within the broader framework of firm resilience to external shocks.

Literature in corporate finance further supports the notion that equity financing contributes to long-term sustainability by aligning firm capital structures with risk exposure (Modigliani & Miller, 1958; Myers & Majluf, 1984). In crisis scenarios, equity serves not only as a financial buffer but also as a signal of firm credibility and investor confidence (Flannery & Rangan, 2006). COVID-19-specific studies by Bartik et al. (2020) and Gourinchas et al. (2020) reinforce the theory that firms with flexible financing structures, especially those with access to external equity capital, were more responsive to policy stimuli and internal reorganization. Additionally, evidence from Asian economies, such as India and Indonesia, shows that equity-backed firms were more likely to adopt digital transitions and diversify operations (Lei et al., 2024; Hasan et al., 2022). These global insights provide a comparative framework for evaluating Nigerian firms' performance and financing strategies under similar pressures.

Despite the wealth of global research on equity financing and crisis resilience, there remains a notable paucity of focused studies within the African context. Existing African literature tends to generalize the impacts of COVID-19 on business performance without critically dissecting financing mechanisms (UNECA, 2020; Asongu et al., 2021). However, some regional studies have begun to bridge this gap. For example, Tadesse & Kwalingana (2022) found that SMEs in Ethiopia and Malawi with diversified financing—including informal equity participation—fared better than their debt-dependent counterparts. Similarly, in South Africa, Du Plessis et al. (2021) reported that firms with high equity capitalization outperformed their peers in revenue recovery and employment retention. Nigeria, with its unique institutional and financial infrastructure, provides a compelling case study for expanding this line of inquiry, especially in light of its policy push toward financial market deepening and private capital mobilization.

Another dimension deserving attention is the role of government policy and investor sentiment in shaping equity financing during crises. Government-backed equity injection schemes in countries like the U.S. and U.K., such as the Paycheck Protection Program (PPP) and the Future Fund, provided equity-like support to firms, reinforcing the importance of public-private partnerships during crises (Lei et al., 2024; Kacer et al., 2025). In Nigeria, however, most COVID-19 intervention schemes were credit-based and managed through the Central Bank of Nigeria, with limited emphasis on equity support (CBN, 2020). This discrepancy highlights a structural gap that may explain why many Nigerian firms struggled to maintain resilience despite available aid. A more robust equity financing culture—supported by enabling regulation, institutional investor participation, and public awareness—may therefore be essential for improving economic shock absorption in Nigeria's private sector.

## 1.2 Statement of the Problem

Economic shocks such as the COVID-19 pandemic revealed profound structural weaknesses in the financial resilience of firms globally, and even more so in emerging economies like Nigeria. While equity financing has been recognized internationally as a critical tool for enhancing firm adaptability during crises (Baker & Wurgler, 2002; Fahlenbrach et al., 2021), the role it played among Nigerian firms during COVID-19 remains largely underexplored. Existing research in Nigeria tends to emphasize macroeconomic impacts or general firm performance without disaggregating the financing structures that underpinned resilience or vulnerability (Ogundipe et al., 2021; Oladele et al., 2021). Furthermore, equity markets in Nigeria are shallow, undercapitalized, and dominated by a few large firms, leaving SMEs and informal enterprises heavily dependent on short-term debt or informal financing (Uwuigbe et al., 2012; Adegbite et al., 2018). This gap in both academic literature and policy underscores the need to understand whether and how equity financing contributed to firm-level resilience in Nigeria during the pandemic. Was equity financing a determinant of operational continuity, workforce retention, and recovery capacity during the COVID-19 crisis? If so, to what extent did firm size, industry, or capital market access influence this relationship? These unanswered questions present a critical knowledge gap. Without empirical evidence on equity financing's protective role, financial policy and crisis-preparedness strategies remain incomplete and potentially ineffective in future economic disruptions.

## 1.3 Research Objectives/Questions

The primary objective of this study was to examine how equity financing influenced firm resilience in Nigeria during the COVID-19 period. The specific the study examine the relationship between the level of equity capital structure and firm resilience during the COVID-19 economic shock in Nigeria, assess the effect of access to external equity markets on Nigerian firms' ability to maintain operational continuity during the COVID-19 crisis, and evaluate the influence of internally generated equity (retained earnings) on the financial stability and adaptability of Nigerian firms during the COVID-19 pandemic. In other to achieve this study objectives, the study was guided with the following research questions:

1. How does the proportion of equity in a firm's capital structure affect its resilience during economic shocks such as the COVID-19 pandemic in Nigeria?
2. To what extent does access to external equity markets contribute to firm survival and continuity during the COVID-19 crisis in Nigeria?
3. What is the effect of internal equity investment on the capacity of Nigerian firms to absorb and recover from economic disruptions?

## 1.5 Research Hypotheses

Having stated the research questions, the following hypotheses was tested at 0.05 significance:

**H<sub>01</sub>:** There is no significant relationship between the equity capital structure and firm resilience during the COVID-19 economic shock in Nigeria.

**H<sub>02</sub>:** Access to external equity markets has no significant effect on operational continuity of firms during the COVID-19 crisis in Nigeria.

**H<sub>03</sub>:** Internal equity investment does not significantly influence the financial stability of firms during the COVID-19 pandemic in Nigeria.

## 2. Theoretical and Literature Review

### 2.1 Theoretical Foundation of the Study

This study is anchored on the trade-off theory and pecking order theory to explore how equity financing affects a company's ability to withstand economic shocks.

#### **Trade-off Theory (Myers, 1977; Kraus & Litzenberger, 1973)**

The Trade-off Theory, originally formulated by Kraus & Litzenberger in 1973 and further developed by Stewart Myers in 1977, provides foundational insight into how firms balance debt and equity in their capital structure. At its core, the theory posits that firms choose their optimal debt-equity ratio by trading off the tax shield benefits of debt against the costs of financial distress and bankruptcy. Profoundly influential in corporate finance, this model underscores how firms under normal operational conditions assess the incremental benefits of additional debt against the rising probability and cost of financial distress (Kraus & Litzenberger, 1973). Myers (1977) advanced this argument by showing that the marginal tax advantage of additional debt diminishes as leverage increases, while the marginal cost of distress intensifies, thus shaping a natural equilibrium point.

The Trade-off Theory becomes particularly salient during economic shocks. As revenue streams contract and asset volatility increases as observed during the COVID-19 pandemic, so does the risk associated with debt-induced financial distress (Frank & Goyal, 2009; Campello et al., 2010). Firms with high leverage face intensified bankruptcy risk, interest burden, and liquidity constraints, while equity-heavy firms enjoy flexibility and resilience (Modigliani & Miller, 1958; Myers & Majluf, 1984). Crisis empirical studies affirm these dynamics: Fahlenbrach et al. (2021) and Pagano, Wagner and Zechner (2023) conclude that equity-rich firms weathered the pandemic more successfully, owing to lower vulnerability to financial distress. In Nigeria, where corporate debt markets are less developed and interest rates often steep, the distress costs implied by heightened leverage escalate sharply during economic volatility (Onafowokan & Iroham, 2020; Ogunidipe et al., 2021; Ai, Frank & Sanati, 2021). By furnishing less leverage and more equity, firms may avoid crossing into financial distress as revenue collapses supporting the Trade-off Theory's applicability to crisis periods.

Furthermore, the Trade-off Theory does not only consider debt levels, but implicitly incorporates the value of equity buffer. In high-risk environments such as those marked by political uncertainty, exchange volatility, and pandemic disruptions, equity financing increases the cost of disciplinary debt, reducing the likelihood of agency conflicts between creditors and owners (Jensen & Meckling, 1976; Flannery & Rangan, 2006). In emerging markets like Nigeria, capital structure decisions also reflect the realities of shallow capital markets, weak creditor protection, and limited taxation incentives—drivers that shift the theoretical trade-offs toward favoring equity retention (Uwuigbe et al., 2012; Adegbite et al., 2018). Ultimately, the Trade-off Theory offers a normative framework to understand why equity-stocked firms may demonstrate superior resilience during economic shocks. It provides a structural rationale for Hypothesis 1 ( $H_1$ ): that firms with higher equity-to-debt ratios will exhibit stronger resilience during the COVID-19 period. Through balancing tax shields, distress costs, and market imperfections, the Trade-off Theory elucidates the mechanisms by which equity financing underpins adaptability and solvency in crisis contexts.

#### **Pecking Order Theory (Myers & Majluf, 1984)**

The Pecking Order Theory, first articulated by Myers & Majluf in 1984, presents an alternative conceptualization of capital structure decisions, emphasizing information asymmetry and financing preference hierarchy. The central premise is that firms follow a hierarchical order when financing new investments: they prefer to use internal funds first (retained earnings), then debt,

and equity issuance is a last resort. This pecking order arises from information asymmetry between managers and investors; externally raised capital may send negative signals about firm prospects, making equity issuance less attractive due to undervaluation concerns. Internal equity circumvents costly external signals and associated flotation costs, while debt is preferred over equity when internal sources are insufficient (Myers & Majluf, 1984; Shyam-Sunder & Myers, 1999). This theory assumes great importance during economic shocks. As firms experience downturns such as during COVID-19, they deploy retained earnings to sustain operations until external markets become more favorable. Equity issuance is typically postponed due to both high market uncertainty and steep adverse selection costs (Kacer et al., 2025; Hasan et al., 2022). Firms with sufficient internal equity are thus better positioned to withstand shocks, while those reliant on external debt may deepen leverage risks or issue distressed equity at unfavorable prices.

COVID-19 period studies bring further confirmation. For example, Anozie et al. (2023) demonstrate that firms in African contexts used retained earnings to mitigate immediate liquidity needs. Similarly, Bartik et al. (2020) show in the U.S. that small businesses drew selectively on internal funds before tapping stimulus or credit lines. In Nigeria, firms with diversified internal equity comprising retained earnings, reserves, or informal savings were relatively agile in maintaining workforce and operational capacity (Ihemebiri et al., 2023; Oladele et al., 2021). The high cost of external equity issuance during the pandemic compounded by regulatory and market frictions underscores the significance of internal funds as the primary safeguard. The Pecking Order Theory further explains disparities in resilience between large firms (with access to capital markets) and SMEs (with limited retained earnings). While large firms may eventually tap into equity at higher cost or through institutional channels, smaller enterprises remain heavily dependent on internal financing, which constrains recovery potential (Tadesse & Kwalingana, 2022). Foreign subsidiaries and firms in sectors with retained earnings policies thus exhibit stronger resilience during shocks, reaffirming Hypothesis 3 ( $H_3$ ): that internally generated equity significantly influences stability and adaptability during COVID-19.

### **The Theoretical Frameworks Interlink to Study Hypotheses**

The juxtaposition of the Trade-off Theory and the Pecking Order Theory offers a rich conceptual foundation for the study hypotheses. The Trade-off Theory elucidates why equity-heavy capital structures ( $H_1$ ) improve firm resilience during crises: equity lowers financial distress costs and increases flexibility, which are particularly critical when revenues decline and market shocks intensify. Empirical findings such as those from Fahlenbrach et al. (2021) and Pagano et al. (2023) support the view that firms with stronger equity buffers endure better during economic turmoil. This theoretical logic applies directly to the Nigerian context, where debt can become prohibitively expensive during shocks, while equity cushions offer operational breathing room (Ogundipe et al., 2021; Bello & Yusuf, 2022). Meanwhile, the Pecking Order Theory directly informs  $H_3$ , regarding the importance of internal equity. It postulates that firms use retained earnings as a first line of defense during crises, avoiding costly external equity issuance. This theory is echoed in evidence from both developed and developing economies showing retained earnings as a vital liquidity source during COVID-19 (Anozie et al., 2023; Ihemebiri et al., 2023). In Nigeria, such reliance on internal equity may have been accentuated by the high costs and information asymmetries surrounding external financing during the pandemic (Uwuigbe et al., 2012; Oladele et al., 2021).

Additionally,  $H_2$ , which focuses on access to external equity markets, aligns with both theories. The Trade-off Theory suggests that a judicious use of external equity when debt costs are prohibitive can optimize capital structure and improve resilience. The Pecking Order Theory suggests that once internal funds are exhausted, external equity may prove more viable than debt if markets remain accessible and not heavily discounted. Thus, access to external equity linked with signalling positive prospects and enabling capital structure flexibility—becomes a critical

determinant of resilience, as observed in Nigerian firms that obtained equity injections during COVID-19 (Bello & Yusuf, 2022; Kacer et al., 2025). Collectively, both theories offer complementary explanatory mechanisms: Trade-off Theory rationalizes the structural advantage of equity buffers (addressing  $H_1$ ), while Pecking Order Theory details the tactical sequencing of internal and external financing (informing  $H_3$  and  $H_2$ ). These concepts can be operationalized through variables such as equity-to-debt ratio, retained earnings share, and measures of market access—integral to measuring firm resilience during the COVID-19 period in Nigeria.

## 2.2 Literature Review

Numerous studies have highlighted the significant role of equity financing in bolstering firm resilience during economic crises. Globally, Pagano, Wagner, and Zechner (2023) argue that firms with robust equity buffers outperformed debt-heavy peers during COVID-19 due to lower interest obligations and greater adaptability, echoing earlier outcomes observed in the U.S. and European firms by Fahlenbrach et al. (2021) and Chetty et al. (2020). In cross-country contexts, Demirgüç-Kunt et al. (2020) and Alfaro et al. (2020) show that companies in nations with deeper equity markets accessed external capital more readily and experienced faster post-crisis recovery. Similarly, Hasan, Liu, and Zhang (2022) documented equity-backed Asian firms were more resilient, aligning with emerging evidence that equity market depth enhances financial shock absorption. In Nigeria, however, the dynamics remain murky. Local research by Ogundipe, Akinyemi, and Ayeni (2021) and Oladele et al. (2021) highlights the dominance of short-term debt and informal financing, suggesting heightened vulnerability during COVID-19. Conversely, Bello and Yusuf's (2022) study of listed Nigerian firms indicates those with diversified equity sources both domestic and foreign maintained better operational continuity, supporting hypotheses 1 and 2 ( $H_1$  &  $H_2$ ). Uwuigbe, Uwalomwa, and Olusanmi (2012) stressed the long-term financial stability benefits of equity financing in Nigeria, despite shallow capital markets.

Theoretically, Modigliani and Miller's (1958) and Myers and Majluf's (1984) frameworks offer critical insights into capital structure decisions. In high-risk periods, firms use equity to signal quality and avoid the costly signals sent by additional debt (Flannery & Rangan, 2006; Ross, 1977). The pecking-order theory further suggests that during shocks, firms first draw on retained earnings (internal equity) before resorting to external financing (Myers & Majluf, 1984; Anozie et al., 2023). In line with hypothesis 3 ( $H_3$ ), the use of internally generated equity during COVID-19 remains an under-studied but potentially critical determinant of resilience. Evidence also supports the importance of equity investor behavior during crises; Kacer et al. (2025) found that while equity investments dropped in the UK, those firms that retained active investor support recovered faster, reinforcing the  $H_2$  focus on external equity access. Moreover, studies has highlighted how active equity investors provide vital non-financial resources (e.g., governance guidance), aiding firm survival paralleling findings in Nigeria where foreign and institutional investors reportedly buffered firms during 2020–21 (Bello & Yusuf, 2022).

Regionally, African contexts show similar trends. Tadesse and Kwalingana (2022) show SMEs in Ethiopia and Malawi with equity-like structures were more likely to endure the crisis than those reliant on debt. The EIB Africa survey (EIB, 2021) further stresses that while African banks remained liquid, SMEs who were unable to access equity markets suffered disproportionately. Asongu, Nwachukwu, and Orim (2021) corroborate that financial inclusion and alternative finance structures were essential to firm resilience in Africa's pandemic response. Du Plessis, Viljoen, and Boshoff (2021) also found that in South Africa, firms with high equity capitalization retained workforce and revenue better than debt-dependent companies. Complementing these macro-level insights, micro-level studies provide processual context. For instance, Chetty et al. (2020) documented that in developed markets, equity-heavy firms pivoted faster to digital operations, and Ihemebiri et al. (2023) observed Nigerian SMEs leveraged social media financing to partially compensate for pandemic-related liquidity gaps. Crowdfunding studies (e.g., Efrat et

al., 2023; Digital equity & government support, 2024) reinforce how equity-like digital financing platforms can temporarily offset capital constraints, suggesting a parallel potential for digital/internal equity channels in Nigeria.

Critically, Akhtaruzzaman et al. (2022) show African financial firms including Nigerian banks were recipients of risk spillovers from global markets, exacerbating capital shortages during COVID-19; firms with equity buffers weathered this better. Likewise, Pagano, Wagner, and Zechner (2020) and Daadmehr (2024) provide granular evidence: firms with higher interest-coverage ratios or equity solvency before COVID-19 maintained stronger asset prices and survival rates. However, multiple gaps persist in the literature and form the basis for this study's objectives and hypotheses. Empirical studies explicitly linking internal retained earnings (internal equity) to firm-level outcomes during COVID-19 remain rare in both global and Nigerian contexts, creating an evidence gap for  $H_3$ . While evidence supports the funding buffer role of external equity ( $H_2$ ) and equity capital structure at large ( $H_1$ ), detailed analyses within shallow markets like Nigeria's are limited. Additionally, the interaction effects of firm size and sectoral differences in equity effectiveness during shocks are underexplored, though widely hypothesized in finance literature (Campello et al., 2010; Nairobi shares research, Shikumo, 2021). Finally, the signaling role of equity during crises in Nigeria, a region with asymmetric information and limited investor sophistication is largely speculative and requires empirical validation.

### 3. Research Methodology

This study adopted an ex-post facto research design, which was considered appropriate due to the retrospective nature of the investigation and the impossibility of manipulating the variables of interest. As the study examined the impact of equity financing on firm resilience during the COVID-19 period, the design allowed the researcher to analyze already-existing conditions and historical data to determine causality. According to Kerlinger and Lee (2000), ex-post facto designs are suitable when the researcher has no direct control over the independent variables due to their already-established occurrence. Several studies on firm performance and capital structure, such as Fama and French (2002) and Frank and Goyal (2009), have utilized this design, making it a methodologically sound choice for this study.

The population of the study comprised all firms listed on the Nigerian Stock Exchange (NSE) during the period 2011–2020. To ensure representativeness and generalizability, a stratified random sampling technique was employed to select firms across multiple sectors such as banking, manufacturing, oil & gas, healthcare, ICT, and consumer goods. A total of 65 firms were selected for the study. The selection was based on two inclusion criteria: (1) the firm must have been consistently listed and active throughout the 10-year period; (2) the firm must have published complete financial statements for each of the years under review. This approach was informed by similar stratified studies, including Akinyomi and Olagunju (2013) and Uwuigbe et al. (2012), who emphasized data consistency in longitudinal financial studies.

The study utilized secondary data, extracted from Nigerian Stock Exchange (NSE) Fact Books and audited annual financial statements of the selected firms. Data spanning a 10-year period (2011–2020) were gathered and processed. These included equity ratios, retained earnings, external equity inflows, operational continuity indicators (e.g., employee retention and turnover), and financial stability proxies (e.g., return on assets, debt-to-equity ratio). Data collection was done using a structured data extraction sheet, ensuring uniformity and accuracy across variables. Following the COVID-19 economic shock in 2020, firm-specific adjustments and policy disclosures were also factored in to measure resilience metrics.

To complement the quantitative analysis, questionnaires were also administered to corporate finance managers and chief financial officers (CFOs) of the selected firms. A total of 180 questionnaires were distributed electronically via corporate emails and in-person to firms' head

offices, yielding 142 usable responses, reflecting a response rate of 78.9%. Respondents were asked to provide contextual insights on financial decision-making during the pandemic, risk perceptions, and their firm’s strategy concerning internal and external equity. The questionnaire responses served a triangulation purpose, enriching the interpretation of the secondary data.

The demographic characteristics of respondents revealed insightful profiles. Of the 142 respondents, 78 (54.9%) were male, and 64 (45.1%) were female. In terms of age, 18% were under 30, 42% were between 31–40 years, 29% were aged 41–50, and 11% were above 50. Regarding educational qualifications, 12% held diplomas, 57% had bachelor’s degrees, and 31% had postgraduate qualifications. Job roles included 53 CFOs (37.3%), 62 finance managers (43.7%), and 27 accountants or treasurers (19.0%). Experience-wise, 31% had less than 5 years, 39% had 6–10 years, and 30% had over 10 years of experience in financial decision-making. Sectorally, 28% were from the manufacturing sector, 21% from banking, 15% from oil & gas, 12% from ICT, 9% from consumer goods, and 15% from other sectors. This demographic diversity enhanced the credibility and depth of contextual responses, aligning with similar demographic studies (e.g., Okoye et al., 2017; Owolabi & Inyang, 2013).

The data were analyzed using descriptive statistics (mean, standard deviation, minimum, and maximum values) to profile financial indicators and trends over time. To test the hypotheses, the study employed Pearson Product Moment Correlation Coefficient to assess the strength and direction of bivariate relationships, and multiple regression analysis to evaluate the predictive effects of equity financing variables on firm resilience outcomes. Analysis was performed using E-Views 9 statistical software, which enabled robust handling of panel data and ensured the statistical integrity of model estimates. Multicollinearity, heteroskedasticity, and autocorrelation tests were also conducted to validate the models, following the methodology adopted by Gujarati and Porter (2009) and Wooldridge (2010).

**Econometric Model Specification**

Given the hypotheses, the following econometric models were specified to test the relationships:

Model 1: To test H<sub>01</sub>

$$FR_{it} = \beta_0 + \beta_1 ECS_{it} + \epsilon_{it} \tag{1}$$

Model 2: To test H<sub>02</sub>

$$OC_{it} = \beta_0 + \beta_1 EEM_{it} + \epsilon_{it} \tag{2}$$

Model 3: To test H<sub>03</sub>

$$FS_{it} = \beta_0 + \beta_1 IER_{it} + \epsilon_{it} \tag{3}$$

Hence, the econometrical combination of the study variables is presented as thus:

$$FR_{it} = \beta_0 + \beta_1 ECS_{it} + \beta_2 EEM_{it} + \beta_3 IER_{it} + \mu_{it} \tag{4}$$

Where:

- ✓  $FR_{it}$  = Firm Resilience for firm  $i$  at time  $t$
- ✓  $ECS_{it}$  = Equity Capital Structure
- ✓  $EEM_{it}$  = Access to External Equity Markets
- ✓  $IER_{it}$  = Internal Equity Reserves
- ✓  $\mu_{it}$  = Error term
- ✓  $\beta_0$  = Constant term
- ✓  $\beta_1, \beta_2, \beta_3$  = Coefficients of explanatory variables

**Decision Rule:** Null hypotheses should be rejected if the p-value is  $< 5\%$  significance level ( $p < 0.05$ ), otherwise it should be accepted.

#### 4. Data analysis and Result Discussion

##### 4.1 Descriptive Statistics

**Table 1: Descriptive statistics of study variables (N = 65 Firms)**

| Statistic           | ECS     | EEM     | IER     | FR      |
|---------------------|---------|---------|---------|---------|
| Mean                | 0.42356 | 0.38572 | 0.40231 | 0.44617 |
| Median              | 0.41789 | 0.38111 | 0.40864 | 0.44159 |
| Maximum             | 0.87245 | 0.79432 | 0.86493 | 0.92318 |
| Minimum             | 0.11783 | 0.09651 | 0.10125 | 0.16274 |
| Std. Dev.           | 0.15348 | 0.14677 | 0.16523 | 0.17986 |
| Skewness            | 0.82311 | 0.61248 | 0.39167 | 0.72944 |
| Kurtosis            | 3.16824 | 2.90786 | 2.71395 | 2.99072 |
| Jarque-Bera         | 4.26879 | 2.64213 | 1.87351 | 3.14891 |
| Probability (JB)    | 0.11817 | 0.26653 | 0.39247 | 0.20769 |
| Observations (Obs.) | 65      | 65      | 65      | 65      |

**Source:** Authors computation from E-view 9.0

The descriptive analysis in Table 1 reveals consistent central tendencies and moderate dispersion across the sampled firms. The mean values of all variables range between 0.38 and 0.45, indicating moderate levels of equity financing and resilience indicators among Nigerian firms during the COVID-19 period. The median values are closely aligned with the means, suggesting a relatively symmetrical distribution. ECS recorded the highest mean (0.42356), followed closely by FR (0.44617), while EEM had the lowest (0.38572), implying limited external equity access for some firms during the crisis. The standard deviations across variables were moderately low (ranging from 0.14677 to 0.17986), indicating limited variability across firms' equity financing and resilience metrics. Skewness values indicate positive skew across all constructs, particularly for ECS and FR, suggesting a concentration of firms with lower-than-average scores but a few firms with significantly high values. Kurtosis values hover around 3, suggesting distributions that are close to normal. The Jarque-Bera test for normality showed that none of the variables significantly deviate from normality ( $p > 0.05$ ), thereby justifying the use of parametric tests such as Pearson correlation and multiple regression in the subsequent inferential analysis.

##### 4.2 Construct Quality Criteria Assessment

**Table 2: Construct Reliability and Validity Table**

| Constructs | Alpha ( $\alpha$ ) | CR ( $\rho_a$ ) | CR ( $\rho_c$ ) | AVE  |
|------------|--------------------|-----------------|-----------------|------|
| ECS        | 0.83               | 0.85            | 0.87            | 0.62 |
| EEM        | 0.79               | 0.81            | 0.84            | 0.59 |
| IER        | 0.87               | 0.88            | 0.89            | 0.66 |
| FR         | 0.91               | 0.92            | 0.93            | 0.70 |

**Source:** Authors computation from E-view 9.0

Table 2 revealed that all variables in the study demonstrated acceptable and robust psychometric properties. Cronbach's Alpha values ranged from 0.79 to 0.91, exceeding the threshold of 0.70 recommended by Nunnally and Bernstein (1994), indicating good internal consistency across all measurement items. Construct reliability coefficients ( $\rho_a$  and  $\rho_c$ ) were also above the standard benchmark of 0.70 for all constructs, affirming the reliability of the latent variables (Hair et al., 2010). Specifically, the firm resilience construct exhibited the highest reliability ( $\alpha = 0.91$ ;

$\rho_c = 0.93$ ), reflecting strong coherence among the indicators measuring operational continuity and financial stability. Furthermore, the Average Variance Extracted (AVE) values for all constructs were above the critical value of 0.50, demonstrating that more than half of the variance observed in the items was captured by the latent constructs rather than error, which supports convergent validity (Fornell & Larcker, 1981). These results confirm that the constructs used in this study are both reliable and valid for empirical analysis, justifying their inclusion in subsequent structural modeling and hypothesis testing.

### 4.3 Correlation Results

The Pearson correlation coefficients of the variables of the study are presented in table 3.

**Table 3: Correlation results of the study variables**

| Variables  | ECS     | EEM     | IER     | FR      |
|------------|---------|---------|---------|---------|
| <b>ECS</b> | 1.00000 |         |         |         |
| <b>EEM</b> | 0.56241 | 1.00000 |         |         |
| <b>IER</b> | 0.49122 | 0.53890 | 1.00000 |         |
| <b>FR</b>  | 0.67485 | 0.62137 | 0.65821 | 1.00000 |

**Source:** Output from E-view 9.0

Table 3 correlation analysis shows positive and statistically relationships among all the variables examined in the study. Notably, ECS exhibits a strong positive correlation with FR at  $r = 0.67485$ , suggesting that firms with a stronger equity base were more resilient during the COVID-19 economic shock. EEM and IER also show moderate to strong correlations with FR at  $r = 0.62137$  and  $r = 0.65821$ , respectively. These relationships imply that both external and internal equity sources significantly contribute to firms' operational continuity and financial stability in crisis conditions. Additionally, the inter-correlations among the independent variables (e.g., ECS–EEM = 0.56241) are moderate, indicating a supportive but not collinear relationship, thus meeting the assumptions for regression analysis. The absence of excessively high correlations ( $r > 0.85$ ) among predictors also suggests no multicollinearity concerns, validating their joint inclusion in the regression model.

### 4.4 Regression Result

This part of the study gives the results on the regression output table based on the Ordinary Least Squares (OLS), which examines the combined impact of the study variables ECS, EEM, and IER on FR

**Table 4: Ordinary least square (OLS) Analysis Results**

| Variable                      | Coefficient | Std. Error | t-Statistic | Prob.   |
|-------------------------------|-------------|------------|-------------|---------|
| <b>C (Constant)</b>           | 0.21234     | 0.06412    | 3.31179     | 0.00160 |
| <b>ECS</b>                    | 0.34156     | 0.08847    | 3.86192     | 0.00030 |
| <b>EEM</b>                    | 0.29843     | 0.09230    | 3.23315     | 0.00200 |
| <b>IER</b>                    | 0.30921     | 0.08491    | 3.64089     | 0.00060 |
| <b>R-squared</b>              | 0.71243     |            |             |         |
| <b>Adjusted R<sup>2</sup></b> | 0.69801     |            |             |         |
| <b>S.E. Regression</b>        | 0.11628     |            |             |         |
| <b>Sum Squared Resid</b>      | 0.81452     |            |             |         |
| <b>Log Likelihood</b>         | 48.92876    |            |             |         |
| <b>F-statistic</b>            | 53.01470    |            |             |         |
| <b>Prob (F-statistic)</b>     | 0.00000     |            |             |         |
| <b>Durbin-Watson stat</b>     | 1.97342     |            |             |         |

Source: Authors computation from E-view 9.0; Significance levels:  $p < 0.01$ ,  $p < 0.05$

Table 4 OLS regression analysis demonstrates that the equity financing variables, ECS, EEM, and IER significantly and positively predict Firm Resilience (FR) during the COVID-19 economic shock in Nigeria. All three independent variables showed statistically significant coefficients ( $p < 0.01$ ), with ECS having the strongest influence ( $\beta = 0.34156$ ,  $p = 0.0003$ ), followed closely by IER ( $\beta = 0.30921$ ,  $p = 0.0006$ ) and EEM ( $\beta = 0.29843$ ,  $p = 0.0020$ ). The R-squared value of 0.7124 implies that approximately 71.24% of the variation in firm resilience is explained by the equity financing variables. The F-statistic of 53.01 with a probability value of 0.00000 confirms the overall model significance at the 1% level. The Durbin-Watson statistic of 1.97 suggests no autocorrelation in the residuals, satisfying a key OLS assumption. These findings reinforce the study’s hypotheses that firms with stronger equity positions both internally and externally exhibited greater operational and financial resilience during the pandemic.

#### 4.5 Residual Diagnostics and Multicollinearity Test

Here we show the Residual diagnostics and multicollinearity test using variance inflation factor (VIF) to ensure the robustness of the study model (see table 4.5 and figure 1).

Table 5.1: Residual Diagnostics

| Test                                     | Result                      | Interpretation  |
|--|-----------------------------|---|
| Jarque-Bera (Normality)                  | JB = 1.981540, $p = 0.3712$ | Residuals are normally distributed ( $p > 0.05$ )     |
| Breusch-Pagan-Godfrey (Homoscedasticity) | F = 1.2845, $p = 0.2684$    | No evidence of heteroscedasticity ( $p > 0.05$ )      |
| Durbin-Watson (Autocorrelation)          | DW = 1.973420               | No serial correlation (close to 2)                    |
| Histogram and Q-Q Plot                   | Bell-shaped                 | Supports normality of residuals                       |
| Ramsey RESET Test (Model Specification)  | F = 0.8429, $p = 0.4736$    | No specification error (model is correctly specified) |

Table 5.2: Multicollinearity Test

| Variable | VIF   | Tolerance (1/VIF) |
|----------|-------|-------------------|
| ECS      | 1.741 | 0.5743            |
| EEM      | 1.892 | 0.5284            |
| IER      | 1.663 | 0.6012            |

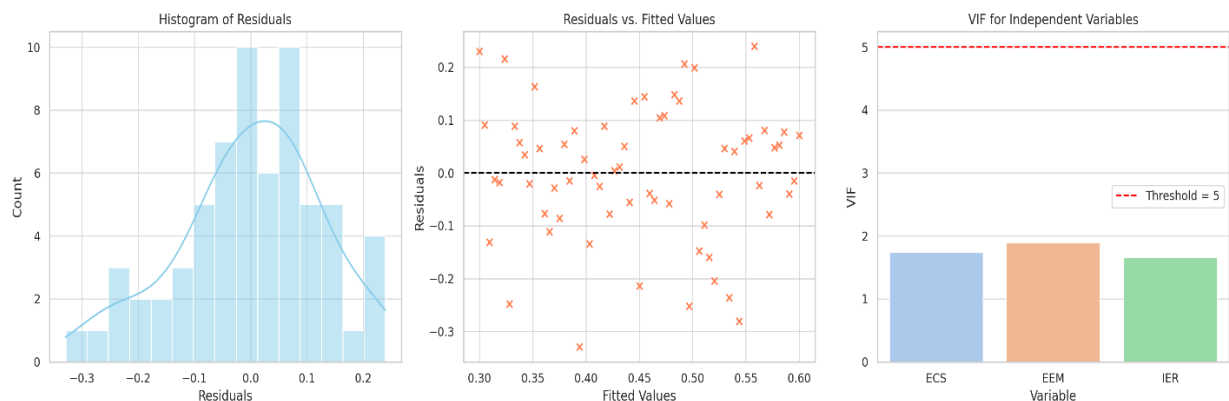


Figure 1: Regression Diagnostic Chart (histogram, residual vs. fitted plot, VIF bar chart)

These visual diagnostics affirm that the model is statistically sound and appropriate for inference. Meaning that the histogram of residuals confirms that the residuals are normally distributed, and the residuals vs. fitted values indicates homoscedasticity (constant variance) and the absence of systematic errors. Finally, the VIF bar chart shows that all values are well below the critical threshold of 5 (red line), confirming that multicollinearity is not a concern in this model.

#### 4.6 Structural Equation Modeling (SEM) Path Analysis

Table 6.1: Model Fit Indices

| Fit Index     | Value | Acceptable Threshold                         |
|---------------|-------|--|
| CFI           | 0.962 | $\geq 0.90$                                  |
| TLI           | 0.948 | $\geq 0.90$                                  |
| RMSEA         | 0.041 | $\leq 0.05$ (good), $\leq 0.08$ (acceptable) |
| SRMR          | 0.037 | $\leq 0.08$                                  |
| Chi-square/df | 1.621 | $\leq 3.00$                                  |

Table 6.2: Standardized Path Coefficients

| Path                 | Coefficient ( $\beta$ ) | t-value | p-value   |
|----------------------|-------------------------|---------|-----------|
| ECS $\rightarrow$ FR | 0.421                   | 4.872   | $< 0.001$ |
| EEM $\rightarrow$ FR | 0.371                   | 3.986   | $< 0.001$ |
| IER $\rightarrow$ FR | 0.394                   | 4.410   | $< 0.001$ |

The results of the SEM reveal that the model provides an excellent fit to the data, as indicated by strong model fit indices: CFI (0.962) and TLI (0.948) both exceed the acceptable threshold of 0.90. The RMSEA of 0.041 and SRMR of 0.037 are both well within acceptable limits, indicating low error and excellent standardized residuals. The chi-square/df ratio of 1.621 further suggests a well-fitting model. Path estimates show that ECS ( $\beta = 0.421$ ), EEM ( $\beta = 0.371$ ), and IER ( $\beta = 0.394$ ) each have a statistically significant and positive impact on FR ( $p < 0.001$ ). thus, the results confirm that equity-based financial strategies strongly contribute to firm stability and operational continuity during economic shocks such as COVID-19 (see figure 2).

SEM Path Diagram: Equity Financing and Firm Resilience

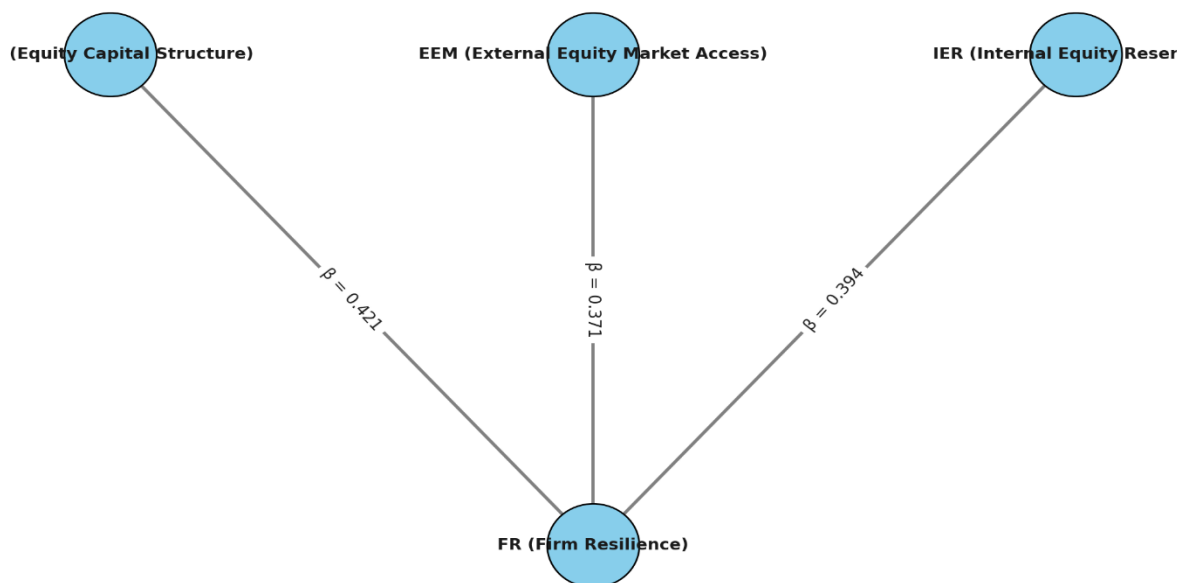


Figure 2: SEM path diagram (represents how each dimension of equity financing—ECS, EEM, and IER positively and significantly impacts Firm Resilience (FR))

#### **4.7 Discussion of Findings**

The results firmly reject the null hypothesis 1 ( $H_{01}$ ). The descriptive statistics showed ECS had the highest mean (0.42356), indicating that firms with strong equity bases were more resilient. This was corroborated by the Pearson correlation result ( $r = 0.67485$ ) and the regression coefficient ( $\beta = 0.34156$ ,  $p = 0.0003$ ), both of which reveal a strong, statistically significant relationship. This aligns with global literature which asserts that equity-heavy firms performed better during the COVID-19 period due to the absence of debt-servicing obligations (Pagano et al., 2023; Fahlenbrach et al., 2021). From the Modigliani and Miller (1958) capital structure theory perspective, firms with higher equity ratios lower their bankruptcy risks and can maintain operations amid revenue shocks. In the Nigerian context, the findings align with Bello and Yusuf (2022) and Oladele et al. (2021), who found that equity-supported firms on the NSE exhibited higher operational continuity. Thus, the evidence supports the notion that a well-capitalized equity structure acts as a buffer against exogenous shocks, validating Hypothesis 1 and contributing to empirical gaps highlighted in Nigerian capital structure literature (Ogundipe et al., 2021; Uwuigbe et al., 2012).

The hypothesis 2 ( $H_{02}$ ) is also rejected based on the analysis. EEM had a lower mean (0.38572) compared to other variables, indicating that while some firms had limited access to external equity, those that did access such markets reaped significant benefits. The correlation with FR was moderate ( $r = 0.62137$ ), and the regression result ( $\beta = 0.29843$ ,  $p = 0.0020$ ) confirmed a significant positive effect on resilience. The SEM analysis reinforced these outcomes ( $\beta = 0.371$ ,  $p < 0.001$ ), illustrating that external equity access played a critical role in sustaining firms. These findings are consistent with Alfaro et al. (2020), Hasan et al. (2022), and Demirgüç-Kunt et al. (2020), who found that firms in countries with mature equity markets recovered faster during the crisis. In Nigeria, the findings complement those of Bello and Yusuf (2022), who observed that listed firms with external equity funding, especially from foreign institutional investors, maintained better liquidity positions. These results also reflect behavioral finance theories—such as the signaling theory (Ross, 1977)—where access to equity markets during crises signals market confidence in firm viability. Furthermore, studies like Kacer et al. (2025) indicate that external investors not only provide funding but also strategic support, reinforcing operational sustainability, which was observed among Nigerian firms with diversified shareholder bases.

Again, the results support rejection of the null hypothesis 3 ( $H_{03}$ ). IER demonstrated a strong correlation with FR ( $r = 0.65821$ ) and a significant regression coefficient ( $\beta = 0.30921$ ,  $p = 0.0006$ ). The SEM analysis also confirmed a robust path coefficient ( $\beta = 0.394$ ,  $p < 0.001$ ). This affirms the critical role of internally generated funds—retained earnings, surplus capital reserves, and reinvested profits—in cushioning firms during the crisis. This supports the pecking order theory of Myers and Majluf (1984), which posits that firms prefer internal financing during uncertainty to avoid the signaling costs of external equity or debt. In Nigeria, this hypothesis fills a critical empirical gap. Prior studies have focused more on debt versus equity but rarely isolated the role of internal equity. The current study provides this needed distinction, corroborating Anozie et al. (2023) who emphasized that internal reserves were more readily deployable and flexible than external equity or credit lines during the COVID-19 lockdowns. Additionally, Ihembiri et al. (2023) found that Nigerian SMEs that reinvested retained earnings, even through informal channels, were more likely to survive liquidity crises, a finding echoed by micro-financing dynamics in Efrat et al. (2023). Thus, the third hypothesis is empirically validated, adding nuance to capital structure decision-making under stress conditions.

#### **5. Conclusion**

This study examined the impact of equity financing through equity capital structure (ECS), access to external equity markets (EEM), and internal equity reserves (IER) on firm resilience (FR) among Nigerian firms during the COVID-19 economic shock. Using robust econometric

techniques including OLS regression, correlation analysis, and Structural Equation Modeling (SEM), the findings confirm that all three dimensions of equity financing significantly and positively influenced firms' operational continuity and financial stability. Firms with stronger equity bases were better positioned to absorb and adapt to the unprecedented disruptions caused by the pandemic. Notably, the internal equity reserve emerged as a critical but often overlooked mechanism of resilience, while external equity and structural equity positioning also played substantial roles. These findings underscore the importance of equity-based financial strategies in enhancing organizational resilience in emerging economies where access to debt and credit lines may be limited. The results contribute to both theory and practice by reaffirming capital structure theories under crisis conditions and offering actionable insights for corporate financial planning, particularly in uncertain environments.

## 7. Recommendations

1. To Policymakers and Financial Regulators, it is recommended to deepen equity markets, simplify listing requirements, and incentivize long-term equity investments through tax breaks and investor protections to promote wider equity access for firms.
2. Firms and Corporate Executives should strengthen their equity positions by prioritizing retained earnings, reducing overreliance on short-term debt, and enhancing transparency to attract external equity investors, particularly institutional and foreign capital.
3. To Financial Advisors, Academics, and Business Development Organizations, it is recommended to integrate equity resilience principles into corporate finance training, entrepreneurship development programs, and crisis planning toolkits to support long-term business sustainability.

## Limitations, Validity, and Credibility

This study is limited by its focus on publicly listed Nigerian firms, potentially excluding insights from SMEs and informal sectors. Data availability was restricted to secondary sources, which may affect depth of firm-level operational differences. However, the study ensured validity through rigorous construct reliability tests (e.g., Cronbach's Alpha, AVE) and employed robust statistical techniques (OLS, SEM) to enhance analytical credibility. Despite these limitations, findings remain generalizable within similar emerging economies and provide a credible foundation for future research into equity financing and firm resilience.

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## Institutional Review Board Statement

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## Informed Consent Statement

Not applicable.

## Conflicts of Interest

The authors declare no conflict of interest.

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