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## INFLUENCE OF FIRM'S SIZE AND AGE ON LEVERAGE OF LISTED FINANCIAL FIRMS IN NIGERIA

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### Abstract:

Size and age impact firm leverage in any organisation, being in the financial or non-financial sector. Little concerning how these firm characteristics affect leverage in the Nigeria Financial sector is known. This study examines the firm size and listing age on the leverage of listed financial firms in Nigeria. Data extracted from annual accounts of 49 financial firms over 12 years (2008-2019). Descriptive statistics and inferential statistics wear used to estimate the relationship between a firm's size, listening age, and leverage. The study reveals that firm size is negatively and significantly related to the firm's leverage. Age has a positive and significant effect on the leverage of the financial sector. The study suggests that firms continuously employ debt capital to benefit from available tax shields, ultimately enhancing profitability. The limitation of the study is that the survey covered only financial institutions listed on the Nigeria stock exchange as of 2019. The study contributed to the existing finance theory and literature by using empirical evidence from an emerging market to bridge the gap in knowledge of the influence of size and age on the leverage of financial firms.

### Keywords:

Leverage, Firms Age, Firm's Size, Finance Theory, Nigeria

### Introduction

Financial leverage is one of the critical elements of most firms' capital structure, which may serve as an opportunity to maximise the shareholders' wealth. However, if not used with care,

this choice may result in bankruptcy endangering the firm's survival. Financial leverage is the ratio of a firm's borrowed capital to total assets or equity (Yahaya & Tijani, 2021). However, financial leverage operates as a control for management in the firms. It sometimes avoids financial risk also is used to achieve profits for the firm and shareholders. It is sometimes considered one of the factors affecting financial performance or dividend policy (Yahaya & Tijani 2021; Hashimi & Madmali 2018). It is a framework that depicts how equity and debt finance the firm's operations (Dada & Ghazali, 2016).

This study is different from all other previous studies. Financial leverage is used differently as a dependent variable rather than a control or independent variable in the study. However, financial leverage is affected by many factors. This study considered two out of the several factors: such as the size and age of the firm. Undoubtedly, a significant resource that ascertains a firms' size of a business is its financing. In particular, firms operating under favourable economic conditions use financial leverage to expand shareholder returns (Hamouri. Al-Rrdaydeh & Ghazalat 2018).

However, age is always associated with liquidity and outsider financing since the firm value comprises everlasting (Hamouri. Al-Rrdaydeh & Ghazalat 2018). Therefore, both are important determinants of a firm's financial leverage. In other words, whether big size firms or small size firms or old firms or young firms have financial leverage in their portfolios. Larger firms generally have high leverage profit and less deviate from standards. The opposite is true for smaller firms. It is valid because larger firms have high cash and can invest these cash resources.

The problem now is whether size and age influence the leverage of the financial sector. Studies (Ibhagui & Olokoyo, 2018) show that leverage negatively affects small firms rather than big firms (Hallajian & Tilehnoui, 2016; Hashini & Madumali, 2018) aim to examine the effect of firm size on leverage. The main objective of this study is to investigate how the size of a firm and age affects the leverage of the financial institution. However, only a few empirical works have examined the firm's size and age as the independent variable and leverage as the dependent variable. Studies have examined the correlation between the two variables but in different ways. Most of the studies are on firm size and firm financial performance ( Al-Mahrouq, 2014; Adegboyega et al., 2019; Dada & Ghazali, 2016; Jeleel & Olayiwola, 2019). at the same time, most emphasised the impact of financial leverage on performance and firm profitability (Al-Taani, 2013; Ramadan, 2015) or firm age on firm performance (Gunu & Adamade, 2015; Nakano & Nguyen, 2011; Mallinguh et al., 2020). This study is necessary for the apparent reasons of policy improvement, performance improvement, and areas of further research. However, this study investigates the impact of the firms' size and age on the financial leverage of financial institutions listed on the Nigeria stock exchange from 2008 - to 2020.

## Literature Review

### *The Concept of Firms Characteristics*

Firm attributes are characteristics a firm possesses that define its activities (Kwaltommai, Enemali, Duna & Ahmed, 2019). They can be variables that are likely to affect the firm's internal and external decisions.

### ***Firm Size***

A firm's size is considered a significant factor affecting the firm's relationship with the external environment (Farooq & Jibrán, 2017). The firm's size and leverage have received considerable attention in the literature and have motivated robust debate. Different arguments favour larger firm sizes in attaining higher leverage. Shewu (2012) stated that larger firms are more likely to exploit economies of scale and enjoy higher leverage. However, they have higher cash and can invest these cash resources.

### ***Firm Age***

Firm age is an important variable determining a company's foundation (Kartiningsih, 2020). The age stands for the age of a company at the time of analysis; the firm can produce the product at lower costs when the firms become older and enjoy economies of scale. However (Chinaemerem and Anthony, 2012) stated that older firms need to change their systems to cope with the new environment to meet their competitors. A firm's age uniqueness shapes managers' risks and decision-making dispositions, especially under uncertainty and fast-paced change. One of the essential determinants of capital structure is tangibility Imtiaz, (2016)

### ***Firms Leverage***

Financial leverage is how the firm uses equity and debt to finance its assets. As debt increased, financial leverage also increased. Studies such as Syed (2013) have shown that financial leverage is related to size and age. Leverage is how a business uses borrowed money to finance its companies. (Do. et al., 2020) defines leverage as total debt divided by total assets. Graham (2000) argues that the greater the amount of debt, the greater the financial leverage.

Financial leverage is how interest on debt magnifies changes in operating income into even more significant proportionate changes in earnings after taxes. Thus, it increases earnings per share during rising operating income. However, it adds substantial risks for stockholders and creditors because of added interest obligations.

Therefore, leverage, considered a source of external funding, is more attracted to firms for recapitalisation or restructuring capital for business developing operations and their money. In financial management, leverage is helpful because it provides financial leverage that can increase revenue per share.

However, too high leverage will increase the financial risk and may lead to the cost of financial distress. Based on these two philosophies, firms must consider the benefits and costs of selected funding sources in making funding decisions, which indicate the proportion of leverage and equity issued by the firm.

### ***Finance Theory***

Miller (1958) explained that as long as the firm's cash flow remains, the firm's value will not change. Miller (1958) believed that leverage and own capital investment funding sources would not affect the firm's value. With the presence or absence of a protective agreement with a fixed cash flow, the lost profit from the bondholder will go to shareholders and vice versa.

The finance theory connects with how firms and individuals can ideally allocate resources over time among pressing needs. In recent times, it seeks to give information on solutions to the problems encountered in allocating resources through capital market interactions. The theory

phenomena are all about how the capital market works. It allows firms and individuals to efficiently and effectively trade much-needed funds from surplus areas. The theory solved the resource allocation problem by considering the opportunities available to firms and individuals. Firm size and listing age are two factors that influence firm-level leverage.

For example, Do et al. (2020) found that age and firm size positively impact firm-level financial power. Furthermore, Forte, Barros & Nakamura (2013) found the size entirely related to financial leverage. Moreover, age is related to economic power negatively. This theory (finance theory) underpins the findings of this paper, which align with the work of Yahaya and Tijani (2021).

## Empirical Review

### *Firm Size and Firm Leverage*

Farooq and Jibrán (2017) noticed the negative connection between firm size and financial leverage in Pakistan's non-financial firms from 2005 to 2013. On the other hand, Yahaya & Tijani (2021) found a positive relationship between firm size and leverage in a study conducted on oil and gas corporations in Nigeria. Bhat et al. (2020) also noted the negative relationship in the case of Indian firms.

Chatterjee and Eyogungor (2019) agreed with the said relationship in the case of banks in Philadelphia that size is relatively related to banks' leverage. Moreover, Vinasithamby (2015) found the same result in Sri Lankan hotels and travel. It is that firm size is related to leverage. Fernandez et al. (2013) concluded in their study that an increase in firm size resulted in more use of leverage for Omani listed companies. Murette (2011) investigated the relationship between firm size and financial leverage of firms listed on the Nairobi Securities exchange. The period covered was from 2010 to 2014. The result demonstrated that size significantly impacts financial leverage in the listed manufacturing company in Sri Lanka.

Afey and Warui (2019) studied firm characteristics and financial leverage of companies listed in Kenya's Nairobi securities exchange. The study used secondary data with a sample size of 32 firms. In addition, they were using panel data consisting of cross-sectional and time series. In contrast, descriptive statistics, correlation analysis, and panel regression analyse the panel data to determine the relationship between the variables. As a result, firm size had a negative and significant relationship with leverage. The above result aligns with Ezeoha's (2015) findings, where a negative relationship between firm size and leverage is.

Ibhagui and Olokoyo (2018) investigated the role of firm size on leverage and argued that a relationship could only exist when the firm's leverage is low. Finally, Ghazali, Handrian and Herungodo (2020) studied leverage determinants of manufacturing firms. The result shows that the relationship between leverage and performance is negative.

Finally, Murette (2011) examined the relationship between firm size and the firms' financial leverage listed on the Nairobi securities exchange. The study considered significant characteristics such as firm size and leverage, using regression analysis and Pearson's product-moment correlation analysis. The findings revealed that the relationship between firm size and leverage was statistically significant.

Hallajian and Tilehnoui (2016) provided definitive proof for the effect of firm size on leverage; 139 firms from 13 economic sectors on the National Stock Exchange of India. For this study. Results reveal that firm size does not have a significant effect on leverage. However, it is positive and effective because it affects some sectors such as Energy, Chemicals and Fertilisers, Textiles, FMCG, and Consumer Durables.

Ibhagui and Olokoyo (2018) found that the strength of the positive relationship depends on the size of the firms. The negative effect of leverage diminishes when a firm's size exceeds its estimated threshold level, which is imminent and significant for small firms.

Chatterjee and Eyigungur (2019) found it somewhat mixed. According to the researchers, the firm size coefficient has a lower variation of sales, which allows them to have higher leverage. The pool regression was positive and statistically significant for firm size and leverage. This study aligns with the work of Salah & Elewa (2018), who discovered that leverage is relatively related to the firm's size.

While Afolabi, Olabisi, Kajola & Asaolu (2019) explored the leverage effect on Nigeria's financial performance, ex-post-facto research design. The result revealed a positive relationship between the variables. Ibhagui and Olokoyo (2018) proved that big firms tended to issue more considerable leverage than small ones. Other empirical evidence supporting Ibhagui and Olokoyo's (2018) study demonstrated by Balfoussia and Gibson (2019), Memon et al. (2018), Li et al. (2018), and Ramli et al. (2019) showed that firm size had a positive effect on leverage. Other similar empirical evidence by Homaifar et al. (1994), Rajan and Zingales (1995), Ibhagui and Olokoyo (2018), Dang et al. (2018), and Nanda and Panda (2018). Mixed theories support firm size and leverage, such as the Trade-off theory, which suggests a positive relationship between leverage and firm size. Meanwhile, Peking's order theory contradicts it. Studies such as (Balch et al. 2020; Bhat et al., 2020) found a negative relationship between firm size and leverage. On the other hand, Ghozali et al. (2020) found a positive influence of firm size on financial power. Therefore, the study predicts that.

**H<sub>1</sub>:** firm size has no significant effect on the leverage of the financial sector in Nigeria.

### ***Firms' Age and Leverage***

Ikechukwu & Cyril (2017) believes firms should borrow less as they advance in age. However, the test result reveals that financial leverage has an insignificant negative relationship with firms' age. Meaning financial power is not caused by listing the age of oil and gas firms or otherwise. Nguyen, Dang, Phan, & Nguyen (2020) examined factors that influence the financial leverage of Vietnam firms, using firm size as the independent variable and leverage. The result as the dependent variable.

Yahaya & Tijjani (2020) examined the size, age, and leverage of Nigeria's listed oil and gas industry. The analysis outcome was that firms' age positively and significantly affected firm leverage. It implies that as oil firms advance in age, the firm's need for external financing also increases. Tamimi and Takhtaei (2014) examined the effect of financial leverage on the company's age. In this case, the study formulated two hypotheses, the impact of age of the company's age and the second hypothesis, the effects of the financial leverage on the policies of profit distribution of the company investigated. They used sample manufacturing companies accepted on Tehran Stock Exchange (TSE) from 2005 to 2011 to investigate the linear or non-linear relationship between company age and dividends. The square and the cube of the

company age in an empirical model of the research used. The results indicate a positive and significant relationship between company age and dividend ratio but a negative and significant association between financial leverage and dividend.

Mallinguh, Wasike & Zoltan (2020) concluded that firms' age increases as leverage decreases. Arilyn (2019) found that firms' age does not influence capital structure in Indonesia. Hossain (2012) reveals that firm age does not influence leverage. Hence

**H<sub>1</sub>**: firm age has no significant impact on the leverage of financial firms in Nigeria

## Methodology

This study adopted an explanatory research design, using secondary data from annual reports of 37 listed financial institutions on the Nigeria stock exchange as of 2020. to find the relationship between firms' size, listening age, and leverage from 2008 to 2020. Data were analysed using descriptive statistics, such as the number of observations, mean, standard deviation, minimum and maximum means and inferential statistics. And correlation matrix and multiple regression analysis. The sample size for the study was all the financial institutions listed on the Nigeria stock exchange that have data available as of 2020. The proxies used to measure independent variables were the size of the firms (logarithm of total assets value) and the listing age of the firms (from the date of admission to the stock exchange to the studied date). In contrast, the dependent variable is leverage (total debt divided by the actual asset).

## Result and Discussion

**Table 1: Descriptive Statics**

Variables	Mean	Sd	Min	Max	Obs
Leverage	21.125	63.444	-100	1082.597	490
Firm size	7.596	.977	4.992	9.8541	490
Age of the firm	16.062	12.057	-1	51	490

Source: Author's computation 2022

The descriptive statistics of the study variable under the descriptive statistics include Mean, standard deviation, minimum, maximum and observation value. The leverage has a maximum of 10.8% and a minimum of -100%, with a mean of 21.125% and a standard deviation of 63.444. firm size has a maximum value of approximately 9.9%, with a mean of 7.596 and a standard deviation of .977 of 4.992 minimum value. The top age firm is 51, with a minimum of -1 and a standard deviation of 12.057 with a mean of 16.062. shows that leverage has the highest mean, followed by the age of the firm and firm size

**Table 2: Shapiro Test for Normality**

Variable	Obs	Q.H.	Prob
Leverage	490	0.453	0.001
Firm size	490	0.907	0.001
Age of the firm	490	0.903	0.001

Source: Author's computation 2022

A normality test for leverage, firm size, and age using the Shapiro analysis test. The result reveals that data did not generally distribute as all the probability values are less than 0.5%

**Table 3: Multicollinearity Analysis**

Variables	Variance inflation Factor	Tolerance level
Age of the firms	1.13	0.885091
Firm size	1.13	0,885091
Mean VIF	1.13	-

Source; Authors Computation, 2022

Table 3 results show no multicollinearity presence because the value is lesser than 3.33, which is the minimum required value for the test. Therefore, the variance inflation factor of 1 is only suitable for the regression. At the same time, we have an average value of 1.13 VIF, which is approximately one and ideal for the reversal. Therefore, the model accommodates all the variables, meaning no drop in the model.

**Table 4: Hausman Specification Test**

Chi <sup>2</sup>	26.97
Prob>chi <sup>2</sup>	0.0000

Source: Author's computation, 2022

Table 4 presents the Hausman test result with a significant P-value of 0.0000, indicating that the fixed effect is an appropriate model for the study.

**Table 4.5: Regression Analysis**

Leverage	Coef.	Std. Err.	T	P-value
Firm size	4.535777	3.04385	1.49	0.137
Age of the firm	-.4579394	.2517476	-1.82	0.070
_Cons	-5.631703	22.39436	-0.25	0.802

$F(2,475) = 2.11$ ;  $P = 0.1228$ ;  $R^2 = 0.012$

Source: Author's computation, 2022

Findings from statistical tests and analyses in table 5 show that the coefficient of firm size in the regression model for leverage is negative (4.45). Since the p-value is higher than 5%,  $H_1$  is accepted, while  $H_2$  is rejected. However, firm size and leverage at a confidence level of 95% were related. Adjusted  $R^2$  is equal to 0.012, which indicates that only (1.2%) changes in the dependent variable (leverage) are explained by the independent variable (firms' size). The fixed effect regression statistics (2.11) show no autocorrelation in the error component in the model. Table 5 also shows that the independent variable of age in the regression pattern model for leverage is significant and negative at 5%. The study, therefore, rejected  $H_1$  while  $H_2$  was accepted. In other words, the 5% confidence level of the firm's age and leverage is positively and significantly related to each other, with an Adjusted  $R^2$  of 0.012. Moreover, they indicate that the firm's age can predict its leverage at 1.2%.

The study found a positive and significant result between the independent variable (Age of the firm). The negative and significant impact of the dependent variable, which is firm financial leverage, is also found in the study such as (Petersen & Rajan in Ullah et al. 2017; Imtiaz 2016; Memon et al. 2019; Arilyn 2019; Jensen & Meckling in Ullah et al. 2017; Tamimi & Takhtaei 2014). The differences found in the findings could be due to different decision making at the management level. Also, the size of the firms can, at the same time, cause differences in the result. The older a firm is, the more likely it may have accumulated internal finances, and the less likely it would rely on borrowed funds. Larger firms with enough reserves may choose to finance their operations through their respective internal markets.

Therefore, age is a positive determinant in this study rather than passing through the difficulties inherent in accessing the external financial markets. There is a need to take advantage of their sizes for highly leveraged firms to build a strong reputation.

### Conclusion and Recommendations

The paper investigates the impacts of firm size and age on financial firms' financial leverage from 2018 to 2020. The result reveals the different effect of these variables on leverage and mainly support the finance theory of Modigliani & Miller (1958). A noticeable impact from the analysis is that size and age significantly influence the leverage of financial firms. However, age is negative at a 5% confidence level but still significant.

This study contributed to the previously existing literature. Our findings are consistent with the results of Hallajian & Tilehnoui (2016; Yahaya & Tijani, 2021), but they are inconsistency with the work of (Ibhagui & Olokoyo 2018; Balfoussia & Gibson 2019; Memon et al. 2018; Li et al. 2018; Ramli et al. 2019; Dang et al. 2018; Nanda & Panda 2018). An additional explanation of the relationship between size and leverage could be from the empirical evidence arising from Nigerian data. Implying that the larger a firm does not mean it has accumulated internal finances or does not rely on borrowed funds. As firms' size in this study is the major positive determinant.

Moreover, high collateral values help guarantee access to long-term equity and debt finances in the future. However, there is no optimal leverage that one size fits all. This paper suggests that the manager construct the most suitable avenue to reduce leverage. In other words, financial firms should not rely heavily on debt financing. Instead, the firm should be financed through several channels: funds ventures capital rather than depending on banks.

The finance sector should use and manage the knowledge gained from experiences for a long term period of existence. To improve its management and generate more funds based on this research study's results that reveal that firms' size positively affects leverage. Moreover, reduce their investment in total assets for their companies with a diverse set of funding sources. Further study may investigate how the findings may be generalised to other sectors.

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