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BOARD DIVERSITY AND CORPORATE DIVIDEND POLICY OF NON-FINANCIAL FIRMS IN NIGERIA

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ABSTRACT

This paper aims to ascertain the effect of board diversity on the dividend per share of listed non-financial firms in Nigeria in both the short and long-terms. Analysis of data on dividend per share, the proportion of female, male and minority members of the of boards of directors of nine sampled listed non-financial firms for the period 2010 to 2018 using the multivariate log-linear regression model shows that increasing the proportion males on the board of listed non-financial firms positively influences the dividend per share of these firms; and increasing the proportion of females and minority shareholders on the boards of these firms negatively influences dividend per share both in the short and long-runs. Further results show that female and minority membership of boards of listed non-financial firms ranges between 0% to 37%, and 11% to 88 % respectively. This result necessitates shareholders interested in higher dividend per share to appoint more males, and less females and minorities to the board.

Key Words: Words: Board diversity, Corporate dividend policy, Dividend per share, Dividend pay-out, Non-financial firms JEL Codes: D71, D74, D78, G35, G41

INTRODUCTION

Board diversity entails an all-inclusive corporate board comprising a fair representation of all genders, minority groups and age brackets. Group diversity is known to result in constructive rational decisions. This according to Mirza & Malik (2019) results in the suggestion and selection of better viewpoints which positively affects board and management decisions, and firm's operational and financial performances. Creativity and innovations known to occur in a group also exist in corporate boards. With globalisation, Cox (1991) noted that board diversity has resulted in enhanced vision, creative marketing to uniquely diverse customers, elevated decision making and contribution of unique ideas. Diversity according to Milliken & Martins (1996) may be discernible (age, nationality, race and ethnicity) or indiscernible (experience, technical abilities and education). Board diversity may now seem mandatory with the promulgation of laws across countries requiring the inclusion of at least a female on corporate boards. Mirza & Malik (2019) argued that the existence of heterogeneous members of corporate boards is known to have brought novelty, efficacy and problem solving with it. Age diversity, an apparent diversity attribute (Jackson, May & Whitney, 1995) comes with education, experience, maturity and knowledge (Mirza & Malik, 2019). Work experience diversity according to Altiner & Ayhan (2018) positively enhance team efficiency. The expansion of board size according to Pahi & Yadav (2018) adds varied skills and expertise to management. Byoun, Chang & Kim (2015) opined that standardised boards of eight or more contributes to effective management of firms. Supporting this assertion, Zahra & Pearce (1989) noted that vast knowledge, external links and

resources are brought to management with large boards. This evidences that board size and characteristics influences dividend policy. Anderson, Reeb, Upadhyay & Zhao (2011), Krishman (2005), and Karamanou & Vefeas (2005) argued that increase in board diversity increases financial expertise on corporate boards with attendant improved board efficiency. Francis, Hasan, & Wu (2012), and Booth & Deli (1999) noted that increased board financial expertise reduces problems of reporting misstatements and improve internal control.

Agency problems can be minimized and/or eliminated by creative and innovative contributions by corporate board members (Baysinger & Hoskisson, 1990). Mirza & Malik (2019) described corporate boards as "unorthodox" factor which influences dividend decisions. Moderation of dividend decisions are made possible by board diversity. Mitton (2004) noted that dividend behaviours are influenced through the composition, structure and conduct of corporate boards. A prudently administered board according to Mirza & Malik (2019) has the tendency to minimise agency costs by increasing dividend pay-outs. Mitigation of cash flows according to Jensen (1986) and Fama & Jensen (1983) can be achieved by the disbursement of dividends. Excessive investments are curtailed when free cash flow are used up by high dividend pay-outs (Stouraitis & Wu, 2004). Where rights of shareholders are not preserved, Mitton (2004) opined that high dividend may seem a preferred option. Where shareholder protection exists, La Porta, Lopez-De-Silanes, Shleifer & Vishny (2000) noted that high dividend pay-outs may be jettisoned by shareholders for increased investment. Findings by Mansourinia, Emamgholipour, Rekabdarkolaei & Hozoori (2013), and Afzal & Sehrish (2011) supports this argument. On the effect of gender diversity on corporate activities, Adams and Ferreira (2009) noted that female directors are more likely to attend meetings and take interest in monitoring activities within an organisation. This in turn improves effectiveness and efficiency with positive effects on corporate financial performance. With improved corporate financial performance, arises cash flow problem envisaged by Jensen (1986). Jensen's (1986) proposition for solving this is the use of the corporate governance devise, dividend. Empirical results by Chen, Leung & Georgen (2017), Easterbrook (1984) and Roseff (1982) shows that dividend payment reduces free cash flows within a firm, and eliminate agency conflict.

Byoun et.al. (2015) argued that where board diversity exists, dividend pay-outs are usually higher. This they noted, is more visible with the introduction of a female board member. Byoun et. al. (2015) added that increased number of females on corporate boards increases board integration and effective collaboration. Board diversity according to Gul, Srinidhi & Ng (2011) and Srinidhi, Gul & Tsui (2011) improves the effectiveness of board monitoring, accumulation of free cash flow and improvement in dividend pay-outs. Ajanthan (2013) found evidences showing that board diversity and characteristics positively affects dividend policy. Sarwar, Xiao, Husnain & Naheed (2018) noted that Pakistani firms employ dividends as a control tool for mitigating agency problems.

Objective of the study

This study aims to ascertain the level of board diversity in non-financial firms listed on the Nigerian Stock Exchange and to determine the effects of board gender diversity and minority shareholding of these firms on corporate dividend

policy measured by dividend per share in both the short and long-runs.

Theoretical framework

Board diversity according to Adams and Ferreira (2009) introduces to corporate administration and board decision making, varied and effective ideas. These varied business decision contributions are known to positively improve corporate operational and financial performances with positive effects on dividend per share (Gul et al, 2011; and Miller & Triana, 2009). The size of dividend is explained by the catering theory of dividend policy. Board gender diversity is known to increase conservative decision making with positive influences on short and long-term corporate financial performances (Faccio; Marchica & Mura, 2012; and Levi; Li & Zhang (2011). Minority protection laws according to Sarwar et. al. (2018) emboldens shareholders to take decisions and actions to remove ineffective boards and force them to pay higher dividends. Ethnic diversity and broad-based board membership inclusive of minority eliminates collusion, allowing for broad-based objective decision making. Thus, the existence of gender and ethnically diverse boards inclusive of minority shareholders and a collection of adults of different age groups are by corporate governance and dividend policy theories positively related to increased financial performance and payment of higher dividend per share. This study is based on these theoretical arguments.

Empirical Review

Pro and counter arguments exist in corporate governance literature of the influence of board diversity on dividend policy. Byoun et. al. (2015) classified these existing literatures on board diversity and dividend pay-outs into affective, communicative, symbolic and cognitive effects. Affective effects are the direct visible outcomes of board diversity. Communicative effects are the signalling effect made popular by Bhattacharya (1979). The symbolic and cognitive effects are the identifiable and quantifiable outcomes, and visible outcomes respectively. Research results by Byoun et. al (2015) showed that board diversity with gender and racial dimensions has a significant effect on corporate dividend pay-outs. With diversity comes greater variety of perspectives brought to corporate board decision making. Adams and Ferreira (2009) argued that gender-diverse boards effectively monitor management. Byoun et. al. (2015) noted that quality information inputs for decision making are made available to corporate boards where diversity exists. Carter, Simkins, & Simkins, (2003) opined that minority and female directors bring to corporate boards new and creative ideas which enhance board performance. This according to Byoun et. al. (2015) is achieved via greater understanding of the environment from diverse contributions by diverse board members. The result for racial diversities and dividend pay-outs are similar to that of gender effects. Li & Lie (2006) and Barker & Wurgler (2004) argued that agitation for diverse boards and high dividend pay-outs are usually appreciated by shareholders with both experiencing positive association. Kandel & Lazear (1992) concluded that the inclusion of female/minority shareholders on corporate boards promotes deviation of decisions from established group norms which does not support monitoring. Erhardt, Werbel & Shrader. (2003) and Carter et. al. (2003) documented evidences of positive effects of board composition on firm value.

For board diversity to positively influence corporate dividend policy, Byoun et. al. (2015) suggested a heterogeneity between the board and the CEO. Bhattacharya (1979) and Ross (1977) concluded that positive information about firms are made through improved dividend payments

and board diversity. Research results by Srinidhi, Gul & Tsui (2011) showed that financial disclosures and earnings quality improves with board diversity. Shehu (2015) showed evidence that independent directors positively and significantly influence dividend policy. Conclusions from the study of 714 Canadian firms by Adjaoud & Ben-Amar (2010) showed that firms with strong corporate governance tend to have higher dividend pay-outs. Abor & Fiador (2013), Afzal & Sehrish (2011) and Gurgler (2003) found strong evidences showing that board independence positively and significantly affects corporate dividend pay-outs. Research results by Haniffa & Hudaib (2006) and Kiel & Nicholson (2003) showed that small board size also positively influence dividend policy. Byoun et. at. (2015) added that these firms pay larger dividends than firms with non-diverse boards. Kuo, Stratling & Zhang (2016) concluded that lower board meeting frequency, larger boards and higher board control positively and consistently influence cash dividend payments among firms in China. Chen, Leung & Georgen (2017) found a strong evidence of high positive influence of board gender diversity on dividend pay-outs. A panel data analysis of data on corporate governance and dividend policy of listed firms on the Pakistan Stock Exchange for the period 2010 to 2017 by Mirza & Malik (2019) showed that corporate governance positively influences dividend decisions. Marimuthu, Arokiasamy, Kaliyamoorthy & Ranganathan (2019) conducted similar study among financially distressed firms in Malaysia.

Examining the effect of corporate governance quality and board gender diversity on dividend policy of non-financial firms quoted on the Amman Stock Exchange for the period 2009 to 2015, Al-Rahahleh (2017) concluded that board gender diversity and corporate governance quality positively influence corporate dividend policy. Assessing the effects of male and females on dividend policy, Joecks, Pull & Velter (2013), Van Pelt (2013), Huang & Kisgen (2013), Faccio et. al. (2012) and Croson & Gneezy (2009) showed different effects of man and women on corporate boards. Women according to them adopt lesser aggressive strategies and are risk averse with positive effects on financial performance and dividend pay-outs. From the study of 436 firms on the S&P 500 during the period 2008 to 2011, Van Pelt (2013) concluded that board size positively influences dividend policy, though the relationship between board gender diversity and dividend policy is insignificant. Using data on 47 industrial firms listed on the Amman Stock Exchange during the period 2005 to 2011, Al-Marneh & Yaseen (2014) showed evidences that corporate governance positively affects dividend policy. From their study of Spanish companies, Pucheta-Martinez & Bel-Oms (2015) concluded that gender diversity positively affects dividend policy. Research results by Hao, Hu, Liu & Yao (2014), Ghasemi, Madrakian & Keivani (2013), Mansourinia et. al. (2013), Ghosh & Sirmans (2006) evidenced proofs that board features affect corporate dividend policy.

Findings by Adjaoud & Ben-Amar (2010), Iik & Sawicki (2009), Chae, Kim & Jung (2009), Mitton (2004) showed that higher levels of foreign ownership positively influence dividend pay-outs. Foreign independent directors according to Masulis, Wang & Xie (2012) strengthen board decisions due to their articulate knowledge of business and decision making obtained from multinational management practices. Studying the impact of governance and ownership structure on dividend policy in emerging markets during financial crises, Mili, Sahut & Teulon (2017)

showed a strong evidence that high proportion of institutional shareholders on corporate boards positively and significantly influence higher dividend pay-outs. Similar study by Pieloch-Babiarz (2019) and Omneya, El-Masry & Elsegini (2008) on firms in Egypt showed similar results. Pieloch-Babiarz (2019) identified board duality and chairman entrenchment as additional diversity features positively influencing high dividend pay-outs.

On the effect-path of board gender diversity on dividend policy, results from analysed data on 14 non-financial firms from Europe during the period 2008 to 2012 by van Uytbergen & Schoubben (2015) showed that board gender diversity influences corporate cash policy through increased board effectiveness and not through risk aversion. Chen et. al. (2017) noted that the larger the number of females on corporate boards, the higher the dividend pay-out. This seems consistent with the arguments of the catering theory of dividend policy. Chen et. al. (2017) added that the above conclusion is consistent with firms with poor corporate governance. They opined that female directors employ the dividend pay-out as a device for governance. On the effect of board composition, size, independence and gender diversity on corporate dividend, Abor & Fiador (2013), and Setia-Atmaja (2010) found strong evidences that positive relationship exist between them.

Negative effects of board diversity according to Byoun et. al. (2015) exists. Farrell & Hersch (2005), Shrader, Blackburn and Iles (1997), and Zahra and Stanton (1988) identified negative effects of board diversity on firm performance. Adams & Ferreira (2009) and Baysinger & Butler (1985) noted that the clamour for diverse boards has resulted in mere selection of females and minorities. Further results showed a negative but significant effect of diversity on dividend pay-outs when the CEO and majority board members are of the same ethnic group. The effect of this according to Byoun et. al. (2015) is less monitoring of the CEOs by the board. This finding supports earlier results by Hwang and Kim (2011, 2009), Parsons, Sulaeman, Yates, & Hamermesh (2011) and Schmidt (2009). From their study of Norwegian firms, Ahern & Dittmar (2012) observed a significant decline in firm value after adjusting board composition. Research results by Watson, Kumar & Michaelson (1993) showed that negative effects of board diversity on firm performance and dividend pay-out decreases overtime. This negative effects of board diversity on dividend policy Byoun et. al. (2015) observed, occurs with divergent backgrounds and opinions of members which inhibit integration. From the study of firms in Denmark, Rose (2007) found no significant result between board composition and firm performance. Conyon & Peck (1998) found a negative relationship between board size and dividend policy of Malaysian firms. Sarwar, Xiao, Husnain, & Naheed (2018) argued that firms with financial expertise on their board do not use dividend as a control mechanism. Investigating the relationship between board composition and dividend policy in Malaysian firm, Subramaniam & Susela (2011) concluded that dividend pay-out is weak for firms with large number of independent directors and larger board sizes. Research results from the study of relationship between gender of CEO and other board members as well as other board characteristics and demographics of 9,000 firm-year observations shows that only a minor difference exists in the dividend pay-out patterns of male and female-led Chinese firms and CEO tenure, and age bears a strong positive association with each dividend payment.

Investigating the nexus between corporate

governance structure and dividend policy using the Tobit and logit models on data from 360 non-utility and non-financial firms listed on the BSE 500 index firms in India from 2012 to 2016, Pahi & Yadav (2018) concluded that non-executive directors significantly and negatively influenced dividend pay-outs. Mansourinia et. al. (2013) found no significant impact of board independence on dividend pay-out ratios of Malaysian firms. From the study of hospitality firms in Sri Lanka, Ajathan (2013) showed that an insignificant relationship exists between board independence and dividend pay-out ratio. Research results by Abdelsalam, El-Masry & El Segini (2008) showed that a negative relationship exists between board structure and dividend pay-outs in Egypt. Findings by Sawicki (2009) showed that a negative relationship exists between corporate governance and dividend policy. Using the Transparency and Disclosure Index (TDI) to measure corporate governance of 248 manufacturing firms listed on the Indonesian Stock Exchange during the period 2004 to 2006, Satiawan & Phua (2013) concluded that dividend policy is negatively influenced by corporate governance. Kuo, Stratling, & Zhang (2018) concluded that CEO duality and board independence does not influence dividend pay-outs. Using the GMM model on data covering the period 2009 to 2016 obtained from tightly held firms in Pakistan, Yousaf, Ali & Hassan (2019) concluded that firms with non-diverse boards pay lower dividends. Aggrawal & Nasser (2012) found a negative association between dividend yield and the presence of block holders on corporate boards. Anderson et. al. (2011) and Adams & Ferreira (2009) noted that the positive effect of board diversity is more pronounced in firms with strong CEO and weak shareholder rights.

Evidences abound in literature (Byoun et. al., 2015; Jensen, 1986; Easterbrook,1984) that board diversity makes feasible adequate monitoring of agents, contributing to resolving shareholder-manager conflict. Byoun et. al. (2015) showed evidences that board diversity helps mitigate agency problems associated with free cash flow. In their controlled experiments, Byoun et. al. (2015) observed a positive effect of board diversity on dividend policy with the introduction of a female and/or minority shareholder on the board. Levi et. al. (2011) argued that diverse boards reduces manager-shareholder conflicts. Findings by Page (2007) showed that board diversity promotes conflict resolution, focus on decision making, monitoring, effective decision making and improve financial results. Byoun et. al. (2015) opined that board diversity is ideal for firms with agency problems.

Al-Rahahleh (2017) argued that board gender diversity is a major determinant of corporate governance quality. Al-Rahahleh (2017) noted that advanced economies have included gender diversity in their corporate governance codes for listed firms. The International Finance Corporation (2014) urged emerging and developing economies to adopt or develop similar governance codes for listed firms in their countries.

METHODOLOGY

Research design

This study employs the longitudinal survey design in which all listed non-financial firms had equal chance of being sampled for the study. Secondary data on dividend pay-out, gender board diversity and minority shareholding on corporate boards were obtained from sampled non-financial firms for the period covering 2010 to 2018.

Population for the study

The population for this is all the non-financial

firms listed on the Nigerian Stock Exchange. Financial firms were excluded from the study because their corporate governance structure is characterised by CEO/management dominance and closely-controlled boards by major shareholders. Major shareholders in these firms hold large shareholdings directly and by proxy making minority and gender diversity of the boards non-existent.

Study samples and sampling techniques

Two firms each occupying the top strata of firms with the highest capitalisation with foreign shareholdings listed in the brewery, pharmaceuticals and building materials; and three from the food and beverages sub-sector listing of the Nigerian Stock Exchange (NSE) are sampled for this study using the strata sampling technique.

Sources, validity and reliability of data

Secondary data on dividend policy measured by dividend per share, gender board diversity measured by proportion of females and proportion of males on the boards of sampled firms and proportion of minority shareholders on the boards were extracted from Annual Reports of sampled firms for the period covering 2010 to 2018. Financial data on dividend per share are contained in the Annual Reports of sampled firms in compliance with the listing requirements of the NSE and were certified by external auditors. Non-financial data on proportion of female and male board members, and minority shareholders on the board are also contained in the Annual Reports of the sampled firms. Thus, data obtained from the Annual Reports and used for this study are valid and reliable.

Variable description, data analysis technique/model justification

Secondary data on dividend policy measured by dividend per share (DPS), gender board diversity measured by the proportions of females (and males on corporate boards (PF) and proportion of minorities on corporate boards (MN) obtained for the study were analysed using the multivariate log-linear regression model. This model was employed in similar studies (Marimuthu, Lawrence, Maran, & Udhaya-Sankar 2019; Sarwar et. al. 2018; Chen et. al. 2017; Al-Rahahleh, 2017; and Byoun et. al. 2015) making its use in this study appropriate. The multivariate log-linear model for this study is:

$$logDPS = \alpha_0 + \alpha_1 logMD + \alpha_2 logFD + \alpha_3 logMINTY + \mu_i$$

where logDPS= log of dividend per share

logMD= log of proportion of male board members

logFD= log of proportion of female board members

logMINTY= log of proportion of minority board members

μ_i= unexplained variations

The dependent variables: FD, MD and MINTY have been studied by Marimuthu et. al. (2019), Sarwar et. al. (2018), Chen et. al. (2017), Al-Rahahleh (2017) and Byoun et. al. (2015) and are being studied in this study on Nigeria.

Data presentation and description

Data analysis

Prior to the unit root test, we determine the optimum lag length for the series. Table 1 presents the optimum lag selection results.

Table 1: Optimum Lag Selection Results

Lag	Logl	LR	FPE	AIC	SC	HQ
1	45.92412	196.4284	7.20e+11	-1.074977	-0.954121	-1.026596

Source: E-view Print Out

From Table 1, the values for Akaike Information Criterion (AIC), Schwarz Criterion (SC) and Hannan-Quinn Criterion (HQC) corresponds to lag 1. The Schwarz Criterion (SC) has the lowest value. Thus the unit root tests are conducted using the Schwarz Criterion (SC) with maximum lag time (1) under the

assumption of constant.

Unit root result:

To conduct the unit root test, we use the ADF. Results on Table 2 shows that the variables are stationary.

Table 2: Unit Test results on the Series of DPS, FD, MD, MINTY

Series	ADF	Coefficient	5% Critical
DPS(0)	-2.413305	-0.232578	0.1414
D(DPS(-1))	-0.635863	-0.074603	0.5268
FD(0)	-3.711808	-0.638693	0.0057
D(FD(-1))	-1.716267	-0.264698	0.0903
MD(0)	-2.992950	-0.294047	0.0399
D(MD(-1))	0.358446	0.042900	0.7210
MINTY(0)	-1.852809	-0.142666	0.3527
D(MINTY(-1))	0.274785	0.033466	0.7842

Source: E-view Print Out

To determine the relationship between identified variables, we use the multivariate log-linear model. The result is shown in Table 3.

Table 3: Log-linear Regression Equation
Dependent Variable: DPS
Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.525669	14.41345	-0.036471	0.9710
logMD	10.85485	14.70558	0.738145	0.4627
logFD	-6.326787	10.13978	-0.623957	0.5345
logMINTY	-4.002177	5.935891	-0.674234	0.5022

R-squared	0.643998	Mean dependent var	5.143580
Adjusted R-squared	0.563751	S.D. dependent var	10.13396
S.E. of regression	10.09969	Akaike info criterion	7.511009
Sum squared resid	7854.293	Schwarz criterion	7.629253
Log likelihood	-300.1959	Hannan-Quinn criter.	7.558450
F-statistic	1.181251	Durbin-Watson stat	2.705714
Prob(F-statistic)	0.322463		

The resultant regression equation is:

$Log\ DPS = -0.525669 + 10.85485logMD - 6.326787logFD - 4.002177logMINTY + \mu_i$ (Table 3)

Durbin-Watson result:

The Durbin-Watson coefficient of 2.705714 indicates the absence of autocorrelation in the data set.

Conducting the cointegration test using the Johansen Cointegration model, we have the result on table 4.

Table 4: COINTEGRATION RESULT

Trend assumption: Linear deterministic trend
Series: DPS MD FD MINTY
Lags interval (in first differences): 1 to 2
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.378807	57.61032	47.85613	0.0047
At most 1	0.142340	20.47343	29.79707	0.3913
At most 2	0.075055	8.496749	15.49471	0.4139
At most 3	0.030438	2.411072	3.841466	0.1205

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.378807	37.13689	27.58434	0.0022
At most 1	0.142340	11.97669	21.13162	0.5500
At most 2	0.075055	6.085677	14.26460	0.6022
At most 3	0.030438	2.411072	3.841466	0.1205

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

DPS	MD	FD	MINTY
0.018909	-14.25576	-15.47428	0.252672
0.055804	-8.411770	3.896633	1.325368
0.107322	4.529460	4.027825	-0.776745
-0.025688	-6.139153	0.037332	-6.030316

Unrestricted Adjustment Coefficients (alpha):

D(DPS)	-2.772497	-0.374505	-1.094937	0.314186
D(MD)	0.011519	0.020720	-0.010429	0.001480
D(FD)	0.053512	-0.039703	-0.004226	0.002238
D(MINTY)	-0.002625	-0.011325	0.016334	0.014963

1 Cointegrating Equation(s): Log likelihood -17.81909

Normalized cointegrating coefficients (standard error in parentheses)

DPS	MD	FD	MINTY
1.000000	-753.9187	-818.3607	13.36259
	(149.554)	(133.125)	(50.1882)

Adjustment coefficients (standard error in parentheses)

D(DPS)	-0.052425
	(0.01313)
D(MD)	0.000218
	(0.00016)
D(FD)	0.001012
	(0.00029)
D(MINTY)	-4.96E-05
	(0.00025)

2 Cointegrating Equation(s): Log likelihood -11.83075

Normalized cointegrating coefficients (standard error in parentheses)

DPS	MD	FD	MINTY
1.000000	0.000000	291.7902	26.34645
		(80.2370)	(41.9604)
0.000000	1.000000	1.472507	0.017222
		(0.18674)	(0.09766)

Adjustment coefficients (standard error in parentheses)

D(DPS)	-0.073324	42.67430
	(0.04084)	(11.4726)
D(MD)	0.001374	-0.338498
	(0.00047)	(0.13201)
D(FD)	-0.001204	-0.428876
	(0.00086)	(0.24251)
D(MINTY)	-0.000682	0.132686
	(0.00077)	(0.21707)

3 Cointegrating Equation(s): Log likelihood -8.787908

Normalized cointegrating coefficients (standard error in parentheses)

DPS	MD	FD	MINTY
1.000000	0.000000	0.000000	-5.295020
			(21.3900)
0.000000	1.000000	0.000000	-0.142456
			(0.17578)
0.000000	0.000000	1.000000	0.108439
			(0.15606)

Adjustment coefficients (standard error in parentheses)

D(DPS)	-0.190834	37.71483	37.03288
	(0.08329)	(11.6741)	(11.1957)
D(MD)	0.000255	-0.385735	-0.139515
	(0.00096)	(0.13513)	(0.12960)
D(FD)	-0.001657	-0.448018	-0.999785
	(0.00179)	(0.25127)	(0.24098)
D(MINTY)	0.001071	0.206670	0.062277
	(0.00159)	(0.22247)	(0.21335)

From Table 4, since the Trace statistic of 57.61032 is greater than the α at 0.05 for none hypothesized No. of CE(s) but less than the α at 0.05 for 1,2 and 3, we conclude that there exists at least one cointegrating equation. We correct for this by using the Error Correction Model (ECM). The ECM result on Table 5 shows that there is no serial cointegration of the 2nd order at 5% as the Observed R Squared of 5.094346 has a probability of 0.0783 (Table 5).

Table 5: Error Correction Model (ECM)

Dependent Variable: D(DPS)
Method: Least Squares
Included observations: 80 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.202875	10.86391	0.294818	0.7689
FD	-2.982014	7.618226	-0.391431	0.6966
MD	-2.568227	11.07924	-0.231805	0.8173
MINTY	-0.892998	4.459416	-0.200250	0.8418
ECM(-1)	-0.337181	0.086322	-3.906084	0.0002

R-squared	0.670613	Mean dependent var	-0.008000
Adjusted R-squared	0.626379	S.D. dependent var	8.100895
S.E. of regression	7.571722	Akaike info criterion	6.947179
Sum squared resid	4299.823	Schwarz criterion	7.096056
Log likelihood	-272.8872	Hannan-Quinn criter.	7.006868
F-statistic	3.857046	Durbin-Watson stat	1.991138
Prob(F-statistic)	0.006645		

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.482371	Prob. F(2,73)	0.0906
Obs*R-squared	5.094346	Prob. Chi-Square(2)	0.0783

The ECM (-1) value of 0.337 181(Table 5) shows that only 33.718% of the previous period error was corrected in the present period.

Serial Correlation LM test:

Conducting the Serial Correlation LM Test for a lag of 2 using the Breusch-Godfrey serial correlation model, the Breusch-Godfrey statistic of 5.094346 (Table 5) shows that there is no serial correlation in the residual.

Heteroskedasticity Test:

The Breusch-Pagan-Godfrey test for heteroscedasticity with Observed R Squared value of 0.99 with P=0.9100 (Table 6) shows that there is no heteroscedasticity in the residual; and the variance in the residual is equal i.e. variance is constant.

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Table 6: Heteroskedasticity Test

Dependent Variable: RESID
Method: Least Squares
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.549406	10.68930	-0.144949	0.8852
FD	-0.569875	7.476351	-0.076224	0.9394
MD	2.039758	10.91370	0.186899	0.8523
MINTY	-0.060003	4.379911	-0.013700	0.9891
ECM(-1)	0.278429	0.178424	1.560489	0.1230
RESID(-1)	-0.278101	0.212134	-1.310971	0.1940
RESID(-2)	-0.362407	0.162674	-2.227813	0.0290

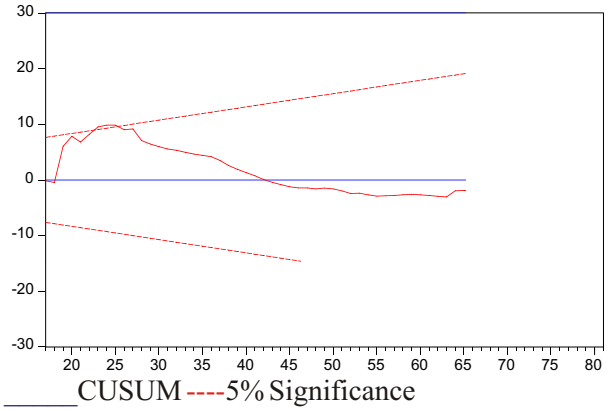
R-squared	0.663679	Mean dependent var	2.44E-16
Adjusted R-squared	0.613279	S.D. dependent var	7.377543
S.E. of regression	7.426363	Akaike info criterion	6.931382
Sum squared resid	4026.013	Schwarz criterion	7.139810
Log likelihood	-270.2553	Hannan-Quinn criter.	7.014947
F-statistic	0.827457	Durbin-Watson stat	1.926596
Prob(F-statistic)	0.552447		

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.237018	Prob. F(4,75)	0.9166
Obs*R-squared	0.998653	Prob. Chi-Square(4)	0.9100
Scaled explained SS	16.05588	Prob. Chi-Square(4)	0.0029

To conduct stability diagnostic test, we determine the recursive estimates using the CUSUM Test.

Figure : Stability Diagnostics-CUSUM Test



From Fig 1, the model is stable

Research results and policy implications of findings

The regression results on Table 3 shows that the proportion of male directors (MD) on the board of non-financial firms in Nigeria with a coefficient of +10.85485 positively influences the dividend per share (DPS) of these firms. This indicates that the "bird-in-hand" theory of dividend policy by Bhattacharya (1979) can be achieved with increased proportion of male members on the boards of listed non-financial. The coefficient between the proportion of female directors (FD) on the boards and dividend per share (DPS) of these firms of -6.326787 shows the existence of negative relationships between these variables. This result is at variance with the findings of Byoun et. al (2019), Chen et. al. (2017), Van Pelt (2013), Joecks et. al. (2013), Carter et. al (2013), and Adams and Ferreira (2009). The argument of increased payment of higher dividend per share with increased proportion minority shareholders (MINTY) on corporate boards by Carter et. al. (2013) is not supported by the result from this study as the coefficient of -4.002177 (Table 3) for relationship between DPS and the proportion of minority shareholders of the boards. The negative coefficient indicates that increasing the proportion of minority shareholders negatively influences DPS.

This finding implies that shareholders interested in high DPS should appoint more males to the boards of these listed non-financial firms and reduce the proportion of females and minority shareholders on the board. Thus, implementing of this argument will ensure the achievement of the goals of the "bird-in-hand" theory of corporate dividend policy propounded by Bhattacharya (1979).

Cointegration values of order I(0) shows that the proportion of males on the boards of listed non-financial firms, and proportion of females and minority shareholders on the boards of these firms positively and negatively influence dividend per share of these firms both in the short and long-runs. The Error Correction Model (ECM) value of 0.337 shows that only 33.7% of the previous period error are corrected in the current period.

Conclusions

This study revealed that the proportion of males, females and minority shareholders on the boards of listed non-financial firms ranges from 0.66 to 1.00, 0 to 0.37, and 0.11 to 0.88 respectively. Thus, males dominate the boards of listed non-financial firms in Nigeria. In addition, increasing the proportion of males on the boards of these firms positively influences the dividend per share, and increasing the proportion of females and minority shareholders on the boards of listed non-financial firms negatively influences their dividend.

Recommendations

The results of this study necessitate that shareholders of listed non-financial firms desiring higher dividend per share should appoint more males to the boards and reduce the proportion of females appointed to boards of these firms. Shareholders of listed non-financial firms desiring higher capital gains and lower dividend per share should appoint more females and minority shareholders to the boards of these firms. With the ECM value at 33.7%, shareholders desiring for higher dividend per share need to put in more effort to bring about greater positive changes in corporate dividend decisions.

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