Diversity and return: the impact of diversity of board members' education on performance

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Abstract

Purpose – *This paper aims to examine the impact of diversity of board members' educational qualifications on the financial performance of banks in Ghana.*

Design/methodology/approach – *The present study applies system generalized methods of moments as an econometric model in carrying out the analysis. The study yielded a usable sample of 28 banks spanning from 2001 to 2016.*

Findings – *The paper concludes that the Ghanaian banking sector profit diverges and invalidates the convergence theory or "catch-up effect". Specifically, educational qualifications of board members are relevant to banks' financial performance. Across all the models used, board members with a first degree have a significant positive impact on performance. The opposite is the case for board members with Doctor of Philosophy (PhD).*

Research limitations/implications – *Unobservable characteristics such as entrepreneurial skills and intellectual competence experiences are excluded from the study because of the difficulties in measuring these variables. Notwithstanding, the exclusion of these characteristics does not invalidate the general outcome of the study.*

Originality/value – *The present study examines the impact of diversity of board members' educational qualification on financial performance in the context of Sub-Saharan Africa, particularly Ghana. It also extends the existing literature by decomposing the banking sector into listed, non-listed, foreign and domestic banks.*

Keywords *Profitability, Ghana, Diversity, Board member, System generalized methods of moments*

Paper type *Research paper*

1. Introduction

Section 6 of Act 930 Bank of Ghana (BoG) banking business corporate governance directive regulated under the banks and specialized deposit taking prescribes, among others, the following:

- Board members shall be and remain qualified, including through training, for their positions. They shall have a clear understanding of their role in corporate governance and be able to exercise sound and objective judgement about the affairs of the regulated financial institution. They shall possess, individually and collectively, appropriate experience, competencies and personal qualities, including professionalism and integrity.
- The competencies of the board of directors shall be diverse to facilitate effective oversight of management and shall ideally cover a blend of the following fields: banking, law, finance, accounting, economics, information technology, business administration, financial analysis, entrepreneurship, risk management, strategic planning and corporate governance and other areas that the Bank of Ghana deems fit.

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These directives underscore the relative value relevance of board members' education to the financial performance of banks. In managing such highly skilled and highly regulated jobs in the modern corporation, banks need to recruit board members, with certain levels of either observable or unobservable capabilities. Although studies have also shown that unobservable characteristics contribute immensely to firms' performance, it is difficult to measure (Bhagat *et al.*, 2010). Therefore, observable measures i.e. educational qualifications should be regarded when appointing board members. Notwithstanding, further studies conclude that high-level managerial capabilities and performance are not often a function of the high level of board members' education (Kagzi and Guha, 2018; Chen *et al.*, 2016). The inconclusive findings of previous studies add to the call in examining the impact of diversity of board members' educational qualifications influence on banks' financial performance. To the best of the authors' knowledge, such empirical studies are relatively uncommon in literature, especially within the Sub-Saharan African countries.

This study contributes to the literature in a number of relevant ways. First and foremost, the focus on Ghana was unhurried. Ghana provides an interesting setting for this study. The Republic of Ghana, with Accra as its capital, was the first colony in Sub-Saharan Africa to obtain independence from London in 1957 (Dana, 2008). Acheampong and Dana (2015) opine that Ghana represents a fast-expanding market (FEM). Economic performance for Ghana during 2016 was rather mixed. After its remarkable performance in bringing the fiscal deficit down from 10.2 per cent of Gross Domestic Product (GDP) in 2014 to 6.3 per cent in 2015, the country's GDP target of 5.3 per cent was missed, widening the margin to 9 per cent of GDP. Notwithstanding, GDP growth exceeded the target of 3.3 per cent by recording 3.6 per cent, inflation reduced from 17 per cent to 15.4 per cent and further to 13.3 per cent in January 2017[1]. Bawumia *et al.* (2008) conclude that the banking sector only reports 70 per cent of the financial sector banking. This underscores the importance of this sector to the growth and development of the country, hence the study. Second, studies have shown that there is a high preponderance of family control or oversight and Ghana is not an exception. This seems to suggest that board members are chosen or selected somewhat because of family connections with the owner or the controlling shareholder, rather than their expertise and know-how (Westhead and Cowling, 1998). This indicates that the relevance of board members educational qualification to corporate performance is relatively scarce in the less-developed world, for instance, Ghana. Third, in the management literature, scholars have attempted to investigate the value relevance of educational backgrounds of board members on firms' financial performance with little success. Until recently, in an attempt to resolve this puzzle, majority of studies which have come close, have focused on board independence or diversity (Hermalin and Weisbach 2003; Farrell and Hersch 2005; Campbell and Vera 2010; Johnson *et al.*, 2013). Results from these studies, however, have yielded only inconclusive results. This might stem from the fact that rather simple attributes of board independence and diversity might have omitted other important board characteristics such as diversity of board education. Unfortunately, in the context of less developed countries, such studies are comparatively scarce. This, therefore, suggests that educational qualification of board members and banks' financial performance nexus is an area that deserves further research, particularly Ghana. Further, empirical findings between the diversity of board members' educational qualifications and financial performance are mixed. While some studies have established a negative relationship (Adams and Ferreira, 2009; Haslam *et al.*, 2010), others have reported a positive relationship (Bear *et al.*, 2010; Mahadeo *et al.*, 2012; Post and Byron, 2015). Unlike the previous studies, the present study seeks to extend the existing body of literature on board members' education and financial performance by decomposing the banking sector into listed, non-listed, foreign and domestic banks. Besides, existing studies (Jalbert *et al.*, 2002, Gottesman and Morey, 2006; Bhagat *et al.*, 2010) are based on USA market data leaving a glaring gap for countries in Sub-Saharan Africa market data, and Ghana in particular. This study is thus imperative to undertake what is, to the best of the author's

knowledge, the first paper to add to the growing literature on management literature by using recent and robust data. Finally, it is believed that the findings can serve as a valuable basis for further discussions in addressing demographic diversity and significant changes in corporate strategy (Wiersema and Bantel, 1992).

The current study is structured as follows. Section 2 reviews theoretical and empirical underpinnings and develops hypotheses to be tested in regression analyses. Section 3 focuses on the data and methodology of this study. Section 4 discusses the empirical results. Finally, Section 5 completes the study.

2. Literature review

2.1 Theoretical underpinnings

The present study is anchored in six different theories in management research. These theories include agency theory, upper echelons theory, resource dependence theory, convergence theory or "catch up effects", Stewardship theory and social identity theory. These theories have established various relationships between observable characteristics (e.g. educational backgrounds and work experiences) and financial performance (Ali *et al.*, 2013; Kim and Kim, 2015; Cannella *et al.*, 2015). However, the importance of these theories remains unsettled. While five of those theories, namely, agency theory, upper echelons theory, resource dependence theory, convergence theory and stewardship theory, support a positive relationship between board members' educational qualification and financial performance, social identity theory confirms an inverse relationship. Table I refers to a summary of the theoretical underpinnings.

First, agency theory which inversely relates to agency conflicts between owners and managers is concerned with resolving problems that can exist in agency relationships due to unaligned goals or different aversion levels to risk. Agency theorists argue that board of directors is central governance mechanism that can align the interests of principals (shareholders) and agents (the managers). According to Jensen and Meckling (1976), agency theory suggests that there ought to be a positive impact on firm value for firms employing such governance devices and thus better governance and an effective board can raise the firm value. From an agency perspective, larger companies require a greater number of directors in order to monitor and control a firm's activities (Yermack, 1996). Second, upper echelons theory posits that a higher education level is associated with open-mindedness, capacity for information processing and tolerance to changes (Hambrick and Mason, 1984). Upper echelons theory further states that organizational outcomes are partially predicted by managerial background characteristics of the top-level management team. Research based on the upper echelons theory found that several attributes of top executives, such as international experience (Daily *et al.*, 2000; Kirca, *et al.*, 2012), educational level (Herrmann and Datta, 2005; Tihanyi, Ellstrand, Daily, and Dalton, 2000), age (Herrmann and Datta, 2005; Tihanyi *et al.*, 2000), positional tenure (Herrmann & Datta, 2005) and duality (Roth, 1995; Sanders and Carpenter, 1998), can be proxies for their cognitive orientation, knowledge-based and information processing abilities and, consequently, have an impact on the firm's behavior. Furthermore, Pfeffer and Salancik (1978: p. 163) note that "when an organization appoints an individual to a board, it expects the individual will come to support the organization, will concern himself with its problems, will invariably present it to others, and will try to aid the organization". Resource dependence theory logic, therefore, suggests that a board's provision of resources is directly related to firm performance (Nicholson and Kiel, 2007). This theory highlights the relevance of directors' skills, expertise and abilities in response to the firm's external environment (Pfeffer, 1972; Pfeffer and Salancik, 1978). Additionally, convergence theory or "catch-up effect" stipulates that economies of developing nations will grow more rapidly than those of industrialized countries. Therefore, all should reach an equal footing eventually. Besides, stewardship theory holds that managers inherently seek to do a good job, maximize company profits and bring good returns to stockholders. Stewardship theory

Table I Summary of theoretical perspectives

S/N	Author	Name of theory	Theoretical explanation	Relationship	Full reference
Positive linear relationship: board educational background and firm performance					
1	Jensen and Meckling (1976)	Agency theory	Agency theory stipulates that the main function for the board of directors is to supervise management on behalf of shareholders. Agency cost can be reduced when monitoring is improved	Positive	Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360
2	Hambrick and Mason (1984)	Upper echelons theory	Upper echelons theory states that organizational outcomes are partially predicted by managerial background characteristics of the top-level management team. The theory tries to explain a correlation between the organizational outcome and managerial background characteristics	Positive	Hambrick, D.C. and Mason, P.A. (1984), "Upper echelons: the organization as a reflection of its top managers", *Academy of Management Review*, Vol. 9 No. 2, pp. 193-206
3	Pfeffer and Salancik (1978)	Resource dependence theory	Resource dependence theory (RDT) is the study of how the external resources of organizations affect the behavior of the organization. It offers a rational for a board's function of providing critical resources to the firm	Positive	Pfeffer, J. and Salancik, G.R. (1978), *The External Control of Organizations: A Resource Dependence Perspective*, Harper and Row Publishers, New York, NY
4	Cyert and March (1963)	Convergence theory or "catch-up effect"	Convergence theory or "catch-up effect" stipulates that economies of developing nations will grow more rapidly than those of industrialized countries. Therefore, all should reach an equal footing eventually	Positive	Cyert, R.M. and March, J.G. (1963), *A Behavioral Theory of the Firm*, Vol. 2, Englewood Cliffs, NJ, pp. 169-187
5	Donaldson and Davis (1994)	Stewardship theory	The stewardship theory holds that managers inherently seek to do a good job, maximize company profits and bring good returns to stockholders. Stewardship theory claims that directors are essentially trustworthy individuals and therefore good stewards of the resources entrusted to them	Positive	Donaldson, L. and Davis, J.H. (1994), "Boards and company performance – research challenges the conventional wisdom", *Corporate Governance: An International Review*, Vol. 2 No. 3, pp. 151-160
Negative linear relationship: board educational background and firm performance					
6	Tajfel (1978)	Social identity theory	Social identity theory introduced the concept of a social identity as a way in which to explain intergroup behavior. Social identity theory therefore suggests that board members categorization at the group level hampers the firm performance	Negative	Tajfel (1978), D*ifferentiation between Social Groups: Studies in the Social Psychology of Intergroup Relations*, Academic Press, Oxford

Source: Author's compilation (2018)

suggests that directors are essentially trustworthy individuals (Donaldson and Davis, 1994; Muth and Donaldson, 1998). Finally, social identity theory, therefore, suggests that board members' categorization at the group level affects financial performance (Tajfel, 1978). The theory explains intergroup behavior. The theory analyses board groups, which has the potential to provide insight into the social dynamics influencing directors' behavior (Ashforth and Mael, 1989; Hogg and Terry, 2000).

Based on this theoretical framework, it adds to the call that such studies would be more valuable and ideal in determining banks' financial performance in less developed markets than in the developed market. The next section examines the relevant empirical literature and hypotheses derived for testing.

2.2 Empirical evidence and hypothesis development

Extensive and available literature has established that there is a link between board members' educational qualifications and financial performance (Hambrick and Mason, 1984;

Bantel and Jackson, 1989; Hitt and Tyler, 1991; Darmadi, 2013; Kagzi and Guha, 2018). Notwithstanding, the extensive empirical works on this relationship, the overall studies have yielded mixed and inconclusive results. Whilst some studies seem to support the existence of a positive relationship, other empirical works, though rare, confirm a negative. Cheng *et al.* (2010) confirm that in China, board chairman's educational qualifications is positively linked to performance indicators, i.e. growth in earning per share (EPS) and growth in return on assets (ROA). Bantel and Jackson (1989) suggest that more educated board members are inclined to be more proactive in developing technical innovations. Hambrick and Mason (1984) propose that firms having top managers with less formal education experience more variability in performance. Providing some support for Hambrick and Mason's theory, Hitt and Tyler (1991) show that the type of education (i.e. major area of study) affects the firm's strategic decision models. Wiersema and Bantel (1992) provide evidence that board members with higher educational levels are more likely to undertake significant changes in corporate strategy. Bhagat *et al.* (2010) state that because it is difficult to determine and analyze the unobservable characteristics, the observable characteristics may play a critical role in firms' behavior. This position is further supported by Hambrick and Mason (1984), who posit that observable characteristics are considered credible surrogate for their values and knowledge base. This may invariably impart greatly on managerial behavior. In Indonesia, Darmadi's (2013) findings support the debate that the educational qualifications of board members are relevant. In contrast, other studies have shown a negative relationship between board members' educational diversity and financial performance (Kagzi and Guha, 2018; Adams and Ferreira, 2009; Hafsi and Turgut, 2013; Mahadeo *et al.*, 2012). Ujunwa (2012) reports that boards with higher educational diversity would negatively impact firm performance. Tacheva and Huse (2006) also support an inverse relationship between the background of top management and the firm's financial performance. Similarly, Chen *et al.* (2016) opine that diversity is inversely linked to the acquisition intensity and acquisition size. Adnan and Dar (2016) conclude that board members educational diversity would diminish firm performance especially in government-linked companies because their culture in appointing successful directors emphasizes on the network with governance characteristics rather than education characteristic. Dittmann *et al.* (2010) show that the presence of bankers on boards of non-financial German companies is negatively related to firm value.

In Ghana, as contained in the corporate governance directives, board members shall be and remain qualified and shall possess, individually and collectively, appropriate experience, competencies and personal qualities, including professionalism and integrity (Hillman *et al.*, 2000, 2002; Peterson and Philpot, 2007; Singh *et al.*, 2008; Khanna *et al.*, 2014). This, therefore, adds to the call that the diversity of board members' educational qualifications would enhance and stimulate performance. The study, therefore, formulates the hypothesis as:

H1. Board members' educational qualifications diversity impact positively on financial performance.

3. Methodology

3.1 Sample, data sources and justification

The study uses unbalanced panel data over the period from 2001 to 2016. The banks' performance indicators, board members' educational qualifications and other variables are drawn from the financial statements of the sampled universal banks compiled by the Ghana Association of Bankers. The study originally used 35 banks in Ghana and applied the following restrictions:

1. The study decomposed the data into listed, non-listed, foreign and domestic banks.
2. Acquired, merged and collapsed banks are duly considered and excluded.

3. Board members' educational qualifications as a proxy for diversity are considered. Qualifications below first degrees are excluded. This is because, at the managerial level, the entry point qualification is the first degree for most financial institutions.
4. Board members' education is conceptualized as per the following:
   - first degree – number of board members with a first degree as the highest degree earned;
   - master degree – number of board members with a masters degree as the highest degree earned; and
   - PhD – number of boards members with PhD as the highest degree earned.
5. The diversity of educational qualifications of board members' data are retrieved from the banks' audited financial reports and other management reports.
6. Banks without the required data are eliminated.
7. Foreign banks are also captured.

The study defined a bank as foreign when 50 per cent of its shares are foreign-owned. An ownership indicator of "F" refers to the group of foreign banks and "D" refers to the group of domestic banks. The study further generates dummy variables for foreign and listed banks, where a value of 1 is assumed when a bank is either foreign or listed and 0 is assumed if otherwise.

After considering the above-mentioned restrictions, the study yielded a usable sample of 28 banks observations spanning from 2001 to 2016. The justification for the restrictions and the selection of these variables are not far-fetched. First, differences in accounting practices, reporting periods and types of financial ratios often used by these banks compelled the authors to decompose the dataset into listed, non-listed, foreign and domestic banks. Second, the banking sector in recent times has experienced a significant amount of mergers, takeovers and acquisition activities hence, the need to consider and restrict this in the dataset. Third, following the passage of some key acts and reforms in Ghana, foreign-owned banks have increased their presence and intensified their operations in Ghana by setting up more branches and networks. The influx of these foreign banks signifies that their relevance cannot be discounted. Therefore, considering and decomposing the dataset into domestic and foreign banks would allow the performance to be assessed critically.

Further, board members' educational qualifications as a proxy for diversity are considered. Qualifications below first degrees are excluded. This is because, at the managerial level, the entry point qualification for banks in Ghana is the first degree. Finally, the justification for the selection of performance indicators is based on the fact that these key ratios are commonly used by financial analysts in determining profitability. Further, previous studies have also identified that these ratios are significant in predicting bank returns (Martinez, 1999; Ooi, 2000).

3.2 Measures

ROA, return on equity (ROE) and profit before tax (LPROBT), which represent depended variables, are used as proxies for financial performance. The employment of these variables is unhurried. Previous studies, namely, Bhagat *et al.* (2010), Carter *et al.* (2010) Dezsö and Ross (2012) and Jackling and Johl (2009), have either used accounting-based measures of profitability such as ROA, ROE or stock-market-based measures such as Tobin's Q. ROA is a good measure of financial performance (Keeton and Matsunaga, 1985). This is because it assesses the contributions of assets to management efficiency. The higher a firm's ROA is, the more profits from invested capital the firm makes. It is calculated as:

$$\text{ROA} = \text{Net income for common shareholder} / \text{Total assets}$$

ROE reflects net income divided by shareholders' equity (or divided by net tangible asset value). This is the most important ratio for the shareholders because it measures the firm's profitability on each share. This ratio is a perfect measure of how much each equity produces in firm profit. In the United Kingdom (UK), data covering banks' profitability before, during, and after the financial meltdown in 2008 on 73 UK commercial banks suggest that bank size, capital ratio, loan, deposits, liquidity, and interest rate have a positive impact on ROE. The higher ROE is, the more efficiently the firm uses its shareholders' equity. It is calculated as:

$$\text{ROE} = \text{Net income for common shareholder/Total Equity.}$$

PBT measures a company's profits before corporate income tax deductions. It deducts all expenses from revenue including interest expenses and operating expenses except for income tax. It considers profits before tax, i.e. operating, non-operating, continuing operations and non-continuing operations. This variable is important to consider because tax expense is constantly changing. Therefore, the PBT provides investors with a fair idea of the company's profits from year to year. Although in the broader context of generally accepted accounting principles, PBT calculation is not required to be reported by the Securities and Exchange Commission (SEC), notwithstanding, it provides deeper insights into a company's operations. It is calculated as:

$$\text{PBT} = \text{Net Income} / (1 - \text{Effective Tax Rate})$$

The present study considers these indicators as adequate and appropriate performance indicators.

Educational qualifications of board members represent the independent variable for this study. Board diversity has been measured differently in previous studies (Ali *et al.*, 2013; Ben-Amar *et al.*, 2013; Ararat *et al.*, 2015; Windscheid *et al.*, 2016; Brown *et al.*, 2017). The current paper attempts to mimic the works of Ali *et al.* (2013), Brown *et al.* (2017) and Windscheid *et al.* (2016) which focuses on the educational qualifications of board members. Furthermore, bank-specific and other control variables such as bank size, size of management, GDP growth, inflation and real interest rate have been considered and included. The authors suspect that their inclusion will help to specify the model fully. For instance, bank size estimated as the numeric of total assets represents the size or the magnitude of the bank. Bank size is included to explain for existing reduction or increase costs per unit arising due to an increase or decrease in the total market output. GDP growth is used as a proxy measure degree of economic activities and it reflects the state of the economic cycle. GDP growth is expected to have an effect on supply and demand for loans and deposits. Staikouras and Wood (2003) note that inflation may have a direct and indirect influence on banks' performance. The real interest rate is statistically significant with net interest income and non-interest income.

3.3 Methodology

The present study uses system generalized methods of moments (SGMM) as an econometric model in carrying out the analysis. The estimated model includes a one-year lag of the dependent variable as an independent variable. This is justifiable since it allows testing for convergence in bank performance. Due to the dynamic nature of our model, least squares estimation methods give biased and inconsistent estimates (Baltagi, 2001). However, this potentially creates endogeneity as the lagged dependent variable could be correlated with the error term. There could also be reverse causality between bank size and profitability, which could also create endogeneity. For instance, García-Herrero *et al.* (2009) reveal that better-performing banks (in terms of profits) may be more likely to raise equity

more effortlessly through profit retention. Likewise, they could also spend more on advertising crusades and expand in size, thereby increasing their profitability. The causality could also go in the opposite direction since high performing banks are capable of hiring more staff, which could reduce operational efficiency. The Dif-GMM could help to deal with such possible endogeneity, but it has been found to suffer from poor precision and finite sample biases in the presence of persistent time series. This is because the lagged first differences of the series will be weakly correlated with the lagged levels, thus weakening the instruments for the first-differenced equations (Blundell and Bond, 1998). The SGMM provides a way around this problem by deploying lagged levels of the endogenous variables as instruments in the first-differenced equations while lagged differences of the endogenous variables are deployed as instruments in the level equations. By exploiting these additional moment conditions that are instructive even for persistent data, the accuracy of the estimates is improved (Blundell and Bond, 1998). In addition, SGMM also helps in dealing with other problems such as unobserved heterogeneity across banks in the Ghanaian banking industry and profit persistence (Tan and Floros, 2012; Dietrich and Wanzenried, 2011; Yao *et al.*, 2018). It must, however, be noted that since per the *modus operandi* of the SGMM, the internal instruments increase multiplicatively, we use two-year averages of the data in all estimations. Some benefits of averaged data include smoothing out the short-term noise that may drive the estimates. More so, time-averaged data are able to smooth potential business cycle effects and minimize measurement errors (Haile and Niño-Zarazúa, 2018).

Using a one period lag of profitability measures, the study conducts the Sargan over-identifying test and which validates the treatment of bank size as an endogenous variable. In order to make sure there is no second-order autocorrelation in the estimation, the endogenous variable is instrumented using levels lagged by two-year-periods. Arellano and Bond (1991) further clarify that the consistency of GMM estimator relies upon the premise that second-order serial correlation is not shown in the error terms and that only valid instruments are used (Blundell and Bond, 1998). Thus, Arellano-Bond test for second-order autocorrelation is done to attest to the validity, consistency and appropriateness of the data. If the null hypothesis of no second-order autocorrelation cannot be rejected, SGMM is consistent. To ensure that there is no second-order autocorrelation in the estimated model, the endogenous variable is instrumented by employing its two-year-lagged values. Additionally, the Sargan test for overidentifying restrictions is also done to test for the validity of the instruments. That is, to test whether there are at least as many instruments as endogenous explanatory variables in the model. Failure to reject the null of valid overidentifying restrictions would mean all instruments are valid and SGMM estimates are consistent. Our estimates are therefore consistent and could be interpreted as causal relationships. To show that the data is suitable for the estimation, the Fisher-type unit root test is used to test the stationarity of the variables. Two reasons for the Fisher unit root test are as follows: Individual ADF regressions allow for different lag lengths and it does not necessitate simulating adjustment factors that are specific to the sample size and specification (Gujarati, 2004). Rejection of the null hypothesis of nonstationarity means the variables are stationary and can be used for analysis.

3.4 Model for empirical estimation

To estimate the relationship between the educational qualifications of board members and financial performance of banks in Ghana, three separate models are fitted with three proxy variables for performance being dependent variables. The study regressed the dependent variables on the educational qualifications of board members (1st Degree, Masters and PhD), bank size, management size, inflation, GDP growth rate and interest rate. The study considers separate estimations for listed or non-listed banks, as well as for locally owned and foreign-owned banks. The model employed is specified as follows:

$$PERF_{it} = \beta_0 + \alpha PERF_{it-1} + \beta_1 E_{it} + \beta_2 C_{it} + \beta_3 M_{it} + \varepsilon_{it} \quad (1)$$

where:

PERF is a vector of:

ROE_{it} is net income divided by total stockholders' equity for firm i in time t;

ROA_{it} is net income divided by total assets for firm i in time t; and

$LPROBT_{it}$ is the log of profit before tax of firm i in time t.

E_{it} is a vector of independent variables such as:

1^{st} $DEGREE_{it}$ is the number of board members with a maximum of first degree for firm i in time t;

$MASTERS_{it}$ is the number of board members with a maximum of second degree for firm i in time t; and

$PH.D._{it}$ is the number of board members with a maximum of PhD for firm i in time t.

C_{it} is a vector of firm-level control variables such as:

$LBSIZE_{it}$ measures the size of the firm and it is the log of the asset base of firm i in time t; and

$MGTSIZE_{it}$ is the size of management of firm i in time t.

M_{it} is a vector of macro-level control variables such as:

INF_{it} is the annual inflation rate;

$GDPG_{it}$ is the annual growth rate of GDP; and

$INTR_{it}$ is the interest rateε_{it} is the error term.

4. Discussions of results

4.1 Descriptive statistics

Table II displays the definition, summary statistics, correlation and expected signs of the variables used in equation (1). The mean and standard deviation for ROE, ROA and LPROBT are 21.48 per cent and 30.34 per cent, 4.68 per cent and 21.21 per cent, GHc 56, 234.90 and GHc 103, 276.10, respectively. This result suggests that the dependent variables used in the study show a wide variation within the estimation span. The wide variations in the sample also imply that as far as performance is concerned, the sampled banks are heterogeneous or diverse in character. For the three independent variables, namely, DEGREE, MASTERS and PhD used, the study finds fewer variations. For instance, the average number of board members found in banks in Ghana with first degree, master degree and doctor of philosophy (PhD) degree are 17, 21 and 12 respectively. These statistics point out to the fact that many banks in Ghana have the majority of their board members holding a master's degree, followed by a first degree. It is interesting to know that the average number of Ph.D. holders serving on the boards is significantly high, albeit lowest on the pecking order with respect to board composition. The result for five control variables, namely, LBSIZE, MGTSIZE, INF, GDPG and INTR employed[2], are not different. In summary, it is generally observed among the variables, a very high level of variability and the data is thus usable for the analysis. The Arellano-Bond test is carried out in all models and the null of no second-order autocorrelation could not be rejected. This confirms the absence of second-order autocorrelation. Additionally, the Sargan test of overidentifying restrictions confirms the validity of the instruments used by failing to reject the null of valid overidentifying restrictions. A correlation matrix for all variables, as shown in Table II, rules out the likelihood of multicollinearity in the models as the highest pairwise correlation coefficient is less than 0.7 (Gujarati, 2004).

4.2 Estimation results

Table III shows the results of the Fisher-type unit root test for stationarity. The four tests employed were [inverse-chi-squared test (P), inverse normal (Z), inverse logit (L*) and modified inv.chi-squared (PM)] all rejected the null hypothesis of the presence of unit roots

Table II Variables definitions, summary statistic and pairwise correlations between variables

Variables	*ROE*	*ROA*	*LPROBT*	*DEGREE*	*MASTER*	*PH.D.*	*MGTSIZE*	*LBSIZE*	*GDPG*	*INF*	*INTR*
Definitions	*ROE*	*ROA*	*PBT*	*First degree*	*Masters' degree*	*Doctor of philosophy degree*	*Size of management*	*Board size*	*GDP growth rate*	*Inflation*	*Interest rate*
Description statistics											
Mean	21.48%	4.68%	56,234.90	17	21	12	7	1,126,074	6.20%	16.19%	20.35%
SD	30.34%	21.21%	103,276.10	4	6	5	3	1,448,886	2.81%	6.85%	7.32%
Min	−4.52%	−0.15%	−100,197	4	3	0	2	−4,645	3.60%	8.58%	12.50%
Max	151%	366%	912,218	26	39	32	15	8,025,510	15.08%	40.50%	45%
Observation	28	28	28	28	28	28	28	28	28	28	28
Expected Sign				+	+	+	+	+	+	+	+/−
Correlation											
DEGREE	0.150 (0.002)	0.070 (0.146)	0.153 (0.001)	1							
MASTER	0.098 (0.040)	0.073 (0.128)	0.206 (0.000)	0.800 (0.000)	1						
PH.D.	0.152 (0.001)	−0.006 (0.899)	−0.118 (0.013)	0.318 (0.000)	0.348 (0.000)	1					
MGTSIZE	0.048 (0.312)	−0.001 (0.981)	0.054 (0.260)	−0.049 (0.303)	0.009 (0.858)	0.145 (0.002)	1				
LBSIZE	−0.074 (0.121)	0.006 (0.896)	0.338 (0.000)	0.136 (0.004)	0.212 (0.000)	−0.045 (0.349)	0.177 (0.000)	1			
GDPG	0.094 (0.050)	0.023 (0.630)	0.014 (0.774)	−0.109 (0.023)	−0.043 (0.371)	−0.026 (0.583)	0.045 (0.353)	0.182 (0.000)	1		
INF	0.171 (0.000)	−0.016 (0.740)	−0.025 (0.599)	0.099 (0.038)	0.062 (0.199)	0.137 (0.004)	−0.084 (0.078)	−0.334 (0.000)	−0.524 (0.000)	1	
INTR	0.162 (0.001)	−0.023 (0.631)	−0.079 (0.100)	0.068 (0.158)	−0.093 (0.053)	−0.125 (0.009)	−0.090 (0.060)	−0.533 (0.000)	−0.598 (0.000)	0.496 (0.000)	

Note: *P*-values in parenthesis
Source: Author's estimate (2018)

Table III Fisher unit root test of variables based on ADF

Variables	Inverse Chi sq. Statistic	Prob	Inverse Normal Statistic	Prob	Inverse Logit Statistic	Prob	Modified Inv. Chi sq Statistic	prob
ROE	192.415	0.0000	−7.2653	0.0000	−8.9492	0.0000	12.89	0.0000
ROA	114.4016	0.0000	−4.6576	0.0000	−4.683	0.0000	5.5184	0.0000
LPROBT	87.0941	0.0049	−2.3467	0.0089	−2.5204	0.0065	2.9381	0.0017
DEGREE	105.4933	0.0001	−4.2388	0.0000	−4.3496	0.0000	4.6767	0.0000
MASTER	198.6806	0.0000	−8.3244	0.0000	−9.7385	0.0000	13.4821	0.0000
PH.D.	194.2214	0.0000	−8.3527	0.0000	−9.5168	0.0000	13.0607	0.0000
MGTSIZE	142.9587	0.0000	−4.2605	0.0000	−4.8971	0.0000	8.2168	0.0000
LBSIZE	94.6762	0.001	−2.3297	0.0092	−2.5922	0.0053	3.6546	0.0001
GDPG	174.7055	0.0000	−6.2851	0.0000	−8.4214	0.0000	11.2166	0.0000
INF	270.9318	0.0000	−9.7478	0.0000	−13.2864	0.0000	20.3091	0.0000
INTR	167.6732	0.0000	−4.5852	0.0000	−5.9127	0.0000	10.5521	0.0000

Note: Ho: All panels contain unit roots; Ha. At least one panel is stationary
Source: Author's estimate (2018)

in all panels at 1 per cent. All the variables used are therefore stationary and appropriate carrying out the panel estimation.

To examine the impact of diversity of board members' educational qualifications on banks' performance in Ghana, a total of 6 models are estimated[3] . Table IV reports the results of the SGMM estimations. Models 1 and 2 have LPROBT as the dependent variable as well as models 3 and 4 (5 and 6) for ROE (ROA). Each dependent variable is first regressed on the three variables that measure the diversity of board members' level of education (DEGREE, MASTERS and PhD), as well as the bank-specific variables (LBSIZE and MGTSIZE) in Models 1, 3 and 5. In models 2, 4 and 6, the study controls for INF, GDPG and INTR, and thus, estimate the full specification of equation (1). The directional relationship of the performance indicators are also tested and the results shown in Table IV. Generally, the

Table IV Regression results from GMM estimation

VARIABLES	(1) LPROBT	(2) LPROBT	(3) ROE	(4) ROE	(5) ROA	(6) ROA
L.LPROBT	0.100*** (0.038)	0.191*** (0.064)				
L.ROE			0.104** (0.049)	0.167** (0.093)		
L.ROA					0.025** (0.012)	0.044** (0.018)
DEGREE	0.067*** (0.008)	0.068*** (0.011)	0.016*** (0.005)	0.015*** (0.005)	0.004*** (0.001)	0.011*** (0.001)
MASTER	−0.015*** (0.003)	−0.014*** (0.005)	−0.003*** (0.001)	−0.002* (0.001)	−0.001* (0.000)	0.000 (0.001)
PH.D	−0.043*** (0.005)	−0.052*** (0.008)	−0.006*** (0.001)	−0.007** (0.004)	−0.002*** (0.000)	−0.003*** (0.001)
MGTSIZE	−0.017 (0.013)	−0.011 (0.007)	0.001 (0.002)	0.002 (0.002)	−0.011 (0.010)	0.001 (0.001)
LBSIZE	0.081*** (0.008)	0.051*** (0.012)	2.702*** (0.525)	2.437*** (0.615)	2.540*** (0.824)	6.148*** (1.949)
GDPG		0.011 (0.005)		0.005 (0.003)		0.002 (0.001)
INF		0.012*** (0.002)		0.005*** (0.001)		0.000 (0.000)
INTR		−0.016*** (0.005)		−0.003 (0.003)		−0.003*** (0.001)
Constant	9.404*** (0.410)	8.895*** (1.055)	0.150** (0.069)	0.087 (0.160)	0.132*** (0.015)	0.215*** (0.053)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	205	205	205	205	205	205
Wald Chi	1234.79	494.81	321.57	528.08	240.12	269.52
[prob]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Arellano Bond						
Order 1	[0.026]	[0.017]	[0.062]	[0.059]	[0.034]	[0.041]
Order 2	[0.970]	[0.956]	[0.501]	[0.550]	[0.585]	[0.292]
Sargan	[0.981]	[0.902]	[0.827]	[0.836]	[0.856]	[0.905]
Number of Bank	28	28	28	28	28	28

Notes: Robust standard errors in parentheses; Prob. values in square brackets. ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$
Source: Author's estimate (2018)

study reports that the sampled banks, during the period under review, diverge in terms of profitability. This is confirmed by a persistent and positive coefficient for all the profitability indicators given by the results from the full sample in models 2, 4 and 6. The presence of divergence invalidates the convergence theory or "catch-up effect" which stipulates that economies of developing nations will grow more rapidly than those of industrialized countries. Therefore, all should reach an equal footing eventually. The lack of convergence toward the mean signifies inadequacy of competition that could bring performance to competitive levels (Nath and Gruca, 1998). The paper, therefore, concludes that there is not an intense competition that can bring excess profits to competitive levels in the Ghanaian banking sector. This finding further supports and validates the empirical work of Bulut *et al.* (2015). Again, the result, therefore, suggests that current year profits made by the banks in Ghana are a function of the previous year's profit. García-Herrero *et al.* (2009) reveal that better-performing banks (in terms of profits) may be more likely to raise equity more effortlessly through profit retention. Specifically, from the result of the full sample found in models 2, 4 and 6 of Table IV, the study confirms a significant, consistent and positive impact of the first degree on all the profitability indicators. For instance using model 2[4], while a 1-unit increase in the number of board members with a first degree would result in a 6.8 (0.015 and 0.011) units increase in LPROBT (ROE and ROA respectively). Empirically, this result supports the works of Hambrick and Mason (1984), Bantel and Jackson (1989), Hitt and Tyler (1991), Darmadi (2013) and contradicts the findings of Kagzi and Guha (2018) Adams and Ferreira (2009) Hafsi and Turgut (2013), Mahadeo *et al.* (2012) and Ujunwa (2012). A 1-unit increase in the number of board members with PhD would result in a 5.2 (0.007 and 0.003) units decrease in LPROBT (ROE and ROA, respectively) at 1 per cent level of significance. A similar negative relationship is reported for Master's degree for all the profitabilities indicators with the exception of model 6. This is surprising especially given the average number of masters (21) and PhD (12) holders as board members found in the Ghanaian banking sector. Interestingly, the study result further shows that log of bank size (LBSIZE) is positively and significantly associated with all proxies of profitability during the period under review. Whiles, this result supports other studies by Demirguc-Kunt and Huizinga (2000), Smirlock (1985) and Goddard *et al.* (2004), it contradicts the empirical study by Haron and Azmi (2004). Two variables namely INF and INTR that are not under management control are also found to affect profitability at 1 per cent significance level. Whiles, a positive relationship is found between INF and profitability for models 2 and 4, a negative relationship is also found between INTR and profitability for models 2 and 6. The positive relationship between INF and profitability supports the findings of Haron and Azmi (2004), Staikouras and Wood (2003) and contradicts the empirical works of Bourke (1989) and Molyneux and Thornton (1992).

Varied and interesting results are produced when the data is further decomposed into field orientations (Non-listed banks and listed banks) on one part and ownership (Local and Foreign banks) on the other part as displayed in Table V and Table VI. In Table V, models 1, 2 and 3 regress performance (LPROBT, ROE and ROA) on educational qualification of board members as well as the other variables in equation (1) for all non-listed banks. Similarly, Models 4, 5 and 6 of Table V estimates equation (1) for all listed banks. When the directional relationship of profitability indicators is estimated, the non-listed banks, with the exception of model 3, confirm the presence of divergence in terms of banks' profitability. This indicates that the profit growth rate for non-listed banks is not shared. A similar directional relationship is found for listed banks' profitability indicators. As shown in Models 1 and 4 of Table V, when there is a unit increase in the number of board members with first degree, non-listed banks experience a positive increment of 5.3 per cent in LPROBT at 1 per cent significance level. Listed banks experience an increase of 5.6 per cent and 0.001 units (0.012 units) in LPROBT and ROA (ROE) at 5 per cent (1 per cent) significance level respectively. Notably, a unit increase in the number of board members with PhD background would result in a reduction of 5.3 per cent and 0.004 units in LPROBT and ROA respectively at 5 per cent level of significance among non-listed banks; listed banks also

Table V Regression results from GMM Estimation (Non-listed vs listed banks)

VARIABLES	(1) LPROBT	(2) ROE	(3) ROA	(4) LPROBT	(5) ROE	(6) ROA
L.LPROBT	0.517*** (0.132)			−0.214*** (0.048)		
L.ROE		0.079** (0.039)			0.546*** (0.068)	
L.ROA			−0.007 (0.014)			0.339*** (0.071)
DEGREE	0.053*** (0.012)	0.017 (0.016)	0.001 (0.002)	0.056** (0.028)	0.012*** (0.005)	0.001** (0.001)
MASTER	−0.004 (0.004)	−0.008 (0.007)	−0.000 (0.001)	0.017 (0.016)	0.004 (0.003)	0.001** (0.000)
PhD	−0.053*** (0.007)	−0.003 (0.003)	−0.004** (0.002)	−0.031** (0.014)	−0.001 (0.002)	−0.006 (0.000)
MGTSIZE	−0.019 (0.012)	0.002 (0.004)	0.001 (0.001)	−0.005 (0.017)	−0.003 (0.003)	−0.001 (0.000)
LBSIZE	−0.000 (0.017)	−0.712 (0.698)	−0.938*** (0.255)	0.188*** (0.037)	0.917*** (0.236)	0.228** (0.106)
GDPG	−0.001 (0.004)	0.008** (0.004)	0.002*** (0.001)	−0.034 (0.024)	0.002 (0.004)	0.000 (0.001)
INF	0.013*** (0.002)	0.005*** (0.001)	0.000 (0.000)	0.008 (0.010)	0.002 (0.002)	0.000 (0.000)
INTR	−0.022*** (0.003)	−0.003 (0.003)	−0.004*** (0.001)	−0.007 (0.016)	−0.002 (0.003)	−0.000 (0.000)
Constant	5.875*** (1.451)	0.233 (0.196)	0.280*** (0.064)	12.033*** (0.970)	0.389** (0.165)	0.057** (0.023)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	148	148	148	57	57	57
Wald Chi	602.8	715.51	60.47	81.67	45.07	145.07
[prob]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Arellano Bond						
Order 1	[0.012]	[0.013]	[0.061]	[0.001]	[0.004]	[0.043]
Order 2	[0.220]	[0.735]	[0.622]	[0.212]	[0.611]	[0.572]
Sargan	[0.966]	[0.972]	[0.898]	[0.166]	[0.737]	[0.619]
Group (Banks)	24	24	24	9	9	9

Note: Robust standard errors in parentheses; Prob. values in square brackets. ***$p < 0.01$; **$p < 0.05$; * $p < 0.1$
Source: Author's estimate (2018)

Table VI Regression results from GMM estimation (local vs foreign owned banks)

VARIABLES	(1) LPROBT	(2) ROE	(3) ROA	(4) LPROBT	(5) ROE	(6) ROA
L.LPROBT	0.009 (0.051)			0.677*** (0.202)		
L.ROE		0.162*** (0.057)			0.206*** (0.052)	
L.ROA			0.018 (0.069)			0.054** (0.028)
DEGREE	0.056** (0.027)	0.012* (0.007)	0.015** (0.008)	0.036*** (0.013)	0.035** (0.016)	0.029** (0.014)
MASTER	0.015 (0.016)	0.002 (0.004)	0.003 (0.002)	−0.002 (0.003)	−0.002 (0.009)	−0.001 (0.005)
PH.D	−0.069*** (0.013)	−0.001 (0.003)	−0.000 (0.001)	−0.011** (0.005)	−0.004 (0.007)	−0.002 (0.003)
MGTSIZE	0.011 (0.023)	0.004 (0.006)	−0.004 (0.006)	−0.007 (0.010)	−0.006 (0.012)	0 (0.003)
LBSIZE	−0.084*** (0.032)	0.029*** (0.008)	−0.008 (0.011)	0.087** (0.042)	0.030** (0.014)	0.003 (0.013)
GDPG	0.051** (0.024)	0.008 (0.006)	−0.001 (0.001)	−0.018 (0.023)	0.010 (0.010)	0.003 (0.002)
INF	0.023*** (0.008)	0.004* (0.002)	0.004*** (0.000)	−0.002 (0.002)	0.004 (0.004)	0.000 (0.001)
INTR	−0.079*** (0.014)	−0.001 (0.003)	0.000 (0.002)	−0.002 (0.013)	−0.010 (0.006)	−0.002 (0.002)
Constant	14.250*** (0.912)	0.370* (0.196)	0.091 (0.135)	6.303*** (2.148)	−0.778** (0.346)	0.015 (0.245)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	95	95	95	110	110	110
Wald Chi	100.25	47.6	39.55	338.14	41.6	32.53
[prob]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]
Arellano Bond						
Order 1	[0.001]	[0.044]	[0.032]	[0.072]	[0.024]	[0.003]
Order 2	[0.421]	[0.325]	[0.296]	[0.184]	[0.928]	[0.726]
Sargan	[0.238]	[0.471]	[0.908]	[0.946]	[0.991]	[0.390]
Number of Bank	13	13	13	15	15	15

Note: Robust standard errors in parentheses; Prob. values in square brackets. ***$p < 0.01$; **$p < 0.05$; * $p < 0.1$
Source: Author's estimate (2018)

experience a 3.1 per cent reduction in LPROBT 1 per cent significance level. In Table V, the impact of diversity of educational qualifications of board members on profitability is further analyzed among locally owned and foreign-owned banks in Ghana. Whiles Models 1, 2 and 3 as contained in Table VI, regress performance (LPROBT, ROE and ROA) on the diversity of

board members' education variables as well as the other variables in equation (1) for all locally owned banks, models 4, 5 and 6 estimate equation (1) for all foreign-owned banks. The result shows that ownership of banks in Ghana does not support convergence theory. Thus, growth in profit is not shared regardless of the ownership structure. This is because of the absence of intense competition that can bring excess profits to competitive levels in the Ghanaian banking sector. Again, both locally owned and foreign-owned banks experience increment profit when there is a unit increase in the number of board members with first degrees. On the contrary, there is evidence of a significant negative effect of Ph.D. on profitability for both locally owned and foreign-owned. A positive impact of LBSIZE on profitability indicators LPROBT (ROE) with an elasticity of 0.087 (0.035) unit increase is found among foreign-owned banks at 5 (1) per cent significance level. Local banks show unsystematic results along the profitability indicators. This indicates that the impact of LBSIZE is unidirectional. While GDPG and INF affect profitability positively for locally owned banks both at 5 and 1 per cent significance levels respectively, INTR affects profitability negatively at 1 per cent significance level for locally owned banks. The positive impact of GDPG and INF on local banks' profitability suggests that poor economic conditions have the propensity of worsening quality of loan portfolio, thereby reducing local banks' profitability. The findings parallel other studies by Athanasoglou *et al.* (2008), Demirgüç-Kunt and Huizinga (1998) and Calza *et al.* (2003).

5. Discussions, recommendations and implications

To estimate the impact of diversity of board members' educational qualifications on financial performance during the period from 2001 to 2016, the present study employs SGMM as an econometric model in carrying out the analysis. The study reveals the following: first, the empirical evidence reveals that in Ghana, banks' profits diverge. The paper, therefore, concludes that there is not an intense competition that can bring excess profits to competitive levels in the Ghanaian banking sector. This finding further supports and validates the empirical work of Bulut *et al.* (2015). This seems to suggest that there is imperfect competition in the Ghanaian banking market. Ghanaian banking market appears to exhibits oligopolistic market biases. The results suggest that there is significant persistence of profit from one year to the next. If a bank earns an excess profit in the current year, its expected profit for the following year includes a sizeable proportion of the current year's excess profit. Second, the result, therefore, suggests that current year profits made by the banks in Ghana are a function of the previous year's profit. This implies that banks in Ghana demonstrate a sustained profit. Third, the result of the current study suggests that educational qualification of board members is relevant to banks' performance. Across all the models estimated, a number of board members with a first degree have a significant positive impact on performance as measured by their profitability indicators. Thus, a 1-unit increase in the number of board members with a first degree would result in an increase in profitability. The opposite is the case for board members with PhD, i.e. 1-unit increase in the number of board members with PhD would result in an increase in profitability. A similar relationship is also established for the Master's degree and profitability. Besides, the study result shows that LBSIZE is positively associated with profitability during the period under review. Whiles, a positive relationship is found between INF and profitability, a negative relationship is also found between INTR and profitability. Furthermore, varied and interesting results are produced when the data is further decomposed into field orientations (non-listed banks and listed banks) on one part and ownership (local and foreign banks) on the other part. Although varied results are produced, the overall effect is not different from earlier findings. Finally, the study finds a positive relationship between GDPG and INF on local banks' profitability.

From the findings of the study, the authors recommend the following strategic managerial and policy implications:

5.1 Managerial implications

The findings of this study attempt to suggest varied and important lessons for banks that seek to enhance and maximize their profit share in the market. First, the estimation results suggest there is significant persistence of profit from one year to the next. If a bank earns an excess profit in the current year, its expected profit for the following year includes a sizeable proportion of the current year's excess profit. This, therefore, suggests that the management of these banks (local and foreign) should focus on the best practices that could increase profit and thereby maximize firm values. Second, the positive relationship between board members with first degree and profitability. This indicates that owners of these banks should spend less of their limited resources in appointing board members with masters' degree and PhD since their contributions to profitability would not be enough to compensate for such investment. Third, bank size which represents either the largeness or smallness of the bank has a significant and positive impact on profitability. This implies that larger banks are more likely to extend more credit facilities to businesses, hence the profit. Studies by Demirguc-Kunt and Huizinga (2000) and Smirlock (1985), which find a direct association between size and banks' performance, run parallel to the present study.

5.2 Policy implication

The results of' this study have some policy implications for the central bank and other regulators. First, the lack of convergence toward the mean signifies inadequacy of competition that could bring performance to competitive levels (Nath and Gruca, 1998). This adds to call for pro-convergence policies to be pursued by regulators. Such policies when pursue will help increase competition in the banking sector. Pro-convergence policies are effective in eliminating excess profit eventually. Second, the profits of banks in Ghana are not short-lived and are therefore not susceptible to shocks. This result, therefore, suggests that investment education should be pursued to attract both local and foreign investors to invest in the banking sector. Finally, favorable conditions that would help promote GDPG and INF which are not under the management control should be considered and pursued. A positive relationship between GDPG and INF on local banks' profitability as revealed by the study, suggests that poor economic conditions have the tendency of worsening quality of loan portfolio, thereby reducing bank profitability. Policymakers should ensure that economic conditions are improved.

5.3 Limitation and future research

A major limitation of this study hinges on the generalization of the result. The results are based on a sample of banks in Ghana which form one category of financial institutions in Ghana. Nevertheless, banks comprise a substantial proportion of the financial institutions in Ghana. The next drawback focuses on the indicators used for both bank- and country-specific variables in the study's investigation stage. The study failed to address all these characteristics. Finally, the findings of this research are applicable only within the Ghanaian context. Applying data from various countries both advanced and less developed economies amid normal and recession cycles surely deserve attention in future research.

Notes

1. www.worldbank.org/en/country/ghana/overview
2. Board size was originally included in the analysis but was later dropped due to high collinearity with DEGREE and MASTERS.
3. All estimations are done with STATA 15.
4. Along with models 4 and 6 of Table IV, model 2 estimates the full specification of equation 1.

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