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Preprint

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Suggested Citation: Adeabah, David (2018) : CEO power and board structure of banks: a developing country's perspective, ZBW – Leibniz Information Centre for Economics, Kiel, Hamburg

This Version is available at:

<https://hdl.handle.net/10419/191529>

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CEO power and board structure of banks: a developing country's perspective

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Abstract

This study examines the implications of CEO power on the board structure of banks in the Ghanaian banking industry. Using a unique hand-collected dataset in respect of 21 commercial banks in Ghana for the 2009 – 2017 periods, the results show that CEO power underscores the absence or lack of gender composition of bank boards and constrains independent directors, while incentivizing larger board size in banks. Meanwhile, ownership structure and listing status critically underpin the CEO power effect on bank board structure, such that the actual sign of the marginal effect of CEO power on bank board structure varies with ownership structure and listing status. Overall, the study contributes to the understanding of the global antecedent of bank corporate governance (i.e. board structure) by providing an understanding of the implications of social connection hypothesis on bank board structure in a developing country's context.

JEL classification: G21, G30, G32

Keywords – CEO Power; Board Structure; Gender Diversity; Board Size; Board Independence; Social Connection

1. Introduction

Given that changes to corporate governance regulations is a ‘social welfare decision’ (Erkens *et al.*, 2012, p. 391), the structure of a bank’s board speaks volume; serving as the channel through which governments ensure bank safety (Onali *et al.*, 2016), the constraining mechanism to agency conflict (Weisbach, 1988; Hermalin and Weisbach, 2003) and a ‘critical resource’ for business success (Adeabah *et al.*, 2018). However following 2007/2008 global financial crisis, numerous stakeholders (i.e. regulators, shareholders, and policymakers) have raised issues with the *fit and proper* of existing governance structure for monitoring banking institutions (Ross and Crossan, 2012, Aebi *et al.*, 2011). In this paper, we investigate how CEO power affects the board structure of banks. Specifically, we investigate how CEO power affect gender diversity, independence and size structure of a bank’s board. We take the analysis further to investigate the channel through which CEO power affects bank board structure.

In prior studies, some aspect of the implications of CEO power on the structure of bank board have been examined only recently (e.g. Booth *et al.*, 2002; Laux, 2008; Pathan and Skully, 2010; Ting *et al.*, 2017). Existing banking evidence notes that the performance effect of CEO power on board gender diversity (in Chinese banks) depends critically on CEO power dimensions (Ting *et al.*, 2017). Likewise (for US banking holding companies), the performance effect of CEO power over bank board independence is non-existent (Pathan and Skully, 2010). To date, available empirical studies have not assessed the implications of CEO power for bank board structure in a developing country’s perspective specifically, sub-Saharan Africa. Munisi *et al.* (2014) examine the exogenous effect of ownership structure on corporate board size using data on listed firms from 12 sub-Saharan Africa countries. Fiador *et al.* (2012) examine firm-level determinants of corporate board structure in 4 sub-Saharan Africa countries. Indeed, to the best of our knowledge no previous research examines issues concerning how CEO power affect board structure of banks from a developing sub-Saharan African country’s perspective.

This gap is interesting because the institutional settings within which banking institutions in Africa operate is significantly different. While in developed economies, the firms’ internal governance framework has the complementary effort of an effective and efficient external corporate governance landscape, the situation is generally different in sub-Saharan Africa (Boubakri *et al.*, 2005). In most developing countries the external corporate governance mechanism is simply non-existent (Mishra, 2011), creating over-reliance on internal corporate governance framework (Munisi *et al.*, 2014). As evidence above Kaufmann *et al.* (2009) note that there is prevalence of underdeveloped capital market, high government intervention and relatively low regulatory quality. As such, the empirical results of Ting *et al.* (2017) and Pathan and Skully (2010) could not be generalized beyond China and the United States respectively, to Ghana with a developing financial sector, which is predominantly banking institutions. Thus, a study from a developing country’s perspective is important in understanding the global antecedent of bank corporate governance (i.e. board structure) by providing an understanding of the implications of social connection hypothesis on bank board structure.

We use a unique hand-collected dataset on both listed and non-listed universal banks for the period 2009 – 2017. Our analysis shows that CEO power decreases the gender composition of bank board. This result reveals a very important feature of CEO power on banks’ board. Thus, CEO power substitutes for gender diversity on banks’ board. Another seemingly important

implication of the negative relation between CEO power and gender diversity is that ‘scratch my back’ effect dampens voluntary efforts of banks towards achieving a gender-diversified board. Further, we find that CEO power in banks reduce the independence of board significantly, suggesting that CEO power benefit minority shareholders in the presence of an (overly) independent board. As a result, CEO power may act as an effective constraining mechanism on wealth transfer in banks with (more) independent directors. Finally, we find that CEO power incentivize larger board size in banks. The interaction effect of CEO power and ownership structure is negative for board gender but positive for both board independence and board size. Meanwhile, the interaction effect of CEO power and listing status is positive for board gender diversity and negative for both board independence and board size.

Our paper contributes to the literature on bank board structure in several ways. First, this paper is the first of its kind to examine the implications of CEO power on bank board structure in a developing country’s perspective specifically sub-Saharan Africa. Second, our dataset affords us a unique opportunity to examine the determinants of bank board structure post 2007/2008 financial crisis. Third, our paper broadens understanding of the implications of social connection hypothesis in the banking industry. Further, our paper explains the absence or lack of gender diversified board in banks by showing the detrimental effect of CEO power towards the voluntary efforts of banks in achieving a gender-diversified board. The results also significantly broaden our understanding by showing that notwithstanding the regulatory environment of banks, CEO power influence board selection process in the areas of gender diversity, board independence and board size. These results complement and extend existing bank evidence in the literature (e.g. Pathan and Skully, 2010) and thus have important policy implication for the design of corporate boards in banks.

The remainder of the paper is as follows. Section 2 discusses related literature and develops testable hypotheses. Section 3 sets out the data, empirical models and econometric estimation techniques used. Section 4 details elements of the results and discussion. Section 5 presents evidence of additional analysis, while section 6 documents the robustness of the results. Section 7 concludes.

2. Related literature and hypotheses development

In this section, we discuss related literature and develop testable hypotheses. Our testable hypotheses is based broadly on what we call the *social connection hypotheses* of board structure, which reflects the views of Adeabah *et al.* (2018), Schmidt (2015) and Chikh and Filbien (2011). The *social connection hypotheses* argue that executive directors may have private benefits to be satisfied as they hold knowledge and information critical for an organizational success (Faleye, 2015, p.59), as such this incentive creates what we call ‘scratch my back’ effect wherein the CEO becomes powerful.

2.1. CEO power and board gender diversity

Board gender diversity is believed to be a critical and economically significant resource that leads to optimal efficiency in banks (Adeabah *et al.*, 2018). Nonetheless, empirical studies’ conclusions about the value relevance of gender composition on banks’ board is complex (Owen and Temesvary, 2018) and dependent on CEO power dimension (Ting *et al.*, 2017).

With regard to gender-diversified board, Ting *et al.* (2017) show that CEOs structural and expert powers complement the voluntary effort of banks, but CEOs ownership power is detrimental to this effort. Elsewhere, only a gender-diversified board provides better monitoring to reduce perks by CEO power (Ting and Huang, 2018) suggesting an inverse relation between CEO power and board gender diversity. Meanwhile, in non-bank evidence Usman *et al.* (2018) advance that board gender diversity complements CEO power. The authors attribute this to more pressure faced by female directors to align with management.

Available empirical account also suggests that board gender diversity strengthens managerial accountability through better monitoring ability of female directors, improved attendance at board meetings and CEO responsibility (Nguyen *et al.*, 2015; Adams and Ferreira, 2009). As a result, in the monitoring function of the board, gender diversity complements board independence. Indeed, Bøhren and Staubo (2016) show that female directors are generally independent directors. Further, board gender diversity should improve the board of directors' channel of communication, such as improving information processing (Nguyen *et al.*, 2015). As a result, cutting-back on the private benefits of the CEO that needs to be satisfied to improve information flow on the board.

Based on the discussion above, we might expect CEO power to underscore the absence or lack of gender diversity on bank boards. Therefore, the hypothesis related to board gender diversity is as follows:

Hypothesis 1 (H₁): CEO power is negatively and significantly related to board gender diversity in banks.

2.2. CEO power and board independence

Recent studies argue that an (overly) independent board could be detrimental for the efficient monitoring and advisory functions of a bank's board (Andres and Vallelado, 2008). Consistent with this, during the 2007/2008 financial crisis investors punished financial institutions with excessively independent board (Erkens *et al.*, 2012). Thus for banks' boards to be efficient at their dual role of monitoring and advisory, and be beneficial for minority shareholders, there must be a lack of some independence of the board of directors (Laux, 2008).

Consistent with this, Guo and Masulis (2015) show that greater board independence leads to more rigorous CEO monitoring and discipline, causing high CEO turnover and necessitating a more generous severance packages, and larger stock option grants (Laux, 2008). Similarly, Baldenius *et al.* (2014) argue that regulations seeking to strengthen the monitoring role of boards could be harmful. Accordingly, CEO power is negatively related to a more heavy-monitor board (Combs *et al.*, 2007). This may be due to the ineffectiveness of outside-dominated board in constraining CEO power (Guthrie *et al.*, 2012), as suggested by the managerial power hypothesis.

Meanwhile, Pathan and Skully (2010) argue that stricter regulatory environment provides sufficient constraints on bank managers from control of the board selection processes, thus making the performance effect of CEO power over bank board independence non-existent. An important observation from this finding is that, regulatory monitoring serves as effective managerial disciplinary tool (Palvia, 2011) as well as substitute for the performance effect of independent directors on banks board to constrain CEO power to engage in corporate misconduct

(Altunbaş *et al.*, 2018; Booth *et al.*, 2002), which Laux (2008) argues that it is beneficial for shareholders wealth maximization. Therefore, the second hypothesis (H₂) related to board independence is as follows:

Hypothesis 2 (H₂): CEO power is negatively and significantly related to board independence in banks

2.3. CEO power and board size

Ning *et al.* (2010) argue that there is more to the factors that significantly affect board size in firms than merely value maximization and resource dependency. As evidence Raheja (2005) notes that board size is a more nuanced function of the directors' and the firm's characteristics. Among these factors found in empirical literature include scope of operation (e.g. Boone *et al.*, 2007; Pathan and Skully, 2010), CEO power (e.g. Combs *et al.*, 2007; Guthrie *et al.*, 2012), among others. Given that in larger boards there is low incentive for each director to secure information and monitor managers, CEOs may favor larger boards (Jensen, 1993, p.865). Consistent with this, an (overly) larger board is a recipe for rigidity, absence of consensus building in the decision making process of the board (Eisenberg *et al.*, 1998).

Conversely, Coles *et al.* (2008) show that large board is beneficial for banks since they have need for advisory because they are heavily debt financed; have greater complexity in operations and are highly regulated. Similarly, Andres and Vallelado (2008) argue that larger board should increase managerial incentive to supervise and improves human capital for advisory services on boards. As such, larger boards have individuals with varying expertise and thus enhance the knowledge base on the board. Larger board offers greater access to external environment and as a result reduces external uncertainties faced by the bank. For example: Nakano and Nguyen (2012), Switzer and Wang (2013) and Lu and Boateng (2018) show that larger board reduces bank credit risks.

Based on the discussion above, we might expect CEO power to incentivize larger board size in banks. Therefore, the hypothesis related to board size is as follows:

Hypothesis 3 (H₃): CEO power is positively and significantly related to board size in banks

3. Data and empirical method

3.1. Data and sample procedure

The sample is a unique hand-collected dataset of 148 observations in respect of 21 commercial banks in Ghana for the 2009 – 2017 periods. We use the year 2009 as our beginning sample period because we investigate the implications of CEO power on bank board structure in a post 2007/2008 banking environment. The analysis is based on a unique hand-collected dataset in respect of 21 commercial banks operating in Ghana as at December 31, 2017. Among these banks, 57% are foreign owned and 48% are listed on the Ghana Stock Exchange (GSE). Although at the end of December 2017 there were 33 banks in operations, we arrive at the final sample of 21 banks by using the following criteria: first, we restrict our sample to banks that had gender diversified boards at the end of each financial year. This restriction meant excluding bank-year observations with no female representation of board. Second, our sample was also restricted to banks that had their full annual report readily available on their websites. This

restriction reduced the banks included in the sample to 21 as those banks that published only the financial statement part of their annual report were excluded.

3.2. Board structure measures

Following Pathan and Faff (2013), Guo and Masulis (2015), Ting *et al.* (2017), Owen and Temesvary (2018) and Adeabah *et al.* (2018) board structure of banks used for the empirical analysis include board gender diversity, as proxied by Blau index; board independence, as proxied by the number of non-executive directors and board size, as measured by the number of directors on the board.

3.3. Proxy for CEO Power

Given that CEO power is not easily observable, we follow prior studies and compute an index to proxy for CEO power. Following Adeabah *et al.* (2018), we define powerful CEO as the CEO with other executive directors on a board. We argue that the implications of social connections on monitoring may create ‘scratch my back’ effect, a view which is consistent with Schmidt (2015). Particularly, Chikh and Filbien (2011) show that social connections lead to lower monitoring and more freedom for the CEO. Thus, consistent with Chikh and Filbien (2011) view, we compute CEO Freedom Index, as a proxy for CEO power. CEO Freedom Index is measured as follows.

$$CEO\ Freedom\ Score_{i,t} = \frac{Social\ connections\ on\ board_{i,t}}{Board\ size_{i,t}} \quad (1)$$

where subscript i denotes individual banks ($i = 1, 2, \dots, 21$) and t denotes year ($t = 2009, 2010, \dots, 2017$); $Social\ connections\ on\ board_{i,t}$ is the number of executive directors on a board excluding the CEO; $Board\ size_{i,t}$ is the total number of directors on a board.

Each CEO freedom score is normalized on a scale of 1 to 7 to allow for easy comparison of CEO Freedom across banks, where 1 and 7 are less powerful CEO and more powerful CEO respectively. The conversion is done as follows.

$$CEO\ F - Index_{i,t} = 6 \left[\frac{CEO\ Freedom\ score_{i,t} - Sample\ minimum}{Sample\ maximum - Sample\ minimum} \right] + 1 \quad (2)$$

where sample minimum and maximum are the lowest and highest CEO freedom score for bank-year observation covered in the sample.

3.4. Control variables

Following Adeabah *et al.* (2018), we included bank size ($\ln TA$), loan-to-deposit ratio (LDR), knowledge of local market dynamics ($\ln KLMD$), ownership structure (OWN) and listing status (GSE) to control for omitted variables bias. Bank size is measured as the natural logarithm of the total assets of each bank at the financial year-end. Boone *et al.* (2007) and Pathan and Skully (2010) show that size is a significant factor affecting the composition and structure of bank board. Consistent with the *scope of operation hypothesis*, we expect the coefficient on $\ln TA$ to be positive for both board size and board independence of banks but negative for board gender diversity. Loan-to-deposit ratio (LDR) refers to the ratio of net loans and advances to net deposit from customers. Similar to Ayadi *et al.* (1998), we include LDR as early-warning performance indicator of the risk of bank failure. We expect the coefficient on LDR to be positive for board

gender diversity, board independence and board size of banks. Knowledge of local market dynamics (*lnKLMD*), as proxied by bank age (i.e. the number of years since the incorporation of each bank) reflects the effect of ‘learning by doing’ on the board structure of banks (Ayadi *et al.*, 1998). Consistent with *learning by doing hypothesis* which argues that banks are relatively efficient when they are old, we expect that the coefficient on *lnKLMD* to be positive for board gender diversity, but negative for both board independence and board size of banks. Ownership structure (*OWN*) is measured as a dummy variable that takes the value of 1 to represent foreign bank if 50% or more controlling interest in a bank is foreign owned at a financial year-end and 0 otherwise. Listing status (*GSE*) is measured as a dummy variable that takes the value of 1 to represent a bank listed on the GSE, and 0 otherwise. Following Boone *et al.* (2007) and Pathan and Skully (2010), we use lag one value of Blau index, board independence, board size and return on assets (*ROA*) in equations (3) to (5) to reduce the problem of endogeneity in the independent variables.

[Insert Table 1 about here]

3.5. Empirical model

To determine the implication of CEO power on bank board structure, we formulate our model in the form:

$$Y = X\beta + \varepsilon$$

where Y is an $n \times 1$ vector, X is an $n \times (k+1)$ design matrix of bank CEO power and control variables, β is a $(k+1) \times 1$ vector of parameters and ε is an $n \times 1$ vector of residuals for $n, k \in \mathbb{Z}^+$. Specifically, we examine the determinants of bank board structure by specifying the model:

$$\text{Board Structure}_{i,t} = \beta_0 + \beta_1(\text{CEO } F - \text{INDEX})_{i,t} + \sum \beta_i \text{Controls}_{i,t} + \varepsilon_{i,t} \quad (3)$$

where \ln denotes natural logarithm, subscript i denotes individual banks ($i = 1, 2, \dots, 21$) and t denotes year ($t = 2009, 2010, \dots, 2017$). ε denotes the remaining disturbance term. *Board Structure* represents board gender diversity (*BLAUINDEX*), board independence (*BOARDIND*) and board size (*BOARDSIZE*) of banks included in our sample; *Controls* are the matrix of bank-specific variables that we controlled for and defined in Table 1 which include *TA* = bank size; *LDR* = loan-to-deposit ratio; *KLMD* = knowledge of local market dynamics; *OWN* = ownership structure; *GSE* = listing status.

3.6. Estimation method

Following prior studies (e.g. Pathan and Skully (2010) and Combs *et al.* (2007)) equation (3) for board gender diversity, board independence and board size respectively, are estimated using pooled ordinary least squares (Pooled OLS). To ensure robustness of the estimates to the presence of heteroskedasticity, we adjust the variance-covariance matrix with Huber (1964) or White (1980) estimators. By employing Petersen (2009) procedure, we clustered observations by both banks and years to resolve random unobserved serial and cross-sectional correlation respectively (if any) in residuals. We recognize that endogeneity is generally a concern in corporate governance literature, as such, consistent with prior studies including Pathan and Skully (2010), we included lagged one values of *BOARDSIZE*, *BOARDIND*, *BLAUINDEX*

and ROA as control in the statistical analysis of the impact of CEO power on bank board structure.

3.7. Descriptive statistics and correlation analysis

Table 2 below presents the descriptive statistics for the various board structure variables, CEO power and bank-specific variables used in our empirical analysis. On board structure variables, Panel A of Table 2 show that the mean (Mdn) board gender diversity (BLAUINDEX) is 0.41 (0.42), with a minimum of -0.09 and a maximum of 0.87. The mean (Mdn) natural logarithm of the number of non-executive directors (*ln*BOARDIND) is 4.25 (4.29), with a minimum of 3.51 and a maximum of 4.51. The mean (Mdn) natural logarithm of the number of directors on a bank's board (*ln*BOARDSIZE) is 2.18 (2.20), with a minimum of 3.51 and a maximum of 4.51. In Panel B, the mean (median) of CEO *F*-INDEX is 2.82 (2.59), with a minimum of 1 and a maximum of 6.95. This maximum value of CEO *F*-INDEX suggests that CEOs on bank boards in our sample are relatively powerful. In Panel C of Table 2, the mean bank size (TA) is GHS 1.9 Billion (US\$ 400 million)¹. The use of natural logarithmic is motivated by the positively skewed distribution of TA. The mean (median) of LDR is 0.63 (0.62), with a minimum of 0.16 and a maximum of 1.47. The mean (median) of KLMD is 28.55 (20.00), with a minimum of 1 and a maximum of 121. Finally, 57% of our sample banks have foreign majority ownership and 48% are listed on the GSE.

[Insert Table 2 about here]

[Insert Table 3 about here]

Table 3 reports the Pearson's correlation matrix among the variables used in the statistical analysis. The correlation coefficients between board structure (BLAUINDEX, BOARDIND, BOARDSIZE) and CEO power (CEO *F*-INDEX) are consistent with our expectations. Generally, multicollinearity among regressors should not be a concern as the maximum value of correlation coefficient is 0.51 which is between knowledge of local market dynamics (*ln*KLMD) and listing status (GSE). However, given that there are high level of collinearity between gender diversity (BLAUINDEX) and board size (BOARDSIZE), we use the lag of board structure variables one at a time in our regression estimation of equation (3) resulting in 6 estimated models overall.

4. Results and discussion

Columns (1) and (2), (3) and (4), and (5) and (6) of Table 4 report the pooled OLS estimation results of Eq. (3) for the impact of CEO power on board gender diversity, board independence and board size respectively. First, we use the Stata user written procedure, '*regcheck*' (Mehmetoglu and Jakobsen, 2017) to ensure that all our models satisfy a variety of diagnostic tests for heteroskedasticity, multicollinearity, normality of residuals, specification, appropriate functional form, and influential observations. We report the test results in Table 4 Panel C. The diagnostic test results show that we have consistent and efficient estimators for all models. The statistically significant test statistics across all estimation models for Wooldridge (2006) test for first-order autocorrelation (Wooldridge AR(1)) indicates the presence of first-order serial

¹ Ghana Cedis (GHS) to US Dollar (US\$) conversion was done using exchange rate at 4.75/US\$1.

correlation problem in the panel data, suggesting the presence of an ‘unobserved bank-fixed effect’ (Wooldridge 2002, p.176), thus motivating the inclusion of bank fixed-effect and year fixed-effect. In Table 4 Panel B, the regression equations are well fitted with adjusted R-squared of 37.0% and 38.7%, 65.4% and 65.8%, 42.6% and 38.6% respectively for BLAUINDEX, BOARDIND, and BOARDSIZE regressions, with statistically significant *F*-statistics.

[Insert Table 4 about here]

4.1. CEO power and bank board structure

Table 4 Panel A reports the regression results of the impact of CEO power on board structure of banks. Columns (1) and (2) report the estimation results for gender diversity on bank’s board, columns (2) and (3) report the results for board independence, and finally, columns (5) and (6) reports the results for board size. Overall, CEO power tends to be detrimental for the voluntary effort of banks towards achieving a gender diversified board but should benefit minority shareholders in the presence of an (overly) independent board by acting as constraining mechanism, while incentivizing larger board size in banks.

With regard to board gender diversity, the coefficient on CEO *F*-INDEX (-0.033/-0.031) is negative and statistically significant at 10 per cent level in columns (1) and (2). The statistically significant negative coefficient on CEO *F*-INDEX is consistent with H₁, suggesting that CEO power is detrimental for the gender composition of bank board of directors. This result reveals a very important feature of CEO power on banks’ board. Thus, CEO power substitutes for gender diversity on banks’ board, as such cast doubt on the complementarities of board gender diversity and CEO power as suggested by Usman *et al.* (2018). Another seemingly important implication of the negative relation between CEO power and gender diversity is that ‘scratch my back’ effect dampens voluntary efforts of banks towards achieving a gender-diversified board. In terms of the economic significance, gender diversity on bank board would reduce by approximately 0.97 per cent [$\ln(1.44)*0.033/1.24=0.0097$] when CEO power of banks included in the sample increase by one standard deviation.

Regarding board independence, the coefficients on CEO *F*-INDEX (-0.132/-0.133) in columns (2) and (3) are negative and statistically significant at 1 per cent level. The statistically significant negative coefficient supports our hypothesis H₂ that CEO power reduces board independence of banks, which Laux (2008) argues that it is beneficial for shareholders wealth maximization. This result complements and extends Pathan and Skully (2010) findings of no statistically significant negative relation between CEO power and bank board independence. Our results demonstrate that CEO power in banks reduce the independence of board significantly, suggesting that CEO power should benefit minority shareholders in the presence of an (overly) independent board. As a result, CEO power may act as an effective constraining mechanism in banks with (more) independent directors. Economically, CEO power has considerable impact on board independence. For example, an increase of one standard deviation in CEO power would reduce board independence by approximately 3.91 per cent [$\ln(1.44)*0.133/1.24=0.0391$].

With regard to hypothesis H₃, which examines the relation between CEO power and board size, the coefficients on CEO *F*-INDEX in columns (5) and (6) are positive but not statistically significant at conventional levels. Overall, the positive coefficient on CEO *F*-INDEX is

consistent with H₃ that CEO power incentivizes larger board size in banks; however the evidence is not statistically significant.

4.2. Bank-specific variables and bank board structure

Concerning the relation between bank size and board structure, the coefficients on *lnTA* is negative for board gender diversity (-0.284/-0.291) but positive for both board independence (0.237/0.211) and board size (0.154/0.171). All estimations in columns (1) to (3) and columns (4) to (6) are statistically significant at 5 per cent and 10 per cent levels respectively and consistent with the findings of Boone *et al.* (2007) and Pathan and Skully (2010). The negative and statistically significant coefficient on *lnTA* for board gender diversity suggests that a bank's economies of scale acts as substitute for the voluntary efforts towards gender diversified boards. Similarly, the positive and statistically significant coefficient on *lnTA* for board independence and size suggests that size of a bank complements its board role of monitoring and control. The impact is equally economically significant. For instance, an increase of one (sample) standard deviation in bank size would decrease in gender diversity by approximately 20.42 per cent $[(0.87)*0.291/1.24 = 0.2042]$, but increases board independence and board size by 16.63 per cent $[(0.87)*0.237/1.24 = 0.1663]$ and 12.0 per cent $[(0.87)*0.171/1.24 = 0.120]$ respectively.

Further, the estimated coefficient on LDR is positive (0.281/0.265) and statistically significant at 10 per cent level for gender diversity on bank board. This finding shows that increase in loan-deposit ratio is a good business case for a gender-diversified board. The coefficient is also economically significant, with an increase of one (sample) standard deviation in loan-deposit ratio increasing gender diversity by approximately 5.67 per cent $[(0.25)*0.281/1.24=0.0567]$. The estimated coefficients are negative for both board independence and board size but not statistically significant.

Similarly, the estimated coefficient on *lnKLMD* is positive for gender diversity (0.318) on bank board and statistically significant at the 10 per cent level. The positive coefficient on *lnKLMD* for gender diversity demonstrates that gender diversity complements the relative knowledge banks have on local market dynamics, as such to be competitive and efficient, relatively younger banks in the local market place are encouraged to have gender diversified board. The significant negative coefficient on *lnKLMD* for board independence (-0.372/-0.372) and board size (-0.297/-0.359) demonstrates that an increase in bank age provides superior 'learning by doing' effect, and this substitutes the monitoring and advisory role of independent director and shrinks the size of a bank's board. Economically, 'learning by doing' has considerable impact on bank board independence and board size. For example, board independence in banks would reduce by approximately 29.7 per cent $[(0.99)*0.372/1.24 = 0.297]$ and board size would shrink by approximately 28.58 per cent $[(0.99)*0.358/1.24 = 0.2858]$ when the age of banks included in the sample increase by one standard deviation.

Regarding the ownership structure and board structure relation, we find that foreign banks improve that gender composition of boards but does not favour stringent monitoring; hence have lesser board independence than domestic banks. Further, we find that board size of foreign banks tend to be small. In particular, we find a positive relation between ownership structure and gender diversity, but a negative relation between ownership structure and board independence, and between ownership structure and board size. These findings suggest that bank structure of banks is ownership structure specific. With regard to listing status, we find no evidence that the boards of banks included in the sample are listing status specific.

5. Additional analysis

As additional analysis, we take the analysis further to investigate whether the channel through which CEO power affects bank board structure. Specifically, we examine the intermediating effect of ownership structure and listing status on the relation between CEO power and bank board structure.

5.1. Intermediating effect of ownership structure and listing status

We examine the channel through which CEO power influence bank board structure. As such, we incorporate two interaction terms of CEO power and ownership structure and listing status in equation (4) below:

$$\begin{aligned} \text{Board Structure}_{i,t} &= \beta_0 + \beta_1(\text{CEO } F - \text{INDEX})_{i,t} + \beta_2(\text{CEO } F - \text{INDEX} * \text{OWN})_{i,t} \\ &+ \beta_3(\text{CEO } F - \text{INDEX} * \text{GSE})_{i,t} + \sum \beta_i \text{Controls}_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (4)$$

Table 5 reports the results of equation (4) above where we control for the intermediating effect of ownership structure and listing status on the relation between CEO power and bank board structure. The statistically significant coefficients on the interaction terms indicate that ownership structure and listing status have had some effect in the relation between CEO power and bank board structure.

From Table 5 Panel A, the actual sign of the marginal effect of CEO power on bank board structure is positive for board gender diversity (0.036/0.032), but negative for both board independence (-0.192/-0.188) and board size (-0.054/-0.046). The interaction effect of CEO power and ownership structure (CEO *F*-INDEX*OWN) is negative for board gender diversity (-0.147/-0.115) but positive for both board independence (0.120/0.119) and board size (0.142/0.111). Meanwhile, the interaction effect of CEO power and listing status (CEO *F*-INDEX*GSE) is positive for board gender diversity (0.062/0.075) and negative for both board independence (-0.051/-0.047) and board size (-0.033/-0.037). Overall this evidence signifies that, the performance effect of CEO power on board gender diversity and board size depend critically ownership structure and listing status, such that the actual sign of the marginal effect of CEO power on bank board structure varies with ownership structure and listing status.

[Insert Table 5 about here]

6. Robustness tests

As a test of robustness, the estimation process was repeated using alternative estimation techniques used in prior studies.

6.1. Alternative estimation techniques - Prais-Winsten (PW) regression and System GMM

Given that there are criticisms of pooled OLS estimates as being inefficient in the face of panel data since the errors are likely to show ‘panel heteroskedasticity and contemporaneous correlation’(Beck, 2001, p.278), we adopted Prais–Winsten (1954) to test robustness of our findings to panel heteroskedasticity, cross-sectional dependence and first order serial correlation similar to studies by Adeabah et al. (2018) and Pathan and Skully (2010). Table 6 Panel A reports Prais–Winsten (1954) regression estimates for our sample. Very consistent results in

terms of direction and significance of the variable of interest (CEO *F*-INDEX), and the overall predictive power of the models were found. In particular, we find a negative relation between CEO power and Blau index, and between CEO power and board independence, and a positive relation between CEO power and board size.

(Insert Table 6 about here)

Further, we recognize that endogeneity is generally a concern in board structure literature; as such we examine the robustness of our conclusions to unobserved heterogeneity, simultaneity and dynamic endogeneity. Following prior studies (i.e. Wintoki *et al.* (2012), Pathan and Skully (2010), and Duru *et al.* (2016)), we implement Arellano and Bover (1995) and Blundell and Bond (1998) two-step ‘system GMM’ estimation technique with Windmeijer (2005) finite-sample corrected standard errors for equation (3) in section 3.5. Table 6 Panel B reports two-step ‘system GMM’ estimates for our sample. The diagnostic test results show an insignificant AR(2) and Hansen J test statistics signifying no serial correlation in residuals in the equations and that our system GMM estimates are reliable.

In terms of the directional effect of CEO power on bank board structure, the result is consistent for board gender diversity and board size hypotheses, but not consistent with board independence hypothesis. In particular, we find a negative relation between CEO power and Blau index, but a positive relation between CEO power and board independence, and between CEO power and board size. However, none of the relation between CEO power and board structure variables is statistically significant. We argue that given the institutional arrangement of banks, these results do not generally discredit the overall findings regarding the impact of CEO power on bank board structure.

7. Conclusion

In this paper, we investigate how CEO power affects the board structure of banks. Specifically, we investigate how CEO power affects gender diversity, independence and size of a bank’s board of directors. Consistent with our expectations, we find a negative relation between CEO power and Blau index (board gender diversity) and between CEO power and board independence, and a positive relation between CEO power and board size. Meanwhile, ownership structure and listing status critically underpin the CEO power effect on bank board structure. Finally, we find that knowledge of local market dynamics, proxied by bank age and loan-to-deposit ratio are important factors affecting board structure of banks. Overall, the study contributes to the development of the global antecedent of bank corporate governance (i.e. board structure) by providing an understanding of the implications of social connection hypothesis on bank board structure. The study is limited to the Ghanaian banking industry, as such, future studies could look at increasing generalization of the results. Other further research direction would be to look at the macroeconomic determinants of banks’ board structure, with comparative emphasis.

REFERENCES

- Adams, R.B., Ferreira, D., 2009. Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics* 94, 291–309. doi:10.1016/j.resp.2012.06.009
- Adeabah, D., Gyeke-Dako, A., Andoh, C., 2018. Board gender diversity, corporate governance and bank efficiency in Ghana: a two stage data envelope analysis (DEA) approach. *Corporate Governance: The International Journal of Business in Society*. doi:10.1108/CG-08-2017-0171
- Aebi, V., Sabato, G., Schmid, M., 2011. Risk management , corporate governance , and bank performance in the financial crisis. *Journal of Banking and Finance* 36, 3213–3226. doi:10.1016/j.jbankfin.2011.10.020
- Altunbaş, Y., Thornton, J., Uymaz, Y., 2018. CEO tenure and corporate misconduct: Evidence from US banks. *Finance Research Letters* 26, 1–8. doi:10.1016/j.frl.2017.11.003
- Andres, P. de, Vallelado, E., 2008. Corporate governance in banking: The role of the board of directors. *Journal of Banking and Finance* 32, 2570–2580. doi:10.1016/j.jbankfin.2008.05.008
- Arellano, M., Bover, O., 1995. Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics* 68, 29–51. doi:10.1016/0304-4076(94)01642-D
- Ayadi, F.O., Adebayo, A.O., Omolehinwa, E., 1998. Bank Performance Measurement in a Developing Economy: An Application of Data Envelopment Analysis. *Managerial Finance* 24, 5–16. doi:10.1108/03074359810765589
- Baldenius, T., Melumad, N., Meng, X., 2014. Board composition and CEO power. *Journal of Financial Economics* 112, 53–68. doi:10.1016/j.jfineco.2013.10.004
- Beck, N., 2001. Time-series-cross-section data: what have we learned in the past few years? *Annual Review of Political Science* 4, 271–293. doi:10.1146/annurev.polisci.4.1.271
- Blundell, R., Bond, S., 1998. Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics* 87, 115–143. doi:10.1016/S0304-4076(98)00009-8
- Bøhren, Ø., Staubo, S., 2016. Mandatory gender balance and board independence. *European Financial Management* 22, 3–30. doi:10.1111/eufm.12060
- Boone, A.L., Field, L.C., Karpoff, J.M., Raheja, C.G., 2007. The determinants of corporate board size and composition : An empirical analysis. *Journal of Financial Economics* 85, 66–101. doi:10.1016/j.jfineco.2006.05.004
- Booth, J.R., Cornett, M.M., Tehranian, H., 2002. Boards of Directors, Ownership, and Regulation. *Journal of Banking and Finance* 26, 1973–1996. doi:10.1016/S0378-4266(01)00181-9
- Boubakri, N., Cosset, J.C., Guedhami, O., 2005. Postprivatization corporate governance : The role of ownership structure and structure and investor protection. *Journal of Financial Economics* 76, 369–399. doi:10.1016/j.jfineco.2004.05.003
- Chikh, S., Filbien, J.Y., 2011. Acquisitions and CEO power: Evidence from French networks. *Journal of Corporate Finance* 17, 1221–1236. doi:10.1016/j.jcorpfin.2011.06.007
- Coles, J.L., Daniel, N.D., Naveen, L., 2008. Boards : Does one size fit all ? *Journal of Financial Economics* 87, 329–356. doi:10.1016/j.jfineco.2006.08.008
- Combs, J.G., Ketchen, D.J., Perryman, A.A., Donahue, M.S., 2007. The moderating effect of CEO power on the board composition-firm performance relationship. *Journal of*

- Management Studies 44, 1299–1323. doi:10.1111/j.1467-6486.2007.00708.x
- Duru, A., Iyengar, R.J., Zampelli, E.M., 2016. The dynamic relationship between CEO duality and firm performance: The moderating role of board independence. *Journal of Business Research* 69, 4269–4277. doi:10.1016/j.jbusres.2016.04.001
- Eisenberg, T., Sundgren, S., Wells, M.T., 1998. Larger board size and decreasing firm value in small firms. *Journal of Financial Economics* 48, 35–54. doi:10.1016/S0304-405X(98)00003-8
- Erkens, D.H., Hung, M., Matos, P., 2012. Corporate governance in the 2007 – 2008 financial crisis : Evidence from financial institutions worldwide. *Journal of Corporate Finance* 18, 389–411. doi:10.1016/j.jcorpfin.2012.01.005
- Faleye, O., 2015. The costs of a (nearly) fully independent board. *Journal of Empirical Finance* 32, 49–62. doi:10.1016/j.jempfin.2014.12.001
- Fiador, V., Abor, P.A., Abor, J., 2012. How do we explain corporate board structure in sub-Saharan Africa? *International Journal of Business Governance and Ethics* 7, 118. doi:10.1504/IJBGE.2012.047538
- Guo, L., Masulis, R.W., 2015. Board Structure and Monitoring: New Evidence from CEO Turnovers. *Review of Financial Studies* 28, 2770–2811. doi:10.1093/rfs/hhv038
- Guthrie, K., Sokolowsky, J., Wan, K., 2012. CEO Compensation and Board Structure Revisited. *The Journal of Finance* 67, 1149–1168. doi:10.1111/j.1540-6261.2012.01744.x
- Hermalin, B.E., Weisbach, M.S., 2003. Boards of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature, FRB New York - Economic Policy Review. doi:10.3386/w8161
- Huber, P.J., 1964. Robust Estimation of a Location Parameter. *The Annals of Mathematical Statistics* 35, 73–101. doi:10.1214/aos/1176348654
- Jensen, M.C., 1993. The modern industrial revolution and the challenge to internal control systems. *Journal of Finance* 48, 831–880. doi:10.1111/j.1540-6261.1993.tb04022.x
- Kaufmann, D., Kraay, A. & Mastruzzi, M., 2009. Governance matters VIII aggregate and individual governance indicators. Policy Research Working Paper 21, 1–105. doi:10.1080/713701075
- Laux, V., 2008. Board Independence and CEO Turnover. *Journal of Accounting Research* 46, 137–171. doi:10.1111/j.1475-679X.2008.00269.x
- Lu, J., Boateng, A., 2018. Board composition, monitoring and credit risk: evidence from the UK banking industry. *Review of Quantitative Finance and Accounting* 51, 1107–1128. doi:10.1007/s11156-017-0698-x
- Mishra, D.R., 2011. Multiple Large Shareholders and Corporate Risk Taking: Evidence from East Asia. *Corporate Governance: An International Review* 19, 507–528. doi:10.1111/j.1467-8683.2011.00862.x
- Munisi, G., Hermes, N., Randøy, T., 2014. Corporate boards and ownership structure: Evidence from Sub-Saharan Africa. *International Business Review* 23, 785–796. doi:10.1016/j.ibusrev.2013.12.001
- Nakano, M., Nguyen, P., 2012. Board Size and Corporate Risk Taking: Further Evidence from Japan. *Corporate Governance: An International Review* 20, 369–387. doi:10.1111/j.1467-8683.2012.00924.x
- Nguyen, T., Locke, S., Reddy, K., 2015. Does boardroom gender diversity matter? Evidence from a transitional economy. *International Review of Economics and Finance* 37, 184–202. doi:10.1016/j.iref.2014.11.022

- Ning, Y., Davidson III, W. N., Wang, J. 2010. Does optimal corporate board size exist? An empirical analysis. *Journal of Applied Finance*, 20, 57-69.
- Onali, E., Galiakhmetova, R., Molyneux, P., Torluccio, G., 2016. CEO power, government monitoring, and bank dividends. *Journal of Financial Intermediation* 27, 89–117. doi:10.1016/j.jfi.2015.08.001
- Owen, A.L., Temesvary, J., 2018. The performance effects of gender diversity on bank boards. *Journal of Banking & Finance* 90, 50–63. doi:10.1016/j.jbankfin.2018.02.015
- Palvia, A.A., 2011. Banks and managerial discipline: Does regulatory monitoring play a role? *Quarterly Review of Economics and Finance* 51, 56–68. doi:10.1016/j.qref.2010.10.003
- Pathan, S., Faff, R., 2013. Does Board Structure in Banks Really Affect Their Performance? *Journal of Banking & Finance* 37, 1573–1589. doi:10.1016/j.jbankfin.2012.12.016
- Pathan, S., Skully, M., 2010. Endogenously structured boards of directors in banks. *Journal of Banking and Finance* 34, 1590–1606. doi:10.1016/j.jbankfin.2010.03.006
- Petersen, M.A., 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22, 435–480. doi:10.1093/rfs/hhn053
- Raheja, C.G., 2005. Determinants of Board Size and Composition : A Theory of Corporate Boards. *The Journal of Financial and Quantitative Analysis* 40, 283–306. doi:10.1017/S0022109000002313
- Ross, A., Crossan, K., 2012. A review of the influence of corporate governance on the banking crises in the United Kingdom and Germany. *Corporate Governance: The international journal of business in society* 12, 215–225. doi:10.1108/14720701211214098
- Schmidt, B., 2015. Costs and benefits of friendly boards during mergers and acquisitions. *Journal of Financial Economics* 117, 424–447. doi:10.1016/j.jfineco.2015.02.007
- Switzer, L.N., Wang, J., 2013. Default Risk Estimation , Bank Credit Risk , and Corporate Governance. *Financial Markets, Institutions & Instruments* 22, 91–112. doi:10.1111/fmii.12005
- Ting, H.I., Chueh, H., Chang, P.R., 2017. CEO power and its effect on performance and governance: Evidence from Chinese banks. *Emerging Markets Review* 33, 42–61. doi:10.1016/j.ememar.2017.09.005
- Ting, H.I., Huang, P.K., 2018. CEOs’ power and perks: Evidence from Chinese banks. *Journal of Economics and Business* 97, 19–27. doi:10.1016/j.jeconbus.2018.02.003
- Usman, M., Zhang, J., Farooq, M.U., Makki, M.A.M., Dong, N., 2018. Female directors and CEO power. *Economics Letters* 165, 44–47. doi:10.1016/j.econlet.2018.01.030
- Weisbach, M.S., 1988. Outside Directors and CEO Turnover. *Journal of Financial Economics* 20, 431–460. doi:10.1016/0304-405X(88)90053-0
- White, H., 1980. A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica: Journal of the Econometric Society* 48, 817–838. doi:10.2307/2223855
- Windmeijer, F., 2005. A finite sample correction for the variance of linear two-step GMM estimators. *Journal of Econometrics* 126, 25–51. doi:10.1016/j.jeconom.2004.02.005
- Wintoki, J., Linck, J., Netter, J., 2012. Endogeneity and the Dynamics of Corporate Governance. *Journal of Financial Economics* 105, 581–606. doi:10.1016/j.jfineco.2012.03.005
- Wooldridge, J. M., 2002. *Econometric analysis of cross section and panel data*. Cambridge, Massachusetts; London: MIT Press.
- Wooldridge, J. M., 2006. *Introductory econometrics: A modern approach (3rd ed.)*. Mason, OH: Thomson/South Western.

Table 1.

Definition of variables

<i>Variables</i>	<i>Notation</i>	<i>Description</i>	<i>Data Source</i>
<i>Panel A: Board structure variables</i>			
Board gender diversity	BLAUINDEX	A composite index of gender diversity on the board.	Authors' computation
Board independence	BOARDIND	The number of non-executive directors on the board of banks at financial year end.	Annual reports of banks
Board size	BOARDSIZE	The total number of directors on banks board at financial year end.	Annual reports of banks
<i>Panel B: Explanatory variables</i>			
CEO power	CEO F-INDEX	An index of the CEO Freedom emanating from the social connections on the board	Authors' computation
Bank size	$\ln TA$	Natural logarithm of total assets.	Annual reports of banks
Loan-to-deposit ratio	LDR	The ratio of net loans and advances to net deposit from customer	Annual reports of banks
Knowledge of local market dynamics	$\ln KLMD$	The number of non-executive directors on the board of banks at financial year end.	Annual reports of banks
Ownership structure	OWN	A dummy variable that takes the value of one to represent foreign bank if 50% or more controlling interest in a bank is foreign owned, each year.	Annual reports of banks
Listing status	GSE	A dummy variable that takes the value of one to represent banks listed on the Ghana stock Exchange (GSE).	Annual reports of banks

Table 2.
Descriptive statistics

Variable	Obs	Mean	S.D.	Min.	0.25	Mdn.	0.75	Max.
<i>Panel A: Board structure variables</i>								
BLAUINDEX	148	0.41	0.22	-0.09	0.30	0.42	0.60	0.87
lnBOARDIND	148	4.25	0.21	3.51	4.20	4.29	4.38	4.51
lnBOARDSIZE	148	2.18	0.18	1.61	2.08	2.20	2.30	2.56
<i>Panel B: CEO power variable</i>								
CEO F-INDEX	148	2.82	1.44	1.00	2.07	2.59	3.38	6.95
<i>Panel C: Bank-specific variables</i>								
TA (GHS Billion)	148	1.90	1.70	0.19	0.76	1.40	2.70	9.60
LDR	148	0.63	0.25	0.16	0.45	0.62	0.78	1.47
KLMD (years)	148	28.55	27.89	1.00	10.00	20.00	40.50	121.00
OWN	148	0.57	0.50	0.00	0.00	1.00	1.00	1.00
GSE	148	0.48	0.50	0.00	0.00	0.00	1.00	1.00

This table presents the distribution of variables by showing mean, standard deviation (S.D.), minimum (Min), first quartile (0.25), median (Mdn.), third quartile (0.75), and maximum (Max.). See Table 1 for definition of variables.

Table 3.
Correlation matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)	BLAUINDEX	1.0000								
(2)	lnBOARDIND	-0.0385 (0.6423)	1.0000							
(3)	lnBOARDSIZE	-0.9034 (0.0000)	0.0246 (0.7670)	1.0000						
(4)	CEO F-INDEX	-0.2222 (0.0066)	-0.5319 (0.0000)	0.2247 (0.0060)	1.0000					
(5)	lnTA	0.0249 (0.7643)	-0.0408 (0.6226)	-0.0011 (0.9897)	0.0657 (0.4279)	1.0000				
(6)	LDR	0.2163 (0.0083)	0.2003 (0.0147)	-0.1864 (0.0233)	-0.1810 (0.0277)	-0.1989 (0.0154)	1.0000			
(7)	lnKLMD	0.0556 (0.5019)	0.1127 (0.1726)	0.0444 (0.5921)	0.0029 (0.9717)	0.3733 (0.0000)	0.0360 (0.6637)	1.0000		
(8)	OWN	-0.0369 (0.6561)	-0.2599 (0.0014)	0.0180 (0.8278)	-0.0538 (0.5158)	0.0683 (0.4093)	-0.2178 (0.0078)	-0.0267 (0.7470)	1.0000	
(9)	GSE	0.1107 (0.1806)	-0.1637 (0.0469)	-0.0499 (0.5469)	0.1460 (0.0767)	0.3119 (0.0001)	0.1276 (0.1222)	0.5110 (0.0000)	0.0882 (0.2867)	1.0000

Note: Figures in parenthesis is p-value

Table 4.

Regression results of the impact of CEO power on bank board structure

Variables	(1) BLAUIINDEX	(2)	(3) <i>ln</i> BOARDIND	(4)	(5) <i>ln</i> BOARDSIZE	(6)
<i>Panel A: Impact of CEO power</i>						
CEO <i>F</i> -INDEX	-0.033* (0.018)	-0.031* (0.018)	-0.132*** (0.017)	-0.133*** (0.017)	0.016 (0.016)	0.019 (0.017)
<i>ln</i> TA	-0.284** (0.115)	-0.291** (0.113)	0.237** (0.107)	0.211* (0.107)	0.154* (0.092)	0.171* (0.092)
LDR	0.281* (0.152)	0.265* (0.150)	-0.124 (0.143)	-0.096 (0.142)	-0.078 (0.106)	-0.116 (0.111)
<i>ln</i> KMLD	0.318* (0.183)	0.259 (0.184)	-0.372** (0.175)	-0.372** (0.173)	-0.297** (0.127)	-0.359*** (0.133)
OWN (foreign=1)	0.502*** (0.180)	0.462** (0.180)	-0.424** (0.171)	-0.409** (0.170)	-0.328** (0.158)	-0.385** (0.161)
GSE (Listed =1)	0.032 (0.134)	0.091 (0.122)	-0.118 (0.116)	-0.110 (0.115)	-0.078 (0.088)	-0.061 (0.107)
ROA (<i>t</i> – 1)	-0.025* (0.012)	-0.025** (0.012)	0.020* (0.012)	0.019* (0.012)	0.019* (0.010)	0.019* (0.010)
<i>ln</i> BOARDIND (<i>t</i> – 1)	-0.178** (0.085)					0.112 (0.079)
<i>ln</i> BOARDSIZE (<i>t</i> – 1)		-0.303*** (0.114)	0.308*** (0.108)			
BLAUIINDEX (<i>t</i> – 1)				-0.279*** (0.091)	-0.233** (0.102)	
Constant	3.434** (1.310)	4.029*** (1.331)	-0.486 (1.265)	0.614 (1.211)	1.052 (1.001)	0.718 (1.011)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Bank dummy	Yes	Yes	Yes	Yes	Yes	Yes
<i>Panel B: Model fit</i>						
Observations	127	127	127	127	127	127
Adjusted <i>R</i> ²	0.370	0.387	0.654	0.658	0.426	0.386
<i>F</i> -statistics (32, 94)	3.24[0.00]	3.41[0.00]	8.20[0.00]	8.34[0.00]	3.83[0.00]	3.40[0.00]
<i>Panel C: Diagnostics</i>						
Breusch-Pagan hettest	1.75[0.19]	1.47[0.23]	1.73[0.19]	1.10[0.29]	3.28[0.07]	2.92[0.10]
Variance inflation factor (mean)	16.42	16.47	16.47	16.41	16.41	16.42
Shapiro-Wilk <i>W</i> normality test	-0.94[0.83]	-0.74[0.77]	-0.38[0.65]	-0.61[0.73]	-0.96[0.83]	0.36[0.36]
Linktest	-0.70[0.48]	-0.79[0.43]	-1.01[0.31]	-1.41[0.16]	-0.19[0.85]	-0.05[0.96]
Test for functional form	0.77[0.51]	0.69[0.43]	1.10[0.35]	1.89[0.14]	1.16[0.33]	0.97[0.41]
Cook's distance	Var<1	Var<1	Var<1	Var<1	Var<1	Var<1
Wooldridge AR(1)	24.82[0.00]	22.26[0.00]	3.86[0.06]	1.94[0.18]	13.43[0.00]	7.28[0.01]

This table shows the pooled OLS fixed effect estimation results for the impact of CEOs power on board structure of banks. The definitions of the variables are as in Table1. Breusch-Pagan hottest measures the assumption of homoscedastic residuals; Wooldridge AR(1) reports the test statistics of Wooldridge test for autocorrelation in panel data; Mean VIF measures the assumption of no severe multicollinearity; Normality test measures the assumption of normally distributed residuals; Linktest measures the assumption of correctly specified model; Functional form measures the assumption of appropriate functional form of the models; Cook's distance locates (any) influential observation(s). Robust standard errors are in parentheses while *p*-values are in brackets. ***, **, and * indicate significance at 1%, 5% and 10% respectively

Table 5.

Regression results of the intermediating effect of ownership structure and listing status

Variables	(1) BLAUINDEX	(2)	(3) <i>ln</i> BOARDIND	(4)	(5) <i>ln</i> BOARDSIZE	(6)
<i>Panel A: Impact of CEO power</i>						
CEO <i>F</i> -INDEX	0.004 (0.034)	0.000 (0.034)	-0.158*** (0.037)	-0.154*** (0.037)	-0.011 (0.030)	-0.016 (0.030)
CEO <i>F</i> -INDEX*OWN	-0.141*** (0.045)	-0.131*** (0.045)	0.107** (0.053)	0.100* (0.054)	0.099** (0.042)	0.114*** (0.040)
CEO <i>F</i> -INDEX*GSE	0.118*** (0.040)	0.115*** (0.040)	-0.092* (0.051)	-0.092* (0.051)	-0.078** (0.038)	-0.087** (0.039)
<i>ln</i> TA	-0.222* (0.121)	-0.230* (0.120)	0.187* (0.104)	0.171 (0.104)	0.121 (0.089)	0.126 (0.088)
LDR	0.211* (0.123)	0.205* (0.123)	-0.076 (0.125)	-0.060 (0.123)	-0.047 (0.103)	-0.063 (0.107)
<i>ln</i> KMLD	0.307 (0.187)	0.280 (0.193)	-0.389** (0.166)	-0.392** (0.161)	-0.315** (0.133)	-0.349** (0.134)
OWN (foreign=1)	0.854*** (0.245)	0.813*** (0.253)	-0.711*** (0.236)	-0.686*** (0.238)	-0.597*** (0.196)	-0.668*** (0.186)
GSE (Listed =1)	-0.323 (0.199)	-0.271 (0.198)	0.171 (0.199)	0.178 (0.193)	0.154 (0.160)	0.194 (0.167)
ROA (<i>t</i> – 1)	-0.013 (0.012)	-0.014 (0.012)	0.011 (0.013)	0.011 (0.013)	0.011 (0.010)	0.010 (0.010)
<i>ln</i> BOARDIND (<i>t</i> – 1)	-0.119 (0.088)					0.071 (0.083)
<i>ln</i> BOARDSIZE (<i>t</i> – 1)		-0.172 (0.128)	0.203 (0.146)			
BLAUINDEX (<i>t</i> – 1)				-0.177 (0.118)	-0.141 (0.096)	
Constant	2.495* (1.285)	2.831** (1.287)	0.481 (1.253)	1.185 (1.171)	1.559 (0.986)	1.423 (0.991)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
<i>Panel B: Model fit</i>						
Observations	127	127	127	127	127	127
Adjusted <i>R</i> ²	0.458	0.459	0.681	0.682	0.478	0.466
<i>F</i> -statistics (35, 91)	4.04[0.00]	4.06[0.00]	8.69[0.00]	8.71[0.00]	4.29[0.00]	4.14[0.00]
<i>Panel C: Diagnostics</i>						
Breusch-Pagan hettest	1.65[0.20]	1.96[0.16]	1.81[0.18]	1.19[0.28]	3.42[0.07]	4.19[0.04]
Variance inflation factor (mean)	18.45	18.75	18.75	18.76	18.76	18.52
Shapiro-Wilk W normality test	0.33[0.37]	0.08[0.47]	-0.28[0.61]	0.18[0.43]	0.03[0.49]	0.02[0.49]
Linktest	0.41[0.67]	0.45[0.65]	-1.22[0.22]	-1.44[0.15]	-0.70[0.49]	-0.56[0.57]
Test for functional form	2.23[0.09]	1.83[0.15]	1.73[0.17]	1.96[0.13]	4.76[0.00]	5.00[0.00]
Cook's distance	Var<1	Var<1	Var<1	Var<1	Var<1	Var<1
Wooldridge AR(1)	18.55[0.00]	17.22[0.00]	23.55[0.00]	22.44[0.00]	27.46[0.00]	27.75[0.00]

This table shows the pooled OLS fixed effect estimation results for the impact of CEOs power on board structure of banks. The definitions of the variables are as in Table 1. Breusch-Pagan hottest measures the assumption of homoscedastic residuals; Wooldridge AR(1) reports the test statistics of Wooldridge test for autocorrelation in panel data; Mean VIF measures the assumption of no severe multicollinearity; Normality test measures the assumption of normally distributed residuals; Linktest measures the assumption of correctly specified model; Functional form measures the assumption of appropriate functional form of the models; Cook's distance locates (any) influential observation(s). Robust standard errors are in parentheses while *p*-values are in brackets. ***, **, and * indicate significance at 1%, 5% and 10% respectively

Table 6.

Regression results of alternative estimation techniques – Prais-Winsten (PW) regression and System GMM

VARIABLES	Panel A: PW regression results						Panel B: System GMM		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	BLAUINDEX		lnBOARDIND		lnBOARDSIZE		BLAUIN DEX	lnBOAR DIND	lnBOARD SIZE
CEO <i>F</i> -INDEX	-0.033** (0.017)	-0.030* (0.016)	-0.134*** (0.014)	-0.134*** (0.014)	0.015 (0.012)	0.015 (0.013)	-0.117 (0.262)	0.042 (0.109)	0.101 (0.128)
lnTA	-0.284*** (0.107)	-0.291*** (0.105)	0.238** (0.099)	0.214** (0.101)	0.156* (0.084)	0.172** (0.087)	-0.010 (0.049)	0.043 (0.041)	0.043 (0.037)
LDR	0.280** (0.120)	0.265** (0.119)	-0.132 (0.116)	-0.104 (0.117)	-0.083 (0.097)	-0.119 (0.099)	-0.031 (0.315)	0.077 (0.162)	0.174 (0.212)
lnKMLD	0.319* (0.171)	0.266 (0.169)	-0.378** (0.159)	-0.374** (0.156)	-0.298** (0.129)	-0.355** (0.138)	-0.032 (0.152)	0.060 (0.055)	0.044 (0.077)
OWN (foreign=1)	3.149*** (1.133)	3.747*** (1.161)	-0.787** (0.337)	-0.781** (0.326)	0.970*** (0.364)	-0.740** (0.294)	0.093 (0.239)	-0.057 (0.091)	-0.076 (0.089)
GSE (Listed =1)	0.801** (0.340)	0.752** (0.334)	-0.993*** (0.307)	0.842 (1.120)	-0.753*** (0.252)	-0.880*** (0.271)	0.105 (0.365)	-0.115 (0.089)	-0.120 (0.133)
ROA (t – 1)	-0.025** (0.010)	-0.025** (0.010)	0.020** (0.010)	0.020** (0.010)	0.019** (0.008)	0.019** (0.008)	-0.008 (0.025)	-0.006 (0.016)	0.007 (0.016)
lnBOARDIND (t – 1)	-0.171** (0.084)					0.072 (0.069)		0.461** (0.183)	
lnBOARDSIZE (t – 1)		-0.278** (0.114)	0.271** (0.114)						0.755*** (0.180)
BLAUINDEX (t – 1)				-0.258*** (0.095)	-0.220*** (0.079)		0.535** (0.248)		
Constant			0.841 (1.153)		0.415 (1.021)	1.965** (0.954)	0.738 (1.146)	0.126 (0.963)	-0.524 (0.992)
Year dummy	No	No	No	No	No	No	Yes	Yes	Yes
<i>Model fit</i>									
<i>F</i> -statistics (11, 20)	n/a	n/a	n/a	n/a	n/a	n/a	7.65[0.00]	11.05[0.00]	13.97[0.00]
<i>R</i> ²	0.170	0.240	0.629	0.618	0.349	0.510	n/a	n/a	n/a
AR(1)	n/a	n/a	n/a	n/a	n/a	n/a	-2.06[0.04]	-1.69[0.09]	-1.88[0.06]
AR(2)	n/a	n/a	n/a	n/a	n/a	n/a	0.13[0.90]	0.82[0.41]	0.73[0.47]
Hansen J-test	n/a	n/a	n/a	n/a	n/a	n/a	5.58[0.23]	7.90[0.25]	3.75[0.44]
No. of instruments	n/a	n/a	n/a	n/a	n/a	n/a	17	19	17
No. of banks	21	21	21	21	21	21	21	21	21
Observations	127	127	127	127	127	127	127	127	127

This table shows Prais-Winsten regression and two-step system GMM estimation results for the effect of CEO power on board structure of banks. The definitions of the variables are as in Table1. All Prais-Winsten regression estimations control for Wooldridge first-order serial correlation in panels, while figures in parenthesis are panel corrected standard errors for models 1 and 4 respectively and Hetetroskedastic corrected standard errors are in parenthesis for models 2 and 3 respectively. For the two-step system GMM estimation, AR(1) and (AR2) are the test statistics for first-order and second-order serial correlation respectively. Hansen J-stat is the test of over-identifying restrictions. Robust standard errors are in parentheses while *p*-values are in brackets. n/a means not available. ***, **, and * indicate significance at 1%, 5% and 10% respectively