Internal Governance and Bank Performance Under the Capital Requirement Directive IV

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Abstract

The primary purpose of this study is to examine the interaction between corporate governance and regulatory reforms on bank performance. On this background, the implementation of the consolidating internal governance guidelines of the Capital Requirement Directive IV by banks presents an opportunity to assess this relation given the backdrop that studies in this direction are limited.

Using a dataset of consisting of 38 Domestic Systemically Important Banks (D-SIBs) domiciled to the European Economic Area (EEA) over the period 2011-2015, this study employs a panel data analysis technique to test four board structure-related hypotheses developed along the provisions of the new internal governance (IG) guideline. Our study finds that although board size generally is negatively related to bank performance, setting board size in accordance to the complexity of the board activities will positively impact on bank performance. The originality of this finding we contend resolves the mixed finding presented by earlier studies on the bank board size-performance relation. Also, this paper finds that, the mutual complementation of efforts between board executive and independent directors accrue benefit to banks during pre-CRD IV implementation period, which confirms the soundness of the novel directive in this direction. Finally, our finding shows that, board diversity (female directorship and foreign directors), director's experience and the presence of basic board committees as bank performance-enhancing dimensions has failed to achieve the desired impacts especially during the post-CRD IV implementation periods. This informs our recommendation that bank regulators' efforts should concentrate on moving the corporate governance framework from being just a box-ticking exercise to an effective working system.

EFM Classification: 110; 150

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1. Introduction

The central role played by banks in 2008 financial crisis has engaged academics and practitioners to investigate whether and to what extent bank internal governance structures (size, diversity dimensions and composition) affect performance. To this end, we explore whether or not the internal governance guidelines outlined in the Capital Requirement Directive IV has influenced the bank board structure-performance linkages since its implementation. Fama (1985) explained that the distinctive roles of banks in financial intermediation, the payment system, liquidity, information and maturity and denomination transformation put them as special economic units whose failure will create significant systemic cost. For this reason banks require intensive external regulatory oversight over their operations (Himaj, 2014; Haans and Vlahu, 2016).

A bank's board becomes an instrument to achieving effective governance for external regulators. As evidence, previous regulatory guidelines, such as the Basel Committee on Banking Supervision (BCBS, 2006) consultation, document as well as the second pillar of Basel II for supervision and review processes recognized bank boards as key element of the bank regulatory reforms. Regrettably, the literature on the interaction between the corporate governance structures of banks and banking regulatory reforms on performance has received insufficient consideration from scholars. To our best knowledge, Lin and Zhang (2009), Berger et al. (2009) and Pathan and Faff (2013) are the only contribution to the literature in that direction even though they consider a limited range of corporate governance elements. The first two studies investigate the Chinese banking regulatory reforms on bank ownership structure and performance. Also, Pathan and Faff (2013) studied the impact of the Sarbanes-Oxley Act (SOX)(2002) on the board-structure performance relationship of large US bank holding companies and informed regulators and interested stakeholders that gender diversity was more relevant to performance during the pre-SOX period than the post-SOX period. Against this backdrop, this paper aims to contribute to this stream of literature on bank corporate governance-performance linkages in the context of a regulatory change, by analyzing data on the Domestic Systemically Important Banks (D-SIBs) within the European Economic Area (EEA) for the years 2011 to 2015.

Based on a set of 38 Domestic Systemically Important Banks (D-SIBs), this study employed a panel data analysis from which we documented a strong negative relation between bank board size and performance. However, we found substantial evidence that rightly aligning bank board size to the complexity of the activities banks may positively influence their performance. We believe this contribution may offer a way to resolve the conflicting findings characterizing the board size-performance relationship literature. Also, we present evidence to support the rationale behind the EBA's novel internal guideline that recommends the active involvement executive directors in the oversight role. Furthermore, board basic committees as a performance driving governance structure jointly report no systemic impact on bank performance. Finally, contrary to the conjecture the new directive offers, our findings lead us to conclude that, board diversity dimensions (specifically gender and foreign directorships) and experience as performance-enhancing elements rest on shifting sands rather than bedrock. In this direction, we found that board diversity dimensions and experience have been of little relevance to the performance of banks from 2011 to 2015.

A further analysis to investigate if the implementation of the CRDIV internal

governance directive caused a structural change in our results showed that to a greater extent bank performance has not been different during the pre and post-CRD IV implementation periods. Specifically, bank performance was not enhanced in the post-implementation period for boards that had representations of both independent and executive directors, had the co-existence of all recommended basic committees, had foreign directors and had increasing female directorship representation.

Our study is related to earlier studies [Adams and Mehran, 2012; Masulis et al., 2012: Aebi et al., 2012] in terms of the corporate governance dimensions we put under study. However, the CRD IV internal governance directive as a context for this study extends and complements the existing literature. To our best knowledge, this study becomes the first to consider the impact of the CRD IV's internal guidelines on board structure and its linkages to bank performance.

The rest of the paper is organized as follows: section 2 gives an overview of the relevant CRD IV internal governance guidelines informing our study. Section 3 introduces the theoretical background of this study. Section 4 reviews the existing literature leading to the development of our hypothesis. In Section 5, we define the dataset, data collection, variables and methods. Section 6 presents, discusses our findings and concludes the paper.

2. CRD IV and Bank Internal Governance

The European Banking Authority's (EBA) review of Directive 2006/49/EC in the context of the 2008 financial crisis identified the directive's provisions and its non-binding nature as insufficient for implementing sound corporate governance practices in banks [Article 53 of Directive 2013/36/EU]. In response and as part of the overarching goal to strengthen the resilience of the EU banking sector to economic shocks, consolidating and complementary internal governance guidelines to remedy these regulatory vulnerabilities were enshrined as part of the Capital Requirement Directives (CRD IV). The changes made to the earlier non-mandatory directives by this consolidating internal guidelines mainly focused on the board of directors and its structure.

2.1 Corporate Structure and Organization

Section I paragraph 6 of document GL44 together with Article 58 of Directive 2013/36/EU identified the inability of directors to effectively undertake their oversight roles when assigned more tasks. As a remedying measure, the novel internal governance guideline mandates the extension of "the board basic committees[1]" under earlier directives to include additional committees. Specifically, an independent risk and remuneration committees must be created from the pre-existing audit and nomination committees respectively with the aim of relieving directors of cumbersome workload in order to devote more time to their oversight roles. For this reason, this novel guideline sequentially allows:

- a re-consideration of what bank board basic committees entails.

[1] The existence an audit, remuneration and nomination committees as prerequisite committees to enhance efficient functionality of bank boards. See [CRD III]. Section III subsection 14, paragraph 6 of document GL44 (pg.27) mandates the extension of these basic committees to include the risk committee for the post CRD IV period.

- the assessment of the individual and complementation impacts of bank board basic committees on performance.

Furthermore, the CRD IV internal governance guideline with greater emphasis requires "strategic fit" for a bank's internal governance framework [Section III Part B.2 14]. This has had implications for how banks especially after 2013 organize their corporate governance structure (i.e. board size, diversity and composition) towards achieving their desired performance. For instance, a bank adhering to Section III Part B 14 of document CL44 must structure its board size and its composition in accordance to the complexity of its activities and perceived risk exposure.

2.2 Supervisory Body Composition

Also, the consolidating internal governance guideline modified the supervisory board composition by three novel guidelines. First, prior directives (Directive 2006/43/EC) advocated for greater to complete board independence. In contrast, the CRD IV internal governance guidelines acknowledge the importance of both insider and outsider board directors for a better IG functioning. Specifically, Section III PART B.1 (10) paragraph 1 (pg.22) states that, " *To achieve good governance, an institution's management and supervisory function should interact effectively…to manage the risks the institution faces*". This suggests a new phase of bank internal governance regime based on mutual complementation of efforts for an effective oversight responsibility.

Second, the EBA's review identified an extensive mismatch between supervisory board members' expertise and their responsibilities [CRD IV document GL44 pg. 8 paragraph 21]. As it was the case, board directors' appointment criterion and procedures took little account of the prospective director's relevant role and leadership experiences. This weakened the effectiveness with which corporate governance structures identified and constrained excessive risk-taking prior the crisis. Accordingly, Article 58 of Directive 2013/36/EU mandated the supervisory body to reflect a broad range of abilities and possess adequate financial knowledge and leadership experience to ensure an in-depth understanding of the complexity of the bank's business and its associated risks to facilitate timely detection of inherent risk exposures.

Finally, acknowledging the risk exposure from cross-border operations, the novel guideline required bank board membership to constitute foreigners to strengthen its advisory role. Article 60 of Directive 2013/36/EU accounts " *To facilitate independent opinions and critical challenge, management bodies of institutions should therefore be sufficiently diverse as regards…geographical provenance…to present a variety of views and experiences"*. A globalized board offers the possibility of benefitting from having diverse perspectives and catalyzing a bank's adaptation in an international market.

These novel considerations serve as a background to our hypothesis developed in the subsequent sections.

3. Theoretical Background

The literature on corporate governance dimensions has been discussed from a multi-theoretical lens. Berle and Means's (1932) seminal work, supplemented by the works of Jensen & Meckling (1976) and Fama and Jensen (1983) on agency cost greatly influenced the awareness of corporate governance among scholars and practitioners. Subsequently, the latter study facilitated the development of a solid theoretical

background, the Agency Theory, which has entrenched as the backbone theory for the corporate governance studies. Contrary to the expected, agents (managers) do not manage the firm's capital in the best interest of the principal (shareholders) since executives seek to maximize their personal economic wealth (Hill and Jones, 1992: Bruce, Buck and Main, 2005). These diverging interests culminate into costs, which the principal can establish appropriate incentives for the agent, impose bonding costs and incur monitoring costs in an attempt to limit. Regardless, some interest divergence may still prevail to discount the principal's welfare (Fama and Jensen 1983). The resultant of the principal's incentive and monitoring costs, the agent's bonding cost and any remaining residual loss are defined as agency cost. Fama (1980) and Demsetz (1983) explain that governance structures including laws regulating corporate behaviour, their legal enforcement and monitoring mechanisms economizes on these agency costs.

Specifically focusing on the monitoring mechanisms, the board of directors emerges as an important instrument for curbing the flaws of separated ownership as implied by agency theory (Williamson 1983:1984, Cary and Eisenberg, 1988). In particular, Baysinger and Butler (1985) informed that the board of directors orchestrates the economization on agency cost via it features (size, composition and diversity). This shows the important role of boards to the effectiveness of an entity's corporate governance mechanism. In this regard, contemporary theories providing perspectives on the corporate governance dynamics have been developed around board structure dimensions thereby qualifying them as peripheral theories to the agency theory.

For instance, it is arguably important that board structures are well set to guarantee the effective board performance. As such borrowing from the strategy literature, the Alignment Theory, which pursues a strategic fit -appropriate corporate actions lead to expected results- enhances our understanding of those governance structures that best serve effectively (Chorn, 1991). Thus, an entity must therefore ensure there exist optimal corporate governance structures such as board size, board meeting, board committee [Puni (2015)], board independence, diversity, executive compensation [Sun et al. (2009)] etc. in order to effectively economize on agency costs.

In addition, Resource dependency theorists [Pfeffer (1972); Pfeffer and Salancik (1978); Boyd (1990)] took a different perspective on the corporate governance literature by examining how board capital (human and relational capital) has led to the provision of resource to the firm, thereby acknowledging that external resources strengthen the internal governance structure of an entity and subsequently it performance. In this sense, the resource dependency theory view directors as providers of important resources such as connections to key outsiders (regulators, suppliers, financiers, and others), advice and counsel to the firm. It follows that the board then becomes an instrument for dealing with the firm's external environment. When directors are considered in this functional sense (as resource providers), various dimensions of director diversity clearly become important and meaningful (Ferriera, 2010). That is, every diversity dimension within the board's scope plays a special role towards the effective performance of the entity.

Haans and Vlahu (2016) acknowledged banks as multi-constituency firms due to their special groups of stakeholders aside its shareholders; depositors, bondholders, regulators, suppliers, community and governments. For this reason, the more encompassing Stakeholder Theory (Freeman 1984) substitutes the agency theory since it brings attention to a balance of interest satisfaction for all stakeholders of banks in their relationship with management (Himaj 2004). This affirms Jensen and

Meckling's (1976) view that the stockholder–manager relationship is just one of the many nexus of contracts that could be considered within the agency theory framework.

Although these theories came from different backgrounds, they jointly provide fundamental insights that are relevant to our understanding and rationalizing the issues tackled in the subsequent sections. For instance, the arguments on board independence and diversity dimensions are anchored on both the stakeholders and resource dependency theories as response mechanisms to the changes in the bank regulatory environment (the CRD IV internal governance). Furthermore, it follows also that our discussions on the appropriateness of the board structure dimensions (i.e. board size, its moderating factors, the presence of different class of directors and the existence of committees on bank boards) to bank performance are supported by the alignment and stakeholder theories.

Adopting a multi-theoretical perspective is in response to the concern expressed by Lawal (2012) that, the over reliance on a singular theory has not helped in gaining the much needed appreciation of the relationship between board dynamics and firm performance.

4. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

4.1 Board size and Bank Performance

Making reference to the alignment theory (Chorn, 1991), an optimal board size prevails as an effective corporate governance element for improving bank performance. The effectiveness with which a bank board monitors management and limits their opportunistic behaviour depends partly on its board size (Pathan, 2009). However, concern still remains as to what generally is considered the appropriate board size. In this regard, scholars have reported inconsistent results (*see Table 1*). On one hand, Agoraki et al. (2010), Hermalin and Weisbach (2001) and recently Wang et al. (2012) reported a negative relationship between bank performance and board size attributing this to the group size effect. Thus, a larger corporate board becomes susceptible to coordination and control problems, delayed decision-making and a diminished sense of responsibility among directors. In addition, larger boards could come with greater agency cost as CEOs may find them easier to control since the individual director's incentive to acquire information and monitor manager is low (Pathan 2009; Yermack 1996).

On the other hand, a larger board would provide the possibility for an effective financial monitoring, creation of more specialized committees and a broader pool of knowledge and experiences to improve bank efficiency (Pearce and Zahra, 1992; Van de Berghe and Levrau, 2004). Adams and Mehran (2012) observed a positive relationship between board size and bank value (proxied by the Tobin's Q) for the case of US BHCs arguing that, an additional director becomes valuable only once the prospective director is a subsidiary director. The authors explained further that a larger board size does not necessarily help to deal with the complexity of bank holding structure and activities but mainly facilitates the cooperation and communication among subsidiaries. De Andres and Vallelado (2008) provided an intermediary perspective to this debate. Their study of 69 banks spanning across

Canada, USA, UK, Spain, France and Italy found a concave relationship between board size and performance: identifying the optimal board size as 19 members, beyond this number the observed relationship became a negative one. Aside these significant findings, Erkens et al. (2012) and Berger et al. (2012) documented an insignificant relationship.

A common objective underlies the literature on board size-performance relationship from the literature discussed so far. Primarily, these scholars have dedicated enormous attention trying to find what "number" of board membership is appropriate for a desired performance and in so doing, have been escaped by a simple yet potent consideration. Nonetheless, the results from the persistent debate after decades have been illusive as evidenced by the mixed findings discussed above (also see Table 1). As such, we argue that, rather than treating board size as a stand-alone dimension that impact on bank performance, scholars must view it as a dimension that requires complementation in order for it to be a performance-enhancing board structure dimension. The rationale then follows that the agenda for research in this direction must now be focused on answering the question, how can board size be made a value-enhancing corporate governance structure dimension regardless of the number of membership?

This will clearly define an objective relationship between bank board size and bank performance thereby providing a way to resolve the inconsistent results the earlier studies have reported so far. In our attempt to answer this question, we contend that the bank board size and performance relation can better be represented in a context of a moderating factor. Consequently, our attempt adheres to the call from prior scholars (Lawal, 2012; Daily et al., 2003; Shleifer and Vishny, 1997; Heracleous, 2001) to identify and empirically examine factors that may mediate the performance outcome of board structure dimensions.

Towards this end, we are guided by the novel EBA guideline discussed under section 2, which mandates banks to set (align) their board size taking into consideration the nature and scope of their activities (Section III PART B.2 paragraph 2 of GL44). Furthermore, taking cue from the role of the bank complexity (structure and operations) in explaining the positive relationship between board size and bank performance reported by Adams and Mehran (2012), we contend that complexity on a lower (board) level of analysis extends a similar moderating effect on bank performance. Particularly, we argue that the complex nature of bank board activities significantly moderate the board size and performance relationship of banks. Organization theories provides a way to support our argument as to why board size needs to take into account the board activities. Analogizing the bank board to a team, a board responsible for a lot of activities (proxy for role complexity) to a greater extent is likely to be of a larger size. This offers the advantage of a bigger knowledge pool and specialization of board tasks among the directors [Mao et. al (2016)]. Hence, the increasing complexity characterizing bank operations as reported by Himaj (2014) requires a larger board size to ensure its effective functioning. Furthermore, perceiving banks as rational entities subtly follows that, a bank's board is likely to be well positioned to forecast the complexity of their upcoming activities with the help of the idiosyncratic terms of reference and regulatory guidelines [2].

[2] Terms of reference is a document which outlines the expected duties and responsibilities of the board as a whole, its members as well as its committees together with their appropriate authorities. Similarly, the provisions of a regulatory guideline inform banks and relevant stakeholders of what is required of them as per the outlined provisions. Through this, bank boards also know their related roles in connection to these provisions. The anticipation of board activities is facilitated since internal governance guidelines are provided to banks in advance before their official implementation period.

Based on this rational anticipation, we expect banks to effectively determine the apt number of board directors to undertake it activities efficiently in a given period. So we hypothesize:

H1: *The relationship between bank board size and performance is positively moderated by the complexity of board activities.*

4.2 Bank Board Independence and Performance

Board composition remains a key component of an effective corporate governance structure due to its bearings on board deliberations and the capability to control top management decisions and results (Romano et al., 2012). Board composition normally concerns the heterogeneity among directors encompassing issues of independence and diversity. An extensive review of the corporate governance literature by Himaj (2014) showed that board independence is the most relevant and studied dimension of board composition although its empirical evidence documents mixed findings. As Ferreira (2010) accounted, this does not come as a surprise since most of the existing empirical research disproportionately focused on the distinction between independent and non-independent directors as the main source of board director heterogeneity.

Some studies (*see Table 1*) showed a significant and negative relationship between board independence and bank measures of performance (Pathan 2009; Aebi et al. 2012; Wang et al. 2012). The increase in the proportion of outside directors who may lack in-depth firm-specific knowledge on boards may result in counter-performing costs. Some authors have also argued that having an independent board increases rather than decreases agency costs in the sense that independent directors usually representing the interest of specific stakeholders (e.g. minority directors) on the board may result in its balkanization and in turns, lower the probability of sound economic exchanges and operations (Lipton and Rosenblum, 2003; Murphy, 2008; Gelter, 2010).

On the contrary, Fama and Jensen (1983) argued from the agency theory perspective that, outside directors act better on the monitoring and advisory role because they would want to protect their reputational capital as independent decision makers. Likewise, Rosenstein and Wyatt's (1990) event study of NYSE listed firms showed that appointing an additional independent director slightly increased stock value due to the unbiased judgments that result from their diverse knowledge and skills. Erkens et al. (2012) finds a similar result from a study of 296 large financial firms. Hilman and Dalziel (2003) further rationalized the need for board independence using Pfeffer and Salancik's (1978) *Resource Dependency Theory*. The authors accounted that, aside the traditional monitoring and advisory roles, outside directors facilitate the adaptation of internal operations to the changing environment by way of their strategy initiatives and external linkages. As an intermediate finding, de Andres and Vallelado (2008) reported a curvilinear relationship for this relation; they showed that beyond a point, an excessive proportion of independent directors could reverse a positive relationship, as the independent directors will find it difficult to gather some information that executive directors possess.

These mixed findings to a degree discern a pervasive deficiency in the board independence-bank performance literature. Arguably, the effectiveness of the

independent directors on the oversight role and on bank performance is partly dependent on the actions of other classes of directors on the board. Thus, the literature discussed above fail to account for this interactive impact of other classes of board directors on independent director's efforts. In this regard, we contribute to this gap by analyzing how the presence of executive board directors facilitates the impact that independent directors make on bank performance. To this end, only a limited number of studies exist on board executive directors and bank performance. On one hand, Adams and Ferreira (2007) and Harris and Raviv (2008) both showed that board executive directors facilitate the transfer of information between directors and management to limit the cost of information asymmetry on a bank's performance (see Table 1). On the other hand, the agency theory [Jensen and Meckling (1976)] purported that the opportunistic behavior of executive board directors incentivize them to deliberately withhold material information from the independent directors in their oversight duties. Furthermore, making particular reference to Section III PART B.1 (10) of the CRD IV internal guideline (GL44) this paper argues that, maintaining a fair representation of executive directors in addition to the independent directors will promote bank performance as executive and independent director interactions will facilitate an efficient flow of insider information to inform better decision-making. In turns, the independent directors are able to limit the possible agency costs of executive director's opportunistic actions since having access to the right sensitive information puts them in the position to probe and undertake their oversight role effectively, thereby enhancing performance. With this we hypothesize that:

H2: *The existence of executive board directors significantly and positively moderates the relationship between board independence and bank performance.*

4.3 Existence of Basic Committees on Bank Boards

The functional effectiveness of boards depends on the inner workings of its existing standing board committees [Van Den Berge and Levrau, 2004]. Board committees enable technical issues to be discussed more efficiently and on time (Chambers, 2002). As a requirement for best practice, corporate governance regulations generally recommend the existence of three basic committees- audit, remuneration and nomination committees- to support the operations of a bank board[3] (Vance, 1983; Tricker, 1994; Anand, 2007). Among these, previous researches have

[3] Specifically for Banks, an audit committee (or equivalent) should, *inter alia*, monitor the effectiveness of the company's internal control, internal audit, and risk management systems; oversee the institution's external auditors; recommend for approval by the management body the appointment, compensation and dismissal of the external auditors; review and approve the audit scope and frequency; review audit reports; and check that the management body in its management function takes necessary corrective actions in a timely manner to address control weaknesses, non-compliance with laws, regulations and policies, and other problems identified by the auditors. In addition, the audit committee should oversee the establishment of accounting policies by the institution. Also, the risk committee is responsible for advising the management body on the institution's overall current and future risk tolerance/appetite and strategy, and for overseeing the implementation of that strategy. The remuneration/compensation committee approves, prevents conflict of interest, oversees and maintains oversight over the application of the principles of the overall remuneration policy for its institution while the nomination committee sets and oversees a policy on the nomination and succession of individuals with key functions in the institution (GL44, 2010).

assigned relative importance to the audit committee due to its relevance on safeguarding the financial health and performance of banks (Fama and Jensen 1983; Uzun et al., 2004; Beasely et al., 1999:2000).

However, the difficulty to associate the board's effectiveness to the board standing committees based on a single committee study as Puni (2015) pointed out, provokes a re-consideration of the greater emphasis placed on the audit committee. In response, this paper purports that the other basic committees -remuneration, nomination and recently the risk committee- are also significantly important because of their supportive roles to the audit committee. Stelzer (1997) reported the growing importance of the remuneration committee's responsibilities due to media reports on the misalignment of management compensation with shareholders value. Conyon and Peck (1998) study of listed UK firms identified that the top management pay and corporate performance are more aligned in companies with remuneration committees. Furthermore, Sun et al., (2009) provided supporting evidence that future firm performance is more positively associated to the quality of the compensation committee for the case of 474 US listed companies.

Ruigrok et al., (2006) highlighted that the nomination committee's support to the board's control role is tantamount to alleviating agency conflicts and enhancing performance. Mainly, the nomination committee is responsible for adjusting the board's composition to the bank's demands, conducting periodic review of the board and designing the succession plans of CEOs and other executives. In support of this, Lam and Lee (2008) presented an empirical support for a positive relationship between the accounting performance and the existence of a nomination committee on the boards of 128 public-listed Hong Kong companies.

Consequently, the idea that the co-existence of all basic committee on a bank board will positively impact its efficiency and limit any possible empirical misrepresentation of the impact of board committees on performance appeals to conventional wisdom. To our knowledge, Dedu and Chitan (2013) and Klein (1998) remained the only studies to empirically consider the joint existence of all the basic committees (see Table 1). While the former included all the basic committees together with other variable to compute an internal governance index that influenced Risk (Z-Score) negatively, the latter found no significant relationship between firm performance and the existence of all the basic committees. As discussed also under section 2, the new CRD IV internal governance directive extends the constituents of the basic committees to include a risk committee which was previously not mandatory. Hence, our next hypothesis follows as:

H3: *The existence of all basic committees on a bank board in each year has a resultant positive relationship with its performance.*

4.4. Bank Board Diversity and Performance

Diversity on bank boards is an instrument to ensure that more perspectives and issues are considered in the decision-making process. Directors are diverse in many important characteristics, such as educational and functional background, industry experience, nationality, social connectedness, insider status, gender, age and race. Theoretically, economics and management scholars differ in their analysis and

rationales behind the concept of board diversity (Ferreira, 2010); in economics, the definition of diversity is limited to the director's status as independent or non-independent. Conversely, management scholars offer a multi-theoretical perspective that commensurate the multiple dimensions of board diversity. For instance, the agency theory suggests that the board through each of the diversity dimension mentioned above facilitates the monitoring role of directors to limits agency costs. For example, Carpenter and Wesphal, (2001) observed that having a socially connected diverse board of directors critically informs the knowledge structures used to monitor management actions. A complementary perspective is the resource dependency theory, which positions the diversity concept as an instrument for adapting to the entity's environment. Accordingly, Agrawal and Knoeber (2001) and Goldman et al. (2008:2009) found that more politically connected directors are appointed to boards whose industries are more dependent on the government.

Among the above outlined diversity dimensions, we focus on the gender and nationality dimensions. Our decision to focus on the latter dimension stems from the relative importance Article 60 of Directive 2013/36/EU of the CRD IV internal governance guideline attaches to board internationalization as a novel value-creating board diversity dimension. Also the earlier codes of best of practices (UK Cadbury Code, 1992; US Sarbanes-Oxley Act, 2002; the Dodd-Frank Act, 2010) including the new internal governance guideline have persistently maintained advocacy for greater female representation on boards, thereby entrenching gender as a de facto diversity dimension to be studied.

4.4.1 Gender Diversity and Bank Performance

Himaj (2014) pinpointed that although the body of research on gender diversity is growing, few are related to banks and the evidence presented in this regard is inconclusive (see Table 1). Dutta and Bose (2006) found a positive relationship between the proportion of females and performance using a small sample of Bangladesh banks. Furthermore, in response to regulatory reforms, Pathan & Faff (2013) observed that gender diversity in the boardroom improved bank performance in the pre-SOX period (1997–2002). Nonetheless, this positive effect of gender weakened during the post-SOX (2003–2006) and crisis periods (2007–2011). Despite the value-proposition of female representation on bank boards by the underlining theories, Ahern and Dittmar (2012) and Matsa and Miller (2013) in the context of the mandatory gender quota on Norwegian firm boards observed a negative relationship between female representation on firm boards and performance attributing the findings to the inexperience and leadership styles of the appointed female directors respectively.

The inconclusive results presented by the literature on gender diversity are not surprising. Board diversity studies as Volonté and Gantenbein (2016) accounted have focused on simple attributes of directors, which may omit other important director characteristics that may rather account for performance. The limitation of empirical research in this direction is due to the limited availability of data on the personal characteristics of board members, thereby resorting scholars to only simple and easy-to-observe characteristics.

On this account, we argue that although the rationales behind gender diversity stem from both the Agency and Resource Dependency perspectives, the latter theory

prevails and is encompassing. Thus, although agency theory stresses on how gender variation enhances the oversight role and performance by demanding high managerial accountability and averting risky tendencies (see Adams and Ferreira 2009a; De Cabo et al. 2012 respectively), it still stands that the female director's effectiveness is dependent on some personal characteristics other than their gender. This, the RDT considers as board capital that helps a firm to adapt to its environment. On this background, we advance that gender classification, as an attribute alone does not inform enough on how female board representation drive performance hence necessitating the study of the innate characteristics of women that makes them relevant to boards.

Dunn (2012) investigated the conditions that foster the appointment of women to an all male or diverse board and shows that education, expertise and business experience are relevant characteristics. However, aside assessing the potential of only incoming female directors, the author does not examine how these characteristics impact on firm performance thereby offering limited justification for adequate women representation on boards. Hence, our contribution takes account of the role and leadership related experience (human capital) of all existing female board directors on bank performance. The persistent advocacy for the increase in women representation on boards by internal governance regulations coupled with the efforts to align directors' expertise to their appointed roles by the CRD IV [document GL44 pg. 8 paragraph 21] make the study of board human capital along the lines of gender diversity especially relevant. This consideration offers a subtle way of bridging the agency and resource dependency theories on the relevance of board diversity to performance.

Table 3: Test of difference in Human Capital of Male and Female Board Directors (2011-2015)

Year	Proportion of Female Directors	Average years of Experience Female Board Directors	Average years of Experience Male Board Directors	Difference In Means	T-Test	Wilcoxon Test
		N= 38	***N=38***		***t-stats***	***t-stats***
2011	0.202	27.21	31.80	4.592968	3.46***	3.629***
2012	0.222	27.77	32.05	4.275213	3.48***	3.900***
2013	0.236	28.83	32.33	3.504996	3.17**	3.810***
2014	0.248	29.94	32.00	1.951447	2.13**	2.712**
2015	0.285	29.59	32.01	2.42798	2.38**	3.100**

Dunn (2012) accounted that although there is a steady rise in female board representation, women remain under-represented on boards. Related to this account, Eagly and Carli (2003) explained that the "Glass Ceiling Phenomenon" is a restrictive force against the inclusion of women on boards. As such, women are left to demonstrate exceptional competencies to reach directorship positions and in so doing, they are quite likely to be highly proficient and diligent as directors. If this were the case, we would expect the steady increase in female representation on bank boards to be accompanied by an increasing female human capital. In support, Table 3 above informs that the rise in average representation of female board directors from 20.18%

to 28.5% between 2011 and 2015 was associated with an increase in the average female director's experience from 27 to 30 years. Within the same period, the average experience of male directors remained fairly static (approximately 32 years). A parametric (t-test) and non-parametric (Wilcoxon test) test of the differences in means reports that the difference between the average experience of male and female directors is statistically significant for each of the years. This does not only indicate the growing importance of female board representation and experience (relative to the static male director's experience) but also the necessity to analyze the human capital of female directors on bank performance. For this reason, we hypothesize the following:

H4a: *The expertise of female board directors will positively impact bank performance.*

4.4.2 Foreign Board Directors and Bank Performance

The growing cross-border operations necessitate the globalization of boards to counter the associated risks. Lessons from the 2008 financial crisis informed bank regulators (EBA) of the inherent systemic vulnerabilities. In response and in line with the resource dependency perspective to deal with the cross border environment exposures, Article 60 Directive 2013/36/EU of the CRD IV internal governance directive emphasizes the concomitant benefit of foreign directors in that regard. Emphatically, Masulis et al. (2012) described the geographical location of foreign directors on boards as a doubled-edge antecedent for board effectiveness. On one hand, foreign directors distanced from the headquarters incur substantial oversight costs, are deprived of valuable information and are usually not adapted to the local organizational structure and business environment, which resultantly erode their incentives and ability to monitor effectively (Coval and Moskowiz 2001). On the other hand, foreign directors on boards are endowed with the resource of first-hand foreign market knowledge and networks of foreign contacts putting them in the position to provide valuable service to entities that are multinationals.

Embedding geography in the argument draws attention to a niche of foreign board directors: foreign directors domiciled to a bank's subsidiary country of operation. Intuitively, we argue that, this class of foreign directors will contribute more to their role relative to their counterparts, given the similar costs their geography present to the entity as Masulis et al. (2012) have accounted. That is, this class of foreign directors could give relevant market information and networking possibilities, which will easily aid the bank's adaptation and effective exploitation of the host country's market. Hence, foreign directors domiciled to a host country are expected to influences bank performance positively.

This align our expectations of this relation to that of the novel CRD IV internal guideline and hypothesize that;

H4b: *The relationship between the proportions of board directors who are foreigners and domiciled to the host country of the bank's subsidiaries is positively related to its performance.*

4.5 The Post CRD IV Bank Performance

Regulatory consolidation aims at ensuring better performance by banks by facilitating their sound operations. Linck et al. (2009) showed that the post-implementation periods of the SOX were characterized with improved internal governance and an increased firm performance. For a similar reason, Akhigbe and Martin (2006) reported a favourable valuation effect of SOX for those firms that complied with it's directives – ensuring more independent boards and audit committees, financial experts on audit committees, increased insider incentives and institutional shareholdings. Upon this background, we would expect that the favourable performance effects following from the compliance to the CRD IV internal governance directives would be pronounced during the post-implementation periods (2013-2015). This follows that the predicted relationships of our outlined hypotheses (H1-H4) will hold for the post-implementation period as well.

5. METHODOLOGY

5.1 Data

To test our hypotheses, we analyzed a 5-year (2011-2015) panel data for banks classified as Domestic Systemically Important Banks (D-SIBs)[4] within the European Economic Area. The initial dataset consisted of 42 banks spanning 12 countries. Owing to the following reasons[5]; (i) the non-availability of corporate governance data and reports for some banks (ii) the integration of some banks within the focus period and (iii) the availability of group rather than individual subsidiary corporate governance reports, the final dataset is composed of 38 D-SIBs, from which we obtained 190 bank years observations.

We focused on D-SIBs because of the important position they occupy within the EEA banking system, which prompts them to be on the high end of regulatory conformance and surveillance by stakeholders. As such, in accordance to Staikouras et al., (2007) that recommended the study of large banks in the assessment of the corporate governance impact on performance, studying D-SIBs will be revealing in terms of regulatory impacts.

[[*Please Insert Table 3 here, Sample Selection*]]

Data was collected from different sources. Mainly, the corporate governance data on board composition, structure and activities were hand-collected from the "Annual Corporate Governance Report" of the banks and triangulated using the Bloomberg and Orbis online database to source missing data. Also, financial and accounting data were collected from Bloomberg. Specific data on the role and leadership years of

[4] The BCBS methodology for identifying D-SIBs is based on several criteria, notably size, interconnectedness and substitutability (in practice, size appears to be the dominant criterion). The BCBS/FSB methodology for the identification of D-SIBs has been transposed in the EU regulatory framework (see Article 131 of the Capital Requirements Directive IV (CRDIV)), which defines domestic systemically important institutions or G-SIIs)

[5] DLR, Nyekredit, Credit Mutuel banks were dropped due to the lack of the annual report information. Banca Civica after 2011 was integrated into Caixa Bank, thereby limiting the availability of information to analyze it s case. Nordea Bank as a group presented one corporate governance report for its subsidiaries.

experience and expertise of directors were hand collected from their publicly available curriculum vitae. Data on bank age was sourced from Orbis. Finally, relevant macro economic data was obtained from the database of the World Bank.

5.2 Econometric Model Specification

In order to test our hypotheses, we implemented a panel model where we included a bank performance proxy as a dependent variable and a set of corporate governance measures as independent variables. Relevant control variables were also included according to the prior literature. According to Hsiao (2014 pg.5), a panel regression aside predicting more accurate inference of our model parameters will also control for the impact of unobserved (individual specific and time invariant) heterogeneity across the banks included in order to obtain valid inferences on the reported estimates. For instance, banks may maintain distinct strategic actions, which can influences their governance variables and performance over the period of the study. Specifically, we tested a general model;

$$\begin{aligned} \boldsymbol{BANK\_PERF_{IJ}} = \propto\ &+ \sum \boldsymbol{\beta_i} * \boldsymbol{Board\ Structure\ and\ Activity\ Variables_{IJ}} \\ &+ \sum \boldsymbol{\beta_i} * \boldsymbol{Board\ Composition\ and\ Diversity\ Variables_{IJ}} + \sum \boldsymbol{\beta_i} * \boldsymbol{Control\ Variables} \\ &+ \boldsymbol{\varepsilon} \_\_\_\_\_ (\mathbf{1}) \end{aligned}$$

In order to test our hypotheses, this model is tested with this specification:

$$\begin{aligned} \boldsymbol{BANK\_PERF_{IJ}} = \propto\ &+ \boldsymbol{\beta_1} * \boldsymbol{Ln\_BS_{IJ}} + \boldsymbol{\beta_2} * \boldsymbol{Ln\_TSK\ \ MP_{IJ}} + \boldsymbol{\beta_3} * (\boldsymbol{Ln\_BS_{IJ}} * \boldsymbol{Ln\_TSKCMP_{IJ}}) \\ &+ \boldsymbol{\beta_5} * \boldsymbol{BC\_G_{ij}} + \boldsymbol{\beta_6} * \boldsymbol{EXEC_{ij}} + \boldsymbol{\beta_7} * \boldsymbol{INDP_{ij}} + \boldsymbol{\beta_8} * (\boldsymbol{EXEC_{ij}} * \boldsymbol{INDP_{ij}}) + \boldsymbol{\beta_9} \\ &* \boldsymbol{F\_BQUAL_{ij}} + \boldsymbol{\beta_{10}} * \boldsymbol{FDR_{ij}} + \boldsymbol{\beta_{11}} * \boldsymbol{AGE_{ij}} + \boldsymbol{\beta_{12}} * \boldsymbol{Ln\_SIZE_{ij}} + \boldsymbol{\beta_{13}} * \boldsymbol{Ln\_GDP_{ij}} \\ &+ \boldsymbol{\varepsilon} \_\_\_\_\_ (\mathbf{1.1}) \end{aligned}$$

Also, we specify Equation 1.2 as:

$$\begin{aligned} \boldsymbol{BANK\_PERF_{IJ}} = \propto\ &+ \sum \boldsymbol{\beta_i} * \boldsymbol{Board\ Structure\ and\ Activity\ Variables_{IJ}} \\ &+ \sum \boldsymbol{\beta_i} * \boldsymbol{Board\ Composition\ and\ Diversity\ Variables_{IJ}} + \boldsymbol{\beta_i} * \boldsymbol{POST} \\ &+ \sum \boldsymbol{\beta_i} (\boldsymbol{POST} * \boldsymbol{Board\ Structure\ and\ Activity\ Variables_{IJ}}) + \\ &* \sum \boldsymbol{\beta_i} (\boldsymbol{POST} * \boldsymbol{Board\ C\ \ mposition\ and\ Diversity\ Variables_{IJ}}) \\ &+ \sum \boldsymbol{\beta_i} * \boldsymbol{Control\ Variables} + \boldsymbol{\varepsilon} \_\_\_\_\_ (\mathbf{1.2}) \end{aligned}$$

Equation 1.2 aims to empirically test if there exist any structural breaks for the results and also explore the impact of the CRD IV internal governance guidelines on the relation between board structure dimensions and bank performance during the Pre

and Post-implementation periods. Pathan and Faff (2013) follow a similar specification to analyze the pre and post-SOX impact on bank board structures and performance.

5.3 Variable Definitions

5.3.1 *Measure of Bank Performance (Dependent Variable)*

We use three measures of bank performance: Return on Equity (ROE), Tobin's Q and Economic Value Added (EVA). These measures of performance and have been widely used in the literature (see Table 1). ROE reveals how much profit the bank generated with the money shareholders have invested and it is operationalized for a given year as the ratio between the net incomes available for common shareholders to the average total common equity. As an alternative performance measure, we operationalize Tobin's Q as the ratio of the market value of the bank to the replacement cost of the bank's assets (Yermack 1996; Volonté and Gantenbein (2016). The Tobin's Q ratio is useful for the valuation of a company. It is based in the hypothesis that in the long run the market value of a company should roughly equal the cost of replacing its assets.

Griffiths, Fogelberg and Weeks (2002) citing Uyemura et al., (1996) pointed out the superiority of economic measures of performance, specifically the EVA, over the accounting measure (ROE) discussed above. The authors stated that unlike the economic measures, the accounting measures of performance provide an indication of average profitability which may be unrepresentative, do not reflect risk, and cannot accurately assess shareholder value creation better than the EVA. For this reason, the EVA becomes a suitable bank-specific performance measure. Stewart (1992) defined this measure as the current period after-tax economic earnings net of the charge for the use of capital. Hence to compute the yearly EVA for each bank, we follow Uyemura et al., (1996) and Griffiths et al., (2002) methodology:

$$EVA = NOPAT - Capital\ Charge$$

where NOPAT represents the banks' net operating profit after tax. The "capital charge" is decomposed into the total investment that shareholders and debt holders have made in the bank multiplied by the Weighted Average Cost of Capital (WACC) for the period. We standardize the resulting values using the year-end total assets to eliminate any size effect since the euro value EVA is a function of bank size. So our final economic measure of operational performance included in our regression becomes:

$$EVA_{it} = \frac{NOPAT_{it} - (WACC_{it} \times Total\ Capital_{it})}{Total\ Assets_{it}} \times 100$$

5.3.2 *Independent Variables*

Board Structure and Activity Variables

In order to test our hypotheses, we captured the effect of relevant board structure and activity variables. The first board structure variable we included in our model is the bank board size. Yermack 1996 and Boone et al., 2007 have argued that board size varies according to firm complexity. So we standardize board size from any bank complexity effects by operationalizing it as the natural logarithm of the number of directors on the bank board at the end of the financial year (*Ln_BS*). Next, the complexity of board activities is operationalized as the natural logarithm by the number of activities undertaken by the supervisory board during the year (*Ln_TSKCMP*). This is obtained by a hand-count of the activities undertaken by the board in a year as reported in the annual reports usually under the sections " activities of the board", "how the board used it time" and "highlights of the board's activities". Where none of these sections exist to vividly inform on the tasks undertaken by the entire board, the activities undertaken by the various committees on the board is summed up to represent that of the entre board on the assumption that the board in totality is made up of its standing committees.

In order to test our first hypothesis, we include the interaction between bank board size and the complexity of board activities ($Ln\_BS \times Ln\_TSKCMP$) as a variable to capture any moderating effect board task complexity has on the bank board size and performance relation.

Our final board structure variable, the co-existence of all basic committees specific to a period (*BC_G),* is captured with a composite variable, which is represented as a dummy, 1, if all basic committees co-exist and 0 otherwise. Since the constituent of basic committees changed at a point (pre and post CRD IV implementation periods) within the period covered for the general analyses, the *BC_G* observations relating to the pre CRD IV implementation period (2011-2012) represented the co-existence of the audit, nomination and compensation committees (*BC_1)* while that of the post CRD IV implementation period (2013-2015) represented the co-existence of an audit, nomination, compensation and risk committees (BC_2).

Board Composition and Diversity Variables

Next, the executive board representation (*EXEC*) has been calculated as the proportion of top management executive among the board of directors. It must be clarified that, not all inside directors belong to this class of board members. For example, although employee representatives on board are non-independent directors, they are excluded from this class of executive directors. The degree of board independence (*INDP*) is measured as the proportion of board directors without any material or pecuniary relationship with company, except the board seat. Following from these, we include an interaction variable, ($EXEC \times INDP$), to capture the mediating effect executive board directors have on the impact independent directors make on bank performance.

The first diversity related variable we included is our measure of female directors' expertise[6] (*F_BQUAL*). To operationalize this, we compute the arithmetic mean of the

[6] Unlike Dunn (2012), which measured female directors board capital with a dummy according to Hillman et al.'s (2000), we measure human capital of female directors with the average years of finance, banking, academic and leadership experience. Our measure of female board capital although an average measure, encompasses Hillman et al.'s (2000) typology of board directors. Thus, our account for the "years" of role (finance, banking, academic) and leadership experience of a female

years of finance, banking, academic and leadership experience of all the female directors in a given year. The resulting measure is divided by the average experience of entire board members of the same period in order to capture the relative impact of female directors expertise on bank performance.

Finally, *FDS* is another measure of diversity and indicates the proportion of directors domiciled to a host country of the bank's subsidiary.

CRD IV variables

POST is a post-CRD IV indicator represented as a dummy variable that equals 1 if the year is 2013-2015 and otherwise 0. This binary variable is interacted with each of our main variables to assess how the introduction of the CRD IV influenced the impact of board structures on bank performance.

5.4 *Control Variables*

In order to reduce omitted variable bias, we control for the effect of some variables considered important according to the prior literature. The longer the bank has been established, the more robust the bank's operational resources may be to affect its performance (Pugliese and Wenstøp 2007). For this reason, we control for the effect of Bank age as the log of the number of years since the firm's incorporation plus 1. We included also the book value of the banks' total assets at the end of each year as a proxy for the effect of bank size (*Ln_SIZE*) on performance. This controls for firm-level differences among the sample banks. Owing to the important role banks play in an economy, the variable nominal gross domestic product in current prices (*Ln_GDP*) was also included as a country-level control variable. This has the objective of capturing country level as well as the macro economy's effect on bank performance. Given the recent slow down within the EEA, we would expect a negative impact on bank performance. The logarithm of total assets and GDP are taken to standardize their values.

6. Results

6.1 Descriptive Statistics

Table 4 present the descriptive statistics for the 190 bank-year observations for the 5-year reference period (2011 to 2015). Table 4 shows the average board size of a D-SIBs as 14 members. Independent directors on average form 62% of bank board directors. On average, about 13% of board members are executive managers whiles 24% are women. The proportion of directors who are foreigner and are domiciled to a host country of the D-SIBs subsidiaries approximate 14%. Female directors had on average 28 years of banking, finance and relevant leadership experience. Also, on average bank board s undertakes about 39 activities within year. All banks had an audit committee. This indicates the importance of the audit committee to banking

director rightly considers the attributes that *insiders, business experts, support generalists, supports specialists* and *community influential* possess.

operations and explains why more emphasis has been placed on it by the prior literature (see Fama and Jensen 1983; Uzun et al., 2004). Hence, the audit committee is considered a default committee whose impact is captured by the impact of other existing committees (Lam and Lee, 2008). We accounted that 75%, 81% and 78% of the D-SIB boards have a nomination (*NOM*), compensation (*COMP*) and risk (*RSK*) committees respectively in addition to an audit committee. Consequently, 54% of the banks had in place all regulatory recommended committees that were considered basic to a period. The average size (proxied by the book value of bank total assets in each year) is €6.45 billion accompanied by an average ROE, and EVA of 4.276% and -€5.3 billion respectively. On average, our data reports a Tobin's Q of 1.029, which informs that our banks are slightly overvalued.

[[*Please Insert Table 4 here, Descriptive Statistics*]]

Table 5 presents the pairwise correlation matrix for all the defined variables, which is a preliminary assessment of the relationship between the dependent variables and the independent variable. *ROE,* although negatively and significantly correlated with *Ln_BS* ($p-value<0.10$), *BC_G* ($p-value<0.05$), *Ln_TSKCMP* ($p-value<0.01$) and *Ln_GDP* ($p-value<0.001$) is positively correlated with the average experience of female board directors ($F\_BQUAL, p-value<0.01$). Tobin's Q reports a significant and negative correlation with *EXEC* ($p-value<0.10$), *INDP* ($p-value<0.001$), *BC_G* ($p-value<0.10$), *RSK* ($p-value<0.05$) and Bank age ($p-value<0.01$). Our economic measure of bank operational performance, EVA, is positively and significantly correlated with *Ln_BS* ($p-value<0.01$), *BC_G* ($p-value<0.05$) and Bank Size ($p-value<0.001$). Also, EVA is negatively correlated with *INDP* and *Ln_AGE* at a significance level of 5% and 0.1% respectively.

As for the issue of multicollinearity, we argue that it is not present in the analysis because the greatest VIF factor found was 2.25 and the average VIF was 1.67. These are substantially below the cut-off of 10 suggested by Hair et al. (2006), which eliminate concerns of the statistical inclusion of any of our explanatory variables.

[[*Please Insert Table 5, Correlation Matrix here*]]

6.2 Inferential Results

Table 6 reports the regression results of equation 1.1 when ROE, Tobin's Q and EVA are used alternatively as our dependent variable. Specifically, both a fixed and random effect models were tested. Subsequently, the Hausman post-estimation test[7]

[7] For instance, the Hausman test when ROE is used as a measure of bank performance has the following results- Null hypothesis: GLS estimates are consistent; Asymptotic test statistic: Chi-square (13) = 21.90 with p-value = 0.0570. Thus, the random Effect Estimation model best estimates our coefficients in this case.

shows that *the random effect model* better estimates our regression coefficients when ROE and EVA are used as the dependent variables.

[[*Please insert Table 6 here, Regression Results*]]

Model 1 from Table 6 shows the examination of the effects of our main variables (i.e. Board size, the proportion of executives on board, board independence, the relative female directors' experience, the existence all basic committees and task complexity variables) and our interactions variables of interest on bank performance. Model 2 shows the examination of the effects of our control variables. Model 3 —the full model—includes all the main effects, the interaction variables and our control variables. The interaction between the proportion of executive directors and independent directors was included in order to test the moderating effect predicted in Hypothesis 2. Also, the interaction between board size and task complexity was added in order to test the moderating effect predicted in Hypothesis 1.

In Model 3, although the relationship between board size (*Ln_BS*) and bank performance is negative across all our three measures of bank performance, it remain significant only for the case of Tobin's Q ($\beta = -1.038, p < 0.01$). This is consistent with some earlier studies (See Staikuras et al. 2007 and Pathan & Faff, 2013 in Table 1). Subsequently, hypothesis 1 proposed that this bank board size and performance relationship is positively moderated by the complexity of the board's activity. The negative and significant coefficient of *Ln_TSKCMP* under Model 3 when bank performance is proxied by the Tobin's Q indicates that complex board activities undermine bank performance however, the effect of its interaction with board size is positive and specifically significant for the case Tobin's Q ($\beta = 0.283, p < 0.01$), thus offering support for our first Hypothesis.

Hypothesis 2 argued that having executive directors on board positively moderates the relationship between board independence and bank performance. The main effect reported by the board independence coefficient is negative and significant for ROE ($\beta = -15.31\ p < 0.01$) and EVA ($\beta = -1.351\ p < 0.001$). As anticipated, the coefficient of the interaction between the proportion of executive directors and proportion of independent directors on a bank's performance is positive and significant for ROE ($\beta = 88.92, p < 0.001$) and not for the case of the Tobin's Q and EVA. Thus, in terms of the ROE our second hypothesis is well argued for and demonstrated.

Hypothesis 3 stated that the existence of all basic committees on a bank board has a positive relationship with its performance. As shown in Model 3 for case of EVA, the coefficient of the composite variable, *BC_G* is positive and significant in accounting for bank performance ($\beta = 0.265, p > 0.10$), hence providing a weak support for hypothesis 3.

Hypothesis 4a stated that there is a positive relationship between the relative human capital (experience and expertise) of female board directors and bank performance. We attain no support for this hypothesis since Model 3 reports a positive yet insignificant coefficient for *F_BQUAL* across all measures of bank performance ($\beta = 3.581, p > 0.10$) for ROE, [($\beta = 0.0278, p > 0.10$) for Tobin's Q and [($\beta = 0.181, p > 0.10$) for EVA. Also, contrary to our expectation, the coefficient of the variable representing the proportion of directors who are foreigners and are domiciled to the host country of the bank's subsidiary report a negative

insignificant relationship across all the measures of performance; ($\beta = -3.924, p > 0.10$) for ROE, [($\beta = -0.223, p > 0.10$) for Tobin's Q and [($\beta = -0.651, p > 0.10$) for EVA, thereby also offering no support for hypothesis 4b.

6.3 Discussion

6.3.1 The General Case for Bank Internal Governance

The negative relationship between board size and performance is consistent with the finding of Hermalin and Weisbach (2001) and more recently Wang et al. (2012) and is indicative of the fact that a larger board is detrimental to the operations of banks. That is, a larger board size inhibits timely actions, efficient coordination and integration of information (i.e. strategy and knowledge) among bank board members. Furthermore, finding support for Hypothesis 1 when Tobin's Q is used as our measure of bank performance suggests that, banks that increase their board size taking into consideration the complexity of their activities observe a positive impact on their performance- a higher market valuation of its assets. We offer an explanation for this. The distinctive external regulatory structures faced by banks paradoxically position them to better anticipate their operational activities relative to other entities. Specifically, the bank board terms of reference document, existing and prospective internal governance directives which are regulatory driven components of a bank's corporate governance system to a greater extent inform bank boards of their impending duties and related activities. Consequently, this anticipation guides bank boards to decided-on an optimal board size that can effectively undertake the anticipated board activities which enhance their performance and value.

The significant negative board independence coefficient for the case of ROE and EVA is in line with Ferreira's (2015) acknowledgment that any regulation that forces firms (including banks) to do things that were not doing before (i.e. increasing independent directorship) is likely to impose some costs. Likewise, this converges with Belkhir's (2009) discussion that the presence of outside directors entails costs to the entity that takes the form of fees, travel expense and stock options, which negatively affect performance. To fully comprehend the observed relationship for the case of banks in the context of the CRD IV consolidating internal governance directives we provide an alternative explanation. The significant negative relationship between the proportion of executive board members and performance for the case of ROE (Table 6) suggests that, board executives undertake on their own opportunistic actions (Jensen and Meckling, 1976) by concealing sensitive operational information from outside directors. This would not only result in a higher agency cost but also could create an information asymmetric environment that undermines the effectiveness with which independent directors undertake their advisory and oversight roles. This would justify the significant negative effect reported by board independence coefficient as well.

The results support our second hypothesis that expects performance-enhancing benefits from the interaction between board executives and independent directors. On one hand, independent directors by means of collaboration control with executive directors are able to act effectively on their oversight role as checks to mitigate the executive director related agency costs. On the other hand, executive directors are also more likely to willingly divulge material and sensitive operational information

which would limit if not eliminate information gaps that independent directors would have encountered in discharging their advisory and oversight duties. Our explanation is in line with Harris and Reviv's (2008) argument that, granting an insider control of the board may provide greater incentives for outsiders to become informed and thus increasing the shareholder value. Hence, we have offered empirical support for the benefit the consolidating guideline anticipates from the effective interaction between the supervisory and management functions [Section III PART B.1 (10) paragraph 1 of document GL44]. Intuitively, Dedu and Chitan (2013) described ROE as the shareholder's remuneration hence making it as a direct performance measure of shareholder welfare. With the shareholder's interest being a central concern for corporate governance, it is indicative that having an appreciable mix of independent and executive board directors who actively interact or share control will at least be value enhancing for shareholders (ROE).

We did not find any systematic evidence for Hypothesis 3 and this is consistent with the findings by Klein (1998). The author examined the effects of the audit, compensation, nominating, investment and finance committees on the performance of 486 S&P 500 firms and found no significant relationship between them. She explains that, the effective monitoring performance of these committees may not have been captured yet given the period under study. In addition, Hayes, Mehran and Schaefer (2005) accounted that most board committees are evolutionary structures that come into existence merely for regulatory compliance and not for performance enhancing purposes. Hence, the authors described the imposition of some board committees by regulators as a natural response to crisis. These two insights provide an explanation for the insignificant impact our study reports for the co-existence of all basic committees. Based on these, we establish that simply having all the basic committees on a board does not guarantee enhanced shareholder welfare as the new consolidating directive anticipates achieving with that guideline.

We did not find any evidence to support our claim that the experience and expertise (human capital) of women representation on a bank board would enhance the performance of the bank. Regardless this suggests that other in-depth characteristics of female directors such as their leadership styles (Matsa and Miller, 2013) and their ownership interests may better explain the value proposition motivating the constant advocacy for greater female representation on boards and may be the subject for future research. This could also imply that there still exist competence gaps for female directors as documented by the GL44 (2010, pg. 8 paragraph 21) and this may take time to be bridged as the increasing trend of female director's average experience shows in Table 3.

Also, contrary to the findings of Dedu and Chitan (2013), this study reports an insignificant influence on performance by foreign directors domiciled to the host country of a bank across all our three measures of bank performance. We offer two possible explanations for this relation. First, similar to Stefanescu (2011), our finding may be indicating that the international subsidiaries of banks are highly adapted to their home country's organizational structure and business environment. This would render the ineffective implementation of innovative solutions offered by the foreign directors. Second, according to Masulis et al. (2012), a foreign director's impact on firm performance may report a net effect empirically since the benefits as well the costs of having foreign directors on boards usually manifest concurrently. On this account, we also attribute our finding to a zero sum effects of having this class of directors on a D-SIB board.

6.3.2 Pre Versus Post CRD IV Internal Governance Impact

A further test to detect any structural change in relationships that were reported by our results under as a result of the implementation of the CRD IV internal governance directive was undertaken. Specifically, a Post CRD IV dummy and its interactions with the board structure, activity and diversity variables are included in equation 1.1 as additional covariates. This resulted into Equation 1.2 specified above. This specification allowed for the assessment of how the introduction of the CRD IV influenced the impact of board structures on bank performance (Pathan and Faff, 2013). The results of this test are presented in Table 7.

[[*Please insert Table 7 here, Structural Break Regression Test Results*]]

Focusing on the variables relating to our Hypotheses 1-4, Table 7 shows that the positive moderation role of board task complexity on the board size and performance relation is significant for all our measures of bank performance during the pre but not the post-implementation period. For this reason, we document that the alignment of bank boards structures (i.e. board size) in accordance to operational complexity as directed in Section III Part B 14 of GL44 had not enhanced bank performance three years into the CRD IV's implementation. An explanation to this is that, beyond a certain level of task complexity, the continual alignment of board structures (i.e. increasing board size) accordingly will lead to greater coordination costs and a lower sense of responsibility among the individual directors which may counter the performance benefits which accrue as a result of determining the appropriate board size on the board activity.

The support we attained for our hypothesis 2 – the effective interaction between executive and independent board directors positively impacts bank performance – holds only for the pre-implementation period when bank performance is measured with the ROE and the Tobin's Q. Contrary to expectations, Table 7 shows that there is no systematic evidence to support any performance enhancing impact of the interaction between executive and independent directors during the post-implementation periods. This may be indicative that, there could still exist some diverging interest between these classes of directors on bank that limits their effective interaction during the post-CRD IV.

Furthermore, the coefficient of *POST X BC_G* for all our measures of performance indicates that banks that have kept all the regulatory recommended basic committees have had no impact on their performance during the post-CRD IV implementation period which is counter intuitive to our expectation. We explain that, the inclusion of the risk committee as an additional basic committee to relieve the audit committee and its directors of some duties and subsequently specialize in them (for e.g. determining and advising the banks on its risk appetite) did not impact on bank performance in the post-implementation period.

Furthermore, we observe no structural break for the result we attained for our hypothesis 4a for the post-CRD IV implementation periods. However, more striking is the insignificant impact of the relative expertise of female board directors' on bank performance during the post-implementation periods despite the increasing

representation and expertise of women directors on boards (See Dunn, 2012 and Table 3). From this post-CRD IV finding we believe that the main reason for including more female directors especially after the post-CRD IV period might be the increased public pressure for equal gender representation rather than the bank performance enhancement females can make through their expertise.

Finally, the lack of support for our hypothesis 4b does not remain consistent for all the three measures of bank performance during the post-implementation period. From Table 7, Foreign board directors who are domiciled to a host country have become detrimental to the performance of banks (ROE and Tobin's Q) in the post-CRD IV periods. Thus, banks that have complied with Article 60 of Directive 2013/36/EU and maintained directors of other nationalities may have incurred substantial oversight costs by way of higher attendance fees (Masulis et al., 2012). Also, these foreign directors usually distanced from the headquarters may have been deprived of valuable information and are usually not adapted to the local organizational structure and business environment, which limits their ability to monitor effectively (Coval and Moskowiz 2001). Furthermore, international subsidiaries of banks as we explained earlier may be highly adapted to their home country's organizational structure and business environments, which renders the contributions of foreign directors ineffective. Resultantly, bank boards that comply with the CRD IV directive in this direction will experience performance-declining effect as shown in Table 7.

Although we attain a structural break for most of our results during the post-CRD IV, our results provide some evidence of a different effect of the CRD IV on the impact of board structure in banks on their performance.

6.4 Conclusion

Generally, the substantial literature on corporate governance elements and bank performance relationships can be described as mixed in terms of the results they present. In this paper, we have extended knowledge showing the relevant moderating role of the board task complexity. By so doing, we offered an empirical support to the findings of earlier studies (Table 1) that a smaller board size on its own is appropriate for the case of banks. However, to maintain board size as an effective corporate governance dimension, banks ought to align their board size according to the anticipated complexity of their anticipated board activities for a given period. We argued that the peculiar external regulating system for banks facilitates the ease with which they can anticipate the activities. That is, regulatory guidelines and bank board terms of reference inform bank board of their periodic activities in advance. This could serve as a springboard for bank boards to determine the apt board size for effective operations.

On one hand, we show that an alternate corporate governance mechanism for enhancing shareholder value or welfare is ensuring a desirable representation of executive and independent directors who effectively interact. For this reason we affirm that the CRD IV internal governance guideline which encourages adequate representation of both executive and independent directors on bank boards is a step in the right direction. Also in this regard, we recommend that regulators and future research should focus on finding mechanisms that will limit the tension (i.e. promote effective interaction) between executive and independent board directors in order to achieve higher shareholder value. On the other hand, although we find no support for

the co-existence of all regulatory recommended bank board committees generally, we find empirical evidence that mandating the inclusion of a risk committee as part of the set of basic committees that existed during the pre-CRD IV period has been beneficial as proposed by the regulations. That is, the risk committee has not only relieved directors of the audit committees of their time to focus on other oversight duties but also has facilitated the specialization of some activities that were previously undertaken by the audit committee.

Also, we found no substantial support for the performance enhancing benefits of the inclusion of female and foreign directors on bank boards as the CRD IV internal governance directive proposes especially after post-CRD IV. Thus, future research should go beyond the easy-to-observe diversity (e.g. Gender, age, race, independence and nationality) dimensions of directors and focused more on recommending additional innate characteristics of directors which make them relevant assets to bank boards as mandatory selection criteria.

Particularly, our findings for our board diversity and basic committee variables recalls the concern raised by the Higgs report (2003) that Corporate Governance should not be seen as a "box ticking" exercise of having seemingly board structures and mechanisms, but rather a working system that ensures maximum oversight for value creation. Hence, the effectiveness with which these recommended board structures undertake their duties rather than their mere existence should be the focus for future research.

Finally, an assessment of the pre and post-CRD IV implementation impact showed that some of the performance enhancing benefits proposed by the novel internal directives has not materialized yet. This could be partly attributed to the few years of observations employed for our post-implementation analysis. As such, we direct future researches to extend this study by employing more years of observations. Nevertheless, the findings in our study support the notion that board structure is an important determinant of the bank performance. For instance, the inclusion of independent and executive directors could enhance the bank board effectiveness, which in turn increases the shareholder value. Similarly, aligning bank board size to the complexity of board activities improves the bank performances. Based on these any regulation aimed at improving board governance should benefit from the findings of this study.

Table 1 Sample Studies that links Corporate Governance to Performance for the past two decades

Study	Performance Measure	Dataset(focal period)	Board Size	Executive Directors	Board Independence	Co-existence of Basic Committees	% of women directors	Board Exp/Quality	Foreign Directors
Adams and Mehran (2012)	Tobin's Q	35 US Bank Holding Companies (1964-1985)	+		≠				
Aebi et al.,(2012)	Buy-and –hold returns and ROE	372 US Banks (From July 2007- December 2008)	+		-				-
Dedu and Chitan (2013)	ROA, ROE and Z-Score	Romanian Banking Institutions (Quarterly data from 2004-2011)	≠		+	-			+
Wang et al. (2012)	Efficiency Index based on CAMEL indicators	68 USA BHCs (2007)	-		-				
Staikuras et al. (2007)	ROA, ROE and Tobin's Q	58 European Banks (2002-2004)	-						
Muller-Kahle and Lewelly (2011)	1 if the firm is Subprime Specialist and 0 otherwise	Matched-pair sample of US firms in the financial industry (1997-2005)			≠				
Bøhren and Strøm (2010)	Tobin's Q, ROA and Market Return on Stock				≠		-		
Erkens et al. (2012)	I. Buy-and-hold returns II. Expected default frequency III. Equity raised	296 financial firms (First quarter of 2007 – third quarter of 2008)	≠		I. - II. ≠ III. +				≠
De Andres and Valledo (2008)	Tobin's Q, ROA, Shareholder Market Return (SMR)	Large International Commercial Banks from Canada, USA, UK, SPAIN, France and Italy (1996-2005)	∩		∩				
Harris and Raviv (2008)*	-	-		+/-					
Adams and Ferreira (2007)*	-	-		+/-					
Erhardt et al., (2003)	ROA and ROI	112 US Fortune Listed companies					+		
Hermalin and Weisbach (2001)	ROE and Tobin's Q	Review of the Empirical literature	-						
Dutta and Bose (2006)	ROA and ROE	15 Bangladesh Banks					+		
Van de Berghe and Levrau, (2004)	-	A qualitative study of the Board of directors of 30 Belgian listed companies	+						
Rosenstein and Wyatt(1990)	Share Price	WSJ Firms that appointed directors (1981-1985)			+				
Adam and Ferreira (2009)	Tobin's Q and ROA	S&P (500), Mid and Small Cap firms (1996-2003)					-		
Liang , Xu and Jiraporn (2013)	ROE, ROA, Non	50 largest Chinese Banks (2003-2010)	-		+				

	Performing Loans, NCO ratio								
Zahra and Stanton (1998)	ROE, Profit per share, earning per share, Profit Margin	100 Fortune 500 firms					≠		
Klein (1998)	ROA, Jensen's Productivity and Market Returns	485 and 486 S&P 500 firms (1992 and 1993)				≠			
Faleye and Krishnan (2010)	Borrower's long term S&P credit rating.,	317 bank-years for 51 USA Banks (1994-2006)	-		-				
Pathan & Faff (2013)	ROAA,ROAE, PTOI, NIM, Tobin's Q and Stock Returns	US Bank Holding Companies (1997-2011)	-		-		+		
Johl et al., (2015)	ROA	700 public listed Malaysian Firms (2009)	+		≠			+	
Masulis et al., (2012)	ROA and Tobin's Q	Firms in the S&P 1500 Index (1998-2006)							-
Volonté &Gantenbein (2016)√	Tobin's Q	224 Listed firms in Switzerland	≠	≠				**?**	
Agoraki et al (2010)	I. Cost Efficiency II. Profit Efficiency	Large European Banks (2002-2008)	-		I. - II.≠				
De Cabo et al.,(2012)	I.ROAA deviation II.Equity on Total Assets	612 European Banks (2006)ß	-				+		
Belkhir (2009)	Tobin's Q and ROE	192 BHCs and Savings and Loan Holding Companies (1995-2002)	+						
Pearce and Zahra (1992)	Perceived Environmental Uncertainty	119 fortune 500 companies (1983-1989)	-		+				
Pathan (2009)	Total risk, Z-Score	212 large USA BHCs (1997-2004)	-		-				
This Study	**ROE, Tobin's Q and EVA**	**38 EEA D-SIBs (2011-2015)**	**- (+)**	-	-	+	≠	≠	≠

Note: +: Positive relationship; -: Negative relationship; ≠:Insignificant relationship; ∩: Curvilinear relationship, ?: multiple relationships and –(+):Individual negative effect but a positive interactive effect; +/-: Mathematically proven that board of directors have a positive or negative influence depending on the proportion of outside directors on the board. *These are theory development papers that prove mathematically the relationships between bank performance, outside directors and inside directors. √ A paper with three measures that meets our consideration for board quality; director's financial know-how (-), director's industry know-how (+) and directors with experience as CEOs (≠).

Table 2 shows all steps to obtain the basic sample.

Country	Banks	Year of D-SIB	Dropped	Reason	Final
Belgium	Dexia	2011, 2012	✓	Lack of annual report Information	0
	Bank of New York Mellon	2011, 2013	✓	Lack of annual report Information	
Denmark	Danske Bank	2015			3
	Nordea	2015	✓	Group Consolidated CG Report	
	Nykredit	2015	✓	Lack of annual report Information	
	Jyske Bank	2015			
	SydBank	2015			
	DLR	2015	✓	Lack of annual report Information	
Finland	Nordea	2011,2012	✓	Group Consolidated CG Report	0
France	BNP Paribas	2011-2015			5
	Crédit Agricole	2011-2015			
	Société Générale	2011-2015			
	Banque Populaire CE Group	2011-2015			
	Credit Mutuel	2011, 2012	✓	Lack of annual report Information	
	HSBC France	2011,2012			
Germany	Deutsche Bank	2011-2015			5
	Commerzbank	2011,2012			
	Landesbank BW	2011, 2012			
	DZ Bank	2011, 2012			
	Bayerische Landesbank	2011-2012			
Italy	Unicredit	2011-2015			2
	Intesa SanPaolo	2011,2012			
Netherland	ING Bank NV	2011-2015			3
	Rabobank	2011, 2012			
	ABN AMRO Bank NV	2011, 2012			
Norway	DNB ASA	2015			2
	Nordea Bank Asa	2015	✓	Group Consolidated CG Report	
	Kommunalbanken	2015			
Spain	Banco Santander	2011, 2012, 2015			5
	BBVA	2011-2015			
	Banca Civica	2011	✓	Integrated into Caixa Bank in 2011	
	Bankia	2011			
	Banco de Sabadell	2012			
	La Caixa	2012			
Sweden	Nordea*	2011-2015			4
	Swedbank	2015			
	Svenska Handelsbanken	2015			
	Skandinaviska Enskilda Ban-A (SEB)	2015			
Ireland	Merrill Lynch International	2011, 212			1
United King	HSBC	2013, 2014, 2015			8
	Barclays	2013, 2014, 2015			
	Royal Bank of Scotland	2013, 2014, 2015			
	Santander UK	2013, 2014, 2015			
	Standard Chartered	2013, 2014, 2015			
	Nationwide Building Society	2015			
	Lloyds Banking Group	2015			
	Cooperative Bank	2015			
TOTAL					**38**

*A consolidated Bank group Corporate Governance Report is presented by the Parent company.

Table 4 Descriptive Statistics

VARIABLES	*N*	Mean	StdDv	Min	Max
BS	190	14.18	4.265	6	28
EXEC	190	0.132	0.141	0	0.611
INDP	190	0.635	0.232	0.150	1
GEND	190	0.235	0.120	0	0.500
FDS	190	0.137	0.168	0	0.667
F_BQUAL	190	28.10	6.855	0	52
TASKCOMP	190	38.83	23.89	6	152
AUD	190	1	0	1	1
NOM	190	0.753	0.433	0	1
COMP	190	0.805	0.397	0	1
RSK	190	0.779	0.416	0	1
BC_G	190	0.542	0.500	0	1
ROE	190	4.276	8.828	-43.82	31.30
Tobin's Q	190	1.029	0.225	0.335	2.275
EVA (Millions)	190	-5,277	5,860	-33,570	-122.7
AGE (Years)	190	64.37	63.49	2	289
TOTAL ASSET (Million)	189	645,320	587,145	5,419	2.218e+06
GDP	190	1.950e+12	1.151e+12	2.952e+11	3.868e+12

Table 5

Correlations between Bank performance measures, Corporate Governance Variables, and Other Selected Variables

		1	2	3	4	5	6	7	8
1.	ROE_{it}	1.000							
2.	$TOBIN'S\ Q_{it}$	0.037	1.000						
3.	EVA_{it}	0.417***	0.148*	1.000					
4.	Ln_BS_{it}	-0.121+	0.126+	0.190**	1.000				
5.	$EXEC_{it}$	0.046	-0.125+	-0.085	-0.114	1.000			
6.	$INDP_{it}$	-0.057	-0.266***	-0.149*	-0.463***	-0.125+	1.000		
7.	FDS_{it}	-0.020	-0.082	0.088	0.063	0.283***	-0.018	1.000	
8.	F_BQUAL_{it}	0.188**	-0.030	0.080	-0.031	-0.043	0.073	-0.076	1.000
9.	Ln_TSKCMP_{it}	-0.232**	-0.024	0.061	-0.015	0.048	0.078	0.024	-0.048
10.	BC_G_{it}	-0.178*	-0.130+	0.158*	0.071	-0.004	0.228**	0.074	0.028
11.	RSK_{it}	0.010	-0.160*	0.080	-0.139+	0.169*	0.066	0.046	-0.115
12.	Ln_AGE_{it}	-0.238***	-0.289***	-0.144*	-0.037	0.236**	0.129+	0.031	-0.023
13.	Ln_SIZE_{it}	-0.059	-0.135+	0.280***	0.394***	0.031	0.107	0.396***	-0.053
14.	Ln_GDP_{it}	-0.414***	0.073	0.064	0.535***	-0.134+	-0.257***	-0.015	-0.109

Correlations between Bank performance measures, Corporate Governance Variables, and Other Selected Variables (continued)

		9	10	11	12	13	14	15
9.	Ln_TSKCMP_{it}	1.000						
10.	BC_G_{it}	0.201**	1.000					
11.	RSK_{it}	0.286***	0.274***	1.000				
12.	Ln_AGE_{it}	-0.046	0.252***	0.173*	1.000			
13.	Ln_SIZE_{it}	0.226**	0.289***	0.102	0.043	1.000		
14.	Ln_GDP_{it}	0.409***	0.226**	0.027	0.127+	0.374***	1.000	

+, *, **, *** Indicate statistical significance at the 0.1 0.05, 0.01 and 0.001 levels, respectively, based on two-tailed tests. Variables are defined in Appendix.

Table 6: Corporate Governance Impact on Different Measures of Bank Performance.

	Dependent Variable: ROE			Dependent Variable: Tobin's Q			Dependent Variable: EVA		
	Model 1	**Model2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Ln_AGE		-1.293	-0.981		0.00115	0.0698		-0.0948	-0.0729
		(0.929)	(0.964)		(0.0735)	(0.0783)		(0.0896)	(0.0980)
Ln_SIZE		0.368	1.279		0.304***	0.308***		0.325***	0.405***
		(0.737)	(0.860)		(0.0221)	(0.0243)		(0.0745)	(0.0909)
Ln_GDP		-4.74***	-5.99***		-0.0571	-0.00646		-0.139	-0.371*
		(1.281)	(1.544)		(0.119)	(0.122)		(0.124)	(0.161)
Ln_BS	-36.89*		-25.43	-0.143		-1.038**	-0.869		-2.033
	(15.51)		(16.03)	(0.517)		(0.367)	(1.599)		(1.734)
EXEC	-45.73**		-54.38***	-0.609		-0.323	-0.301		-1.275
	(14.54)		(14.38)	(0.433)		(0.298)	(1.618)		(1.601)
INDP	-11.82*		-15.31**	0.197		0.0253	-0.559		-1.351***
	(4.941)		(4.811)	(0.196)		(0.135)	(0.480)		(0.509)
F_BQUAL	3.198		3.581	-0.108		0.0278	0.0988		0.181
	(3.004)		(2.908)	(0.0828)		(0.0575)	(0.335)		(0.322)
FDR	-1.779		-3.924	-0.191		-0.223	0.249		-0.651
	(5.589)		(5.370)	(0.223)		(0.152)	(0.539)		(0.567)
BC_G	-1.301		-1.200	0.0050		-0.00443	0.297*		0.265+
	(1.266)		(1.241)	(0.0346)		(0.0243)	(0.143)		(0.139)
INDP × EXEC	74.89**		88.92***	0.934		0.481	-0.0359		1.563
	(24.38)		(23.85)	(0.740)		(0.508)	(2.697)		(2.645)
Ln_TSKCMP	-23.94*		-16.70	-0.383		-0.759**	-0.793		-1.303
	(10.61)		(10.68)	(0.344)		(0.243)	(1.102)		(1.158)
Ln_BS × Ln_TSKCMP	8.920*		6.559	0.148		0.283**	0.370		0.587
	(4.130)		(4.110)	(0.132)		(0.0926)	(0.432)		(0.446)
Constant	108.5**	137.1***	232.1***	1.396	-1.269	-0.221	0.803	-0.898	9.693+
	(40.48)	(33.99)	(47.71)	(1.373)	(3.488)	(3.548)	(4.137)	(3.270)	(4.994)
Random Effects	Included	Included	Included				Included	Included	Included
Fixed Effects				Included	Included	Included			
R^2	0.0794	0.2124	0.2825	0.705	0.8136	0.8185	0.0847	0.0958	0.1746
Wald chi2	18.06*	17.48***	38.97***	2.452**	65.46***	17.90***	15.77	20.21***	42.28**
No of Observations	190	190	190	190	190	190	190	190	190
No. of Groups	38	38	38	38	38	38	38	38	38

Standard errors are in parentheses. + p<0.10, * p<0.05, ** p<0.01, *** p<0.001. A Hausman test suggests that the Fixed Effect Estimation Model fits best when bank performance is proxied with the Tobin's Q. Conversely, the Random Effect Estimation model best estimates our parameters when the dependent variable is the Economic Value Added.

Table 7 Pre and Post CRD IV Implementation Impacts on Bank Performance

	Dependent Variable ROE	**Dependent Variable Tobin's Q**	**Dependent Variabl EVA**
Ln_AGE	-1.019	4.790	-0.115
	(0.931)	(5.780)	(0.0892)
Ln_SIZE	1.988*	-0.759	0.366***
	(0.866)	(1.508)	(0.0878)
Ln_GDP	-5.525***	-13.75^{+}	-0.290^{+}
	(1.505)	(7.436)	(0.150)
Ln_BS	-48.06*	-54.00^{+}	-5.946*
	(23.94)	(30.17)	(2.619)
EXEC	-63.14***	-78.31***	-1.017
	(16.10)	(19.55)	(1.833)
INDP	-7.032	-14.47	-1.494*
	(5.672)	(9.029)	(0.604)
F_BQUAL	6.560^{+}	5.392	0.0665
	(3.425)	(3.825)	(0.387)
FDR	1.760	-0.117	0.162
	(6.928)	(10.45)	(0.738)
BC_G	-4.584*	-5.777*	0.328
	(1.974)	(2.235)	(0.224)
INDP × EXEC	103.3***	125.8***	-0.245
	(27.89)	(33.83)	(3.180)
Ln_TSKCMP	-35.48*	-39.41^{+}	-4.354*
	(17.18)	(21.55)	(1.885)
Ln_BS × Ln_TSKCMP	13.34*	15.34^{+}	1.732*
	(6.694)	(8.332)	(0.736)
POST	-32.87	-28.84	-11.23^{+}
	(53.20)	(55.39)	(6.246)
POST ×Ln_BS	14.68	13.50	4.014
	(20.89)	(21.79)	(2.453)
POST ×EXEC	46.87^{+}	29.06	-0.657
	(24.92)	(26.36)	(2.884)
POST ×INDP	-8.276	-7.817	0.300
	(5.257)	(5.472)	(0.619)
POST ×F_BQUAL	-7.310	-7.735	0.453
	(4.686)	(4.709)	(0.552)
POST ×FDR	-10.83^{+}	-13.57*	-1.015
	(6.074)	(6.427)	(0.708)
POST ×BC_G	2.850	3.228	-0.0966
	(2.151)	(2.309)	(0.251)
POST ×(INDP × EXEC)	-70.68^{+}	-33.47	3.735
	(40.90)	(43.16)	(4.735)
POST ×Ln_TSKCMP	14.87	13.56	3.182^{+}
	(15.12)	(16.08)	(1.771)
POST × (Ln_BS × Ln_TSKCMP)	-4.966	-4.706	-1.196^{+}
	(6.010)	(6.361)	(0.704)
Constant	265.6***	528.5*	18.61**
	(64.46)	(224.1)	(6.864)
Random Effects	Included	–	Included
Fixed Effects		Included	
R^2	0.3495	0.6232	0.2034
Wald chi2	59.44***	2.048**	53.40***
No of Observations	190	190	190
No. of Groups	38	38	38

Standard errors are in parentheses. + p<0.10, * p<0.05, ** p<0.01, *** p<0.001. A Chow Test of the difference between the Pre and Post Estimates was undertaken for each dependent variable. The t-stats (*Prob > chi*2) reported were 0.000, 0.0416 and 0.0002 for ROE, Tobin's Q and EVA respectively, offering sufficient evidence against the Null hypothesis- there is no difference between the pre and post CRD IV coefficient. Further checks for any statistical difference between the Pre and Post CRD IV Estimates for our variables of interest (**In Bold**) was done. The resulting test statistics suggested statistical differences. This therefore indicates the presence structural breaks in our results in Table 6.

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