Political connections and remuneration of bank board's members: Moderating effect of gender diversity

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Abstract

This study investigates the effect of the political connections of members of banks' Boards of Directors on the remuneration of these boards, taking into account the gender diversity of their members. Using a panel of observations on 77 banks supervised by the ECB for the period 2013 to 2017, and the generalized method of moments (GMM), our results show that, when analyzing linear effects, political connections have a negative impact on the remuneration of the members of the banks' Boards of Directors, reducing them. However, when investigating the possible moderating effect, we found that when gender diversity is high, there is a non-linear, inverted U-shaped relationship between the political connections and the remuneration of members of the Boards of Directors of banks. Our results also show that the differentiating characteristics of the female gender, accentuate the negative effects of political connections on remuneration, making the institution's interests to be privileged at the expense of those of its personal agendas. Overall, these general results prove to be robust across different choices of the measures used for gender diversity.

Keywords: Political connections, Gender diversity, Remuneration, ECB, GMM.

JEL classification: G21, G28, G34, G41, J16

1. Introduction

The remuneration of members of the Boards of Directors has received considerable attention, both by the academic community and by the business community, especially after the financial crisis of 2007-2008 (Cook et al. 2019). This crisis exposed weaknesses in the banking sector concerning risk control and management (Ayadi et al. 2019). Management remuneration has been identified as one of the causes for the crisis mentioned above, in the sense that it encouraged the taking of excessive risks (Boateng et al. 2019; García-Meca 2016) with real economic impact (Owen and Temesvary 2019). To minimize this weakness, American and European authorities, especially since 2013, have been intensively regulating the remuneration policies of the members of the banks' Board of Directors, to force them to eliminate incentives that were linked to excessive risk-taking (Murphy 2013). The guidelines underlying the regulations were aimed at mitigating the lack of transparency and regulation of the remuneration of the members of the Boards of Directors, questioned at the time of the 2007-2008 crisis (de Andrés et al. 2019).

In addition to the remuneration of banks' Boards of Directors, two other qualitative characteristics of these boards have received particular attention from recent literature: i. the presence of politicians or ex-politicians on banks' Boards of Directors (e.g., Chen et al. 2018; García-Meca 2016; Hung et al. 2018; Hung et al. 2017), which leads to the existence of political connections (PC) and politically connected companies (Chen et al. 2018; Saeed et al. 2016); and ii. the existence of policies and practices that seek to include people considered in some way different from traditional people in organizations, thereby promoting a more inclusive culture (Herring 2009), with emphasis on gender diversity (GD) (e.g., Adusei et al. 2017; García-Meca et al. 2018; Owen and Temesvary 2018, 2019; Rodríguez-Ruiz et al. 2016).

The effect of PC and GD on the remuneration of the Boards of Directors has been studied individually, not allowing for possible interactions (moderating effect) between the two. Furthermore, the direction of its effect is far from being consensual. With regard to PC, recent literature (e.g., Abdul et al. 2018; Ding et al. 2015; Fralich and Fan 2018; Fung and Pecha 2019; García-Meca 2016; Wu et al. 2018) has shown that the effects of PC on the remuneration of board members and/or CEO are positive, negative or simply non-existent. In what concerns the effect of GD, while some studies in the literature have suggested that the latter increases the remuneration of Boards of Directors' members (e.g., Abdul et al. 2018; O'Reilly and Main 2010), other studies either point to the contrary conclusion (e.g., Westphal and Zajac 1995), simply suggest that the effect, if any, is not significant (Fralich and Fan 2018; Fung and Pecha 2019; García-Meca 2016; Wu et al. 2018) or detect a non-linear relationship (e.g., Owen and Temesvary 2019; Pucheta-Martínez et al. 2017). It should be noted that studies devoted to the banking sector are scarce. Of the above mentioned literature, only the study by García-Meca (2016), for Spain, and Owen and Temesvary (2019), for the United States of America, concern the banking sector; all the remaining papers address listed non-financial and financial companies (e.g., Ding et al. 2015; Fralich and Fan 2018; Fung and Pecha 2019; Pucheta-Martínez et al. 2017; Wu et al. 2018).

Taking into account the current state of the art, the present paper studies the moderating effect of GD on the relationship between PC and the remuneration of the Boards of Directors' members in European banks supervised by the European Central Bank (ECB). The proposed study considers the possibility of both linear and non-linear relationships between the variables of interest. To the best of our knowledge, this moderating effect has not been studied before. Thus, in our view, it is important to analyze whether PC have a positive or negative impact on

the remuneration policies of bank administrators and whether the existence of women in these administrations weakens or leverages that effect.

The proposed study conveys relevant contributions to the extant literature. Firstly, it focuses on the banking sector; a sector that plays a vital role in most economies both nationally and locally, for the efficient transformation of investment savings (Ebrahimnejad et al. 2014; Pathan and Faff 2013) and their contribution to the payment and liquidity system (Fama 1985). Only a stable and solid financial market allows the resources obtained by banks (deposits/savings) to be allocated to the most productive projects, thus favoring the economic development of a country (Huang et al. 2015), visible by the future growth of the Gross Domestic Product (Jokipii and Monnin 2013). Indeed, the development of the financial sector affects the speed and pattern of countries' economic development (Levine 1997). Furthermore, the banking sector has specific characteristics, such as asymmetric information, which facilitates the concealment of political motivations in loans, as well as the fact that banks operations, across the economy as a whole, provide more opportunities for political influences (Dinc 2005). In addition, the banking sector is subject to specific regulations, with significant effects on the composition (e.g., Booth et al. 2002) and remuneration (e.g., García-Meca 2016) of its Boards of Directors.

Secondly, the study is based on a sample of 77 banks supervised by the ECB, from 2013 to 2017, a period covering two important levies by the ECB and one by the European Union: i. the introduction of gender quotas in 2013, in order to increase female participation in the Boards of Directors, up to 35% in 2019 (European Central Bank 2018d); ii. the responsibility, assumed by the ECB in November 2014, for the validation of decisions regarding the appointment of members of the Boards of significant banks, assessing the adequacy and suitability of candidates (European Central Bank 2017); and, iii. the Directive 2013/36 / EU (CRD IV), in

force as of July 2013, defining the principles of corporate governance and the structure of remuneration policies, discouraging excessive risk-taking behavior, which can compromise the sound and effective management of risks (in addition to other regulations which prove the importance of board remuneration in banks' solvency). It should be noted that these significant banks, to the best of our knowledge of the literature, have not yet been studied as a whole (moving us away, for example, from García-Meca 2016, who studied a sample of Spanish savings banks, and Owen and Temesvary 2019, who analyzed a sample of North American banks).

Thirdly, the present study makes an important contribution to understand the effect of public impositions on the Boards of Directors (e.g., gender quotas and assessment of members' suitability) on remuneration policies. In particular, this study aims to analyze the moderating effect of GD on the impact of PC on banks remuneration policies, considering linear and non-linear relationships, which, to the best of our knowledge, has not yet been studied. The study also departs from the existing literature (e.g., Fralich and Fan 2018; Fung and Pecha 2019; Wu et al. 2018), as it analyzes the remuneration of the boards, not only of the CEO, since all Boards members are responsible for the management of banking organizations.

Finally, in our view, the study of these relationships provides a valuable source of knowledge for Regulating Authorities (ECB), in that our results may help assess the impact of its two impositions on the remuneration policies of banks. In light of these results, one can evaluate whether: i. its decision to place a 35% gender share is adjusted to the reality of significant banks, ii. PC are perpetuated in the banking system and; iii. Directive 2013/36/EU favours sound management of the banking sector in what concerns board members' remuneration.

The remainder of the paper is structured as follows. Section 2 focuses on the review of the literature relevant to our research questions. Section 3 describes the sample and methodology. Section 4 presents and comments on empirical results. Finally, Section 5 concludes the paper, and suggests future related research.

2. Literature review

One of the consequences of the 2007 financial crisis was the emanation of regulatory measures aimed at the remuneration of bank administrations, especially after 2013. In this sense, the European Union approved the Directive 2013/36/EU, known as CRD IV, establishing that Competent authorities, in particular the ECB, must ensure that banking institutions comply with the principles set out in the directive on personnel remuneration policies (European Parliament and European Council 2013a). This same year, the Regulation (EU) No. 575/2013 of the European Parliament and the European Council also established prudential requirements for credit institutions, highlighting the importance of sound remuneration policies (European Parliament and European Council 2013b). Subsequently, in 2014, the European Commission approved the Delegated Regulation (EU) No. 604/2014, which complements the previous directive, identifying the categories of staff whose professional activities have a significant impact on the institution's risk profile, which include administrators (European Commission 2014). Other diplomas on the subject were issued by the European Banking Authority (EBA), namely the following: i. EBA/GL/ 2015/22, on guidelines for healthy remuneration policies (European Banking Authority 2016a); ii. EBA/GL/2016/06, on guidelines regarding remuneration policies and practices related to retail banking products and services sale and supply of (European Banking Authority 2016b); iii. EBA/GL/2017/11, on internal government guidelines (European Banking Authority 2018). In the same line, the ECB has published

guidelines on remuneration policy, which it sends to the banks under its supervision, stressing the importance of a solid remuneration policy (European Central Bank 2018a, 2019a).

The guidelines mentioned above are intended to promote sound remuneration management of bank administrations. However, the literature has verified that qualitative characteristics of these bodies, such as, for example, the existence of PC, can affect strategic decisions of organizations, including the remuneration policy, one essential determinant of corporate governance (García-Meca 2016).

The existence of PC finds its main foundation in the theory of resource dependency, which maintains that organizations need to acquire and exchange resources, leading to a dependency between companies and external units, of which governments are an example (de Cabo et al. 2012). Such dependence creates risks and uncertainty, and one of the ways to reduce external uncertainty is to establish PC (Hillman 2005), allowing companies to obtain a more reliable resource base to increase their value (Wong and Hooy 2018). Thus, these connections correspond to a social relationship to acquire authority or power (Wong and Hooy 2018), are omnipresent (Banerji et al. 2018) and can be considered a type of "invisible corruption" (Domadenik et al. 2016; Guo 2019). However, it cannot be ignored that, according to Agency Theory, as proposed by Jensen and Meckling (1976), the separation between shareholders and managers generates information asymmetries (agency problems) constituting an incentive for board members with PC to use political resources for their personal interest, to the detriment of shareholders' interests. This can lead, for example, to excessive compensation in the form of higher wages (Shleifer and Vishny 1989), expropriating shareholders' wealth (Bebchuk and Fried 2004). However, in the light of Agency Theory, if management remuneration policy creates agency problems, shareholders can use this same policy to monitor managers, thus mitigating agency problems (Dong and Ozkan 2008).

PC have been studied from different perspectives, referring, for example, to their impact on remuneration policy (e.g., Ding et al. 2015; Fung and Pecha 2019; García-Meca 2016), on performance (e.g., Hung et al. 2017; Wong and Hooy 2018), their role in financial markets (e.g., Faccio et al. 2006), in fiscal policies (e.g., Adhikari et al. 2006; Lin et al. 2015) and job creation (e.g., Menozzi et al. 2012). Specifically, companies with PC more easily obtain investment projects, bank loans (Wang et al. 2018), green subsidies (Lin et al. 2015), face lower tax rates (Adhikari et al. 2006), higher stock quotes (Faccio 2006), as well as greater ease of entry into industries with high barriers (Chen et al. 2014). In addition, it has been shown that PC have a positive effect on employment (Menozzi et al. 2012), increasing the likelihood that companies be rescued in times of economic difficulties (Faccio 2006; Faccio et al. 2006), which leads to a decrease in systemic risk and, consequently, lower cost of capital (Boubakri et al. 2012). Nonetheless, the literature has also reported negative effects of PC on corporate activity. In particular, companies with PC can have lower levels of productivity (Domadenik et al. 2016), make sub-optimal investments (Ling et al. 2016), have higher debt ratios (Faccio 2010) and often elect less competent elements for management positions, for their connections with other members of the Board (García-Meca 2016).

In any event, the recent literature is far from consensual regarding the effects of PC on the remuneration of board members and/or CEOs: while some sustain a positive effect (e.g., Fralich and Fan 2018; García-Meca 2016; Wu et al. 2018) or indicate a negative effect (e.g., Fung and Pecha 2019), other studies find no effect (e.g., Abdul et al. 2018; Ding et al. 2015; García-Meca 2016). It should be noted that, among these studies, only García-Meca (2016) studies the banking sector in a single European country (Spain); all remaining studies involve listed non-financial companies. García-Meca (2016), using Agency Theory as a reference, shows that the presidents of Spanish savings banks with PC use their networks and internal

power to extract a high level of remuneration; however, the percentage of politicians on the boards does not significantly affect the remuneration of these elements, showing only a negative relationship. Also, Wu et al. (2018) rely on Agency Theory to demonstrate that PC bring value to organizations, so they must be considered when determining the remuneration of their CEO. Moreover, companies may be willing to provide higher remuneration, taking into account the benefits associated with PC (Ding et al. 2015; Horton et al. 2012), which can be a strategic factor (Fralich and Fan 2018). In this same sense, Ding et al. 2015 show that politically connected executives receive higher compensation in private companies than in public ones, since they use public companies to obtain power at the expense of higher pay. In addition, these authors conclude that members of boards with PC receive higher remuneration only when owners do not have substantial political influence. However, Fung and Pecha (2019) do not find significant results between the level of remuneration and PC, verifying that members with PC are less likely to receive higher remunerations, which may mean that members with PC intend to hold government positions in the future, not wanting to be associated with excessive remuneration. Finally, Fralich and Fan (2018) conclude that, in Chinese entities, members with PC act in support of the Chinese national government's policy of social harmony, preventing excessive executive compensation.

These dual results in the literature, suggest the possibility of a nonlinear relationship between PC and the remuneration of Boards' members, which, to the best of our knowledge, has not yet been studied. In order to narrow this gap, the following hypothesis is formulated:

H1. PC in ECB supervised banks have a nonlinear influence on the remuneration of its directors.

The study of the impact of GD within Boards has also received increasing attention in the literature. Two main reasons explain this finding: i. women are still underrepresented in

these councils in most countries worldwide (Yap et al. 2017); ii. several European countries, such as Norway, Spain, Finland, Iceland, France, Italy and Belgium, have defined gender quotas in the Boards of Directors (Terjesen et al. 2015), apparently in view of the positive effects of this diversity, according to finance behavioral. This branch of finance observes that male and female economic agents exhibit behavioural differences. For example, women are more risk and competition averse, and their preferences are more flexible (Croson and Gneezy 2009). They also present greater ethical concerns (Ku Ismail and Abdul Manaf 2016), propose less aggressive strategies, invest less in R&D and more in social sustainability initiatives (Apesteguia et al. 2012), which implies that the companies to which they belong have higher levels of social responsibility (Galbreath 2018). It has also been shown that men exhibit overconfidence in decision-making (e.g., Barber and Odean 2001; Huang and Kisgen 2013), while women develop a more confident leadership style than men (Trinidad and Normore 2005).

Studies analyzing the relationship between GD in the Boards of Directors and their remuneration policies also report inconclusive results. While some studies show that GD increases the remuneration of members of the Boards (e.g., Abdul et al. 2018; O'Reilly and Main 2010) and some studies conclude to the contrary (e.g., Westphal and Zajac 1995), other papers report insignificant effects (e.g., Fralich and Fan 2018; Fung and Pecha 2019; García-Meca 2016; Wu et al. 2018). Westphal and Zajac (1995) find that the higher the demographic similarity in the Boards, the higher the CEO's remuneration. Thus, García-Meca (2016) states that directors, being more cautious in remuneration policies, reduce the remuneration of the board members, given their ethical behavior, risk aversion and better ability to identify unethical conduct. Thus, the presence of the women on the Boards of Directors reduces opportunistic behaviors, leading to greater control of the salaries of the members of these boards

(Pucheta-Martínez et al. 2017). However, some studies show a positive relationship between the presence of the female gender and the remuneration of the Boards' members. This relationship is justified by the fact that feminine elements are more generous, have less experience, and can be convinced to grant higher remunerations to CEOs (O'Reilly and Main 2010). Directors may also have difficulties in making decisions on key issues, such as the remuneration of members of the Board of Directors (Pucheta-Martínez et al. 2017). In addition, given that women may also be sought to improve the performance of organizations, they may increase pay in view of this objective (Abdul et al. 2018).

Considering the duality of results, some of the literature has moved towards the study of non-linear relationships between GD and the remuneration of members of the Boards of Directors, providing empirical support for a U-shaped relationship (e.g., Owen and Temesvary 2019; Pucheta-Martínez et al. 2017). Pucheta-Martínez et al. (2017), when studying Spanish non-financial listed companies, find that as the presence of the female gender increases in the Board, there is greater cohesion between groups, which may lead to lower CEO remuneration. However, cooperative behaviors can be replaced by competitive practices, since the inclusion of more female members can cause dissatisfaction in the boards, increasing the salary of the CEOs (Pucheta-Martínez et al. 2017). Owen and Temesvary (2019) show that the negative influence of the GD on remuneration, which is beneficial for the American banking sector, comes from reduced diversity (up to 22.5%).

Inspired by these results, the present study analyzes the effect of PC on board members' compensation, moderated by GD. This moderating effect, to the best of our knowledge, has not been investigated in the literature. Women are more conservative, more averse to taking excessive risks (Palvia et al. 2014) and with greater ethical concerns (Ku Ismail and Abdul Manaf 2016). Thus, the presence of female elements on the Boards of Directors politically

exposed conditions unethical practices, affecting the remuneration of its members. Diversity, creating cognitive conflicts between the Board members, increases the independence of thought within this board, favouring functions of control and advice (Zhou et al. 2019). Abdul et al. (2018) state that the presence of women increases responsibility and improves communication, leading to better governance. Furthermore, taking up the theory of the agency, when owners intend to improve the monitoring of organizations, they choose women, since these are more capable and are more diligent to this effect (Kirsch 2018). Thus, it is expected that GD weakens positive or negative relationships that exist between PC and boards' remuneration, formulating the following hypothesis:

H2. GD mitigates the effect of PC on the board of directors remuneration.

3. Sample, variables and model

3.1. Sample

The present sample comprises 77 banks, within the total number of entities supervised by ECB, in the 19 countries adopting the euro currency (117 entities on 1.01.2019, European Central Bank 2019b). Banks directly supervised by the ECB represent 82% of euro area banking assets (European Central Bank 2018b) and the banks included in the sample corresponded, in 2017, to 82.4% of the total assets of significant banks, i.e., supervised by the ECB. These entities are considered significant considering criteria such as asset size, economic importance, cross-border activities and direct public financial assistance (European Central Bank 2018c). Of the total number of banks directly supervised by the ECB, we consider banks with available data for the variables in the study.

Table 1 compares, by country, the banks supervised by the ECB and those in our sample.

[Insert Table 1 about here]

The period under analysis runs from 2013 through 2017. The choice of this period was due to three main reasons. Firstly, since 2013, the ECB has introduced gender targets, with the goal of increasing female participation in the Boards of Directors, aiming at 35% quotas in 2019 (European Central Bank 2018d). The ECB is thus promoting GD, as in some countries, such as Spain through the Equality Law (Reguera-Alvarado et al. 2017). Secondly, since November 2014, the ECB is responsible for decisions regarding the appointment of directors of significant banks under its direct supervision, assessing the suitability of candidates (European Central Bank 2017). Non-significant banks are under the supervision of central banks of their respective countries, which have aligned their rules with those issued by the ECB (e.g., Bank of Portugal 2018). Thirdly, in 2013 the European Union approved directive 2013/36/EU (CRD IV), which establishes that banking institutions comply with principles set out in the directive on personnel remuneration policies (European Parliament and European Council 2013a).

It should be noted that the fact that a candidate for the management of a significant bank currently holds, or held in the past two years, a political experience, does not prevent him from being accepted—unless there are significant conflicts of interest, assessed by examining the nature and powers of political office and its relationship with the bank (Bank of Portugal 2018; European Central Bank 2017). Given that our sample comprises only banks directly supervised by ECB, the regulatory framework for PC is the same for all entities, as all banks under analysis share and have to comply with the same rules—contrarily to what happens in studies on banks subject to a different regulatory framework (e.g., Chen et al. 2018; García-Meca et al. 2015).

Data were collected in two stages. In a first step, we collected the names of the members of the banks' Boards, through their reports and accounts. Then, in order to assess the possible existence of PC of these elements, their biographies, published on banks' websites, were analyzed. Whenever this information is not on the banks' webpages, press releases, annual bank account

reports and LinkedIn pages were used, in line with the approach of Hung et al. (2017). The data on the remuneration of these members are from the Reports and Accounts and from the Pillar 3 reports[1]. Banks' financial data were taken from the Moodys Analytics BankFocus database, and data on macroeconomic variables were obtained from the World Bank.

3.2. Variables

3.2.1. Dependent variables

To measure the remuneration policy of the Boards of Directors, the literature has used the following proxies: i. log of the total remuneration of all members of the board of directors (e.g., Abdul et al. 2018; García-Meca 2016); ii. log of the average remuneration of the boards, i.e., ratio of the remuneration to the number of members of the board (e.g., García-Meca 2016); iii. log of the bank CEO's remuneration (e.g., Fralich and Fan 2018; Fung and Pecha 2019; Pucheta-Martínez et al. 2017; Wu et al. 2018). In this study, as we focus on the Board of Directors, we use the first two variables. Remuneration includes fixed components (salaries) and variable components (monetary benefits), which are disclosed in the reports supporting the collection of information.

3.2.2. Explanatory variables

3.2.2.1. Variables of Interest

With regard to explanatory variables, PC (POLBO) were measured as the percentage of members of the Board of Directors with PC in the past, as in Carretta et al. (2012), García-Meca (2016), García-Meca and García (2015). GD (WBO) represents the percentage of women in the

[1] Banking institutions must disclose their risk management and capital ratios in order to comply with the provisions of Basel III Accord, namely with regard to Pillar III.

board, in line with García-Meca (2016), García-Meca et al. (2018), Owen and Temesvary (2018), Rodríguez-Ruiz et al. (2016). Additionally, as in Owen and Temesvary (2019), the Shannon index (SIN) was also calculated to measure GD, which, according to Campbell and Mínguez-Vera (2008) is more sensitive to small variations in the gender composition of the Boards of Directors.

Table 2 characterizes the sample with regard to GD and PC. As can be seen, the number of women on the boards of banks supervised by ECB has increased, with a 37% annual growth rate between 2013 and 2017. It is also noted that women, although a minority on boards, have a higher PC rate than men. However, the percentage of board members with PC decreases slightly over the period; a decrease in line with the ECB imposition, through the assessment of the suitability of the administrations.

[Insert Table 2 about here]

3.2.2.2. Control variables

As control variables, both internal (bank-specific) and external determinants were used. Internal determinants are those influenced by management decisions, and external determinants are those that, although outside the bank's control (Ongore and Kusa 2013), reflect the economic and legal environment that affects its functioning (Athanasoglou et al. 2008). Thus, the first set of control variates concerns the characteristics of banks, and the second set regards macroeconomic determinants.

In line with previous studies, the following were used as internal determinants: i. bank size (TA) (e.g., Fralich and Fan 2018; Fung and Pecha 2019; García-Meca 2016; Owen and Temesvary 2019; Pucheta-Martínez et al. 2017); ii. adequacy of the bank's capital (ETA) (e.g., Harmano et al. 2017; Lee and Isa 2015; Owen and Temesvary 2019; Sun et al. 2017); iii.

leverage (LEV) (e.g., Abdul et al. 2018; Pucheta-Martínez et al. 2017; Wu et al. 2018); iv. operational efficiency (CIR) (e.g., García-Herrero et al. 2009; Garcia and Guerreiro 2016; Hung et al. 2017); and, v. non-operational efficiency (NINC) (e.g., Hung et al. 2017). With regard to macroeconomic variables, these were included in the study as a way to control whether a country's economic level impacts remuneration levels (in line with McFarlane and Das, 2019). The following indicators were used: i. wealth produced by the country, measured by the log of GDP *per capita* (GDPPC) (e.g., Adusei et al. 2017; Chen et al. 2018; Dietrich and Wanzenried 2014); ii. corruption control, measured through the International Country Risk Guide (CIN) Corruption Index (e.g., Chen et al. 2018).

Table 3 presents a summary of how the variables were obtained, with the main studies that support this form of operationalization. Table 4 shows displays descriptive statistics for each variable used. It is noted that the the two alternative measures of remuneration have similar averages, in logs. The average of PC is 11.8% (maximum 75%) and the average of GD is 16.5% (maximum 60%). The average value of total assets is close to its maximum value; the average values of capital adequacy and debt ratios are closer to the the respective minimum; the efficiency measures CIR and NINC present negative minimum values, in accordance with the negative results reported by some banks; the average, minimum and maximum of the corruption index shows that countries have low levels of corruption, that is, high levels of corruption control.

[Insert Table 3 about here]

[Insert Table 4 about here]

3.3. Model

The relationships outlined in the above hypotheses suggest the specification of the following dynamic model for panel data:

$$REMU_{it}=\delta REMU_{i,t-1}+\theta POLBO_{it}+\partial WBO_{it}+\gamma POLBO_{it}*WBO_{it}+\sum_{j=1}^{J} B_j X_{it}^{j}+\varepsilon_{it}+v_i \quad (1)$$

As there is a possibility of a nonlinear relationship between the variables of interest and remuneration, the following dynamic model was also estimated, accommodating this possibility:

$$REMU_{it}=\delta REMU_{i,t-1}+\theta POLBO_{it}+\partial WBO_{it}+\gamma POLBO_{it}*WBO_{it}+\beta POLBO_{it}^2+\varepsilon POLBO_{it}^2*WBO_{it}+\vartheta WBO_{it}^2+\mu POLBO_{it}*WBO_{it}^2+\rho POLBO_{it}^2*WBO_{it}^2+\sum_{j=1}^{J} B_j X_{it}^{j}+\varepsilon_{it}+v_i \quad (2)$$

As mentioned, banking remuneration (REMU) is alternatively measured by the log of the total remuneration of the board (REM) and the log of the average remuneration (REMAV). Contrarily to the POLBO variable, the Shannon Index (SIN) is also used as a measure of GD. In addition, we use a set of control variables, described above, represented in the model by the vector X^j. All variables are bank-indexed (index i) and period-indexed (t). Finally, the error term is composed of a random element (ϵ_{it}), variable across banks and time periods, and the individual effect (v_i), bank-specific and supposed time-invariant.

To estimate the dynamic model, under which performance is explained by its own lag (which, in conjunction with a time-invariant idiosyncratic error term, v_i, leads to endogenous regressors), common techniques like ordinary least squares (OLS) or traditional fixed-effects estimator produce severely biased estimates (Rumler and Waschiczek 2016; Wintoki et al. 2012). Thus**,** the generalized method of moments (GMM) proposed by Arellano and Bond (1991) is appropriate for the analysis of dynamic panel data (Baltagi 2005). This method has two advantages. Firstly, with this estimator, we can handle endogeneity due to possible simultaneous determination of the dependent variable (performance) and some explanatory variables. For example, banking performance may explain PC, as better/worse-performing banks may attract elements with more/less PC. Furthermore, the GMM estimator allows

dynamics to be incorporated into the models, as lagged regressors are used as valid instruments. Thirdly, this methodology, contrarily to simultaneous equations' estimation methods such as Maximum Likelihood and two or three stages Least Squares, enables the control of individual heterogeneity, avoiding the risk of inconsistent parameter estimates (García-Meca et al. 2015). This point is crucial in the present study, as banking performance probably relates to unobservable aspects specific to each bank (unobserved individual heterogeneity). In order to avoid this risk, the individual effect is eliminated through first-differencing of the variables, as shown in equation 4.

In view of the above, the method used in the present study corresponds to the two-step system GMM, developed by Blundell and Bond (1998)—a derivation of the Arellano and Bond estimator. This method combines the equation in levels (exemplifying for equation 1),

$$REMU_{it}=\delta REMU_{i,t-1}+\theta POLBO_{it}+\partial WBO_{it}+\gamma POLBO_{it}*WBO_{it}+\sum_{j=1}^{J} B_j X_{it}^{j}+\varepsilon_{it}+v_i \qquad (3)$$

where the variables in first differences are used as instruments, and the equation in first differences,

$$REMU_{it}-REMU_{i,t-1}=\delta(REMU_{i,t-1}-REMU_{i,t-2})+\theta(POLBO_{it}-POLBO_{it-1})+\partial(WBO_{it}-WBO_{it-1})+\gamma(POLBO_{it}-POLBO_{it-1})*(WBO_{it}-WBO_{it-1})+(\sum_{j=1}^{J} B_j X_{it}^{j}-\sum_{j=1}^{J} B_j X_{it-1}^{j})+(\varepsilon_{it}-\varepsilon_{it-1})+(v_i-v_i) \qquad (4)$$

where level variables are used as instruments.

This method is recommended when the number of periods is small and the dependent variable has a high degree of persistence (high correlation between present and past performance) (Blundell and Bond 1998). Thus, we use as instruments, for the equation in differences, PC, GD and product between PC and GD lagged one and two periods (t-1 and t-2), and for the level equation the first and second differences of those variables.

To validate the adopted specification two tests were used, in line with Dietrich and Wanzenried (2011); Moon (2018); Rumler and Waschiczek (2016) and Tan (2016). Error autocorrelation was evaluated through the statistics m1 and m2 developed by Arellano and Bond (1991), where the null hypothesis is the absence of error autocorrelation. A second specification test corresponds to the Hansen test, asymptotically χ^2, where the null hypothesis is the absence of correlation between instruments and error term (i.e., the hypothesis that the instruments are valid). Furthermore, in order to assess joint significance of the model variables, a Wald test was also performed.

4. Results

4.1. Correlation analysis

Table 5 shows the correlation matrix between the variables used in the study. Regarding the variables of interest, a negative correlation is found between PC (POLBO) and the two measures of the remuneration of the banks' boards, i.e., an increase in PC is associated with a decrease in the total remuneration and in the remuneration average. The correlation between GD (WBO) and pay has a similar interpretation. Regarding control variables, the high correlations presented in Table 5, namely between the remuneration proxies, LEV and ETA, CIR and NINC and GDPPC and CIN, refer to variables not used simultaneously, but as alternatives, within the various model specifications. Thus, for each of these, the correlations between the independent variables are reduced, so they do not pose a significant problem for our results.

[Insert Table 5 about here]

4.2. Estimation results for the base model

The explanatory variables of the base model are grouped into three sets: 1) variables of interest (POLBO, WBO, POLBOWBO); 2) bank characteristics (TA, ETA and CIR); 3) macroeconomic variables (GDPPC). In this sense a sequential estimation process was followed, in order to evince the effect of those three groups of variables. In the first specification, we analyzed the effect of the variables of interest on each dependent variable (Models 1.1 and 1.2); in the second, the effect of internal interest and control variables (Model 2); in the third, we studied the inclusion of macroeconomic variables (Model 3); in the fourth, we analyze non-linear effects (Model 4). The corresponding estimates are summarized in Table 6.

The analysis of Model 1's estimates, suggests that the inclusion of the interaction (POLBOWBO) alters the statistical significance of PC; however, this interaction is not statistically significant for the total and average remuneration of board members (Model 1.2)[2]. GD in the first specification has a negative effect on the remuneration of all board members. However, when we introduce the control variables (first the characteristics of the banks and then the macroeconomic ones), GD no longer affects the total remuneration of the boards and has a negative effect on the average remuneration, the elements of the boards and the PC have a negative effect both in the total remuneration and in the average remuneration of the board members (Models 2 and 3).

An analysis of these results shows that PC reduce total and average remuneration, in line with the conclusions of Fung and Pecha (2019). This means that board members with PC

[2] Given that the present study analyzes the interaction between gender diversity and political connections, we focused on these two variables, and then created the product terms from these centered variables (POLBOWBO and POLBOSIN), as followed by Salachas et al. (2017). This transformation aims to reduce the correlation between the two variables (Aiken and West 1991; Moon 2018).

in banks supervised by the ECB may in the future claim to hold government positions, not wanting to be associated with excessive remuneration. Also as a regulation in force, the disclosure of remuneration policies and the letters sent by ECB to banks may condition the highest remuneration, not valuing the benefits associated with the PC, applied by Ding et al. (2015) and Horton et al. (2012). In this line, Fralich and Fan (2018) conclude that members with PC, in support of national policies, prevent excessive compensation to board members.

Bearing in mind the recent literature, referred to in previous sections, the study of the impact of connections and the gender diversity on the remuneration has revealed apparently contradictory results, suggesting the possibility of nonlinear relationships between variables. In this sense, it is crucial to analyze model 4, where nonlinear relationships are allowed for.

With regard to the moderating effect of GD, in Model 4, it appears to mitigate the negative impact of PC on total remuneration, as postulated by hypothesis 2; however, for the average remuneration, it is not verified that the GD accentuates or attenuates the negative effect of the connections in the remuneration, as it appears statistically insignificant.

This model highlights the quadratic effects of the variables of interest, whose graphical representations are found in Figure 1, using the procedure suggested by Aiken and West (1991), considering the value of the variable standard deviation as a high level of GD. The results obtained when nonlinear effects are considered reveal that PC have a negative effect on total and average remuneration, being statistically significant at the level of significance 1%. GD has a positive effect on total remuneration and a negative effect on average remuneration. However, it is crucial to analyze all nonlinear effects of the model, analyzing Figure 1 for this purpose. Thus, it can be seen that: i. when GD is high, the relationship between PC and total and average remuneration is inverted U-shape; which means that, to a certain extent, PC increase remuneration and then decrease it; ii) when GD is reduced, it has a U-shape for total and average

remuneration, that is, PC from a certain percentage (51% for REM and 33.8% for REMAV) starts by increasing remunerations.

An analysis of Figure 1 also reveals that when there is a greater presence of female elements on the banks' boards (about 14% for the sample), the impact of PC on remuneration is always negative, for the levels of these connections in the sample. On the other hand, when the presence of female elements is reduced, if the PC are greater than 51%, in the case of total remuneration, and above 44%, in the case of average pay, remuneration increases.

These results are in line with García-Meca (2016), who concludes that the Board of Directors female members are more cautious in the remuneration policies, reducing the boards members' remuneration, given their ethical behavior, risk-averse attitude and better ability to identify unethical behavior. Thus, the presence of the female gender in the Boards of Directors reduces opportunistic behaviors, leading to greater control and monitoring of the salaries of the members of these boards (Pucheta-Martínez et al. 2017).

Our results also support the argument that the differentiating behavioral characteristics of women, such as greater ethical concern and risk aversion, accentuate the negative effects of PC on board remuneration. Although female elements have more PC than men, as shown in Table 2, female elements, with and without PC, are decisive so that personal interests of these members are not privileged, to the detriment of those of institution.

With regard to the impact of control variates on remuneration, the estimates for specifications 2, 3 and 4 highlight the finding that the size of banks has a positive and statistically significant impact, which means that larger banks pay a higher total and average remuneration, in line with the findings of Fralich and Fan (2018); García-Meca (2016); Pucheta-Martínez et al. (2017). It is noted that the positive result for total remuneration could mean that larger banks have larger boards, which lead to higher total remunerations (Lee and Isa 2015).

However, when analyzing average remunerations, the larger banks, as compared to the smaller ones, pay more to every member of the board, in line with Lee and Isa (2015).

The proxy for banks' capitalization has a positive and statistically significant impact, in the remuneration measures in model specifications 2, 3 and 4. It should be noted that a bank with higher capital has greater flexibility to absorb negative shocks (Beltratti and Stulz 2012) and encourages shareholders to monitor management (Ahamed 2017). Furthermore, a high level of capital means that banks have a lower debt cost, since to finance their assets they do not need as many funds, being a sign of solvency for the market (Tran et al. 2016). Thus, it is believed that banks with higher capital ratios, being more resilient, may have higher remuneration for their board members.

Regarding operational efficiency, the CIR ratio, statistically significant under specification 4, suggests that the greater the bank's inefficiency, the lower the total and average remuneration. Thus, in order to improve their management practices, banks must control costs efficiently (Nasserinia et al. 2014), including remuneration spending (Garcia and Guerreiro 2016). Finally, in line with McFarlane and Das (2019); Nguyen, Boateng, et al. (2018); Nguyen, Le, et al. (2018), GDP *per capita* positively influences the remuneration of bank boards, since a higher economic level allows for higher remuneration levels.

In conclusion to the present section, we note that all adopted models seem correctly specified, for the following reasons: i) there is no evidence of first- and second-order error autocorrelation (m1 and m2 statistics) at acceptable levels (1%, 5% and 10% for second order, and 10% for the first order); ii) there is no evidence of correlation between instruments and error terms (Hansen statistic), since the null hypothesis that instruments are valid is accepted; iii) all variables are jointly statistically significant, since we accect the null hypothesis of joint significance of all regression coefficients.

[Insert Table 6 about here]

[Insert Figure 1 about here]

4.3. Robustness analysis

In order to analyze the robustness of our results, we re-estimated different specifications of the model, changing the proxy for GD, in a first phase, and in a second phase, for the control variables, with estimation results summarized in Tables A1, A2. In Table A1, compared to Table 6, we replace the percentage of female gender with the Shannon index, and in Table A2 we present the results obtained using the Shannon index instead of the percentage of female elements, leverage instead of capitalization, non-operational efficiency instead of the operational efficiency, and corruption control instead of GDP *per capita*. It is noted that estimates 1.1. and 1.2. are the same in both Tables A1 and A2, since only the variables of interest are analyzed, without considering control variables.

The results for estimates 2, 3 and 4 confirm the conclusions drawn in the previous subsection. Specifically, we observe that PC have a negative impact on total and average remuneration of the board members, these effects being accentuated by the presence of the female gender on the boards. Furthermore, analyzing the graphical representation of quadratic effects (Figures A1, A2), the curvatures of the relationships appear to be consistent with those obtained previously.

With regard to the effects of control variables on the total and average remuneration, it is important to note that the results are also consistent when their respective proxies are changed. Leverage and non-operational efficiency send a signal contrary to the ETA ratio and to operational efficiency, respectively, as these measures are the opposite of each other. The relationship between corruption control and remuneration shows that the greater this control,

the greater the remuneration of board members, explained by the fact that countries with greater corruption control, have banks with higher returns (Chen et al. 2018), which may be taken into account in remuneration policies.

5. Conclusion

This study seeks to contribute to a better understanding of the moderating effect of GD on the relationship between PC and the remuneration of banks' boards, in the period following two important impositions by the ECB to banks under its direct supervision (gender quotas and curriculum and suitability assessment of members of significant bank boards) and by the European Union - directive 2013/36/EU (CRD IV) (corporate governance principles and the structure of remuneration policies).

Our results suggest that PC have a negative impact on the remuneration of members of banks' Boards of Directors. These results are based on three main reasons: i. boards' members with PC in banks supervised by the ECB may in the future intend to hold government positions, not wanting to be associated with excessive remuneration (Fung and Pecha 2019); ii. the disclosure of remuneration policies and the letters sent by the ECB to banks are conditioning higher remunerations, not valuing PC associated benefits, identified by Ding et al. (2015); Fralich and Fan (2018); Horton et al. (2012); iii. the negative impact verified is in line with the objective of the November 2014 imposition by the ECB, which consists of curricular and suitability evaluation of new members of the Boards of Directors, and their consequent acceptance for the management positions, mitigating agency problems. With regard to the moderating effect of GD, it appears that it mitigates the negative impact of PC on total remuneration.

When considering nonlinear effects, it can be concluded that: i. when GD is high, the relationship between PC and total and average remuneration is inverted U-shaped; this means that, to a certain extent, PC increase remuneration and then decrease it; ii) when GD is reduced, that relationship takes the form of a U for total and average remuneration, that is, PC from a certain percentage start to increase remuneration. For a greater presence of female elements on bank boards (about 14% for the sample under study), the impact of PC on remuneration is always negative, for the percentage of PC in the sample. On the other hand, when the presence of female elements is reduced, if the PC are greater than 51%, in the case where the remuneration is the total, and above 44%, in the case of the average remuneration, the remuneration increases .

Our results show that female elements make remunerations lower, as they are more cautious in remuneration policies, more ethical, more risk-averse and have a better ability to identify unethical and opportunistic behaviors (García-Meca 2016; Pucheta-Martínez et al. 2017). It should be noted that, although female elements have more PC, compared to men, they are decisive so that the personal interests of these members are not privileged to the detriment of those of the institution.

Our study contributes to the growing literature on PC and GD, providing a greater understanding of the determinants of remuneration for bank board members. These results may be useful for the Regulator to understand the possible limitations and benefits of its two impositions. In addition, the results obtained may be useful to assess whether the Regulator's emanations are being beneficial or not for a sector as important to the economy as the banking sector. In addition, they may also be a source of knowledge for the European Union, with regard to the assessment of Directive 2013/36/EU (CRD IV).

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Table 1 - Banks included in the sample by country

Country	List of supervised entities by country	Banks in sample by country
Austria	6	2
Belgium	7	6
Cyprus	3	1
Germany	21	15
Estonia	3	3
Spain	12	10
Finland	3	1
France	12	9
Greece	4	2
Ireland	6	1
Italy	12	7
Lithuania	2	2
Luxembourg	6	3
Latvia	2	2
Malta	3	3
Netherlands	6	3
Portugal	3	2
Slovenia	3	2
Slovakia	3	3
Total	**117**	**77**

Table 2 - GD and PC: summary characterization of the sample

	2013	2014	2015	2016	2017
Number of women	127	131	150	168	174
Number of political women	31	32	29	34	30
Number of board members=Total board	771	774	763	763	775
Number of political board members	113	113	103	108	101
Number of women/Total board (%)	16.47%	16.93%	19.66%	22.02%	22.45%
Number of political women/Total board (%)	4.02%	4.13%	3.80%	4.46%	3.87%
Number of political women/Total political board members (%)	27.43%	28.32%	28.16%	31.48%	29.70%
Number of political women/Number of women (%)	24.41%	24.43%	19.33%	20.24%	17.24%
Number of political men/Number of men (%)	12.73%	12.60%	12.07%	12.44%	11.81%
Number of political board members/Total board (%)	14.66%	14.60%	13.50%	14.15%	13.03%

Table 3 - Operationalization of variables

Variable	Codename	Formula	Signal	Authors
Dependent variables				
Remuneration	REM	Natural log of the total remuneration of the board of directors	N.A.	Abdul et al. (2018); García-Meca (2016)
	REMAV	Natural log of the ratio between total remuneration of the board of directors and number of board elements	N.A.	García-Meca (2016)
Explanatory variables				
Political connections	POLBO	Political board members/Total board	+/-	García-Meca (2016)
Gender Diversity	WBO	Number of women/Total board (%)	+/-	Abdul et al. (2018); García-Meca et al. (2016); Pucheta-Martínez et al. (2017)
	SIN	$-\sum_i^n P_i \, lnP_i$, where Pi is the percentage of board members in each category (female/male) and n is the total number of board members (Campbell and Mínguez-Vera, 2008).	+/-	Campbell and Mínguez-Vera (2008); Yap et al. (2017)
Size	TA	The natural logarithm of Total Assets	+/-	Fralich and Fan (2018); Fung and Pecha (2019); García-Meca (2016); Owen and Temesvary (2019); Pucheta-Martínez et al. (2017)
Capital adequacy	ETA	Total Equity/Total Assets	+/-	Harmano et al. (2017); Lee and Isa (2015); Owen and Temesvary (2019), Sun et. Al (2017)
Leverage	LEV	Debt/ Total Equity	+/-	Abdul et al. (2018); Pucheta-Martínez et al. (2017); Wu et al. (2018)
Managerial efficiency	CIR	Cost-to-income ratio: total cost/total income	?	Dietrich and Wanzenried (2011); Garcia and Guerreiro (2016); Hung et al. (2017)
Non operational efficiency	NINC	Non-interest income/Total income	?	Beltratti and Stulz (2012); Duygun et al. (2015); Hung et al. (2017)
Gross Domestic Product	GDPPC	The natural logarithm of Gross Domestic Product *per capita*	?	Chen *et al. (*2018)
Corruption Control	CIN	Calculated by International Country Risk Guide. This index ranges from 0 to 6, with 6 signifying a low level of corruption / high control of corruption in the country.	?	Chen et al. (2018)

Table 4 - Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
REM	385	14.613	1.369	6.908	17.666
REMAV	385	12.458	1.409	4.342	15.560
POLBO	385	0.118	0.161	0.000	0.750
WBO	385	0.165	0.138	0.000	0.600
SIN	385	0.028	0.226	-0.366	0.297
TA	385	17.988	1.681	13.249	21.455
ETA	385	0.076	0.040	0.013	0.253
LEV	385	16.878	10.412	2.959	90.001
CIR	385	60.965	56.162	-525.330	587.410
NINC	385	39.801	30.849	-147.990	319.510
GDPPC	385	10.189	0.423	9.221	11.304
CIN	385	0.674	0.145	0.333	0.917

Table 5 - Correlation matrix

	REM	REMAV	WBO	POLBO	SIN	TA	ETA	LEV	CIR	NINC	GDPPC	CIN
REM	1											
REMAV	0.5759***	1										
WBO	-0.0019	-0.1993***	1									
POLBO	-0.0648	-0.1828***	0.2648***	1								
SIN	0.0624	-0.2557***	0.8769***	0.2742***	1							
TA	0.2382***	0.2452***	0.1199	0.2727***	0.0892*	1						
ETA	-0.0947*	0.0014	0.0568	-0.1662***	0.0530	-0.5618***	1					
LEV	-0.0503	-0.1133**	0.0324	0.2368***	-0.0415	0.4318***	-0.7470***	1				
CIR	0.0846*	0.0756	-0.0443	-0.1979***	-0.0735	-0.0257	0.0349	-0.2270***	1			
NINC	0.1986***	0.0229	0.1269**	0.0913*	0.2018***	0.1005**	-0.0677	0.1493***	-0.6490***	1		
GDPPC	0.3649***	0.2171***	-0.0881*	0.2042***	-0.0841*	0.4536***	-0.4585***	0.3341***	0.0144	0.0997	1	
CIN	0.1733***	0.3235***	-0.1979***	0.0631	-0.2910***	0.3058***	-0.3299***	0.2999***	-0.0116	0.0423	0.6892***	1

* p-value <10%, ** p-value <5%, *** p-value <1%

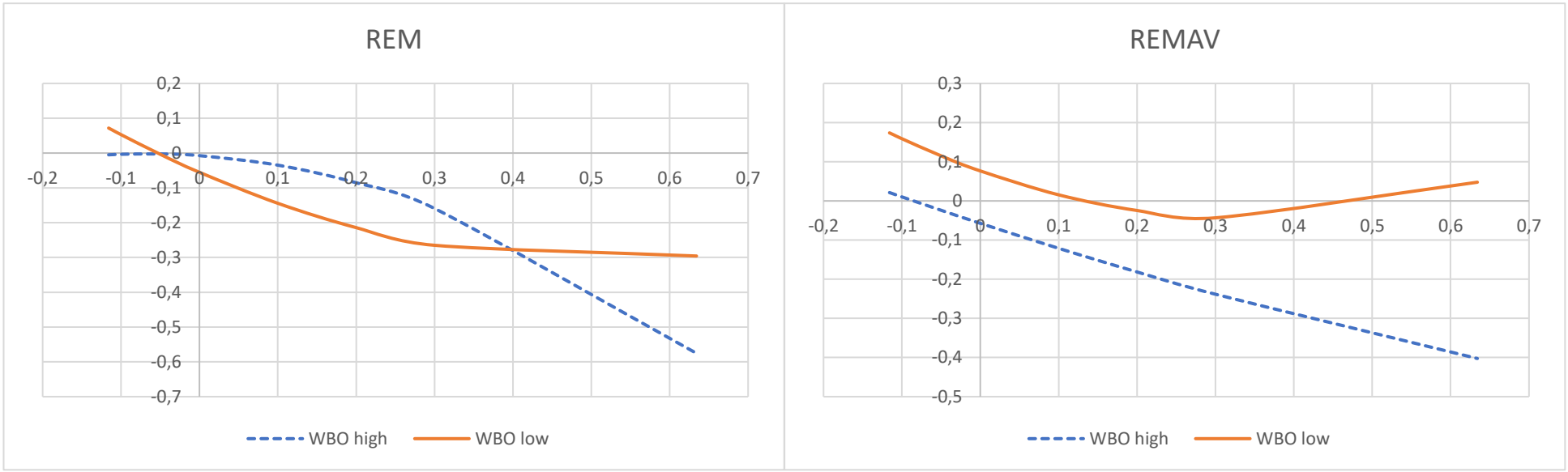
Table 6 - Results for the different specifications of the base model

	Model 1.1.		Model 1.2.		Model 2		Model 3		Model 4	
Dependent variable	REM	REMAV	REM	REMAV	REM	REMAV	REM	REMAV	REM	REMAV
Dependent variable lagged 1 period	1.006***	1.003***	1.004***	1.000***	0.803***	0.817***	0.671***	0.851***	0.789***	0.805***
POLBO	0.447***	0.033	-0.052	-0.077	-0.690***	-0.587***	-0.859***	-0.399**	-0.692***	-0.902***
WBO	-0.375*	-0.545***	-0.386**	-0.251	-0.338	-0.689***	-0.023	-0.558***	0.173***	-0.485***
POLBOWBO			0.788	-1.007	-1.176	-1.777**	-0.716	-0.627	3.009***	0.217
WBO^2									-1.649***	0.509***
$POLBOWBO^2$									6.384***	11.306***
$POLBO^2$									0.051	0.932***
$POLBO^2WBO$									-7.695***	-3.195***
$POLBO^2WBO^2$									-8.160***	-16.504***
TA					0.150***	0.117***	0.120***	0.044**	0.063***	0.052***
ETA					2.617***	2.780***	2.491***	1.772***	1.599***	1.928***
CIR					0.00001	0.00002	-0.0001	-0.0002*	-0.0002***	-0.0001***
GDPPC							0.242***	0.095**	0.184***	0.132***
Z	989794.85	493375.39	1.53E+06	6.25E+05	763842.59	713608.96	443255.22	976362.26	3.46E+10	1.18E+11
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
m_1	-3.240	-3.540	-3.300	-3.580	-3.270	-3.560	-3.320	-3.590	-3.290	-3.540
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
m_2	-0.040	-0.390	-0.120	-0.330	-0.110	-0.310	-0.080	-0.310	-0.170	-0.390
	(0.968)	(0.700)	(0.901)	(0.740)	(0.913)	(0.755)	(0.939)	(0.760)	(0.862)	(0.699)
Hansen	27.470	27.710	37.540	35.760	32.230	31.770	32.040	34.720	57.250	62.720
	(0.283)	(0.272)	(0.310)	(0.386)	(0.555)	(0.577)	(0.564)	(0.434)	(0.989)	(0.960)

Notes:

p-value in parentheses; Z is a Wald test of the joint significance of the reported coefficients, asymp- totically distributed as X^2 under the null hypothesis of no relationship; m_i (m_1 and m_2) is a serial correlation test of order I (1 and 2) using residuals in first differences, asymptotically distributed as N(0, 1) under the null hypothesis of no serial correlation; Hansen is a test of the over-identifying restrictions, asymptotically distributed as X^2 under the null hypothesis of no correlation between the instruments and the error term.

Figure 1 - Quadratic effects on the relationship between PC and remuneration, moderated by GD (WBO)



Appendix

Table A1 - Results for the model that uses SIN instead of WBO.

	Model 1.1.		Model 1.2.		Model 2		Model 3		Model 4	
Dependent variable	REM	REMAV	REM	REMAV	REM	REMAV	REM	REMAV	REM	REMAV
Dependent variable lagged 1 period	1.006***	1.003***	1.003***	1.001***	0.877***	0.849***	0.794***	0.835***	0.772***	0.767***
POLBO	0.442***	-0.189	-0.069**	-0.057	-0.376***	-0264***	-0.515***	-0.257**	-1.111***	-1.208***
SIN	0.001	-0.432***	0.015	-0.180**	0.034	-0.304***	0.089	-0.330***	-0.002	-0.471***
POLBOSIN			0.515***	-0.831***	0.054	-1.081***	-0.046	-1.158***	3.740***	1.717***
SIN^2									-1.277***	-0.726***
$POLBOSIN^2$									11.117***	9.765***
$POLBO^2$									0.801***	1.352***
$POLBO^2SIN$									-9.559***	-5.604***
$POLBO^2SIN^2$									-20.968***	-16.961***
TA					0.093***	0.095***	0.068*	0.052***	0.069***	0.067***
ETA					1.695***	2.621***	1.579**	1.953***	1.478***	2.030***
CIR					-0.00001	-0.00004	-0.0001	-0.0001	-0.0002***	-0.0001***
GDPPC							0.165***	0.098**	0.201***	0.155***
Z	1.16E+06	4.18E+05	5.44E+06	1.62E+06	2.02E+06	1.02E+06	827894.66	1.02E+06	2.27E+11	8.28E+09
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
m_1	-3.250	-3.580	-3.320	-3.590	-3.280	-3.570	-3.300	-3.580	-3.320	-3.580
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
m_2	0.040	-0.370	-0.030	-0.320	-0.010	-0.240	-0.030	-0.230	-0.180	-0.350
	(0.971)	(0.712)	(0.976)	(0.749)	(0.991)	(0.813)	(0.972)	(0.818)	(0.855)	(0.724)
Hansen	25.320	30.700	35.990	35.340	31.500	30.340	29.510	30.640	63.150	66.310
	(0.389)	(0.163)	(0.375)	(0.405)	(0.591)	(0.648)	(0.687)	(0.633)	(0.957)	(0.922)

Notes:
p-value in parentheses; Z is a Wald test of the joint significance of the reported coefficients, asymp- totically distributed as X^2 under the null hypothesis of no relationship; m_i (m_1 and m_2) is a serial correlation test of order I (1 and 2) using residuals in first differences, asymptotically distributed as N(0, 1) under the null hypothesis of no serial correlation; Hansen is a test of the over-identifying restrictions, asymptotically distributed as X^2 under the null hypothesis of no correlation between the instruments and the error term.

Table A2 –Results for the model that uses SIN, LEV, NINC, CIN

	Model 1.1.		Model 1.2.		Model 2		Model 3		Model 4	
Dependent variable	REM	REMAV	REM	REMAV	REM	REMAV	REM	REMAV	REM	REMAV
Dependent variable lagged 1 period	1.006***	1.003***	1.003***	1.001***	0.898***	0.854***	0.879***	0.804***	0.889***	0.826***
POLBO	0.442***	-0.189	-0.069**	-0.057	-0.398***	-0.378***	-0.488***	-0.493***	-0.176*	-0.630***
SIN	0.001	-0.432***	0.015	-0.180**	-0.035	-0.495***	-0.041	-0.562***	-0.032	-0.356***
POLBOSIN			0.515***	-0.831***	-0.056	-1.154***	-0.306	-1.301***	2.361***	1.611***
SIN^2									-1.253***	-0.078
$POLBOSIN^2$									1.193	3.080**
$POLBO^2$									0.046	1.117***
$POLBO^2SIN$									-8.238***	-8.473***
$POLBO^2SIN^2$									-11.825***	-20.283***
TA					0.084***	0.106***	0.092***	0.125***	0.088***	0.112***
LEV					-0.003*	-0.008***	-0.005**	-0.011***	-0.007***	-0.011***
NINC					0.001***	0.001***	0.001***	0.001***	0.001***	0.002***
CIN							0.212	0.541**	0.268***	0.400***
Z	1.16E+06	4.18E+05	5.44E+06	1.62E+06	1.88E+06	5.19E+05	1.55E+06	4.68E+05	1.30E+10	5.97E+09
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
m_1	-3.250	-3.580	-3.320	-3.590	-3.310	-3.700	-3.330	-3.730	-3.330	-3.670
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
m_2	0.040	-0.370	-0.030	-0.320	0.030	-0.010	0.040	0.080	0.180	0.050
	(0.971)	(0.712)	(0.976)	(0.749)	(0.980)	(0.988)	(0.967)	(0.939)	(0.856)	(0.958)
Hansen	25.320	30.700	35.990	35.340	30.700	28.550	32.160	27.320	65.740	57.480
	(0.389)	(0.163)	(0.375)	(0.405)	(0.630)	(0.732)	(0.558)	(0.785)	(0.930)	(0.988)

Notes:
p-value in parentheses; Z is a Wald test of the joint significance of the reported coefficients, asymp- totically distributed as X^2 under the null hypothesis of no relationship; m_i (m_1 and m_2) is a serial correlation test of order I (1 and 2) using residuals in first differences, asymptotically distributed as N(0, 1) under the null hypothesis of no serial correlation; Hansen is a test of the over-identifying restrictions, asymptotically distributed as X^2 under the null hypothesis of no correlation between the instruments and the error term.

Figure A1- Quadratic effects on the relationship between PC and remuneration, moderated by GD (SIN) for the models in table A1.

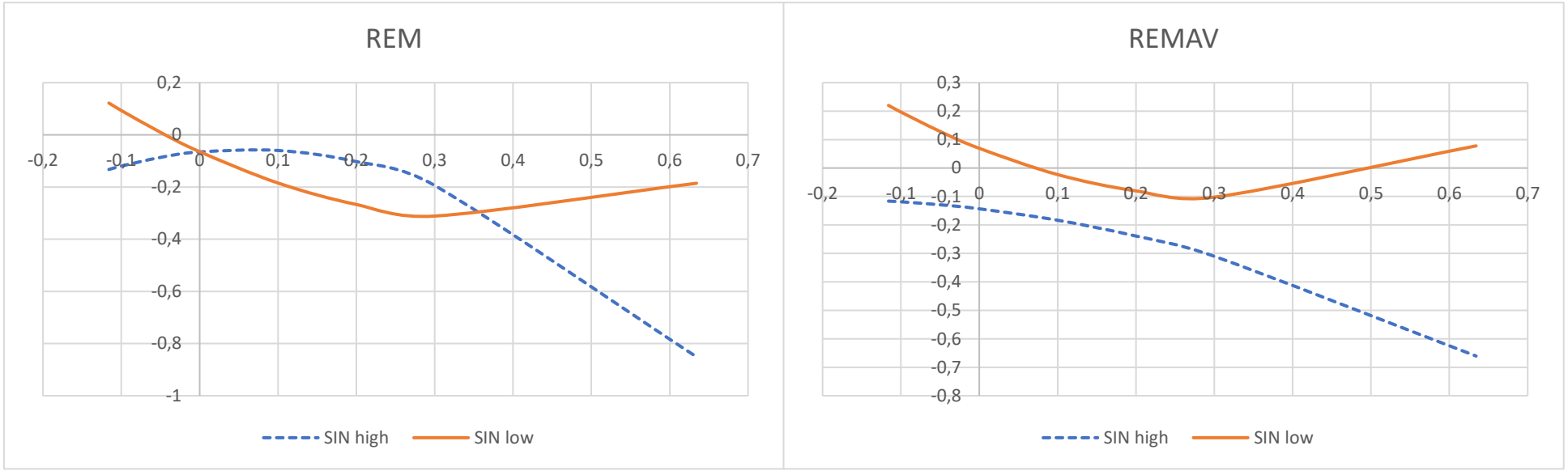


Figure A2 - Quadratic effects on the relationship between PC and remuneration, moderated by GD (SIN) for the models in table A2.