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PAPER

The Impact of Ownership Concentration on Bank Profitability: Is the Effect Linear or Non-Linear? An Empirical Evidence For Turkey

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Abstract In this study, the linear/non-linear impact of ownership concentration (OC) on financial performance was investigated. In this context, the data of 8 deposit banks trading at BIST were analysed with a fixed-effects model over the period 2005-2020. The research study used the return on assets ratio (ROA) and return on equity ratio (ROE) as financial performance indicators. According to the research results, OC had negative linear impacts on both ROA and ROE. These impacts had higher significance in the four largest banks. Moreover, the interaction between OC and bank size is significant because bank size positively affects ROA. Furthermore, the ownership concentration of the banks subject to the study was determined.

Keywords: Corporate governance, ownership concentration, financial performance, banking sector, Borsa Istanbul.

Jel Classification: G21, G32

1. Introduction

Since ownership structure is one of the essential tools of corporate governance, the relationship between ownership structure and corporate performance in transition economies and market economies is one of the most studied subjects (Claessens and Djankov, 1999: 498). Major studies conducted on the subject reveal that a high level of ownership concentration exists from large organizations in the USA to both developed and developing countries (Demsetz, 1983; Shleifer and Vishny, 1986; Laporta et al., 1999). However, the impacts of ownership concentration on corporate performance are complex and uncertain (Earle et al., 2005; Huang, 2020). La Porta et al. (1998) attributed the main reason for this situation to the lack of adequate legal grounds for

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protecting shareholders in both developed and developing countries. Berger et al. (2009) stated that developing countries could not achieve sustainable growth if they failed to maintain the necessary reforms in the banking system, and many studies reveal a positive relationship between economic growth and the existence of effective legal systems (King and Levine; 1993; Laporta et al., 1998; Beck et al., 2005).

This research study evaluates the banking sector, which partially accounts for the 2001 financial crisis, within the framework of ownership concentration, as one of the important corporate governance mechanism. Due to lack of transparency and concentrated ownership structures, Turkey is a developing country characterized by weak shareholder protection and various corporate governance issues (Selçuk, 2019). Nonetheless, following the 2001 financial crisis, Turkey has maintained its most essential reforms in the field of banking and implemented its effective corporate governance approach in the banking sector (Bektaş & Kaymak, 2009; Bakır & Öniş, 2010). The Turkish banking system is the leading catalyst of the economy and Turkey has many similar characteristics to developing countries. In this regard, the obtained results of the research study are important in providing new evidence not only for bank managers or policymakers but also for similar developing countries.

Previously conducted research studies firstly investigate the existence of a high level of ownership concentration in Turkey (Gürsoy and Aydoğan, 2002; Demirağ and Serter, 2003a; Mandacı and Gumus, 2010). Gürsoy and Aydoğan (2002) stated that a high level of ownership concentration enhanced market performance, but deteriorated accounting-based performance.

Bektaş and Kaymak (2009) concluded that ownership concentration was not an important factor for the Turkish banking sector, and explained this situation by the fact that the principal-principal conflict between the majority shareholders and minority shareholders in the Turkish banking sector was not fully settled. Similarly, Tükenmez et al. (2016) asserted that dominant shareholders acted without considering minority rights due to conflict of interests. Therefore, the rise in the ownership concentration for BIST banks negatively affected financial performance. Although the studies given above examine the relationship between ownership concentration and firm performance in the context of Turkey, they did not examine the effect of ownership concentration on firm performance in terms of linearity.

La Porta et al., (1999) stated that corporate governance structure was different in developing countries, while the differences in legal differences, corporate culture, and ownership structure indicated that the relationship between ownership concentration and firm performance might have led to different results in developing countries (Chow and Fung, 1998; Claessens and Djankov, 1999). In this context, the results obtained from the research studies on the relationship between ownership structure and firm performance in developed economies cannot be generalised in terms of developing countries (La Porta et al., 1998). These findings background in the context of Turkey

constitute the subject of the research studies investigating whether or not ownership concentration increases bank profitability.

Although there are many previously conducted studies investigating the impact of ownership structure on bank profitability (Tanrıöven et al., 2006; Kevser, 2018), the number of studies directly investigating the linear/non-linear impact of ownership concentration on financial performance is quite limited. In this study, the linear/non-linear impacts of ownership concentration on corporate performance are examined within Borsa Istanbul framework (BIST). According to Fama and Jensen (1983), once ownership concentration reaches a particular degree, managers will be able to entrench themselves and expropriate the wealth of minority shareholders. This hypothesis has sparked a heated debate among academics over the possibility of a non-linear relationship between ownership concentration and business performance. In this context studies conducted in recent years have determined the non-linear effect of ownership concentration on corporate performance (Iwosaki and Mizobata, 2020). In terms of developing countries, it should be noted that there is a high potential non-linearity between ownership concentration and firm performance (Hu and Izumida, 2008; Omran, 2009; Gul et al., 2010). In this respect, the data of 8 banks operating in BIST are analysed over the period 2005-2020. In the research study, firstly, the impact of ownership concentration on bank profitability is investigated over the period 2005-2020, and then the analysis results indicating whether the aforementioned impact is linear/non-linear are presented. Moreover, the fixed effects model is used as the method. The results obtained from the research study reveal a significant and negative linear relationship between ownership concentration and ROA. Furthermore, the results indicate that bank size has a positive impact on ROA. Another critical finding obtained from the research study is that the OC variable is statistically more significant for four big banks than other banks. The impact of the OC variable on profitability is insignificant for the non-Big4 bank group.

2. Theoretical Background of the Research

2.1 Corporate Governance and Ownership Structure

Debates on ownership structure and corporate performance date back to Berle and Means (1932) suggesting a positive relationship between ownership concentration (OC) and profitability. Since then, ownership structures of firms have been evaluated as a corporate governance mechanism. Corporate governance is an administrative structure that ensures that financial providers to companies get a good return on their investment (Shleifer and Vishny, 1997).

In 1976, Jensen and Meckling developed a theory and put forward a new era on the separation and control issue of firms. According to this new point of view conflict of interest occurs among shareholders and managers, and this causes agency costs for firms. In the context of agency theory, agency costs include monitoring costs,

bonding costs and residual costs, which negatively affect firm profitability (Jensen and Meckling, 1976). As Claessens and Djankov (1999) stated, managers, prioritize their benefits rather than shareholders' value maximization. Extended literature suggests internal and external corporate governance tools to mitigate agency problems (Arouri et al., 2014). Afterward, as a corporate governance mechanism, the relationship between ownership structure and firm performance has become more arguable in the corporate governance and financial performance area. In prior researches, many types of ownership structure have been examined as a corporate governance determinant (Ozili and Uadiale, 2017). For instance, foreign ownership (Micco et al., 2004; Kosak and Cox, 2008; Kobiessi, 2010), institutional ownership (Elyasiani and Jin, 2010; Lin and Fu, 2017), state ownership (Yu, 2013; Liljeblom et al., 2019), managerial ownership (Morck et al., 1988; Hermalin and Weisbach, 1988; Holderness et al., 1999) ownership concentration (Antoniadis et al., 2010; Wen, 2010; Ozili and Uadiale, 2017; Iwasaki and Mizobata, 2020) have been widely investigated whether these ownership types have a significant impact on profitability.

The allocation of working capital among shareholders is referred to as ownership concentration. Working capital in this context can be in the hands of a few individuals or groups in large amounts, or it can be in the hands of minority shareholders in small amounts. The concentrated ownership structure is mentioned in the first case, whereas in the second case, the dispersed ownership structure is mentioned (Kevser, 2018). Since block shareholders often have power in systems with a high ownership concentration, they may exert direct management control through their representatives or managers with whom they have a personal relationship (Wang and Shailer, 2015). From the corporate governance perspective Shleifer and Vishny (1994, 1997) stated corporate governance is a straight forward ownership structure perspective, and ownership structure influences firm performance. In this context, corporate governance literature conceive two features ownership structure;

1. ownership concentration, which refers to the share of the largest owner; and
2. ownership mix, related to the major owner identity (Zouari and Taktak, 2014).

The primary motivation of this study is twofold. First, it aims to contribute to corporate governance literature in terms of ownership structure and financial performance. Secondly, the current research study aims to fill the gap in how ownership concentration affects bank performance. Is the effect linear or non-linear? Abundant literature investigates the effects of OC on financial performance and reaches mixed results. These results heavily show significant/insignificant, positive/negative impacts of OC on financial performance but a very limited study explores the linearity of these impacts. Hence in Turkey's context of an emerging market, the study examines if OC has a linear or non-linear effect on banks' financial performance.

2.2. Ownership Structure and Firm Performance, Theoretical Background

Many studies are exploring the impact of ownership structure on financial performance. Shleifer and Vishny (1994) indicate that ownership structure affects firm performance. However, the impact of ownership structure varies according to the type of ownership and country. Accordingly, findings are mixed, especially in developing countries (Zauari and Taktak, 2014). For instance, Arouri et al. (2014) showed a positive and significant association between family ownership, foreign ownership, institutional ownership, and bank performance, but findings did not support this association in terms of state ownership. On the other hand, Demsetz and Villalonga (2001) found no significant association between ownership structure and firm performance. In terms of agency theory, if managers do not have significant equity shares in the companies they run, the likelihood of them misappropriating profit in the short term to benefit themselves at the detriment of controlling and noncontrolling shareholders is higher. When this is the case, managers can misappropriate benefits for personal gain, which would harm the firm's reported profit; therefore, a negative relationship between dispersed ownership and profitability may be anticipated (Shleifer and Vishny, 1997; Ozili and Uadiale, 2017). Stulz (1999) explains this dilemma, which is a reflection of agency theory, in terms of firms with foreign ownership structures, claiming that firms with foreign ownership structures appear to monitor efficiently and have superior access to technological, managerial, and financial resources, and thus can contribute to a firm's performance improvement. In concentrated ownership structures in which a particular person or group holds the company shares, the problems of agency theory and the conflict of interest between shareholders and managers decrease. With the increase in the ownership concentration, the shareholders follow the management more (Jensen and Meckling, 1976, Thomsen and Pedersen, 2000).

On the other hand, ownership concentration can impose incentives and measures to prevent managers from abusing their responsibilities while also avoiding doing business (Shleifer and Vishny, 1986). Expropriation, on the other hand, is a significant issue caused by ownership concentration. Large shareholders have control over management decisions through their representatives in the case of ownership concentration, and they can cause minority shareholders to stop investing over time (Edwards and Weichenrieder, 2004; Santiago-Castro and Brown, 2007; Kim et al., 2007). The legal protection factor is at the root of the problem caused by the ownership concentration between majority and minority shareholders. According to Shleifer and Vishny (1997), the levels of legal protection vary by country, and ownership concentration is an effective corporate governance tool in cases where legal protection is inadequate. According to La Porta et al. (1998), legal protection and ownership concentration negatively correlate. As a result, as ownership concentration increases, legal protection decreases, and as ownership concentration decreases, legal protection increases (La Porta et al., 1998). In the literature, various rates of ownership

concentration have been used. Although La Porta et al. (1999) used a percentage of ownership concentration of 10% or more as a criterion, Claessens et al. (2000) used a share control of more than 5%, and Cronqvist and Nilsson (2003) used a voting right of at least 25%. According to Claessens and Djankov (1999), a concentration increase of 10 percent leads to a 2 percent higher short-term work production and a short-term profit increase of 3 percent. In another point of view, as a different type of ownership structure, foreign ownership is widely has been discussed, mostly in comparison with domestic ownership. It is suggested that foreign ownership performed better than domestically owned firms in developed countries via effective monitoring, managerial talent, strong investment power, thus contribute to increasing a firms performance (Claessend and Djankov, 1999; Choi and Hassan, 2005; Zouari et al., 2014; Arouri et al., 2014; Iwasaki and Mizobata, 2018).

Besides, La Porta et al., (2002) emphasise the importance of state ownership in developing countries economic and financial development. In most transition economies, privatisation policy influenced the transfer of assets from the state to private hands, increasing ownership concentration (Gabrisch and Hölscher, 2006, Bian and Deng, 2017). Most research shows that state ownership harms profitability, revealing that it operates with low profitability and high costs (Chen, 2001; Micco et al., 2006; Iannotta et al., 2007; Berger et al., 2008, Migliardo and Forgione, 2018). In this section, the effect of ownership types on firm performance is discussed. In the next section of literature review, the effect of ownership concentration on firm performance will be discussed and the conceptual framework will be presented as to whether this effect is linear or non-linear.

2.3. Ownership Concentration and Bank Performance

The complexity between ownership concentration and firm performance has been debated in numerous researches and reported mixed results (Shleifer and Vishny, 1986; Claessens and Djankov, 1999; Demsetz and Villalonga, 2001; Singh et al., 2003; Bian and Deng, 2017). As determinants of ownership structure, Demsetz and Lehn (1985) identify value-maximizing business size, profit possibilities from greater control levels, and systematic regulation.

Within this definition, Shleifer and Vishny (1986) argue that large shareholders have a strong incentive to supervise and discipline firm managers, which can help avoid the traditional "freeholder" problem associated with a company. In this context, Huang (2020) proposed that one crucial policy implication is that banks may establish a concentrated ownership structure in order to increase their profitability. According to Claessens and Djankov (1999), firms with higher ownership concentration is more profitable; Huang (2020) suggested that ownership concentration affects ROA and ROE positively; block ownership is positively associated with financial performance while having a limited effect on reducing costs (Singh et al. 2003), Zauri and Taktak (2014)

showed a significant and positive relationship between bank ownership concentration and ROA and ROE. However, some studies could not find a relationship between ownership concentration and firm performance. For instance, Demsetz and Villalonga (2001), one of the major studies on corporate governance and finance, suggested a little relation between OC and firm performance. Saidat et al. (2019) also indicated that ownership concentration has an insignificant correlation with financial performance. Iannotta et al. (2007) found that profitability is unaffected by high ownership concentration, but the quality of loans and advances is significantly improved. According to Laeven and Levine (2009), higher ownership concentration has a significant relationship with risk-taking tendency, affecting firm performance.

While it is stated that the concentrated ownership structure may have different effects on corporate performance, it is also necessary to mention the financial performance measures used in studies examining the relationship between ownership concentration and financial performance. A bank's performance cannot be assessed using a single metric because banks have a wide range of objectives to achieve (Rastogi et al., 2021) hence financial profitability can be measured using a variety of accounting-based and market-based indicators, such as return on assets (Bian and Deng, 2017; Ozili and Uadiale, 2017; Kevser, 2018; Saidat et al., 2019; Huang, 2020) , return on equity (Kosak and Cok, 2008; Antoniadis et al., 2010; Bian and Deng, 2017), Tobin Q (McConnell and Servaes, 1990; Setia-Atmaja et al., 2009; Arouri et al., 2014).

In the literature given above, most studies exhibit the relations between ownership concentration and profitability, but very limited studies investigated whether this relation is linear or non-linear. Conflict and ambiguous results make more interesting Turkey's case as a developing country. Even studies conducted recently on the topic in both developed and developing economies show that the alignment hypothesis is more or less true. Even though previous empirical works have paid attention to both the potential nonlinearity of ownership concentration and firm performance as well as the endogeneity of the degree of ownership concentration and firm performance, the conclusions reached by these studies are vastly different (Omran, 2009; Gul et al., 2010; Iwosaki and Mizobata, 2020).

Despite empirical evidence that suggests a linear relationship between performance and ownership concentration (Demsetz and Lehn, 1985; Hill and Snell, 1988; Leech and Leahy, 1991; Morck et al., 2000), other contentious hypotheses imply that the link could be non-linear (Shleifer and Vishny, 1986; Kole, 1995; Iwosaki and Mizobata, 2020). For instance, Jiang et al., (2009), found a non-linear effect of ownership concentration on firm performance ROA, ROE and Tobin Q in New Zealand. For 2006-2009, Alimehmeti and Paletta (2012) discovered a positive and non-linear relationship between ownership concentration and firm value in Italian-listed firms. However in the setting of Chinese listed banks from 2007 to 2018, Huang (2020) discovered that the effect of ownership concentration on ROA and ROE is linear.

The results obtained from prior studies have strong relations with the following main hypotheses (Jiang et al, 2009; Zauri and Taktak, 2014; Iwosaki and Mizobata, 2020);

- convergence of interest hypothesis
- efficient-monitoring hypothesis
- entrenchment hypothesis

According to the convergence of interest hypothesis, concentrated ownership can increase performance by lowering monitoring costs and giving management more power (Jensen and Meckling, 1976; Shleifer and Vishny, 1986). The incentives and power to oversee management are in the hands of large owners. As a result, concentrated ownership reduces the principal-agent agency dilemma caused by the separation of ownership and control, implying a positive association between ownership concentration and firm performance (McConnell and Servaes, 1990; Zeitun and Tian, 2007).

According to the efficient-monitoring hypothesis, a concentrated ownership structure has more competence and can supervise management at a lesser cost than individual shareholders. Thus, ownership concentration increases company value, improves the long-term return-on-investment relationship, and limits earnings management (McConnell and Servaes, 1990; Clay, 2001; Rajgopal et al., 2002).

Instead, the entrenchment theory contends that the presence of significant controlling stockholders can result in expropriation. According to La Porta et al. (1999), a higher level of ownership concentration increases owners' motive and power to expropriate minority shareholder money because the ultimate owner has the power to extract private gains and expropriate minority interests.

The literature given above shows both linear and non-linear positive effects of ownership concentration. In this regard, we should note that the effects of ownership concentration may vary country by country. As La Porta et al. (1998) state, due to lack of legal protection, the ownership structure is concentrated in developing countries. Turkey is a developing country, and therefore the authors develop the following hypotheses in line with the theoretical background given above.

H_1: Ownership concentration has an impact on bank profitability.
H_{1a}: Ownership concentration has an impact on ROA
H_{1b}: Ownership concentration has an impact on ROE
H_2: Ownership concentration has a linear impact on bank profitability.

In the following sections, data and methods, findings and conclusions will be given, respectively.

3. Data and Methodology

This study aims to explicate the impact of ownership concentration on bank profitability. In the study, bank profitability is estimated by fixed effects model with heteroskedasticity- robust standard errors:

$$Profitability_{it} = \beta_0 + \beta_1 OC_{it} - 1 + \beta_i X_{it} - 1 + u_i + \lambda_t + \varepsilon_{it}. \quad (1)$$

Profitability refers to the profitability of the ith bank in year t; OC denotes ownership concentration; X refers to a set of control variables. u_i and λ_t are unobserved bank and year fixed effects and the error term, respectively. Nevertheless, the impact of ownership concentration on bank performance may not be linear (Huang, 2020; Iwasaki and Mizobata, 2020). In this context, this study also analyses whether or not ownership concentration has a non-linear impact on bank profitability for Turkish banks. In order to analyse a nonlinear impact, the following equation is developed by squaring the ownership concentration (OC) variable:

$$Profitability = \beta_0 + \beta_1 OC_{it} - 1 + \beta_n OC^2_{it} - 1 + \beta_1 X_{it} - 1 + \lambda_t + u_i + \varepsilon_{it}. \quad (2)$$

Also, the impact of ownership concentration on the performance may differ by the size of the bank. In other words, large and small size banks may have different business models and ownership concentrations (Bian & Deng, 2017; Huang et al., 2019; Huang, 2020). To test this assumption, ownership concentration term interaction and bank size are included in the model:

$$Profitability = \beta_0 + \beta_1 OC_{it} - 1 + \beta_n OC_{it} - 1 \cdot Size_{it} - 1 + \beta_i X_{it} - 1 + \lambda_t + u_i + \varepsilon_{it}. \quad (3)$$

In the study, two variables are used as the indicator of bank profitability, namely; return on assets (ROA) and return on equity (ROE) (Lin & Zhang, 2009; Jiang et al., 2013; Boateng et al., 2015). In the study, as in the literature, ROA is used in the primary analyses and ROE is used for robustness check (Lin & Zhang, 2009; Huang, 2020). In terms of ownership concentration, the percentage measurement of the largest shareholder of each bank is obtained (Leaño & Pedraza, 2018; Huang, 2020). Control variables consist of the natural logarithm of total assets (Size), the total debt / total assets ratio (Debt), the annual growth of a bank's total assets (Growth), and the number of board members (Board).

The study uses data of 8 banks operating in the Turkish banking sector uninterruptedly over the period 2005 - 2020. According to the International Accounting Standards, standardization of the banks' financial statements accounts for determining 2005 as the beginning year of the dataset period. Moreover, following this period, the Turkish banking sector grew rapidly and became more attractive to foreign investors. In the study, participation, development, and state banks are not included in the analysis due to their distinctive structures, and a sample is generated for only deposit banks. As a result, the generalisability and homogeneity of the results for the period mentioned above and selected banks are provided. Financial data utilized in the study are obtained from the Banks Association of Turkey, whereas information regarding the ownership and board structure is obtained from the banks' annual reports. Table 1 presents the descriptive statistics of these variables.

Table 1. Descriptive Statistics

Variable	# of Obs.	Mean	Std. Dev.	Min.	Max.
ROA	128	-6.37	4.90	1.5296	1.11845
ROE	128	-49.56	40.44	13.6271	8.97882
OC	128	.44	1.00	.7402	.18546
Size	128	20.95	27.19	24.7310	1.51862
Debt	128	.59	1.57	.9404	.11837
Growth	128	-27.77	105.61	19.3558	15.78745
Board	128	6.00	14.00	10.1641	2.04584

4. Findings

Firstly, the relationship between ownership concentration and bank profitability is examined. The linear relationship between ownership concentration and bank profitability is tested with Equation 1, whereas the existence of a nonlinear relationship is tested with Equation 2. In Table 2, Columns I and III indicate the change in ownership concentration (OC) coefficient. Upon examining the results, it is understood that a negative and significant relationship exists at a 5% confidence level between ownership concentration and ROA. The coefficient of the OC variable ranges between -1.12 and -1.31. Upon developing the model by squaring the OC variable, the statistical significance of the OC variable remains (t = -4.83), whereas the OC variable is not statistically significant (see Column IV). These results indicate that ownership concentration has a negative and linear impact on the ROA of Turkish banks regardless of the model specifications.

If the relationship between ownership concentration and ROA is affected by the size of the bank will be tested in 2 ways. First of all, it is determined whether or not the impact of the interaction between OC and SIZE is significant (Equation 3). The results reveal that the coefficient of the interaction term (OC × Size) is 0.66, and it is significant at a 10% level (see Table 3, Column I). In other words, bank size has a positive impact on ROA. Secondly, the banks are divided into two groups such as the most significant four (Big4) and the remaining (Non-Big4) (Equation 1). The OC variable becomes more significant for the Big4 group. However, it loses its importance for the Non-Big4 group. These results indicate that the relationship between ownership concentration and ROA is quite evident for larger banks and the value of R-squared increases from 11.1% to 58.5%.

Table 2. The Impact of Ownership Concentration on ROA: Linear or Nonlinear?

	Linear			Nonlinear
	I	II	III	IV
OC	-1.12** (-2.13)	-1.19** (-2.96)	-1.31** (-3.50)	-1.54** (-4.83)
Size		0.13** (2.04)	0.05 (0.77)	0.03 (0.65)
Debt		-2.38*** (-2.84)	-2.91*** (-3.31)	-2.83*** (-3.21)
Growth		0.00 (0.99)	0.00 (1.09)	0.00 (1.03)
Board			0.11* (1.83)	0.13* (1.74)
OCxOC				0.03 (0.74)
β_0	2.36*** (5.87)	1.13 (0.66)	2.52 (1.36)	2.43 (1.23)
R-Square	0.035	0.111	0.135	0.136

Note: All models are estimated with fixed effects by bank and year, and robust standard errors are clustered at the bank level. T statistics are in parentheses. *, **, and *** indicate significance at 10%, 5%, and 1% levels, respectively.

The results regarding the impact of ownership concentration on ROE as an alternative to performing robustness control are presented in Table 4. Similar to ROA, ownership concentration negatively affects ROE. As a result, it is determined that ownership concentration has a negative and linear relationship with ROE. Similar to ROA, the OC variable has become more significant for the Big4 group, whereas it is insignificant for the Non-Big4 group.

Table 4. Using ROE as an Alternative Measurement of Bank Profitability

	Linear	Non-Linear	Interaction	Big4	Non- Big4
OC	-7.15**	-7.15**	-8.68**	-19.05***	-1.99
	(-2.32)	(-2.32)	(-1.82)	(-2.60)	(-0.35)
Size	0.54	0.43	4.61	-4.57***	0.97
	(1.23)	(1.12)	(2.37)**	(-4.10)	(1.13)
Debt	-15.11***	-12.42***	-18.35***	-65.42***	12.65
	(-2.98)	(-2.32)	(-3.57)	(-9.99)	(1.95)**
Growth	0.08**	0.07**	0.08**	0.16***	-0.01
	(2.35)	(2.23)	(2.55)	(3.35)	(-0.42)
Board	0.82	0.75	0.33	-0.01	0.37
	(2.40)**	(2.21)**	(0.87)	(-0.01)	(0.97)
OCxOC		0.01			
		(0.08)			
OCxSize			7.59**		
			(2.72)		
β_0	9.55	2.21	14.69***	19.35***	-19.28
	(0.89)	(0.53)	(2.85)	(6.68)	(1.32)
R-Square	0.093	0.105	0.119	0.507	0.176

Note: All models are estimated with fixed effects by bank and year, and robust standard errors are clustered at the bank level. T statistics are in parentheses. *, **, and *** indicate significance at a 10%, 5%, and 1% levels, respectively.

5. Conclusion

This paper aims to provide a different view of the current literature investigating the relationship between corporate governance and bank performance. First of all, the research differs from previous research with its approach. While previous studies mainly investigated the positive or negative effects of ownership concentration on bank profitability, the current study examines the linearity of this effect and is novel for Turkey. In this context, the study answers whether bank profitability increases linearly as ownership concentration increases. Secondly, while investigating the linearity

effect in question, we divided the banks into two groups and compared the linearity effect between the four largest banks and the other group. This approach constitutes another original aspect of the research. Ownership concentration is an important instrument of corporate governance in various countries. Nonetheless, the obtained findings regarding the impact of ownership concentration on corporate performance differ by country and are theoretically and empirically complex (Wang and Shailer, 2015). This research study examines the impact of ownership concentration on profitability by analyzing the data of eight banks operating in the Turkish banking sector and BIST over the period 2005-2020. According to the fixed effects models with heteroskedasticity robust standard errors, the results obtained from the research study revealed that the ownership concentration has a negative and linear impact on both ROA and ROE; in addition, bank size has a positive association with ROA. For all three models, ownership concentration was found to decrease the profitability while bank size increases ROA. Moreover, another remarkable result of the research is that the effect of ownership concentration on bank profitability is more significant for the four largest banks. The obtained results comply with that of La Porta et al. (1999) and Claessens et al. (2000) but differs from Alimehmeti and Paletta (2012), Huang (2020), which showed that ownership concentration has a positive and linear impact on the case of Italy and China.

We found a robust evidence that ownership concentration has a negative and linear impact on bank profitability. A concentrated ownership structure exists where the legal protection is law and concentrated ownership is predominant in the Turkish banking system. In Turkey, the weakness of legal protection and concentrated ownership deactivate the professional managers, as Berle and Means (1932) indicated.

From this perspective results obtained from the study also support the entrenchment hypothesis. As La Porta et al. (1999) stated, owners are more motivated and powerful to expropriate money from minority shareholders when there is a higher concentration of ownership. Because the ultimate owner has the power to expropriate minority interests and earn private gains therefore, as ownership concentration increases, profitability does not increase at the same level.

Our findings also have various policy implications. Turkey is a developing country with a transition economy. Every day, remedial arrangements are made for banking and capital markets. In this context, the new regulations should be in a structure that will protect the rights of all banks' stakeholders. In addition, the ownership structure of banks characterised by diseconomies, or those with a risk profile that could jeopardise the financial system's stability, should be taken into account by bank authorities and regulators in their monitoring activities. Overall also it should be stated that bank managers must focus on sustainable profitability.

The research has some limitations. First of all, the inclusion of eight banks operating in the stock market is the main constraint. Banks operating in the stock market but

with different balance sheet structures were not included in the research. Secondly, the research covers the period of 2005-2020 and the results obtained belong to this period.

Finally, this research covers banks traded on the stock exchange. The inclusion of all banks operating in the banking sector in future research is important in terms of testing the results of the research and testing the validity of the robustness of the research model.

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There is no conflict of interest among the authors.