

Corporate Governance and Firm Performance in Emerging Markets: Evidence from Turkey

by

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ABSTRACT

This is a study of the relationship between context, internal corporate governance and firm performance, looking at the case of Turkey, an exemplar of family capitalism. We found more concentrated ownership, often in the hands of families, led to firms performing better; concentrated ownership means that controlling families bear more of the risks of poor performance. Less predictably, given that the institutional environment is so well attuned to family ownership, we found that mechanisms that accord room for a greater range of voices and interests within and beyond families – larger boards and foreign ownership stakes – seem to also make for positive performance effects. We also noted that increases in cross ownership did not influence market performance, but was negatively associated with accounting performance. Conversely, we found that a higher proportion of family members on boards had no discernable effect on performance. Our findings provide further insights on the relationship between the type of institutions encountered in many emerging markets, internal corporate governance configurations and firm performance.

Keywords: Corporate governance mechanisms; Institutions; Family capitalism; Firm performance; Emerging markets; Turkey.

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1. Introduction

This is a study of the effect of internal corporate governance (CG) mechanisms on firm performance in an emerging market setting where institutional arrangements are weak and fluid; it further explores whether any relationships follow on the lines of theories developed in the West, or are context specific. The existing CG literature emphasizes two different systems: Market-based (outsider) and relationship-based (insider) ones (Heenetigala, 2011; Bozec, 2007; Kyereboah-Coleman & Biekpe, 2006; Hilb, 2006; Solomon & Solomon, 2004). The market-based or shareholder value system is mostly seen in Anglo-Saxon countries such as the US and UK, where the protection of minority shareholders is robust, and there is a strong emphasis on maximizing shareholder value (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997). On the other hand, the stakeholder orientated or relationship-based system is encountered in Continental Europe and parts of Latin America East Asia. Here, the role of the firm is much broader than maximizing shareholder profit, and that it seeks to benefit as wide a range of stakeholders as possible (Berghe, 2002; Dore, 2000; Demirbag, Wood, Makhmadshoev, & Rymkevich, 2017). There are also hybrid systems, such as Turkey, which combine some of the characteristics of each; this may translate to weak ownership rights, but not necessarily stronger countervailing rights for stakeholders (Banks, 2004).

There is already an extensive body of literature on the relationship between ownership structure, board composition and attributes, and firm performance (Górriz & Fumás, 1996; Hillman & Dalziel, 2003; Klapper & Love, 2004; Maury, 2006; Chiang & Lin, 2007; Finegold Benson, & Hecht, 2007; Nicholson & Kiel, 2007; Bauwhede, 2009; Singh & Gaur, 2009; Lam & Lee, 2012). However, rather more contentious is the extent to which such relationships reflect general principles, such as an inherent ‘conflict of interest between the shareholders and managers’; how national institutional frameworks might impact on, mitigate or intensify any such tensions; and, indeed, whether alternative, potentially equally valid approaches to CG are valid, and indeed may work better in specific settings (c.f. Aguilera &

Cuervo-Cazurra, 2009). The existing literature on boards, ownership and performance has tended to concentrate on variations in internal CG mechanisms within liberal market frameworks, and on exploring the ways in which shareholder rights may be enforced to maximize shareholder value.

It can be argued that these effects of internal CG arrangements may be amplified – and, hence, much more visible – in contexts with weak and fluid institutions, where external corporate governance arrangements are less effective (Dore, 2008). There has been growing interest in understanding how institutions operate, and the effects of variations in institutional coverage in emerging markets, and in contexts where family ownership is widespread (Witt & Redding, 2013). However, a limitation of much of the existing comparative institutional literature is that the firm is treated as something akin to a transmission belt with contextual features translating into performance outcomes (Wood, Deben, & Ogden, 2014). Yet, institutional arrangements directly impact on intra-organization governance and practice; hence, this study provides a close analysis of the relationship between institutions, internal corporate governance and performance, drawing out the linkages and interconnections between them. Moreover, examining the relationship between institution-specific CG influences and firm performance, measured using both accounting and market-based performance indicators provides a methodological contribution towards a better articulation of CG-firm performance link in the context of an emerging market economy for which only a handful of studies have hitherto been conducted (Singh, Tabassum, Darwish, & Batsakis, 2018). Finally, there has been growing interest in Turkey, a rapidly growing emerging market, but one where there has been increasing concerns as to the direction of institutional change (Karadag, 2010; Bugra & Savaskan, 2014).

The remainder of the study is organized as follows. In Section 2, we provide a brief information on the development of CG in Turkey. Then, we review relevant literature and develop the study's hypotheses. Research method is presented in Section 4, followed by results and discussion. Conclusion is given in the final section.

2. Corporate governance in Turkey

Turkey is broadly of French legal origin (La Porta et al., 1997), but incorporates some Anglo-Saxon features. Examples of the latter would include monist (one-tier) board systems, that employees are generally not represented on boards, that organizations mostly act for the profit maximization of shareholders (stakeholder countervailing power is weak), whilst banks or financial institutions do not dominate business system through holding shares or voting rights unlike some European countries (Nilsson Okutan, 2007). However, Turkey's security market is not broad enough and market capitalization is low compared to that of Anglo Saxon firms. Ownership structure is not widely dispersed (Atakan, Ozsoy, & Oba, 2008; Demirbag, Frecknall-Hughes, Glaister, & Tatoglu, 2013). Property rights under the law are relatively weak (La Porta et al., 1997). Families in Turkey own 68 of the 100 largest traded companies and 53 percent of these families possess more than 50 percent of voting rights (Demirag & Serter, 2003). Usdiken, Yildirim-Oktem, and Senol (2015) claim that family ownership structure in Turkey has been observed since 1940s. Ararat and Ugur (2006) suggest controlling shareholders in Turkey maintain large stakes and leverage cash flow rights due to privileged shares and pyramidal ownership structures. This causes families hold the majority of shares of one more companies through pyramidal structure (Demirag & Serter, 2003). Due to large and limited number of shareholders in most businesses, Turkish business environment runs as a networking system rather than through formal contracts. Finally, the broadly civil law Turkish legal framework (La Porta et al., 1997) incorporates Anglo Saxon elements (Nilsson Okutan, 2007), but at most, is a hybrid-based system, rather than one that is shareholder rights orientated.

The 1999 OECD Corporate Governance Principles required member countries (including Turkey) to take some initial steps to develop an appropriate CG code. In line with this suggestion, Turkey issued its first governance code in 2003. There were also various codes/principles issued voluntarily by the Turkish Industrialists and Businessmen's Association (TUSIAD), the Corporate Governance Association of Turkey (TKYD), and regulatory agencies such as the Capital Market Board (CMB) up until 2011. These codes were not compulsory and relied on '*comply or explain*' rule. The CMB was designated by the

Turkish Government as a formal authority in charge of both issuing and mandating CG rules in 2011. This development was important because until that time there were no centralized structure and no obligation for publicly traded firms who were not willing to adopt CG codes. The CMB's first code, the Communiqué No. 54, brought forward some compulsory rules; this was followed on by three further codes, Communiqués No. 56, No. 57, and No. 60, based on suggestions from public and private companies, but also due to complications arising from the application of the existing CG Code. Finally, the CG principles were updated via Communiqué No. 17, in 2014, in order to comply with the new Turkish Commercial Code, which came into effect in 2012. This new version of CG code brought some compulsory and advisory resolutions regarding the composition of board of directors and shareholders.

It is widely acknowledged that there have been some significant institutional developments since 2003 regarding the development of internal and external CG mechanisms established by the regulatory authorities: The Turkish CG Code was issued; Turkish Commercial Code revised; Public Oversight Accounting and Auditing Standards Authority founded; Turkish Accounting and Financial Reporting Standards were issued; and the Capital Market Board made some serious changes to increase transparency. Although Turkey has experienced major institutional reforms, Turkey nevertheless shares almost all of the salient features of many emerging market CG regimes, including weak institutions (uneven law enforcement, shareholder and creditor protection), pyramidal business groups, dual class shares and concentrated family ownership (Demirag & Serter, 2003).

3. Theoretical background and hypotheses

3.1. Institution-specific CG influences

There are many different strands of institutional theory, from micro level sociological approaches, which focus primarily on internal organizational dynamics (Di Maggio & Powell, 1991) to macro level economic and socio-economic approaches that seek to link firm behavior to wider societal realities. A key concern of the former is on the embeddedness of organizational processes and routines, and how these are legitimized (Greenwood & Hinings, 1996); meanwhile the latter concentrates on the relationship between societal level institutions

– and the dominant patterns they assume – and firm level practices (Wood et al., 2014). However, there has been a convergence across the different strands of institutional theory around the recognition of the central role of shared bodies of meaning, systems, regulations and governance (ibid.). Again, institutional theory seeks to explain both stability in, and commonalities between organizations, and how and why systemic and firm level change happens (Greenwood & Hinings, 1996). This study centers on the relationship between contextual dynamics and intra-firm practice. Hence, it focuses on both on how national level institutions and the associated investment ecosystem impact on internal CG, and how the latter may be associated with persistent modes of behavior reflecting internal and external dynamics.

Whilst sharing these concerns with other strands of institutional analysis, the literature on comparative capitalism specifically focuses on the relationship between national level institutional realities, the extent and density of ties between key societal actors, dominant modes of CG and intra-firm practices (Wood et al., 2014). The initial concern of such theories was with the advanced coordinated (e.g. Germany, Japan and Scandinavia) and liberal market economies (e.g. US and UK) (Hall & Soskice, 2001; Hancke, Rhodes, & Thatcher, 2007). Initially, it was felt that emerging markets would evolve towards one or other of these models (ibid). However, there is growing evidence that emerging markets are not so much evolving towards one of the more mature models of capitalism, but rather constitute quite durable and distinct orders. Change may be slowed by complementarity, even if the latter are partial and skewed to benefit insider players (Fainshmidt, Judge, Aguilera, & Smith, 2016). Based on an extensive evaluation of socio-economic features, Witt and Redding (2013) argue that neither the shareholder nor stakeholder dominant archetypes accurately describe family firm dominated economies (Tabalujan, 2002; Witt & Redding, 2013; Hoskisson, Wright, Filatotchev, & Peng, 2013).

Liu, Yang, and Zhang (2012) note that whilst the literature on family firms has been dominated by agency and resource-based perspectives, institutions impact on how and where family ownership predominates and how it affects performance. They suggest that contradictory evidence on the relative performance of family businesses is in part a function

of a failure to account for institutional effects (ibid.). Similarly, as Carney (2005) notes, much of the literature on family firms – and contexts where family firms predominate – focuses on the resource-based view; however, it has been supplemented by a growing body of work that brings institutional analysis to bear. Again, Church (1993) argues that it is not possible to understand family firms without taking account of time and place: National institutions and cultures will have a much greater effect than formal structures.

Existing institutional accounts on family capitalism would place Turkey squarely within this category (Karadag, 2010). Indeed, it could be argued that this feature has been amplified in recent years; large commercial and industrial families have secured ever greater influence, capitalizing on recent political developments and associated regulatory changes (Karadag, 2010). The latter have opened up new opportunities for leading families to maximize the returns accruing to them, concentrating ownership and control, leaving other interests much worse off (Bugra & Savaskan, 2014). Ownership concentration is associated with powerful families and other players, who will have access to more extensive and deeper networks, which can be harnessed to optimize performance (ibid.). Again, as there are fewer opportunities for risk to be offloaded on outsiders, it can be argued that ownership concentration represents the optimal corporate governance arrangement in contexts such as Turkey, where institutions are relatively weak (Heugens, Van Essen, & van Oosterhout, 2009). Hence:

Hypothesis 1. There is a positive association between ownership concentration and firm performance.

Secondly, there is the issue of cross ownership. A major function of cross ownership is that it allows minority shareholders to maintain control, whilst only holding a relatively small proportion of equity. In other words, it allows insiders control despite only holding a small proportion of cash flow rights (Bebchuk, Kraakman, & Triantis, 2000). Hence, it may enable organizations to fend off the concerns of non-insider shareholders, leaving the latter worse off (ibid.). In contexts where family ownership is widespread, it may be a vehicle through which

families may collaborate, promoting insider interests at the expense of outsiders. For example, cross ownership may enable families to reallocate costs and returns, leaving disempowered non-family shareholders much worse off (Villalonga & Amit, 2006). Cross ownership enables businesses to be captured by families for a disproportionately modest investment, to provide job opportunities for relatives, for prestige reasons, and/or to cross subsidize other businesses where family members have a larger stake.

From an institutional perspective, the relative utility of cross ownership is closely bound up with contextual dynamics (Peng & Jiang, 2010; La Porta, Lopez-de-Silanes, & Shleifer, 1999). When institutions are relatively closely coupled, to make for effective market coordination, cross ownership may allow for cross- and inter- industry sharing of knowledge and capabilities, the enhancing of sectoral wide skills development and collective bargaining arrangements, and the support of the agendas of longer term investors (Peng & Jian, 1999). However, when institutional arrangements are less effective, and/or more weakly coupled, cross ownership may yield few of these benefits; rather, the widespread usage of cross ownership is likely to be a reflection of systemic failings, of the inability of non-family shareholders to enforce their rights (La Porta et al., 1999). In such settings, institutional functionality is partial and geared to serving specific insider interests only (Wood & Frynas, 2006). Here, it is particularly likely that insiders will manipulate cross ownership in order to shift costs between firms, leaving most, worse off to benefit a favored few. As noted above, it may be used to grant relatives sinecures in firms where there are significant minority shareholders, and/or as a vehicle to support family empire building ambitions. In such instances, the organization will end up performing significantly worse than it otherwise would have. The Turkish institutional environment provides relatively fertile ground for cross ownership, again, given the relative weakness of investor rights (La Porta et al., 1997), and the political clout of leading families (Karadag, 2010). Hence:

Hypothesis 2. There is a negative association between the share of cross ownership and firm performance.

It can be argued that systems based on personal familial relations functionally optimally if formal contractual rights are weak and the pool of investment capital is limited; personal ties assume greater importance in such settings (Rajan & Zingales, 1998). However, as systems modernize, this may result in capital misallocation. On the one hand, family capitalist systems may be poorly equipped to cope with sufficient capital inflows from abroad (ibid.). On the other hand, investors from abroad may be better equipped to cope with systemic change, as they may have experience of the latter in a range of different national contexts. As their commitment to the existing order may be weaker, they also be more inclined to promote the adoption of best practices from abroad (Brewster, Wood, & Brookes, 2008). Again, if family owned firms are supported by strong domestic networks of relationships (Fainshmidt et al., 2016), they may be less experienced in optimizing more transactional or “arm’s length” relationships encountered in the advanced societies (Wood et al., 2014). Investors from abroad may be able to bring with them the kind of knowledge and experience of the latter that supplements the in-depth understanding of working in family based networks. Existing work on inward FDI to Turkey from an institutional perspective suggests that incoming firms tend to draw on their developed internal capabilities and strengths in compensating for institutional shortfalls at contextual level, and in doing so, pioneering higher value added practices (Collings, Demirbag, Mellahi, Tatoglu, & Wood, 2014; Dumludag, 2009). Again, if MNEs from institutionally advanced contexts are likely to be subject more robust country of origin regulation, then this would suggest that they will be more effective in protecting the interests of investors. Indeed, in looking at the case of Turkey, Alpay, Bodur, Ener, and Talug (2005) found that MNEs were likely to have uphold better corporate governance standards. This leads to the following hypothesis.

Hypothesis 3. There is a positive association between the share of foreign ownership and firm performance.

Within Turkey, shortfalls in formal regulation and political developments have opened up a void which has been filled by family interests, who have capitalized on the opportunities

for their own advancement (Karadag, 2010); in turn, this vests internal corporate governance checks and balances with greater significance (Kula, 2005). Carney (2005) argues that family control is associated with three types of propensity: Personalism, parsimony, and particularism. This may optimize social capital and encourage opportunism in investment. There are three dimensions of family capitalism that impact on CG. Firstly, the corporate unit as a legal actor may be difficult to disentangle from family interests (Tabalujan, 2002). Company assets are under omnipresent threat of expropriation by family members. Secondly, there is the issue of accountability: Family members may feel more accountable to the family rather than to shareholders or company officers (ibid.). Thirdly, family members may undermine formal lines of authority and supervision (Tabalujan, 2002). Larger boards may dilute these effects: At the very least, consensus will have to be forged between key family factions (Topak, 2011), and it may make it easier for professional managers to exert their influence (Dalton, Daily, Johnson, & Ellstrand, 1999). Thus, we expect that:

Hypothesis 4. There is a positive association between board size and firm performance.

On the one hand, it could be argued that if decision-making is concentrated in the hands of family members, personal ties and loyalties may trump commercial exigencies (Morck & Yeung, 2003). Significant representation of outsiders on boards may allow for the infusion of fresh ideas, and temper deep-seated family loyalties (ibid). In other words, even if family ownership may work relatively well in specific settings, it imposes costs; if family based networks are open, rather than closed to fresh ideas, the system may work much better (Johannisson & Huse, 2000). There is much evidence to suggest that family ownership is a relatively efficient model in contexts where institutions are relatively weak (Fainshmidt et al., 2016). If left to their own devices, commercial and industrial families may forge solutions most appropriate to their context. Again, it has been argued that in Turkey, institutional shortfalls mean that firms often are forced to buy the support or acquiescence of local power holders, such as ex-politicians, bureaucrats and military officers through sinecures at board level (Ararat, Orbay, & Yurtoglu, 2010). Such board members may add little beyond this,

and, indeed, leverage their position to demand additional rents. Hence:

Hypothesis 5. There is a positive association between the proportion of family board members and firm performance.

3.2. Control variables

When institutions are incompatible, there is a contestation for supremacy; the lack of a clear and mutually supportive system will open up room for family owned businesses to devise solutions of their own (Leaptrott, 2005). Van Essen, Strike, Carney, and Sapp (2015) find that when investor protection and institutional effectiveness is weaker, family owned firms are particularly likely outperform non-family firms during times of crisis. This would suggest that a family ownership stake diminishes; these beneficial effects will be less pronounced. Again, public ownership subjects firms to greater scrutiny, which may make it harder for dominant families to forge deals based on their extended networks. Hence, we control for the proportion of publicly held shares, as this will dilute the material stake families have in firms, which may diminish performance.

We also control for the effects of the proportion of independent and non-executive directors and CEO duality, given that these are indicators of relative board independence (Chiang & He, 2010). However, we anticipate these effects may be slight. The fact of CEO duality tells us little as to whether s/he is a family member or not, which may exert a stronger effect on managerial-board relations.

We also incorporated the following additional control variables: Female board representation, executive board membership, proportion of publicly held shares, CG index, leverage, firm age, firm size, industry and group affiliation (details provided in method section). These control variables are classified under three main categories: Board specific controls, CG infrastructure specific controls and firm specific controls.

Figure 1 delineates the research framework of the hypothesized relationships along with the control variables.

[Figure 1]

4. Research method

4.1. Sample

Our sampling frame includes the firms listed in Borsa Istanbul (BIST). As of May 2013, the number of firms listed in BIST was 428. These firms are categorized with respect to their market definitions and requirements, which are shown in Appendix 1. The market conditions are determined in accordance with listing requirements, such as firm size and sector. After excluding firms that do not meet the listing requirements of BIST and that are not freely traded, we confine our sample to 234 firms (55 percent). Furthermore, in line with previous studies (Earle, Kucsera, & Telegdy, 2005; Rose, 2007; Setia-Atmaja, 2009), financial institutions are excluded from the dataset because of their different financial reporting standards (Jackling & Johl, 2009). Following the elimination of financial firms, our sample finally includes 210 firms that account for 49 percent of listed firms on the BIST.

The data about these companies cover the period of 2010-2013 and are compiled from a wide variety of channels. (1) Central Registry Agency; (2) annual reports of firms; (3) external audit reports; (4) corporate web pages of firms; (5) Public Disclosure Platform, and (6) a personal direct contacts with to mailing or calling a firm's investor relations department. Most of the data, especially on board attributes, were hand-collected from above channels. There were some limitations to the data collection process owing to some missing variables (e.g., CEO duality, executive and independent board membership), as firms have no legal obligation to disclose information on them. These limitations constitute the key reason to confine our time frame to the period of 2010-2013. Table 1 shows the characteristics of the sample.

[Table 1]

4.2. Variable definitions and measurement

The following subsections include the definitions and measurements of the variables used in the study.

4.2.1. *Dependent variable*

This study uses *Tobin's Q* and *Return on Assets (ROA)* as dependent variables, which are consistent with prior studies (e.g. Sarkar & Sarkar, 2000; Cheng, 2008; Guest, 2009; Jackling & Johl, 2009; Chen & Nowland, 2010; O'Connor, Kinsella, & O'Sullivan, 2014). In fact, relying on a single performance indicator may be specious. For instance, Dalton et al. (1999) highlight limitations on the usage of accounting performance measures, as they may be subject to manipulation, and variations in accounting and consolidation methods. Conversely, Muller (2014) claims that market-based measures of performance may be affected by investor anticipation. In the light of this, we use both accounting and market based performance measures¹.

ROA is an accounting performance indicator, defined as the percentage of net income to total assets. The ROA shows a firm's operational performance for a specific period (mostly one year) as a percentage of total assets. In this study, we select ROA over other similar performance indicators – ROE and ROIC – owing to limitations in the latter; for example, in Turkey firms' leverage ratios are usually higher than those in developed countries. Information for a ROA is obtained from a firm's annual reports, including external audit reports. Annual reports are available from corporate web sites.

Tobin's Q is the market performance indicator defined as the percentage of market value of a firm to total assets. Hoon and Prather (2001) claim that Tobin's Q is frequently regarded as a reliable measure indicating a firm's performance based on its growth potential. We obtained market value, the denominator of Tobin's Q, from the Central Registry Agency (MKK), which is the central securities depository for capital market instruments. Total assets are derived from the financial statements of firms, which are obtained in the same way as the ROA.

¹ Although the accounting measures of performance (e.g. price earnings measures) might also be used like Tobin's Q, the latter provides a rather more realistic measure when evaluating the market performance of firms in emerging countries like Turkey where the capital markets are not as broad and deep as in Anglo-Saxon countries. It is also well acknowledged in the extant literature that the use of accounting-based measures of performance is subject to serious shortcomings stemming largely from differences in systematic risk, tax laws and accounting conventions concerning inventory valuation, R&D and advertising, and is likely to differ across industries creating estimation bias in favor of industry effects (see Singh et al. (2018) for a detailed review).

4.2.2. Independent variables

We used the following institution specific CG influences as independent variables to examine their impact on firm performance.

Ownership concentration (CONCEN) is measured as the percentage of shares held in blocks of 5 percent, or more (Tuschke & Sanders, 2003; Nguyen, Locke, & Reddy, 2014).

Cross ownership (C-OWN) is measured by the percentage of corporate shareholders to total shares (Faccio & Lang, 2002; Dietzenbacher & Temurshoev, 2008).

Foreign ownership (F-OWN) is measured using the percentage of foreign investor shares to total shares (Aydin, Sayim, & Yalama, 2007).

Board size (B-SIZE) is measured by the number of directors appointed on board (Chiang & Lin, 2007; Perrini, Rossi & Rovetta, 2008; Mobbs, 2015).

Family board membership (B-FML) involves the presence of family board members. It is calculated by the percentage of family directors divided by the total number of directors (Anderson & Reeb, 2004; Ehikioya, 2009).

The first three variables of CONCEN, C-OWN and F-OWN were acquired from the MKK, while B-SIZE and B-FML were obtained from the firm's annual reports. Annual reports can be obtained either from a firm's corporate web site or through the Public Disclosure Platform. In some cases, mostly where there is a lack of data or data that is not clear in the annual reports, data was requested from firms by phone or mail.

4.2.3. Board specific controls

Women board membership (B-WMN) refers to the presence of women on boards, measured as the percentage of women directors on a board. Campbell and Minguez-Vera (2008) stress that the gender composition of a board can affect the quality of the controlling role and firm performance especially in countries where external mechanisms are less well developed. The presence of women on board has been associated with better monitoring, which will impact on firm values (Schnake, Williams, & Fredenberger, 2006; Nielsen & Huse, 2010; Isidro & Sobral, 2015).

Executive board membership (B-EXE) represents the percentage of executive board members. Directors, who are responsible for an administrative task in the firm's daily routines, while being a board member, can be defined as executive board members. Previous studies emphasize the relative importance of executive directors, suggesting that they contribute to available expertise, and facilitate more open discussion within management (Donaldson, 1990; Muth & Donaldson, 1998). In their study of Turkish banks, Kaymak and Bektas (2008) found a positive relationship between executive board members and firm performance.

Independent board membership (B-IND) is the percentage of independent and non-executive board members. It is measured as the percentage of independent members of a board (Bhagat & Bolton, 2008; Jackling & Johl, 2009; Singh et al., 2018).

CEO duality (C-DUAL) or commonly board leadership is defined when a CEO is also chairperson of a board. CEO duality is measured using a dummy variable where "1" denotes whether the CEO also serves as a chairperson and "0" otherwise (Ehikioya, 2009; Veprauskaite & Adams, 2013).

4.2.4. *CG infrastructure specific controls*

Publicly held ownership (P-OWN) is calculated as the percentage of public shares to total shares.

Corporate governance index (CG-IND) is used by BIST and involves quotations from firms who have proved to be compatible with the index requirements. CG-IND is measured by a dummy variable where "1" denotes firms listed in the CG index and "0" otherwise. The Public Disclosure Platform (www.kap.gov.tr) company notifications are partially used to obtain data about firms quoted on the CG index.

4.2.5 *Firm specific controls*

Leverage (LEV) affects firm performance either positively or negatively. According to Campbell and Minguez-Vera (2008), leverage is negatively associated with firm performance because a higher level of debt increases the risk of bankruptcy. In contrast, Jensen (1986)

notes a positive relationship between leverage and firm performance because high levels of debt decrease potential agency costs, which mean managers have less cash available after servicing the debt.

Firm age (AGE) effects on firm performance are ambiguous. Sarkar and Sarkar (2000) stress that the performance of younger firm is higher because younger firms are likely to have newer assets relative to mature firms; hence, they are more likely to be able to comply with environmental legislation and it easier for them to position themselves in the market on the basis of their environmental responsiveness. However, mature firms possess accumulated knowledge about the country, and market. Mature firms are likely to have built up a level of market share, which may be more difficult for younger firms to match. With experience, they may be more resistant to crises.

Firm size (SIZE) also has an effect on firm performance. Zahra and Pearce (1989) and Su, Xu, and Phan (2008) posit that larger firms are more likely to have larger boards, which, in turn, lead to greater agency costs (Jensen & Meckling, 1976); hence, firm size is negatively associated with firm performance. On the other hand, Setia-Atmaja (2009) found a positive relationship between firm size and board independence. Mura (2007) explains that due to economies of scale, larger firms are expected to be more profitable. Larger firms can also access cheaper resources and funds.

Industry (IND) is another contingent variable in our model. Firms in the manufacturing sector commonly invest in more machinery and equipment, while service sector firms use more funds for their advertisement and marketing expenditure.

Group affiliation (GRP) is the last contingency variable. According to Zattoni, Pedersen, and Kumar (2009), a business group consists of individual firms with multiple links and they are coordinated to attain common goals. Singh and Gaur (2009) examined the top 500 Indian and Chinese firms and found that the performance of group-affiliated firms was worse than unaffiliated firms. Zattoni et al. (2009) explain the costs of business groups. Costs arise between the controlling and minority shareholders, which lead to misallocation of capital. Inefficient compensation schemes and organization problems may also occur in group firms. Group firms present consolidated financial statements.

The operationalization of all variables along with their sources is presented in Appendix 2.

4.3. Data analysis

Our dataset includes both cross-sectional and time series observations that fit panel data. It is consistent with prior studies (Campbell & Minguez-Vera, 2008; Veprauskaite & Adams, 2013; Tariq & Abbas, 2013; Zakaria, Purhanudin, & Palanimally, 2014). The specification test proposed by Hausman is the most accepted procedure to select which test to employ in panel data analysis (Baltagi, 2005). It compares fixed effect and random effect regressions. The Hausman specification test confirmed the superiority of the random effect model over the fixed effect model for both Tobin's Q ($\chi^2 = 15.34; p > 0.10$) and ROA ($\chi^2 = 17.77; p > 0.05$).

In this study, potential endogeneity between firm performance and CG variables is tested by Hansen J statistic (Crespi & Renneboog, 2010; Bhagat & Bolton, 2008). To employ this test, endogenous variables are instrumented by the lagged values of independent variables. The Hansen J statistic test examines whether the residuals of the equation correlate with the instruments. In case of significant correlation, the model is misspecified as such that there is systematic variance in the residuals that can be predicted by the instruments. Thus, parameter estimates are biased and cannot be trusted. The results of the Hansen J test fail to reject overidentification restrictions attesting that the instrumental variables used throughout the models seem to be valid.

The effects of CG mechanisms on firm performance are shown in the following equation:

$$\begin{aligned} \text{PERF}_{it} = & \alpha_{0it} + \beta_{1it} \text{CONCEN}_{1it} + \beta_{2it} \text{C} - \text{OWN}_{2it} + \beta_{3it} \text{F} - \text{OWN}_{3it} + \beta_{4it} \text{B} - \text{SIZE}_{4it} \\ & + \beta_{5it} \text{B} - \text{FML}_{5it} + \beta_{6it} \text{B} - \text{WMN}_{6it} + \beta_{7it} \text{B} - \text{EXE}_{7it} + \beta_{8it} \text{B} - \text{IND}_{8it} \\ & + \beta_{9it} \text{C} - \text{DUAL}_{9it} + \beta_{10it} \text{P} - \text{OWN}_{10it} + \beta_{11it} \text{CG} - \text{IND}_{11it} + \beta_{12it} \text{LEV}_{12it} \\ & + \beta_{13it} \text{AGE}_{13it} + \beta_{14it} \text{SIZE}_{14it} + \beta_{15it} \text{IND}_{15it} + \beta_{16it} \text{GRP}_{16it} + \mu_{it} + v_{it} \end{aligned}$$

In the equation above, subscript i denotes i th firm ($i=1\dots 210$), subscript t denotes t th year ($t=2010\dots 2013$). Considering Tobin's Q and ROA variables as financial performance measures, two different panel regression models are constructed using Stata 12.

5. Results

The descriptive statistics and the correlation coefficients among the dependent, independent and control variables are shown in Table 2.

[Table 2]

None of the correlations between explanatory variables has correlation coefficients above 0.63, and the pairwise correlations do not seem to present serious multicollinearity problems for the regression analyses. The variance inflation factors (VIF) for our variables are also far below the threshold value of 10 (Freund, Wilson, & Sa, 2006), suggesting that the issue of multicollinearity in models is not a concern in this study. The VIF scores are indicated in Appendix 3. An additional test, Condition Number Test (k), is used to check multicollinearity. The test result ($k=3.58$) is found to be far less than the threshold value of 15, indicating that there is no multicollinearity.

Table 3 presents the random effect regression models predicting the effects of the institution specific CG influences on firm performance. Panel data regression is also run in accordance with OLS and fixed effects. The results of these regression analyses along with random effect are shown in Table 4.

[Tables 3 and 4]

5.1. Testing of hypotheses

As shown in Table 3, two models are estimated for each dependent variable. As the first step, all three sets of control variables are entered (Model 1 and Model 3). The effects of the hypothesized variables are then tested in Models 2 and 4 where all independent variables along with control variables are tested, as shown in Table 3.

There is full support for Hypothesis 1 in that the coefficient of CONCEN is positive and significant ($p < 0.05$) in both models. That is, the greater the ownership concentration the higher the firm performance. Our result is also consistent with previous studies (Thomsen &

Pedersen, 2000; Perrini et al., 2008; Singh & Gaur, 2009; Ehikioya, 2009; Nguyen et al., 2014). To exemplify, drawing on a newly created dataset including 324 listed firms in Pakistan, Sing et al. (2018) find that ownership concentration is positively linked with high Tobin's Q. Similarly, Nguyen et al. (2014), based on a sample of 257 Singaporean domiciled non-financial listed companies, note that ownership concentration is positively related to Tobin's Q. Again, using archival data on the top 500 Indian and Chinese firms from multiple data sources for 2007, Singh and Gaur (2009) conclude that ownership concentration denoted by the percentage of ownership held by the largest shareholder has a positive effect on firm performance measured by ROA. On the other hand, some researchers come up with contradictory results. For instance, relying on a panel data of 468 UK publicly listed firms, Veprauskaite and Adams (2013) find that ownership concentration is negatively related to firm performance. In a similar vein, El Mehdi (2007), and Bektas and Kaymak (2009) note that ownership concentration has a negative effect on firm performance. Even more interestingly, a number of researchers such as Tuschke and Sanders (2003) and Sacristán-Navarro et al. (2011) are unable to find any significant relationship between ownership concentration and firm performance.

It can be argued that more concentrated ownership means that the firm has closer and denser ties to core investors, and hence, better equipped to draw on the range of resources the latter has to offer (Hillman & Dalziel, 2003). Again, it is possible that concentrated ownership means that the organization is not pulled in different directions by different groupings of shareholders with very different agendas.

Some partial support is found for Hypothesis 2. The coefficient of C-OWN is negative and significant for only ROA ($p < 0.01$). This means that increases in cross ownership do not influence market performance, but diminish accounting performance. It may be that dominant investors exert pressure on managers to under-report results in order to deflect demands by minority shareholders for higher returns. It is clearly not the case that dominant investors are using their position to cross-subsidize other less successful organizations under their ambit (Abdullah, 2006).

Hypothesis 3 is fully supported, as the coefficient of F-OWN is positive and significant for both Tobin's Q and ROA ($p < 0.001$). This finding tends to corroborate that of Aydin et al. (2007) who reveal that firms with foreign ownership show better performance (ROA) than domestic ones based on a dataset of 301 firms listed in BIST for the period of 2003-2004. It also aligns with the survey findings of Demirbag, Tatoglu, and Glaister (2007) who, based on a sample of Western-Turkish joint ventures in Turkey, note that the increase in the level of foreign ownership through foreign direct investment (FDI) provides connections to the external environment and helps decrease resource dependence because the interaction of local and foreign board members increases the board's counselling and advisory services that improve firm performance.

The coefficient of B-SIZE is positive for both performance indicators and significant². That is, it is positive and significant for Tobin's Q ($p < 0.001$) and ROA ($p < 0.01$), providing full support for Hypothesis 4, confirming the view that with larger boards comes opportunities to access a fuller and wider range of family based networks and to build consensus between different interest groups. Although this finding aligns with those of previous studies (Lipton & Lorsch, 1992; Dalton et al., 1999; Veprauskaite & Adams, 2013; Singh et al., 2018), it contradicts with some earlier studies as well. For instance, a group of researchers including Chiang and Lin (2007), Cheng (2008), Guest (2009) and Nguyen et al. (2014) find that board size is negatively associated with firm performance. On the other hand, some researchers such as Bektas and Kaymak (2009), and Perrini et al. (2008) could not find any significant relationship between the board size and firm performance.

No support is found for Hypothesis 5, as the coefficient of B-FML is not significant on the two performance outcomes. In other words, family board membership does not have any impact on firm performance within the context of Turkey. This would suggest that rather than being a zero-sum game, the relationship between family owners and other shareholders could represent a dynamic and contested relationship, imposing costs and conferring benefits on

² We have checked the possibility of having non-linear relationship in the model between board size (by taking its logarithm) and firm performance. According to the test results, no significant difference was found between the variables indicating non-linearity in the model.

both sides. It could also be the case that in family dominated firms, boards are more likely to be filled with placemen; it matters less whether board members are family members or not, and more whether they are conducive to the implementation of family agendas. It should also be noted that this finding is not particularly surprising in that most of the previous studies come up with mixed results with respect to the effect of family board membership on firm performance. While some studies find a positive relationship between family board membership and firm performance (e.g. Thomsen & Pedersen, 2000; Anderson & Reeb, 2004), others note an adverse effect of family board membership on firm performance (e.g. Ehikioya, 2009).

Of the board specific control variables, only B-IND is found to have a negative and significant effect on Tobin's Q ($p < 0.001$). In fact, non-executive independent board membership appointment was not compulsory in Turkey prior to 2012. The general tendency of firms is to appoint their close friends or the persons in their inner circles who have a limited or no effects on decision-making process. Existing work on Turkey suggests that independent members on the boards of Turkish companies often lack real autonomy (Usdiken & Yildirim-Oktem, 2008; Arikboga & Menten, 2009).

As for CG infrastructure specific controls, both P-OWN and CG-IND have significant coefficients for Tobin's Q. While the sign on P-OWN is negative ($p < 0.01$), it is positive for CG-IND ($p < 0.05$). The negative coefficient of P-OWN may reflect the extent to which public scrutiny makes it much harder for family members to forge deals facilitated by their extended networks. It also may mean that family members will be more inclined to engage in risky actions, as some of the costs will be borne by outsiders. On the other hand, the positive sign on CG-IND confirms that presence in the CG index has a significant relationship on performance in terms of Tobin's Q.

In terms of firm specific control variables, only LEV and SIZE are found to have significant effects ($p < 0.001$). We note that firms with lower leverage are more likely to achieve better performance as indicated by the negative coefficient of LEV. This might be due to cash flow effects, whereby the lower leverage firms enable more free cash for new investment opportunities. More highly leveraged firms may also have more commitments and

covenants, however, which complicate the situation. This finding is somewhat at odds with a large body of agency theory, which suggests that debt leverage does not necessarily leave firms worse off; rather, it can serve as a positive device in helping prioritize shareholder interests.

SIZE is noted to have a negative and significant effect on Tobin's Q ($p < 0.001$), whereas it has a positive and significant influence on ROA ($p < 0.001$). In other words, smaller firms indicate better market performance, whereas accounting performance is better in larger firms. Larger firms can use economies of scale that reduce production or service costs. Larger firms have also negotiation advantages. This can decrease the cost of capital and increase firm performance when compared to smaller firms. Again, this would be somewhat at odds with the assumption that very large firms often represent the product of untoward managerial empire building. However, larger firms face coordination problems, whilst smaller firms are able to reach decisions more quickly. Smaller firms are also better equipped to circumnavigate the law in settings where institutional coverage is incomplete.

In terms of our other control variables, women board membership, executive board membership, CEO duality, firm age, industry and group affiliation are not significantly associated with firm performance.

A summary of the hypotheses with the independent variables and their predicted and actual signs is shown in Table 5.

[Table 5]

6. Discussion and conclusion

This study supplements earlier resource-based and agency accounts in bringing an institutional perspective to bear in understanding the consequences of specific internal CG arrangements within a national setting characterized as family capitalism. We found that ownership concentration directly influenced firm performance. This would reflect the extent to which families may be adept in devising strategies for filling institutional voids (Liu et al., 2012). The study reveals that when ownership is concentrated, often in the hands of key families, this results in firms performing better. This is because systemic benefits may be optimized: A high concentration of ownership incentivizes families to work together in

optimizing performance, as there is a smaller proportion of outsiders that will share the costs of failure. At the same time, it provides greater incentives for other actors with links to the dominant family to facilitate the activities of the firm. Within family capitalism, it is precisely such extended family based and associated networks that provide the basis of competitiveness; indeed, the system is skewed in favor of such networks (Fainshmidt et al., 2016).

In Turkey, cross ownership often is used as a means of ensuring family control even when the latter has a minority stake (Demirag & Serter, 2003). We found that the performance effects of cross ownership were mixed. This would suggest that any negative effects associated with an ability to offload risks onto other, relatively disempowered shareholders, might be offset with the benefits this may confer. Effectively, this allows dominant families to control a wider number of firms than their capital resources would otherwise suggest. In turn, such firms benefit from access to the kind of family based networks that are crucial to accessing markets and resources in such institutional environments. At the same time, the disjuncture between market and (sub-optimal) accounting performance in such firms might suggest that controlling families may under-report result interlocking ownership would reduce pressures by outside shareholders, resulting in an accounting performance being a lesser priority than would otherwise be the case (Jaggi, Leung, & Gul, 2009).

At the same time, we encountered beneficial effects flowing from FDI. Whilst a scrutiny of earlier relevant research might make such a finding relatively predictable (Fainshmidt et al., 2016), our study highlights the extent to which family ownership may perform even better when they have access to knowledge and insights from outsiders, and access to their networks. Hence, we found that when firms attracted overseas investment, similarly performed better. Not only might overseas investors provide knowledge on emerging global best practices, but also their access to international networks that might supplement domestic family based ones.

Again, we found that when firms had larger boards, they performed better. Larger boards may allow more leeway for professional managers to exercise their judgement, helping create more space for fresh insights. They would also mean that there is more place to

accommodate different interest groupings within the dominant family, draw in extended kin, and allow access to a greater pool of knowledge and, potentially access to a wider range of personal and familial networks. Under family capitalism, it is precisely access to such networks that forms the foundation of competitiveness, providing a mechanism for coping with failures in formal institutions, providing a greater predictability in exchange relations, and, potentially, solutions for overcoming or circumnavigating unwelcome regulation. They may also influence the allocation of capital, mitigating excessive risks from over-allocation in a specific area, and, hence, offsetting some of the limitations of family ownership in this regard (Tabalujan, 2002)

Although it could be argued that family ownership brings with it specific problems in its own right – most notably in terms of the allocation of capital – it could also be argued that they represent a specific mode of ownership that is particularly suited to specific categories of emerging market (Uddin, 2005). Above all, a core theoretical finding is the importance of context, and the extent to which universalistic explanations of CG need to be qualified and altered to take account of very different institutional and social realities. Internal CG is likely to be amended to take advantages of the opportunities and compensate for the challenges imposed by specific national institutional realities, and associated informal social conventions. Our findings highlight most optimal internal CG configurations to maximize systemic benefits and compensate for weaknesses. Clearly, there is no single optimal internal CG ‘recipe’; rather, in specific contexts, dominant forms evolve that are best equipped to cope with, and gain the optimal benefits from a particular setting. This would highlight the relevance of socio-economic approaches to comparative institutional analysis (Amable, 2003; Sinani, Stafsudd, Thomsen, Edling, & Randøy, 2008), but also the relevance of detailed analysis of internal CG mechanisms in extending our understanding of national institutional effects. Although specifically focusing on Turkey, the findings would be of relevance to other national contexts with uneven and relatively fluid institutions and where family firms play a particularly prominent role: This would include other Mediterranean market economies (Amable, 2003), potentially a wider range of emerging markets further afield, and, indeed, as a basis for future comparative analysis.

6.1 Managerial implications

The empirical results show statistically significant and positive associations between ownership concentration, foreign ownership, board size and firm performance and, to a lesser extent negative association between cross ownership and firm performance. In Turkey, ownership concentration is high because firms are generally reluctant to enter into an Initial Public Offering (IPO) process. Organizations that are willing to go public are required to publish a significant amount of financial and operational information. For this reason, organizations feel that they lose competitive advantages in the market; this could also reflect the concern that this may place the pursuit of family interests under undue public scrutiny. Publicly traded firms also have to obey additional regulations especially in sectors such as banking, insurance, telecommunications, and energy. Although this may distort firm level decision-making, the findings suggest that firms are quite good at improvising solutions and, hence, that regulatory reform may disrupt existing ‘fixes’ without bringing with them better alternative ones. Family businesses in Turkey have incentive to monitor subsidiaries via a cross-shareholding structure; this may have some adverse consequences, but the picture we found was equivocal in the latter regard. Although we found that the proportion of family members on boards had no effect, this would reflect the extent to which non-family board members may be carefully selected not only because of their potential influence and expertise, but also because of their relative conduciveness to family interests.

6.2 Limitations and future research

While this study sheds light on the extant literature regarding the connection between CG and firm performance, it is subject to some limitations. Some of the important variables typically deployed in studies of this nature, such as CEO and board tenure, CEO and board compensation, managerial or director ownership and board process (number of board meetings and number of decisions taken), were not included in the study due to the unavailability of panel data for these variables.

When the study was undertaken, the number of firms quoted in BIST was 428, whereas this research relied on a sample of 210 firms composed of mainly large scale and long-established firms. A new dataset involving SMEs and relatively younger firms may also be a valuable contribution to CG performance research in emerging countries such as Turkey. Finally, in exploring the relationship between national institutions, internal governance and performance, the study provides a foundation of understanding in specific contextual dynamics; a comparative dimension would yield fuller insights on firm level outcomes in contexts where families are a dominant ownership form.

Acknowledgement: The authors are indebted to the editor and two anonymous reviewers for their extremely helpful and insightful comments, which enabled us to greatly improve on earlier iterations of this paper.

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Figure 1. Research framework

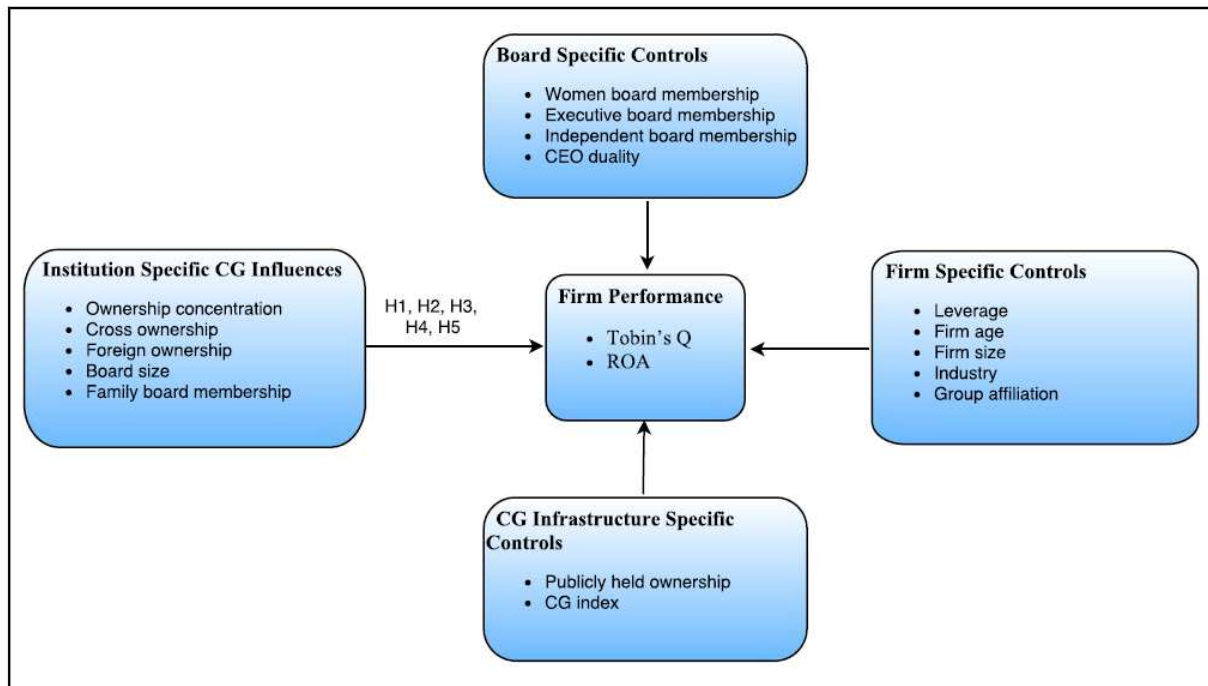


Table 1. Characteristics of the sample

Sample characteristics	No	(%)
<i>Firm age (years)</i>		
Young firms (less than 10)	8	3.8
Middle age firms (10-19)	34	16.2
Mature firms (equal to or more than 20)	168	80.0
<i>Sector of operation</i>		
Holding and investment companies	24	11.4
Fabricated metal products, machinery and equipment	24	11.4
Non-metallic mineral products	22	10.5
Wholesale and retail trade, hotels and restaurants	22	10.5
Food, beverage and tobacco	19	9.0
Chemicals, petroleum rubber and plastic products	18	8.6
Basic metal industries	14	6.7
Textile, wearing apparel and leather	12	5.7
Technology	11	5.2
Paper and paper products, printing and publishing	11	5.2
Transportation, telecommunication and storage	9	4.3
Other services	24	11.4
<i>Geographic location</i>		
Marmara	144	68.6
Aegean	29	13.8
Inner Anatolia	16	7.6
Mediterranean	12	5.7
Black Sea	5	2.4
Other	4	1.9
Total	210	100

Table 2. Descriptive statistics and correlation matrix

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 TOBIN'S Q	0.94	1.09	1																	
2 ROA	0.04	0.11	0.25*	1																
3 CONCEN	0.65	0.19	0.19*	0.12*	1															
4 C-OWN	0.54	0.29	0.14*	0.09*	0.67*	1														
5 F-OWN	0.19	0.25	0.18*	0.10*	0.23*	0.30*	1													
6 B-SIZE	7.10	2.10	-0.01	0.14*	0.11*	0.18*	0.15*	1												
7 B-FML	0.19	0.24	-0.15*	0.02	-0.17*	-0.28*	-0.24*	-0.07	1											
8 B-WMN	0.13	0.15	-0.11*	0.02	-0.04	-0.15*	-0.17*	-0.09*	0.21*	1										
9 B-EXE	0.22	0.21	-0.11*	-0.11*	0.13*	-0.21*	-0.08*	-0.23*	0.07	0.31*	1									
10 B-IND	0.18	0.16	-0.06	-0.08	-0.07	-0.04	-0.02	0.09	-0.07	-0.07	-0.11*	1								
11 C-DUL	0.19	0.39	0.05	-0.01	-0.19*	-0.29*	0.00	-0.22*	0.12**	0.18*	0.36*	0.00	1							
12 P-OWN	0.47	0.25	-0.15*	-0.13*	-0.63*	-0.40*	-0.05	-0.14*	0.06	0.02	0.15*	0.07	0.24*	1						
13 CG-IND	0.13	0.33	-0.05	0.07	-0.01	0.11*	0.12*	0.26*	-0.09*	-0.03	-0.09	0.09	-0.16*	-0.08*	1					
14 LEV	0.50	0.33	-0.11*	-0.56*	-0.01	-0.04	0.06	0.04	-0.03	-0.10*	0.02	0.06	-0.05	0.02	0.01	1				
15 AGE	3.37	0.67	-0.04	0.11*	0.03	0.05	0.08*	0.07	-0.02	0.01	-0.08	-0.05	-0.01	0.02	0.03	-0.09	1			
16 SIZE	20.05	1.77	-0.22*	0.13*	0.13*	0.18*	0.25*	0.48*	0.06	-0.08	-0.17*	0.05	-0.23*	-0.18*	0.33*	0.09	0.15*	1		
17 IND	0.36	0.48	-0.08	-0.14*	-0.14*	-0.20*	-0.04	0.05	-0.02	-0.04	0.09	0.09*	0.04	0.02	-0.02	0.18*	-0.26*	0.18*	1	
18 GRP	0.63	0.48	-0.21*	-0.10*	-0.08	-0.04	0.02	0.13*	0.07	-0.10*	0.05	0.06	0.00	0.09	0.13*	0.17*	0.14*	0.39*	0.14*	1

Notes:
 TOBIN'S Q: Tobin's Q, ROA: Return on assets, CONCEN: Ownership concentration, C-OWN: Cross ownership, F-OWN: Foreign ownership, B-SIZE: Board size, B-FML: Family board membership, B-WMN: Women board membership, B-EXE: Executive board membership, B-IND: Independent board membership C-DUL: CEO duality, P-OWN: Publicly held ownership, CG-IND: CG, LEV: Leverage, AGE: Firm age, SIZE: Firm size, IND: Industry, GRP: Group affiliation.

* $p < 0.01$, $N = 840$.

Table 3. The results of panel data analyses

		TOBIN'S Q				ROA			
		Model 1		Model 2		Model 3		Model 4	
Variable	Variable Definition	β	S.E	β	S.E	β	S.E	β	S.E
<i>Independent variables</i>									
CONCEN	Ownership concentration			0.44*	0.34			0.05*	0.03
C-OWN	Cross ownership			0.02	0.20			-0.04**	0.02
F-OWN	Foreign ownership			0.59***	0.19			0.05***	0.02
B-SIZE	Board size			0.07***	0.02			0.00**	0.00
B-FML	Family board membership			-0.15	0.17			0.01	0.02
<i>Board specific controls</i>									
B-WMN	Women board membership	-0.30	0.25	-0.15	0.25	-0.00	0.03	0.00	0.03
B-EXE	Executive board membership	-0.08	0.20	-0.02	0.20	-0.01	0.02	-0.01	0.02
B-IND	Independent board membership	-0.19*	0.13	-0.37***	0.13	-0.02	0.02	-0.02	0.02
C-DUL	CEO duality	-0.11	0.13	0.01	0.13	0.01	0.01	0.00	0.01
<i>CG infrastructure specific controls</i>									
P-OWN	Publicly held ownership	-0.79***	0.22	-0.52**	0.25	-0.03*	0.02	-0.02	0.02
CG-IND	CG index	0.18*	0.13	0.19*	0.13	0.00	0.01	0.00	0.01
<i>Firms specific controls</i>									
LEV	Leverage	-0.67***	0.15	-0.67***	0.15	-0.21***	0.02	-0.22***	0.02
AGE	Firm age	-0.02	0.10	-0.05	0.10	0.01	0.01	0.01	0.01
SIZE	Firm size	-0.31***	0.04	-0.36***	0.04	0.01***	0.00	0.01***	0.00
IND	Industry	0.08	0.15	0.12	0.15	-0.01	0.01	-0.01	0.01
GRP	Group affiliation	0.08	0.15	0.10	0.15	-0.01	0.01	-0.01	0.01
	Constant	7.8***	0.78	7.90***	0.78	-0.10*	0.06	-0.10*	0.06
	Observations	746		745		750		749	
	Adjusted R-square	0.09		0.14		0.26		0.29	

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 4. Regression results in terms of different models

Variables	Ordinary	Fixed	Random	Ordinary	Fixed	Random
	Least Square	Effect	Effect	Least Square	Effect	Effect
	TOBIN'S Q	TOBIN'S Q	TOBIN'S Q	ROA	ROA	ROA
CONCEN	0.679** (0.303)	0.690** (0.426)	0.445* (0.342)	0.0556** (0.0262)	-0.00938 (0.0624)	0.0492* (0.0343)
C-OWN	-0.160 (0.176)	-0.0121 (0.246)	0.0221 (0.200)	-0.0432*** (0.0153)	-0.0301 (0.0364)	-0.0416** (0.0201)
F-OWN	0.823*** (0.158)	0.0923 (0.249)	0.586*** (0.193)	0.0422*** (0.0137)	0.0220 (0.0365)	0.0471*** (0.0185)
B-SIZE	0.0443** (0.0192)	0.0755*** (0.0215)	0.0738*** (0.0191)	0.00357** (0.00163)	0.00483* (0.00316)	0.00381** (0.00203)
B-FML	-0.138 (0.157)	-0.135 (0.207)	-0.150 (0.174)	0.00405 (0.0136)	0.0236 (0.0306)	0.00953 (0.0177)
B-WMN	-0.635*** (0.260)	0.116 (0.281)	-0.149 (0.253)	-0.00415 (0.0226)	0.0398 (0.0413)	0.00252 (0.0278)
B-EXE	-0.454*** (0.192)	0.282 (0.227)	-0.0154 (0.198)	-0.0243* (0.0167)	0.0343 (0.0335)	-0.00655 (0.0211)
B-IND	-0.146 (0.225)	0.000649 (0.155)	-0.368*** (0.134)	-0.0310* (0.0195)	-0.00539 (0.0225)	-0.0195 (0.0173)
C_DUAL	0.239** (0.103)	-0.0222 (0.171)	0.0149 (0.128)	0.0101 (0.00892)	0.0101 (0.0253)	0.00296 (0.0121)
P-OWN	-0.479*** (0.184)	0.0872 (0.394)	-0.524** (0.253)	-0.0188 (0.0160)	0.0101 (0.0578)	-0.0213 (0.0224)
CG-IND	0.0606 (0.108)	0.110 (0.159)	0.188* (0.129)	0.00549 (0.00936)	-0.0201 (0.0235)	8.86e-05 (0.0126)
LEV	-0.827*** (0.145)	-0.554*** (0.170)	-0.670*** (0.146)	-0.181*** (0.0125)	-0.301*** (0.0250)	-0.219*** (0.0157)
AGE	-0.0379 (0.0626)	-0.638*** (0.263)	-0.0509 (0.101)	0.00591 (0.00541)	0.0117 (0.0386)	0.00770 (0.00783)
SIZE	-0.179*** (0.0300)	-0.647*** (0.0576)	-0.358*** (0.0388)	0.00995*** (0.00234)	0.00872** (0.00461)	0.00997*** (0.00290)
IND	0.0530 (0.0824)	- -	0.120 (0.148)	-0.0139** (0.00711)	- -	-0.0113 (0.0107)
GRP	-0.123* (0.0842)	- -	0.101 (0.148)	-0.0155** (0.00726)	- -	-0.0107 (0.0108)
Constant	4.697*** (0.587)	15.28*** (1.358)	7.900*** (0.785)	-0.107** (0.0480)	-0.0653 (0.161)	-0.103* (0.0624)
Observations	745	745	745	749	749	749
R-squared	0.212	0.063	0.155	0.299	0.219	0.293
Number of groups	-	197	197	-	197	197

Notes:

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 5. Summary of hypotheses

Hypothesis		Variable Name	Expected Sign	Actual Sign (TOBIN'S Q)	Actual Sign (ROA)	Level of Support
<i>Independent variables</i>						
H1	There is a positive association between ownership concentration and firm performance.	CONCEN	(+)	(+)*	(+)*	Supported
H2	There is a negative association between the share of cross ownership and firm performance.	C-OWN	(-)	(+)	(-)**	Partially supported
H3	There is a positive association between the share of foreign ownership and firm performance.	F-OWN	(+)	(+)***	(+)***	Supported
H4	There is a positive association between board size and firm performance.	B-SIZE	(+)	(+)***	(+)**	Supported
H5	There is a positive association between the proportion of family board members and firm performance.	B-FML	(+)	(-)	(+)	Not supported

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Appendix 1. BIST market definitions pre-november 2015

Market	Definition	Number of Firms
NATIONAL MARKET	It is the market where the stocks of companies that satisfy BIST listing requirements are traded.	234
SECOND NATIONAL MARKET	It is the market where stocks of the companies that fail to satisfy the applicable listing and trading requirements for National Market, stocks of small and medium sized enterprises and companies, which are temporarily or permanently delisted from National Market, are traded.	78
WATCH LIST COMPANIES MARKET	In the case that companies are subject to monitoring and examination as a result of the occurrence of certain conditions, the stocks of such companies can be traded on the BIST Watch list Companies Market under continuous surveillance, supervision and monitoring, along with measures to inform investors in a continuous and timely manner.	22
COLLECTIVE PRODUCTS MARKET	It is the market where the stocks of investment trusts, real estate investment trusts, venture capital investment trusts and the participation certificates of ETFs are traded.	66
EMERGING COMPANIES MARKET	It is the market established to create a transparent and organized platform where securities, issued in order to raise funds from the capital markets by companies, which could not satisfy the BIST listing requirements but with growth and development potential, can be traded.	11
FREE TRADING PLATFORM	It includes the stocks of companies trading in Free Trading Platform.	17
OFF EXCHANGE	It includes the stocks of companies that are delisted or suspended from trading by the BIST Executive Council.	-
TOTAL		428

Appendix 2. Operationalization of variables

Variable	Measurement	Source	Related measurement previously used
Tobin's Q	The percentage of market value of a firm to total assets.	Central Registry Agency (www.mkk.com.tr) and auditing financial statements.	Nguyen et al. (2014); Veprauskaite and Adams (2013); Heenetigala (2011); Renders et al. (2010); Bozec et al. (2010); Guest (2009); Ehikioya (2009); Jackling and Johl (2009); Setia-Atmaja (2009); Perrini et al. (2008); El Mehdi (2007)
2. Return on assets	The percentage of net income to total assets.	Auditing financial statements	Ellwood and Garcia-Lacalle (2014); Veprauskaite and Adams (2013); Bektas and Kaymak (2009); Ehikioya (2009); Jackling and Johl (2009); Bauwhede (2009); Aydin et al. (2007); Krishnan and Park (2005); Thomsen and Pedersen (2000)
3. Ownership concentration	Shareholders who own at least 5 percent of the firm's ordinary shares.	Central Registry Agency (www.mkk.com.tr)	Nguyen et al. (2014); Veprauskaite and Adams (2013); Sacristán-Navarro et al. (2011); Bektas and Kaymak (2009); Ehikioya (2009); Setia-Atmaja (2009); Perrini et al. (2008); El Mehdi (2007); Tuschke and Sanders (2003); Thomsen and Pedersen (2000)
4. Cross ownership	The percentage of firms share (rather than individual share) to total shares.	Central Registry Agency (www.mkk.com.tr)	Faccio and Lang (2002); Dietzenbacher and Temurshoev (2008)
5. Foreign ownership	The percentage of foreign investors share to total shares	Central Registry Agency (www.mkk.com.tr)	Aydin et al. (2007)
6. Board size	The total number of members on the board of directors.	Firms' annual reports and corporate web pages	Mobbs (2015); Nguyen et al. (2014); Zakaria et al. (2014); Veprauskaite and Adams (2013); Guest (2009); Jackling and Johl (2009); Kaymak and Bektas (2008); Cheng (2008); Perrini et al. (2008); El Mehdi (2007); Chiang and Lin (2007); Kyereboah-Coleman and Biekpe (2006)
7. Family board membership	The number of family members divided by the total number of board of directors.	Firms' annual reports and corporate web pages	Ehikioya (2009); Anderson and Reeb (2004)
8. Women board membership	The number of female directors divided by the total number of board of directors.	Firms' annual reports and corporate web pages	Isidro and Sobral (2015); Ellwood and Garcia-Lacalle (2014); Campbell and Minguez-Vera (2008); Schnake et al. (2006)
9. Executive board membership	The number of executive directors divided by the total number of board of directors	Firms' annual reports and corporate web pages	Mobbs, (2015); Kaymak and Bektas (2008)
10. Independent board membership	The number of independent directors divided by the total number of board of directors.	Firms' annual reports and corporate web pages	Nguyen et al. (2014); Zakaria et al. (2014); Agrawal and Knoeber (2012); Heenetigala (2011); Chiang and He (2010); Bektas and Kaymak (2009); Jackling and Johl (2009); Singh and Gaur (2009); Setia-Atmaja (2009); Bhagat and Bolton (2008); Mura (2007); El Mehdi (2007); Kyereboah-Coleman and Biekpe (2006); Anderson and Reeb (2004); Abdullah (2004); Bhagat and Black (2002)
11. CEO duality	Chairman of the board and CEO are the same individual. Equals 1 if CEO is also the chairperson of the board, otherwise 0.	Firms' annual reports and corporate web pages	Nguyen et al. (2014); Veprauskaite and Adams (2013); Heenetigala (2011); Bektas and Kaymak (2009); Ehikioya (2009); Jackling and Johl (2009); Kaymak and Bektas (2008); Bhagat and Bolton (2008); Chiang and Lin (2007); Kyereboah-Coleman and Biekpe (2006); Abdullah (2004)
12. Publicly held ownership	The percentage of publicly traded share to total shares.	Central Registry Agency (www.mkk.com.tr)	-
13. Corporate governance index	Whether a firm is quoted in Corporate Governance index (BIST) or not. Equals 1 if firms' quoted in CG index, otherwise 0.	Public Disclosure Platform (www.kap.gov.tr)	Renders et al. (2010); Bauwhede (2009); Bozec et al. (2010); Black et al. (2006); Tuschke and Sanders (2003)

Appendix 2. (Continued)

Variable	Measurement	Source	Related measurement previously used
14. Leverage	The sum of short-term and long-term debt divided by total assets.	Auditing financial statements	Ellwood and Garcia-Lacalle (2014); Nguyen et al. (2014); Zakaria et al. (2014); Veprauskaite and Adams (2013); Jackling and Johl (2009); Setia-Atmaja (2009); Mura (2007); Chiang and Lin (2007); Campbell and Minguez-Vera (2008)
15. Firm age	Natural log of age of firm from date of incorporation.	Public Disclosure Platform (www.kap.gov.tr)	Nguyen et al. (2014); Zakaria et al. (2014); Ehikioya (2009); Jackling and Johl (2009); Singh and Gaur (2009); Setia-Atmaja (2009); Anderson and Reeb (2004)
16. Firm size	Natural logarithm of the total assets owned by the firm.	Auditing financial statements	Ellwood and Garcia-Lacalle (2014); Nguyen et al. (2014); Zakaria et al. (2014); Veprauskaite and Adams (2013); Agrawal and Knoeber (2012); Guest (2009); Ehikioya (2009); Jackling and Johl (2009); Singh and Gaur (2009); Setia-Atmaja (2009); Perrini et al. (2008); Campbell and Minguez-Vera (2008); Mura (2007); El Mehdi (2007); Chiang and Lin (2007); Kyereboah-Coleman and Biekpe, (2006); Krishnan and Park (2005); Anderson and Reeb (2004); Tuschke and Sanders (2003)
17. Industry	Whether a firm is service or manufacturing firm. Equals 1 if firms' belongs to a manufacturing industry, otherwise 0.	Public Disclosure Platform (www.kap.gov.tr)	Ehikioya (2009); Setia-Atmaja (2009); Perrini et al. (2008)
18. Group affiliation	Whether a firm financials presents consolidated or stand-alone. Equals 1 if firms' financials present consolidated, otherwise 0.	Firms' annual reports	Zattoni et al. (2009); Singh and Gaur (2009)

Appendix 3. Variance inflation factors

#	Variables	VIF	1/VIF
1	CONCEN	2.72	0.37
2	C-OWN	2.20	0.45
3	F-OWN	1.30	0.77
4	B-SIZE	1.39	0.72
5	B-FML	1.21	0.83
6	B-WMN	1.16	0.86
7	B-EXE	1.31	0.76
8	B-IND	1.05	0.95
9	C_DUAL	1.33	0.75
10	P-OWN	1.81	0.55
11	CG-IND	1.21	0.83
12	LEV	1.12	0.90
13	AGE	1.17	0.86
14	SIZE	2.12	0.47
15	IND	1.30	0.77
16	GRP	1.37	0.73
	Mean VIF	1.49	