The Effects of Board Independence in Controlled Firms: Evidence from Turkey[1]

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Abstract

We analyze the relationship between board structure and firm performance for Turkey - a country that features relatively weak protection for investors. We do so by using a hand-collected data set on directors' personal characteristics and their roles. We document that Turkish boards are populated besides members of the controlling shareholder and their affiliated parties, by employees of the parent firm in the business group, by ex-politicians, ex-bureaucrats and ex-military officers. Classifying the board members as independent and affiliated directors, we report three main results: (i) board independence is unrelated to equity issues, (ii) independent directors are unlikely to curb the extent of related party transactions, and (iii) the presence of independent board members and firm performance are negatively related. These results are robust under different specifications and estimation methods which deal with endogeneity problems inherent in board research. Especially the findings (ii) and (iii) challenge the usefulness of independent directors as a governance device in Turkish companies.

***Key words*:** Turkey, independent directors, corporate governance, board of directors, emerging markets
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1. Introduction

A higher level of board independence is a commonly recommended governance practice by codes of corporate governance (Zattoni and Cuomo, 2010). This recommendation is based on a commonly held perception that a higher level of board independence *causes* superior corporate performance. Somewhat paradoxically, empirical evidence to support this view is quite limited. Three comprehensive surveys of the literature in developed markets find that "there is little to suggest that board composition has any cross-sectional relationship to firm performance".[2] Existing studies on emerging markets also present inconclusive results. While some studies report a significantly positive relationship between board independence and performance, others present insignificant or negative relationships. (See Table 1 for an overview).

A common problem of most of these studies is that board independence is endogenous (Adams, Hermalin and Weisbach, 2008; Wintoki, Netter and Linck, 2010). Empirical studies which treat board independence as an exogenous variable are likely to be subject to biases which stem from unobservable and/or dynamic heterogeneity, simultaneity and reverse causation problems. One of the contributions of this paper is to use the proper econometric methods to infer a causal relationship running from board independence to firm behavior and performance.

The majority of existing studies on boards focus on large U.S. or other developed market firms in which the main agency conflict is between dispersed shareholders and managers.[3] Adams, Hermalin and Weisbach (2008) suggest that understanding how directors are chosen in such a setting is crucial to understanding the role of the board and its effectiveness.

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[2] Hermalin and Weisbach (2003, p.12). See also Dalton et al., (1998) and Bhagat and Black (1999, 2000).

[3] In this paper, we restrict our attention to research in the agency approach to boards. Roberts, McNulty and Stiles (2005) offer a review which underlines the potential shortcomings of this approach.

Ownership tends to be concentrated and agency problems tend to be more severe in countries with weaker investor protection (La Porta *et al.*, 1999). When the legal system offers weak investor protection, concentrated ownership helps solve the agency problem by giving power and incentive to controlling shareholders to discipline management. On the other hand, concentrated ownership creates its own agency problem because the interests of controlling and minority shareholders are not perfectly aligned, especially when there is a divergence between control rights and ownership rights (Claessens *et al.*, 2002). The role of the board is especially important in such situations where opaque ownership structures exacerbate monitoring by minority shareholders and hence facilitate diversion of resources by controlling shareholders. Boards can play an important role in limiting the power of controlling shareholders to expropriate wealth from minority shareholders by ratifying and monitoring important decisions (Fama and Jensen, 1983). At the same time, the structure of the board is likely to be influenced by controlling shareholders. Therefore, a firm's board structure is an important indicator of controlling shareholders' intentions.

We contribute to the literature on corporate boards by analyzing a hand collected data set on directors' personal characteristics and their roles in relation to firm performance and value in Turkey. Turkey represents an ideal setting to examine these issues because it features relatively weak protection of minority shareholders, high ownership concentration, a predominance of family control, and an abundance of pyramidal groups and cross-holdings – characteristics common to many other emerging markets (La Porta *et al.*, 1999; Claessens *et al.*, 2000). Pyramidal structures, multiple-vote or privileged shares and cross-holdings allow dominant shareholders to separate ownership and control and obscure minority shareholders to detect both the degree of separation and the potential diversion of resources. Often, a "Holding" company, majority owned by family members directly or indirectly, constitutes apex of the group and houses the coordination functions. Some of the apex firms are listed in the national stock exchange alongside with the operational firms controlled by the apex firm.

The cross shareholding between firms affiliated with a business group and full list of firms affiliated with the group or controlled by the same shareholder are not fully transparent due to the co-existence of listed and unlisted firms within the same group. These complex structures usually also contain a reserve of firms as "empty shells" for tax optimization purposes.

In 2003, Capital Markets Board (CMB) of Turkey has adopted a set of Corporate Governance Guidelines inspired by OECD's Corporate Governance Principles based on a "Comply or Explain" approach. The Principles recommend a significant level of independence for the boards and their functioning, however, the only legal requirement on board composition of listed firms is the formation of an audit committee (Ararat and Ugur, 2006). In 2005, listed firms were obliged to issue a "Corporate Governance Compliance Report" explaining their level of compliance with the guidelines. Although the guidelines contain more than a 100 provisions, a typical report is 2-3 pages and provides little insight into the governance of Turkish firms (Ararat and Yurtoglu, 2006).[4]

A comprehensive assessment conducted by OECD (2006) on the effectiveness of the corporate governance system in Turkey explains some of the contingencies of the Turkish boards. The report suggests that the controlling shareholders informally decide on nominees with little or no input either from the board members or other constituencies such as institutional investors. The controlling shareholders exercise their decisive voting power to elect the nominees they previously solemnly selected. In 2004, only 17% of the listed firms had an independent board member, and only 18% of the firms had a Corporate Governance Committee although it is recommended by the CMB's Guidelines. Furthermore, some firms refer to their "independent" board members as "consultants" revealing their ceremonial role as "independent" board members.

[4] The boards of banks are subject to separate legislation and stricter monitoring with respect to both the composition and the committee structure of the boards, as well as the qualification of board members (Ararat and Tansel Cetin, 2009).

We cannot observe what the boards in Turkey actually do and to what extent they have evolved from being "managerial-rubber stamps" (Mace, 1971) to active and independent monitors. It is possible that the role of outsider or independent members in the boards of Turkish companies is confined to providing advice and counsel. A survey conducted by Deloitte Turkey (2009) provides some support to this view. According to the survey, 30-40% of the directors agree that their boards had no role in CEO succession planning or in CEO's performance evaluation, while more than 80% agrees that their board primarily contributes to the performance by providing advice, evaluating financial performance, formulating long term strategies and identifying potential opportunities. The survey also reports that 18% of the respondents did not agree that the boards contribute to ethical business conduct. The language used in the survey, is possibly underpinned by the acknowledgement that these tasks are somehow performed outside the board.

Comprehensive and systematic studies of board structures and their effect on performance are limited to a few studies. Üsdiken and Yıldırım-Öktem (2008, 2010) survey boards of 299 listed and unlisted firms affiliated with 10 family controlled business groups. They report that family members occupy roughly 20% of the board seats and an additional 47% of the directors are salaried employees of the 'Holding' firm or other firms controlled by the same family. The remaining board seats (33%) are occupied by outsiders, however, only 10% of these outsiders are managers of other firms and 40% surprisingly do not have a full time occupation. Kucukcolak and Ozer (2007) report similar findings based on a survey of listed firms only. Kaymak and Bektas (2008) analyze the relationship between the presence of outsiders in the board and accounting profitability for 27 banks over 2001-2004 and report a negative relationship between these two variables. None of these studies analyze the impact of independent directors as recommended by the Corporate Governance Guidelines in Turkey.

In this paper, we argue that a firm's board structure is a good indicator of the controlling shareholders' commitment to good governance, especially in weak investor protection environments. Controlling shareholders can appoint board members that are more likely to both monitor and provide professional expertise when their expected gain from more intense monitoring exceeds their loss in foregoing expropriation.

Specifically, we test three hypotheses on the effects of board composition in Turkey. First, we test whether boards with a larger fraction of independent directors are more likely to use equity finance. Secondly, we test whether independent directors are influential in curbing the wealth expropriation by controlling shareholder. And finally, we test whether companies with a larger fraction of independent directors have better market valuations and performance. Since all of our tests control for firm fixed effects, our results go beyond mere associations and help us infer causal effects of board independence.

The paper is organized as follows. In Section 2, we give an overview of the existing research on the board of directors in emerging markets and formulate our hypotheses. Section 3 presents our sample and provides summary statistics. Section 4 presents the empirical analysis. Section 5 concludes.

2. Literature Review and Hypotheses

With the exception of a few Anglo-Saxon countries, most listed companies around the world exhibit concentrated ownership structures (La Porta *et al.*, 1999; Claessens *et al.*, 2000; Faccio and Lang, 2002). The typical agency problem which arises from the separation of ownership from control in such a setting is between the dominant shareholder and other shareholders. Dominant shareholders have the ability (because they control the firm with sufficiently high voting rights) and the incentive (because usually their cash flow rights are much lower than their voting rights) to expropriate other shareholders by diverting the firm's resources to themselves (Bebchuk, Kraakman and Triantis, 2000; Claessens and Fan, 2002).

There is also some evidence that controlling shareholders divert more resources for private benefit in countries where the legal system offers weaker protections to minority shareholders (La Porta *et al.*, 2002; Doidge, Karolyi and Stulz (DKS), 2007; Durnev and Kim, 2005).

In models such as La Porta *et al.*, (2002)[5] firm value is a function of the firm's profits, the proportion of firm value diverted by the controlling shareholders and the cost of diversion, where the cost varies across countries due to differences in the regulatory environment.[6] Empirical evidence provided by La Porta *et al.*, (2002), Lins (2003), Durnev and Kim (2005) and (DKS, 2007) is consistent with the prediction of this model that firms in countries with better investor protection have higher market valuations. Gugler, Mueller and Yurtoglu (2004) show that such firms have also superior returns on their investment.

DKS (2007) argue that financial globalization should reduce the importance of the country-specific determinants of governance and increase firm-level incentives for good governance. Firms that have access to foreign capital markets are more likely to obtain capital at more favorable terms so that they have greater incentives to adopt good governance (Stulz, 1999). DKS (2007) also argue that by cross-listing in a stronger legal environment firms can commit to tough disclosure and corporate governance rules. Controlling shareholders of firms listed in the U.S. cannot extract as many private benefits from control compared to controlling shareholders of firms not listed in the U.S., but their firms are better able to take advantage of growth opportunities. Consistent with this hypothesis, DKS (2007) report that foreign companies listed in the U.S. have a *q* ratio that exceeds by 16.5% the *q* ratio of firms from the same country that are not listed in the U.S. Benos and Weisbach (2004) also report that a firm can commit to a relatively low level of private benefits in the future by cross-listing its stock in a market with high disclosure and regulatory standards.

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[5] See also Johnson *et al.*, (2000) and Shleifer and Wolfenzon (2003).

[6] The costs of diversion are likely to vary across industries due to different degrees of tangibility of firm's assets and other industry-level conditions such as the degree of product market competition.

Cross-listings constitute a prominent example of voluntary imposition of monitoring and bonding mechanisms by controlling shareholders to mitigate agency problems. Four other voluntary mechanisms received attention in the literature: (i) adoption of international accounting standards (Covrig, Defond and Hung, 2007 and Chan, Covrig and Ng, 2009) , (ii) compliance with Corporate Governance Codes (Price III, Roman and Rountree, 2007), (iii) hiring high-quality reputable external independent auditors to enhance the credibility of the dominant shareholders with investors (Fan and Wong, 2005), and (iv) appointing a strong board with a mandate to monitor the dominant shareholder on behalf of other shareholders (Dahya, Dimitrov and McConnell (DDM), 2008).

According to DDM (2008) a strong board reduces the value discount attached to firms from weak legal environments because it is costly to dominant shareholders to replace strong directors in the presence of a market for outside directors. Strong directors have an incentive and the power to constrain the value decreasing actions of the dominant shareholder. DDM further argue that while the incentive to act as a strong monitor is related to the reputational capital of directors, their power is likely to stem from their legal liability[7] and from the agreement they reach with the dominant shareholder before they are appointed as directors.

Such voluntary imposition of monitoring or bonding mechanisms by controlling shareholders, hence a higher demand for a strong board is more likely to be observed when the dominant shareholder needs external finance. Consistent with this argument, Reese and Weisbach (2002) and Lins, Strickland and Zenner (2005) report that cross-listing firms issue equity following the listing. Analogously, the appointment of a strong board is likely to lead to a lower cost of capital due to a reduced risk of expropriation. We thus have the following hypotheses:

H1a: Firms with strong boards in weak legal environments are more likely to issue equity.

[7] The legal liability of directors will itself be a function of enforcement quality.

An immediate implication of this argument is that such firms will be more likely to have a higher proportion of equity used to finance companies' assets. Hence

H1b: Firms with strong boards in weak legal environments are more likely to have higher equity-to-debt ratios.

In companies with dominant shareholders expropriation of wealth from minority shareholders can come in many ways. Johnson *et al.*, (2000) show that dominant shareholders can divert value by selling assets, goods, or services to the company through self-dealing transactions; they can obtain loans on preferential terms; they can transfer assets from the listed company to other companies under their control; and they can dilute the interests of other shareholders through equity issues. The majority of such transactions involve two or more related parties, usually companies that are controlled by the dominant shareholder, where s/he has different levels of cash flow rights. By arranging deals on terms that are advantageous to the company where the cash flow rights of the dominant shareholder are high and disadvantageous to the other company where the cash flow rights of the dominant shareholder are low, the dominant shareholders can divert resources from the shareholders of the former company to the latter.

While the diversion of resources is largely an unobservable phenomenon, the literature identifies related party transactions (RPT) as an important mechanism through which such a diversion can take place. Bae, Kang, and Kim (2002) identify acquisitions by Korean chaebols as one particular form of tunneling. Bertrand, Mehta, and Mullainathan (2002) report a significant amount of tunneling in Indian business groups occurring via non-operating part of profits.[8]

One channel through which strong boards can effectively influence dominant

[8] Joh (2003) attributes the chronic low firm profitability of affiliated firms relative to independent firms before the Asian crisis to tunneling activities in Korea and argues that this was a major determinant of the Crisis.

shareholders' actions is to monitor and if necessary to constrain the incidence and harmful effects of such related party transactions. DDM report that independent directors are effective monitors, and curb the actions of dominant shareholders by examining related party transactions of 799 firms in 22 countries using a high fraction of independent directors as a proxy for a strong board. Evidence provided by Cheung, Rau and Stouraitis (2004) is also consistent with this view even though their regression results suggest an insignificantly negative relationship between the proportion of independent non-executive directors and most types of related party transactions. Chen *et al.*, (2006) show that Chinese firms that have a high proportion of non-executive directors on the board are less likely to engage in fraud. This evidence is also consistent with independent directors monitoring the actions of dominant shareholders and thus helping deter fraudulent acts. This evidence leads to our second hypothesis:

H2: Boards containing a higher fraction of independent directors are more likely to reduce the extent of related party transactions.

The arguments so far attribute a crucial role to the presence of independent directors in monitoring the dominant shareholders and imply that both firm performance and valuation should improve with a higher degree of board independence due to a reduced risk of expropriation. These arguments also reinforce the notion that strong boards matter more in weak legal environments and that controlling shareholders can credibly commit to better governance by appointing independent directors. We hypothesize that better governance through more independent boards will lead to higher valuations and better performance and formulate:

H3: Boards containing a higher fraction of independent directors are associated with higher market valuations and better accounting performance.

In contrast to this prediction, existing empirical studies of the impact of board independence on companies from developed countries report inconclusive results.[9] Recent evidence from emerging markets is also rather mixed. Table 1 gives an overview of this literature. While some papers suggest that board independence is associated with better market valuations and superior accounting performance, there are also others which report insignificant or negative relationships. It is worth emphasizing that with the exception of a few papers (most notably Black, Jang and Kim, 2006; Black and Kim, 2007), most of this literature is based on econometric models which treat board independence as an exogenous variable. The inconclusive nature of these findings prompts us to employ appropriate econometric methods to deal with the endogeneity problem.

(Insert Table 1 around here)

In addition to testing these three hypotheses, we also focus on the role of audit and corporate governance committees, analyze whether professional backgrounds of independent directors such as their education exert an influence on our tests. We also use a contingent classification criterion for independence. The motivation for these additional tests and their results are discussed in the robustness section of the paper.

3. Sample and descriptive statistics

We collect data on board of directors in 2006 and 2008 for firms, which constituted the Istanbul Stock Exchange 100 index (ISE 100) in 2004, 2005 and 2006. Due to changes in the index composition we have a sample of 118 companies. We use a variety of data sources to conduct our empirical analysis. While we define our variables and describe their sources in the main text, the appendix A contains detailed definitions and the sources of our variables.

3.1 Ultimate ownership structures

[9] See the surveys by Bhagat and Bolton (1999, 2000), Dalton *et al.,* (1998) and Hermalin and Weisbach (2003).

To identify the dominant shareholders, our first task is to collect information of the ownership structure of these companies. We have to determine the firms' ultimate shareholders to be able to identify the directors affiliated with this ultimate shareholder. We use the *Yearbook of Companies* (2006) published by ISE to collect data on the identities owners and their voting rights at the direct level. This information is supplemented with information contained in the annual reports, corporate governance compliance reports and websites of the companies (and other companies related to them via ownership links) to determine the ultimate ownership structures.[10]

Table 2 shows that holding companies are the most frequently observed direct shareholders having the largest stake in 54 companies. Families are the largest direct shareholders of 14 companies and own on average about 34% of the shares. Direct foreign ownership is present in 15 cases with a mean stake of 67%. The Turkish state and some miscellaneous owners have the largest direct shareholdings in 3 and 6 companies, respectively. At the direct ownership level, the average stake of the largest shareholder is about 50%. This number understates the true control potential of large shareholders. It is usual that the controlling owner has more than a single direct ownership stake. Combining all ownership stakes under the control of the ultimate owner (see Appendix B for a detailed explanation of this procedure), we observe that the true fraction of control rights (*VR*) of families is about 55% of the outstanding shares. The cash-flow rights (*CFR*) are 44%.

(Insert Table 2 around here)

3.2 The Characteristics of Directors

We use the annual reports of companies, their corporate governance compliance reports, their websites and a variety of other sources including daily and weekly business press to collect biographical information on the board of directors. We collect extensive data

[10] Our ownership data are for year 2006. There is strong evidence that ownership structures do stay constant over long periods in Turkey (Yurtoglu, 2003).

on their affiliation with the (ultimate) dominant shareholder, their age, their educational background, gender and their prior occupational activities. We consider a director to be affiliated with the dominant shareholder when (1) s/he is the dominant shareholder of the firm, (2) s/he is a member of the family of the dominant shareholder[11] including 2nd degree family relationships (spouse, children and sister of the oldest generation), 3rd degree relationships (grandchildren of the 1st generation, children of the 2nd generation) and 4th degree: relationships (1st degree relative (spouse, children, sister or brother) of the 2nd and 3rd degree relatives), (3) s/he is a current or ex employee of the parent or related company, (4) s/he is a current or ex employee of the same company[12]. In state-owned companies, we consider politicians and employees of a government agency as affiliated directors.

Table 3 shows that ex-members of the Turkish Armed Forces, ex-bureaucrats and ex- and current politicians (members of the parliament) occupy a non-negligible fraction of board seats in Turkish listed companies. These directors are likely to serve as an intermediary between the company and official bodies with which the companies have to deal with. Even though the dominant shareholder appoints them, we do not classify these directors as being affiliated with the dominant shareholder, due to these special functions that they may have.

Independent directors are those, who are declared to be independent by the reporting company in line with the CMBT's Corporate Governance Guidelines. To be considered independent, a director (and his/her relatives) shall not have any material relationship with the company, its affiliates and its shareholders holding more than 5% of the shares within the last two years, shall not be a nominee director[13], shall not be an employee of a contractor or sub-contractor company within the previous two years, shall not be an owner of more than 1% of

[11] In contrast to most of the prior research, we do not solely rely on the use of surnames.

[12] One can argue that employees of the same firm have a different objective function than the employees of parent or related companies. Our results are robust to the inclusion or exclusion of the same company employees to the definition of affiliated directors. .

[13] The requirement that an independent director cannot be a nominee director disqualifies many companies of which board nomination is a privilege assigned to one or more classes of shares held by controlling shareholders.

the shares (and shall not have any privileges).[14] We do not check whether these criteria are fulfilled and use the disclosure by companies for our classification.

Our final category consists of the so-called gray directors. The biographical information sources that we use and the firm level disclosure do not clearly indicate whether these directors are affiliated with the dominant shareholder or not. While we know that they are neither independent nor executive directors, we cannot be sure that whether they are affiliated with the controlling shareholders. Hence, to some extent the size of this group reflects the degree of our ignorance concerning the boards in Turkish listed companies.[15]

Table 3 reports descriptive statistics on the board composition and on the personal characteristics of directors in our sample. Our dataset contains 944 directors in 2006 and 939 directors in 2008. Since an important fraction of the directors retain their position, we have a total of 1248 different individuals occupying directorships in either 2006 or 2008. Independent directors make up 7.53% of our sample in 2006 and 6.28% of the sample in 2008. 18.34% (17.86%) of directors are family members of the dominant shareholder in 2006 (2008) and the majority of family members have second degree relationship to the oldest generation alive. Employees of a parent or related company (26.93%) or employees of the same company (13.25%) constitute the largest group of directors (40.19%) in our sample in 2006. 58.53% (60.07%) of directors in 2006 (2008) are affiliated with the dominant shareholders. 12.61% of directors in 2006 (15.33% in 2008) are ex or current military officials, bureaucrats or politicians and 21.31% (18.32% in 2008) are in the gray category.

(Insert Table 3 around here)

[14] A person can serve as an independent board member at a maximum of seven years on the board of the same company. See the Corporate Governance Guidelines, http://www.spk.gov.tr/displayfile.aspx?action=displayfile&pageid=55&fn=55.pdf.

[15] We deal with this problem in section 4.4 when we discuss the robustness of our empirical results.

Further information on the personal characteristics of the directors reveals that about 7.95% of them are female (9.58% in 2008). About 54% (61.2% in 2008) have an undergraduate degree, 30.21% (22.47% in 2008) have a master or MBA degree and about 12.5% (10.33%) have a PhD. The data also reveal that almost 40% of the directors sit on more than one board and these turn out to be mostly boards of other firms in the same group.. The age profile suggests that 36.05% of directors are between 50 and 60 years. The corresponding figures for 2008 are very similar to 2006.[16]

To test our hypotheses *H1-H3*, we define the fraction of independent directors at the firm-level and call this variable *Independent*. Table 4 shows that the mean of *Independent* is equal to 7.5% in 2006 and 7.7% in 2008.[17] Similarly, the variable *Affiliated* is the fraction of directors affiliated with the dominant shareholder defined at the firm level. Table 4 shows that in 2006, 46.7% of the board of the average firm was affiliated with the dominant shareholder. The mean of this variable is equal to 49% in 2008.

3.3 Financial Data and Other Firm Characteristics

Consistent with prior research we use market valuation and accounting returns as our performance variables. We use Tobin's *q* as an indicator of the valuation of outside equity and measure it as the book value of assets minus the book value of equity plus the market value of equity divided by the book value of total assets. Our measure of accounting performance is return on assets (*ROA*) and it is calculated as the ratio of net income plus interest expense divided by total assets. We calculate the average value of these two ratios for 2006 and 2007 and for 2008 and 2009 and relate them to the board characteristics in 2006 and

[16] Indeed, all characteristics with the exception of educational characteristics are similar in a statistical sense. We perform tests on the equality of proportions using large-sample statistics and we are not able to reject the null hypothesis that the proportions are equal in 2006 and 2008.

[17] A comparison with the average fraction of independent and outside directors reported in Table 1 suggests that this figure is very low.

2008. We note that the mean Tobin's *q* is slightly above 1.0 and the *ROA* is almost 6% in our sample in 2006. The 2008 figures for both of our performance variables are lower.

Our *H1a* states that firms with a larger fraction of independent directors are more likely to issue equity. Hence we collect information on seasoned equity issues contemporaneous with our board data (2006 and 2008) and extend it by one year (to 2007 and 2009). We use the information provided by the ISE to identify the seasoned equity issues of sample firms. Dummy variable (*SEO*) to identifies the firms that issue equity. Table 4 shows that the mean of this variable is equal to 23.7% indicating 28 equity issues in 2006 or 2007 and 28.8% indicating 34 equity issues in 2008 or 2009 by the sample companies. *H1b*, on the other hand, states that firms with a larger fraction of independent directors are more likely to have higher levels of equity in their capital structure. We compute the variable *Equity ratio* as the ratio of equity to the sum of equity and total debt. The mean of this variable is close to 0.55 in both years.

To identify the extent of related party transactions (*RPT*), we consult independent audit reports on the financial statements of our sample companies.[18] We express the volume of related party transactions as a fraction of the total assets. Table 4 shows that the mean of this variable is around 19% in both 2006 and 2008. The standard deviation is close to 50% suggesting that there are some firms with large amounts of *RPT*.

To control for other factors that may influence our dependent variables we employ the following variables: Firm size (*Size*) is the natural logarithm of the totals assets of the firm (measured in Mn. YTL). The average growth rate of assets is calculated from 2004 to 2006 and from 2006 to 2008 (*Growth*). Since many firms do not report R&D data, we use intangible assets as a fraction of total assets (*Intangible*) as another control of growth opportunities. The standard deviation of monthly stock returns (*SD Return*) is included to

[18] As reported by IFRS footnote 24.

capture the differences in the complexity of the firms' contracting environment. This variable is constructed using monthly returns over 2005-2006 and 2007-2008. The number of years between 2006 (2008) and the firm's year of foundation, controls for life-cycle effects (*Age*).

We employ a dummy variable to identify firms whose shares are traded either as a direct listing on a U.S. stock exchange or as an American Depository receipts (*Cross-list*) as of 2006 and 2008. Prior research shows that cross-listing on a U.S. exchange is associated with improved governance and higher level of transparency and higher firm values. We gather information on this variable from the cross-listings databases maintained by the Bank of New York and JP Morgan. We identify 17 cross listings in 2006 and 33 in 2008.

The percentage cash flow rights (*CFR*) are included to control for the positive incentive effects of the ultimate shareholder. We control for the potential effects of being a member of a business group by including a dummy variable (*BG*). We also control for the identity of the ultimate shareholder by including a dummy variable for families (*UO Family*) and for foreign shareholders (*UO Foreign*). We use the board size (*BSize*) as a further control variable. The mean board consists of 7.5 directors in 2006 and 6 directors in 2008.

(Insert Table 4 around here)

Table 4 also contains the correlation coefficients of our variables. *Independent* and *Affiliated* are both negatively correlated with Tobin's *q*, while also *Independent* and *ROA* are negatively correlated. There is a weakly significant, positive correlation between *Independent* and equity issues (*SEO*). The correlation of *Independent* with the *Equity ratio* is also positive albeit insignificantly so. Firms with a high level of cash flow rights of the dominant shareholder (*CFR*) have higher *q* ratios and a weaker tendency to issue equity, whereas firms with a high growth rate of assets (*Growth*) tend to be more profitable, more likely to issue equity and more likely to cross-list their shares. We note that older firms have lower Tobin's *q* ratios and a lower fraction of independent directors on their boards. Firms with a more

complex contracting environment (*SD Return*) have lower *q* ratios and a lower *ROA*. They are also more likely to issue equity and less likely to cross-list. Firms with a high fraction of intangible assets are more likely to issue equity and more likely to cross-list their shares. They also tend to have boards with a larger fraction of affiliated directors. Larger firms tend to have lower market valuations (measured by Tobin's *q*) and a higher profitability (ROA) and are more likely to issue equity and to cross-list their shares. Larger firms have higher growth rates than other firms in our sample.

4. Empirical analysis

4.1 Board Independence, Equity Issues and Equity Ratio

In this section we analyze whether board independence is a determinant of equity issues (SEOs) and the resulting ratio of equity in the capital structure of the firms (*Equity ratio*). We start by focusing on SEOs, which do not include right offers. We expect that the dominant shareholder is more likely to appoint independent board members when s/he plans to issue equity to outside investors. A right offering reduces this incentive because the dominant shareholder can preserve her ownership position in a rights offering.[19]

Panel A in Table 5 reports the results of a Probit regression where the dependent variable is a dummy variable indicating a seasoned equity issue (*SEO*) and the key independent variable is the fraction of independent directors (*Independent*). We have two cross-sections of board composition data (2006 and 2008) and the remaining variables are defined by taking this into account. For the 2006 (2008) board data, *SEO* is defined to be equal to 1 if the firm had a seasoned equity issue in 2006 or 2007 (2008 or 2009). The other independent variables are *Growth* (average growth rate of assets from 2004 to 2006 for the 2006 cross-section and from 2006 to 2008 for the 2008 cross-section), *Cross-list*, *CFR*, *Size*, *Intangible*, *SD Return*, *BG*, *Age*, the logarithm of board size (*BSize*) and two dummy variables

[19] We estimate all regressions in this section by including rights issues as well. All coefficient estimates and their significance remain essentially the same. These results are available from the authors upon request.

indicating whether the firm has a family (*UO Family*) or foreign (*UO Foreign*) dominant shareholder. State (and miscellaneous) ownership is subsumed to the intercept. The equation includes four industry dummies that indicate manufacturing, finance, services and utilities industries and a dummy variable for year 2008.

Consistent with common practice[20] we report the marginal effects - the change in predicted probability associated with a one unit change in the explanatory variables - rather than the coefficients of the variables for the probit equation. The marginal impact of *Independent* is positive; however it is statistically insignificant with a p-value of 0.32. Firms with a larger fraction of directors affiliated with the dominant shareholder (*Affiliated)* are less likely to issue equity, however, this effects is also insignificant at conventional levels. We test whether the coefficient estimate of *Independent* is equal to the coefficient estimate of *Affiliated* using a likelihood ratio (LR) test. We report the p-value of this test in the lower part of the table. The p-value of 0.127 suggests that we cannot reject the hypothesis that independent directors have the same effect on the probability of issuing equity at conventional levels. Firms with a higher growth rate (*Growth*) and larger firms (*Size*) have insignificantly positive effects on the probability of an equity issue, whereas cross-listed firms are less likely to issue equity (p-value=0.034). A larger fraction intangible assets (*Intangible*) is positively related to the probability of issuing equity. Firms with a higher standard deviation of stock returns (*SD Return*) and firms that are part of a business group (*BG*) are more likely to issue equity, while these two effects are statistically insignificant. Older firms (*Age*) and firms that are ultimately owned by families display a lower probability of issuing equity, while firms with a foreign owner are more likely to issue equity (p-value=0.036).

Panel B in Table 5 contains OLS and firm fixed effects estimations to test the hypothesis *H1b*. The dependent variable in both equations is the ratio of equity to the sum of equity and total debt. The first equation in Panel B contains the OLS results. Similar to the

[20] See Cameron and Trivedi (2005, p. 541)

results in Panel A, we note that the *Independent* has a positive and *Affiliated* a negative effect on the equity ratio, however, both variables are insignificant at statistically conventional levels. Moreover, the LR test suggests that both variables have the same statistical effect on the equity ratio. Whereas firms with a higher rate of growth (*Growth*) and firms which are part of business group (*BG*) have statistically higher equity ratios, larger firms exhibit lower equity ratios. The other variables in the equation have insignificant effects on the equity ratio. The explanatory variables along with industry dummies and a year dummy explain 32% of the variation in the equity ratios.

The second equation in Panel B repeats the same exercise by controlling for unobserved but fixed firm effects. Since our ownership data is for one cross-section (2006), we are not able to include the variables related to ownership structures in this estimation. With the exception of the variables *Age*, *Size* and *Intangible*, all variables capture statistically insignificant coefficients in the fixed effects estimation. Most importantly, the coefficients on both *Independent* and *Affiliated* are negative and both of them are statistically insignificant. We cannot reject the hypothesis that both the fraction of independent directors and affiliated directors have the same effect on the equity ratio (p-value of the LR test of equality of the coefficients=0.235). The explanatory power of the regression increases substantially after controlling for firm effects (Adj-R^2=0.79), which indicates that most of the variation in equity ratios is due to unobserved firm specific factors not accounted for by our variables.

To sum up, the findings in Panel A and B of Table 5 do not provide empirical evidence in favor of our hypotheses *H1a and H1b.* Firstly, there is no significant link between a higher fraction of independent directors and the probability of an equity issue. Secondly, the relationship between a higher fraction of independent directors and the equity ratio is also insignificant. These results do not lend support to the notion that the demand for equity capital is a major determinant of the fraction of independent board members and hence

of board composition in Turkish listed companies.[21] An interesting finding suggested by the LR tests is that the effect of independent directors is not distinguishable from the effect of the affiliated directors.

(Insert Table 5 around here)

4.2 Board Composition and Related Party Transactions (RPTs)

Our second hypothesis is related to the question whether independent directors constrain the dominant shareholders' diversion of resources. If dominant shareholders use RPTs to divert resources, independent directors can reduce diversion by monitoring the terms of such transactions. If independent directors reduce diversion through RPTs, we should observe that RPTs occur less frequently in firms with more independent directors.

We express the volume of related party transactions as a fraction of the total assets. Since this variable (*RPT*) can take the value of zero, we employ a Tobit estimation to analyze the link between board independence and *RPT* and again report the marginal impacts of the explanatory variables in Table 6. Our estimating equation includes along with the two board composition variables *Independent* and *Affiliated* two sets of control variables. The first set controls for governance characteristics: *Cross-list*, *CFR*, *BG*, *UO Family*, *UO Foreign*, and the logarithm of board size (*BSize*) and the second set controls for other firm level characteristics such as *Growth*, *SD Return*, *Intangible* and *Size*.

We note that both the fraction of independent (*Independent*) and affiliated directors (*Affiliated)* is positively related to the extent of related party transactions (*RPT*). The reported marginal impact is much greater for the variable *Affiliated* (0.800) than it is for the variable *Independent* (0.177). Both variables are significant at conventional levels and we can reject the hypothesis that the two variables have the same effect at 1.7% level (p value of the LR test

[21] We also estimate the models in Table 5 after including an interaction term of *Independent* and lagged Tobin's *q* to test the additional effect of the demand for external funding by firms with better investment opportunities. While this interaction term is consistently positive, its significance level is uniformly above 10%.

on the equality of the coefficients). In firms, where the cash flow rights (*CFR*) of the dominant shareholder is high RPTs are less frequent. The same is true in firms with a higher degree of intangible assets. Firms that are part of business groups have higher fractions of RPT. The Tobit model explains about 14% of the variation in our dependent variable.[22]

This result suggests that independent directors are not effective in reducing the extent of RPT and hence are unlikely to curb the value diversion of dominant shareholders. A more favorable interpretation suggests that companies with a high degree of RPT employ more independent directors, because the dominant shareholders of these firms wish the independent directors to oversee these transactions[23] or signal their acceptance of an oversight. Another interpretation of the positive effect of *Independent* on *RPT* is that RPTs represent efficient transactions rather than conflicts of interest, so that one would expect either stronger governance associated with more related party transaction indicating increased monitoring to avoid appearances of conflict (Gordon, Henry and Palia, 2004).[24]

4.3 The Impact of the Board Composition on Tobin's *q* and Accounting Performance

The first column in Table 7 reports the coefficient estimates of a multivariate regression analysis where the dependent variable is Tobin's *q*. As in the earlier section, we focus on *Independent* and *Affiliated*. The regression equation also includes controls for governance characteristics; *Cross-list, CFR, BG, UO Family* and *UO Foreign* and the natural logarithm of board size (*BSIZE*) and controls for other firm characteristics: *Growth, SD Return, Intangible* and *Size*.

Our key variable, *Independent*, has a significantly negative coefficient. The coefficient of -0.848 is relatively large: a one standard deviation increase in *Independent* is associated

[22] Most econometrics packages (including STATA which we use) do not produce a measure of the goodness of fit for Tobit models. We report the correlation coefficient of actual values of the dependent variable with the values predicted by the model as suggested by Windmeijer (1995).

[23] We thank Bernard Black for this alternative interpretation of our results.

[24] If RPTs are efficient transactions, we would expect RPTs to capture a positive coefficient in a regression on Tobin's *q* and/or *ROA*.

with a decrease in Tobin's *q* by 0.110 which corresponds to a decrease in *q* in the order of 12%. On the other hand, the fraction of affiliated directors (*Affiliated*) has a negative coefficient of -0.356 which is marginally significant. A one standard deviation increase in this variable is also associated with a decrease in *q* in the order of 12%.[25] The p-values of the LR test of the equality of the coefficients on *Independent* and *Affiliated* is equal to 0.077. Hence, we cannot reject the hypothesis that both independent and affiliated directors have the same effect on Tobin's *q*.

Our control variables take on the expected sign, however, most of them are imprecisely estimated. Looking at the significant coefficient estimates in the first column of Table 6 we note that firms which cross list their shares and have a high fraction of intangible assets have higher *q* ratios (p-values are 0.061 and 0.000, respectively), while the *q* ratios of larger firms are significantly smaller. The regression equation also includes industry dummies and a year dummy for 2008. It explains about 31% of the variation in *q* ratios.

The potentially endogenous nature of the relationship between firm performance and the fraction of independent directors is a major concern which is hard to address in a cross-sectional regression. While it is likely to expect independent directors to improve company value and performance as we state in our *H3*, it is also possible that companies may choose to appoint independent directors in response to poor performance (Bhagat and Black, 2002) or to appease investors (Erickson *et al.*, 2005). It is also possible that a firm with good investment opportunities may want to increase the fraction of independent directs to attract more investors (Lefort and Urzia, 2008). A source of spurious correlation can be that there are unobservable firm effects not accounted for by our control variables which are correlated with *Independent*. Thus, as a next step we run fixed effects regressions to control for the potential

[25] Agrawal and Knoeber (1996), Yermack (1996) and Bhagat and Black (2001) report a negative relationship between board independence and firm value or performance in the U.S. and Erickson *et al.*, (2005) in Canada.

impact of unobservable and fixed firm effects. It is worth mentioning that the fixed effects results are much more likely to imply causality than the OLS estimates.

The results of this estimation are reported in the next columns of Table 7.[26] The coefficients of our two key variables *Independent* and *Affiliated* are also negative using the fixed effects model and hence a one standard deviation increase in these variables is associated with much smaller reductions in *q*. The p-values suggest that these variables are marginally significant (the p-value of *Independent* is 0.059 and the p-value for *Affiliated* is only 0.099. The adjusted R^2 doubles which suggests that unobserved firm heterogeneity accounts for an important fraction of the variation in *q* ratios. Also for the fixed effects model, we are not able to reject the hypothesis that both independent and affiliated directors have the same effect on Tobin's *q*.

(Insert Table 7 around here)

The third column in Table 7 repeats the same exercise with *ROA* as the dependent variable. The estimated coefficient of the fraction of independent directors (*Independent*) is significantly negative with a coefficient of -0.095. A one standard deviation increase in *Independent* is associated with a decrease in *ROA* in the order of 10.6% of its sample mean. The coefficient on *Affiliated* is positive, however, it is small and insignificantly so. While most of the control variables enter with the expected sign, we note that firms growing at a high rate and firms which cross list have significantly higher *ROA*. These variables along with industry dummies and year dummy for 2008 explain 16% of the variation on 236 observations on *ROA*.

[26] While the fixed effects model always produces consistent estimates, it may not be the most efficient model. A random effects model on the other hand produces better standard errors, because it is a more efficient estimator. Hence the use of fixed or random effects models should be econometrically justified. The Hausman (1978) test for the Tobin's *q* regression rejects random effects with a p-value of 0.0006, while the random effects model is rejected for the ROA regression with a p-value of 0.0012.

The last column of Table 7 contains the results of the fixed effects model for *ROA*. The coefficient of *Independent* is also here negative and marginally significant at the 8% level. *Affiliated* has a negative effect which is statistically insignificant at conventional levels. We also note that firms which cross-list and firms with a higher growth rate have better accounting performance. The strong similarity of the effect of independent and affiliated directors on performance is also confirmed with the fixed effects model. The LR test suggests that we are not able to reject the hypothesis that both have the same effect on *ROA*.

In table 7, we present four negative coefficients on *Independent*. All of them are significant at the 10% level or better, while two of them are significant at the 5% level or better. This finding leads us to reject our third hypothesis. The estimates suggest that a higher fraction of independent directors in the boards of Turkish listed companies decrease rather than increase the value of outside equity and the accounting performance of their companies.

4.4 Robustness of the Empirical Results

In this section, we explore the robustness of the relationship between *Independent* and performance. We consider the potential impact of the presence of a second largest shareholder, gray directors, the presence of audit and CG committees, and the level of education of independent directors. We also look at an alternative definition of independence. An additional robustness check which employs a 2SLS instrumental variables estimation is detailed in Appendix C. To save space, we use Tobin's *q* as our preferred performance measure in all robustness checks. The results obtained with *ROA* are qualitatively similar.

A) Second Largest Shareholders

Recent research shows that the presence of a second largest shareholder with a considerable equity stake can make a crucial difference in the governance of the firm (Bennedsen and Wolfenzon, 2000 and Gugler and Yurtoglu, 2003). Such shareholders have

an incentive, and due to the size of their equity stakes, the ability to monitor the actions of the dominant shareholder to prevent or reduce the diversion of company resources. In this case, it is likely that the second largest shareholder will insist on the presence of independent directors. To account for this possibility we generate a dummy variable for firms with a second largest shareholder holding 10% or more of the firm's shares (*Second*) and include it as an additional regressor in the *q* equation. We have 25 (23) firms in 2006 (2008) for which *Second* is equal to 1. The first model in Table 8 contains the results of this robustness check. *Second* enters the *q* equation with a positive coefficient which is significant at the 6.5% level. The estimated coefficients of *Independent* and *Affiliated* remain negatively significant and we are not able to reject the hypothesis that both variables have the same statistical effect on *q* (the p-value of the LR test is 0.277).

B) Gray Directors: Weighted Regressions

The descriptive statistics in Table 3 suggest that for some companies we have a non-negligible fraction of gray directors. In a sense this variable reflects the extent of our ignorance about the board composition. We estimate all equations in tables 4 and 5 by using (1-%Gray) as weights. This procedure allows us to give less weight to companies where we know less and relatively more weight to companies where we have a complete picture of the board composition. The weighted OLS version of the *q* equation is reported in the second column of Table 8. Using this robustness check the estimated coefficients of *Independent* and *Affiliated* remain negatively significant, which indicates that the fraction of gray directors in our sample do not influence our results in a systematic way.

As an additional robustness check, we classify the gray directors as affiliated to dominant shareholders and re-estimate all of our models with this extended definition of *Affiliated*. While we observe some changes in the size and the significance of this variable, the results (not reported) remain qualitatively the same. Further, we make the more extreme assumption that all gray directors are independent and re-estimate our equations with the

extended definition of *Independent*. Also this exercise produces qualitatively similar results. In both robustness checks, the LR tests suggest that *Independent* and *Affiliated* have an indistinguishable effect on *q*.

C) The Impact of Audit and Corporate Governance Committees

Board monitoring is not only a function of the board composition but also of the structure of the board's subcommittees (Xie *et al.*, 2003). Kesner (1988) argues that most important board decisions originate at the committee level and Klein (1998) shows that while overall board composition is unrelated to firm performance, the structure of accounting and finance committees does impact performance. The basic insight of these studies is that committees that handle agency issues such as audit and corporate governance committees can be an important determinant of the performance of companies.

While all companies in our sample had to establish an audit committee starting from 2003[27], only some companies disclose the names of the committee members in our sample. An audit committee whose members are not disclosed may indeed be largely ceremonial. We consider audit committees whose members are disclosed as functional. 27.6% of the firms have functional audit committees using this criterion. On the other hand, corporate governance committees are not compulsory by law and a smaller number of firms disclose the names of their members. We measure the functionality of the corporate governance (CG) committee by a dummy variable, which indicates that the firm discloses the names of the members of this committee. We find functional CG committees only in 12.2 % of the firms.

The third column of Table 8 contains the results of the *q* equation when the Audit or CG committee functionality is included as an additional regressor. The results show that firms with a functional audit or CG committee have higher valuations and that the inclusion of this variable does not change the qualitative impact of *Independent* and *Affiliated*.

[27] The directive/communique of the CMB (2003).

D) Background of Independent Directors

Gordon (2007) argues that the mechanisms of directors' independence can be broken down into four categories: (1) tightening the standards and rules of disqualifying relationships, (2) increasing negative and positive sanctions, (3) development of intra-board structures, such as task-specific committees and (4) reducing the insiders' influence. The quality of human capital of independent directors will be decisive in succeeding in these four categories. While it is hard to measure the ability and expertise of independent directors due to the unobservable nature of these qualifications, we believe that the educational background is likely to be correlated with them.[28]

Using data on the educational backgrounds of independent directors, we generate a new version of our variable *Independent*, which reflects the fraction of independent directors who have a master, MBA or PhD degree. The mean of *Independent* decreases to 4.07% in 2006 and to 5.21% using this criterion. We re-estimate all of our models using this more restrictive definition. In the fourth column of Table 8, we report the results from the *q* equation. While the absolute value of the coefficient of *Independent* decreases slightly, it remains significantly negative at the 5.2% level.

E) Alternative Criteria for Classifying Independent Directors

We also collect information on the first year of appointment of independent directors. Out of the 72 different independent directors in 2006 and 2008, we find that 54 were directors in 2005 and 44 were directors of the same company in 2004 without being labeled "independent". After the adoption of the CG Guidelines, the companies seem to have labeled them "independent" if the directors fulfilled the nominal requirements of the Guidelines. The likelihood that these directors are not truly independent and that they simply play the role of consultants with relationships to the dominant shareholders unaccounted by the CG

[28] We thank Lutz Johanning for this suggestion.

Guidelines (e.g., through social networks or prior consulting activities) is very high. To reduce the bias that is likely to be introduced, we define our key variable *Independent* by considering only those directors as independent who have not been in the board in 2005 and re-estimate our regressions. It is worth to note that the mean of *Independent* decreases to slightly below 2% under this new definition. The results of this estimation are reported in the last two columns of Table 8. We observe that the negative impact of the variable *Independent* is now insignificant and the absolute size of the coefficient is much smaller compared to other specifications. These results support the notion that most of the independent directors are likely to be affiliated with the dominant shareholders even though they may fulfill the independence criteria stated in the letter of the Corporate Governance Guidelines of Turkey.

(Insert Table 8 around here)

5. Discussion and Concluding Remarks

The results of our tests suggest that there no relationship between the financing needs and the appointment of independent directors. We also show that the fraction of directors affiliated with the dominant shareholders is highly correlated with the extent of related party transactions. Independent directors behave in this regard similar to affiliated directors and do not reduce the extent of RPTs. Our third test reveals that the fraction of independent directors has a negative impact on market valuations and firm performance. Firm fixed effects regressions confirm that these results are not subject to endogeneity problems and a series of robustness checks provide further support to these results. Additional tests reveal that the functionality of audit and CG committees is positively associated with the performance of firms in our sample. A detailed search of the relationships between the independent directors and their firms suggests that a large fraction of them may not fulfill the requirements for independence and are not good monitors in the spirit of the CG Guidelines.

Board independence is a key element in recent efforts to improve corporate governance in a large number of countries including Turkey. Do our results imply that this provision in the CG Guidelines should be abandoned altogether? We do not think so. Clearly, the results contained in this paper suggest that in its current version this provision is at the very least ineffective. Which policy options are available to increase the effectiveness of independent directors?

One possible interpretation of our results is that the independent directors are not independent enough or not independent at all. The results of the LR tests corroborate this interpretation by indicating that the impact of the independent directors is indistinguishable from the impact of affiliated directors. There are a variety of possible links between the dominant shareholders and the independent directors not captured by the letter of the CG Guidelines. Additional disclosure of personal, financial or social ties between the dominant shareholders (and their related companies) and independent directors (and the organizations with which they are affiliated) can reveal whether "the independent" directors are really independent. This calls clearly for a revision of the CG Guidelines in Turkey.

Besides improving the independence of directors from dominant shareholders through more disclosure, another policy option could target to improve the accountability of independent directors to all shareholders (Gilson and Kraakman, 1991; Bhagat and Black, 1999). One way to achieve this is to give institutional investors the authority to nominate and elect the independent directors. Given the levels of ownership concentration observed in Turkey, such an option is feasible only under a cumulative voting mechanism, however, collective action problems are difficult to resolve. Although the CG Principles recommend that the CG Committees should have the responsibility to identify potential candidates for nomination, there is no legal basis for boards to impose their candidates to the controlling shareholders who have the authority to nominate, and power to elect, the board. Boards, if

given the authority to nominate the directors, can be held accountable for the process of nomination and candidates' qualification for independence. An alternative option could be introduction of a classified voting system whereby independent board members are voted by minority shareholders or their appointment is subject to majority approval of the minority shareholders attending the general assembly.

On the incentives side, reputational concerns can motivate directors if development of a market for human talent can be supported by making a certain level of independence mandatory. There is some empirical support for arguing that one third of the directors should be independent, a ratio which would also decrease the likelihood of marginalization.

Clearly, more research will help to clarify these issues. A broader discussion of these problems goes beyond the scope of our present data set and therefore of this paper. However, facts assembled in this paper constitute a background for the design of specific provisions to improve the effectiveness of boards in Turkey.

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Table 1 Summary of Empirical Studies of Board Independence in Emerging Markets

Study	Country	Sample	Dependent variables	Independent Variable (mean)	Estimation Method	Main Results
Lefort and Urzua (2008)	Chile	160 listed firms in 2000-2003	Tobin's *q*	Proportion of independent directors (20%)	OLS, Fixed effects and 3SLS regression	OLS and fixed effects: not significant 3SLS: significantly positive
Liang and Li (1999)	China	228 privately held firms in 1998	Return on investment	Proportion of outside directors (25%)	OLS	Positive significant
Peng (2004)	China	49 – 405 listed firms in 1992-1996	ROE, Sales growth (SGR)	Proportion of affiliated (30%) and non-affiliated outside directors (11%)	OLS	Positive significant (affiliated outside directors on SGR)
Chen, Firth, Gao and Rui (2006)	China	169 enforcement actions in 1999–2003	FRAUD: A dummy variable for firms subject to an enforcement action.	Proportion of outside (or non-executive) directors (13%)	Probit	Negative significant
Lo, Wong and Firth (2010)	China	266 listed companies in 2004	Gross profit ratio on related party transactions	Proportion of independent directors (34.5%)	OLS	Negative significant
Kyereboah-Coleman (2007)	Ghana, South Africa, Nigeria and Kenya	103 listed firms in 1997-2001	ROA and Tobin's *q*	Proportion of non-executive directors (42%)	OLS	Positive significant (ROA) Not significant (Tobin's *q*)
Cheung, Rau and Stouraitis (2006)	Hong Kong	609 publicly listed firms in 1998-2000	Cumulative abnormal returns (CARs) for announcements of connected transactions	Proportion of independent directors (28,6% median)	OLS	Not significant
Cheung, Connelly, Limpaphayom, and Zhou (2007)	Hong Kong	168 listed firms in 2002	Market-to-book ratio, ROE	Number of outside directors	OLS	Not significant
Jaggi and Tsui (2007)	Hong Kong	300 listed firms in 1995-1999	Abnormal Insider Trading	Proportion of independent non-executive directors (16.68%)	OLS and Logistic Regression	A higher proportion of independent directors moderates the positive association between insider selling and earnings management.
Chen and Nowland (2010)	Hong Kong, Malaysia, Singapore and Taiwan	185 listed firms in 1998-2004	ROA and Tobin's *q*	Proportion of independent directors (23% family firms, 34% other firms)	Fixed effects	Concave relationship with an optimal level of board independence at 36%
Ghosh (2006)	India	127 listed firms in 2003	ROA, ROE, the average	Proportion of non-executive	OLS	Not significant

			value of ROA, ROE and ROS	directors (7%)		
Ramdani and Witteloostuijn (2010)	Indonesia, Malaysia, South Korea and Thailand	61 firms in Indonesia, 75 in Malaysia, 111 in S. Korea and 61 in Thailand over 2001-2002	ROA	Proportion of outside directors (69%)	OLS, robust regressions (RR) and quantile regressions (QR)	OLS: Not significant RR: Positive significant QR: Positive significant at the median and 75th percentile
Barako (2007)	Kenya	43 listed firms in 1992, 1996 and 2001	The level of voluntary disclosure	Proportion of non-executive directors (>50%)	OLS	Negative significant
Choi and Hasan (2005)	Korea	21 banks in 1998-2002	ROA, ROE, Profit efficiency, Risk measures	Proportion of outside directors (50%)	OLS	Not significant
Black, Jang and Kim (2006)	Korea	515 companies in 2001	Tobin's *q* and profitability	Dummy variable indicating whether firms have 50% or more outside directors	OLS and 2SLS (using asset size dummy as an instrument)	Positive significant
Choi, Park and Yoo (2007)	Korea	~450 listed firms in 1999 -2002	Tobin's *q*	Proportion of outside directors (31.2%) Proportion of independent directors (21.3%)	OLS and 2SLS	Not significant Positive significant
Cho and Kim (2007)	Korea	347 listed firms in 1998	ROA	Proportion of outside directors (46.2%)	OLS	Positive significant
Kim (2007)	Korea	473 listed companies in 1998 - 2003	Tobin's *q*	Proportion of outside directors (26%)	Random effects	Not significant
Black and Kim (2007)	Korea	248 listed companies in 1998-2004	Cumulative market-adjusted returns and Tobin's *q*	Board independence index based on the existence of 50% or more outside directors	Event study, Differences in differences, 2SLS, 3SLS and fixed effects	Positive significant
Mak and Kusnadi (2005)	Malaysia and Singapore	230 firms listed on the SGX and 279 on the KLSE in 1999 or 2000	Tobin's *q*	Proportion of independent directors (34%)	OLS	Not significant
Filatotchev, Lien and Piesse (2005)	Taiwan	228 listed companies in 1999	ROA, ROCE, EPS, STIC (sales-to-issued capital ratio)	Dummy variable: Independent board chairman (23%)	2SLS	Not significant Negative significant (STIC)
Kaymak and Bektas (2008)	Turkey	27 banks in 1994-2001	ROA and Asset Growth	Proportion of outside directors (69%)	OLS	Negative significant (ROA) Not significant (Asset growth)
Dahya, Dimitrov and McConnell (2008)	22 countries including 7 emerging markets in 2002	799 firms with dominant shareholders	Tobin's *q*	Proportion of outside directors (69%)	OLS, country random effects, 2SLS	Positive significant

Table 2 Ownership and Control Structures

Table 2 summarizes the means of ownership data from 2006 at the direct and ultimate level. *LS* is the largest shareholder, Free Float is the fraction of shares freely floating on the ISE. To identify the ultimate shareholders, we follow all ownership chains at the direct level until we determine that the ultimate shareholder is a natural person or the state (See Appendix B). *CFR* refer to the cash flow rights of the ultimate owner and *V*R to her voting rights. Our data sources do not allow us to follow the ultimate owners of foreign entities. Hence, we report them as a separate ultimate owner category. The miscellaneous category contains two rather unusual ownership types: *Türkiye Is Bankasi* is a quasi-private bank under managerial control where about 40% of the outstanding shares is controlled by the retirement fund of the employees of the bank and about 13% of the shares (with no cash flow rights) belongs to a political party. The *OYAK* Group serves as holding company founded in 1961 by a special law as the social security organization for the members of the Turkish army

	Direct Ownership			**Ultimate Ownership**		
Identity	N	*LS*	*Free Float*	N	*VR*	*CFR*
Holding Company	54	48.34	34.36	-		
Non-financial companies	16	52.32	31.40	-		
Financial companies	10	50.37	34.42	-		
Families	14	34.53	46.09	82	55.03	44.06
Foreign companies	15	67.06	26.06	15	69.28	66.48
State	3	53.98	38.25	3	53.98	53.98
Miscellaneous	6	52.80	34.54	18	53.26	39.65
Total	118	50.14	34.38	118	56.44	46.27

Table 3 Characteristics of Directors

Table 3 reports the means of the variables that reflect the characteristics of directors in our sample. We collect information on 944 directors, which have been on the boards of 118 listed Turkish companies in 1996. We consider a director to be affiliated with the dominant shareholder when (1) s/he is the dominant shareholder of the firm, (2) s/he is a member of the family of the dominant shareholder including 2nd degree family relationships (spouse, children and sister of the oldest generation), 3rd degree relationships (grandchildren of the 1. generation, children of the 2. generation) and 4th degree: relationships (1st degree relative (spouse, children, sister or brother) of the 2nd and 3rd degree relatives), (3) s/he is an employee of the parent or related company, (4) s/he is an employee of the same company. Independent directors are those, which are declared to be independent by the reporting company in line with the Corporate Governance Code of Turkey. Military/Bureaucrat and Politician refer to directors who are ex- or current members of the Turkish armed forces, bureaucracy or parliament. Gray directors are those, which cannot be classified as independent, affiliated or in one of the remaining categories.

Characteristics of the Directors	Fraction of the Sample of Directors in 2006 N=944	Fraction of the Sample of Directors in 2008 N=939
Independent	7.53%	6.28%
Affiliated	58.53 %	60.07%
Family	18.34%	17.86%
Founders	5.41%	5.07%
2nd degree (spouse, children and sister of the oldest	10.49%	10.04%
3rd degree (grandchildren of the 1. generation, children of the 2. generation)	1.69%	2.01%
4th degree: 1st degree relative (spouse, children, sister or brother) of the 2nd and 3rd degree relatives:	0.74%	0.74%
Employee	40.19%	41.21%
Parent / related company	26.93%	27.36%
Same Company	13.25%	13.84%
Military / Bureaucrat	10.07%	11.82%
Politician	2.54%	3.51%
Gray	21.31%	18.32%
Other Characteristics		
Female	7.95%	9.58%
Education (Highest degree)		
High School	3.95%	4.47%
……Bachelor	53.78%	61.24%
Master / MBA	30.21%	22.47%
PhD	12.05%	10.33%
Multiple Board Seats	39.44%	36.95%
Age		
Age ≤ 40	8.33%	9.83%
41≤ Age ≤ 50	30.97%	31.90%
51≤ Age ≤ 60	36.05%	31.05%
61≤ Age ≤ 70	18.11%	21.65%
Age ≥ 71	6.52%	5.55%

Table 4 Descriptive Statistics and the Correlation Matrix

Tobin's *q* is the book value of assets minus the book value of equity plus the market value of equity divided by the book value of total assets. ROA it is calculated as the ratio of net income plus interest expense divided by total assets. We calculate the average value of these two ratios for 2006 and 2007 and for 2008 and 2009. *SEO* is a dummy variable which identifies the firms that issue equity in 2006 and 2007 and for 2008 and 2009. *RPT* is the volume of related party transactions as a fraction of the total assets. *Independent* is the fraction of independent directors in the board. *Affiliated* is the fraction of directors affiliated with the dominant shareholder. *Size* is the natural logarithm of the totals assets (measured in Mn. YTL). *Growth* is the average growth rate of assets is calculated from 2004 to 2006 and from 2006 to 2008. *Intangible* is the fraction of intangible assets as a fraction of total assets. *SD Return* is the standard deviation of monthly stock calculated using monthly returns over 2005-2006 and 2007-2008. *Age is* the number of years between 2006 (2008) and the firm's year of foundation. *Cross-list* is a dummy variable to identify firms whose shares are traded either as a direct listing on a US stock exchange or as an ADR as of 2006 and 2008. *CFR* is the percentage cash flow rights of the ultimate (dominant) shareholder. *BG* is a dummy variable which identifies member firms of a diversified business group. *BSize* is the number of directors on the board. [a] ([b] and [c]) indicate significance at 1% (5% and 10%) or better.

		2006		2008		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		Mean	**Std.Dev.**	**Mean**	**Std.Dev.**															
(1)	*Tobin's q*	1.033	0.737	0.776	1.021	1														
(2)	*ROA*	0.069	0.087	0.042	0.077	0.427[a]	1													
(3)	*SEO*	0.237	0.430	0.302	0.461	-0.069	-0.156[b]	1												
(4)	*Equity Ratio*	0.557	0.309	0.558	0.316	0.066	-0.048	0.059	1											
(5)	*RPT*	0.195	0.476	0.185	0.521	-0.038	-0.003	-0.006	0.016	1										
(6)	*Independent*	0.075	0.129	0.077	0.141	-0.125[c]	-0.172[b]	0.110[c]	0.059	0.038	1									
(7)	*Affiliated*	0.467	0.313	0.490	0.315	-0.171[b]	0.024	0.002	-0.195[a]	-0.049	-0.143[b]	1								
(8)	*Cross-list*	0.144	0.319	0.271	0.417	-0.002	0.122[c]	0.008	-0.244[a]	0.012	0.105	0.039	1							
(9)	*CFR*	46.266	21.729	46.322	21.626	0.141[b]	0.029	-0.111[c]	-0.035	0.050	0.051	-0.071	-0.098	1						
(10)	*Growth*	0.182	0.231	0.193	0.285	0.000	0.127[b]	0.146[b]	-0.239[b]	-0.069	0.062	0.066	0.105[c]	-0.004	1					
(11)	*Age*	34.187	17.238	36.187	17.238	-0.193[a]	-0.023	0.076	-0.238[b]	-0.054	-0.211[a]	0.033	0.161	-0.043	0.027	1				
(12)	*SD Return*	0.140	0.044	0.119	0.041	-0.121[c]	-0.160[b]	0.167[a]	0.086	0.100[c]	-0.059	-0.062	-0.234[a]	-0.136[b]	0.086	-0.019	1			
(13)	*Intangible*	0.032	0.060	0.030	0.062	0.050	-0.005	0.245[a]	-0.075	0.001	0.110	0.177[b]	0.181[a]	-0.121[c]	0.077	0.025	0.069	1		
(14)	*Size*	20.256	1.971	20.650	1.818	-0.172[a]	0.130[b]	0.148[a]	-0.508[b]	-0.118[c]	-0.004	0.025	0.597[a]	-0.004	0.217[a]	0.392[a]	-0.262[a]	0.153[b]	1	
(15)	*BSize*	7.548	1.849	6.025	2.263	0.092	0.090	0.042	-0.160[b]	0.006	0.079	-0.080	0.186[a]	-0.091	0.118[c]	0.094	0.095	0.178[b]	0.242[a]	1

Table 5 Board Independence, Equity Offerings (SEOs) and Equity Ratios

The dependent variable in Panel A is a dummy variable which identifies the firms that issue equity in 2006 and 2007 and for 2008 and 2009 (*SEO*). The dependent variable in Panel B is the ratio of equity to the sum of equity and debt (*Equity ratio*). Our key explanatory variable is the fraction of independent directors (*Independent*) in the board. With the exception of *UO Family* (a dummy variable indicating that the dominant shareholder is a family) and *UO Foreign* (a dummy variable indicating that the dominant shareholder is foreign entity), all variables are defined in Table 4. The equation in Panel A is estimated using a probit model. We report the marginal effects of the variables instead of the estimated coefficients in the probit equation. The equations in Panel B are estimated with an OLS and fixed effects model. All p-values are computed using firm-clustered standard errors.

	Panel A: Equity Offerings		**Panel B: Equity Ratio**			
	Probit		**OLS**		**Firm Fixed Effects**	
Independent Variables	Coefficient.	p-value	Coefficient	p-value	Coefficient	p-value
Intercept			2.211	(0.000)	4.335	(0.005)
Independent	0.201	(0.322)	0.029	(0.305)	-0.346	(0.172)
Affiliated	-0.103	(0.344)	-0.070	(0.602)	-0.028	(0.758)
Growth	0.176	(0.117)	0.178	(0.046)	0.021	(0.791)
Cross-list	-0.112	(0.034)	-0.034	(0.590)	-0.038	(0.543)
CFR	-0.001	(0.797)	-0.006	(0.550)		
Size	0.042	(0.146)	-0.078	(0.000)	-0.234	(0.008)
Intangible	0.748	(0.021)	-0.129	(0.602)	-0.573	(0.031)
SD Return	0.772	(0.217)	-0.284	(0.551)	-0.929	(0.290)
BG	0.012	(0.863)	0.087	(0.065)		
Age	-0.001	(0.829)	-0.002	(0.494)	0.032	(0.076)
Log (*BSIZE*)	-0.035	(0.625)	-0.052	(0.300)	-0.039	(0.418)
UO Family	-0.033	(0.832)	0.098	(0.272)		
UO Foreign	0.167	(0.036)	0.095	(0.183)		
Industry Dummies	Included		Included			
Year Dummy for 2008	Included		Included		Included	
p-value of the LR test that (*Independent= Affiliated)*	0.127		0.288		0.235	
Sample Size	236		236		236	
Adjusted/Pseudo R^2	0.22		0.32		0.79	

Table 6 Board Composition and Related Party Transactions (RPT)

The table reports the results of Tobit estimates of the impact of board composition (*Independent* and *Affiliated*) variables along with other governance characteristics (*Cross-list*, *CFR*, *BG*, *BSize*, *UO Family* and *UO Foreign*) and other firm characteristics (*Growth*, *SD Return*, *Intangible* and *Size*) on related party transactions (*RPT*). All variables are defined in table 4. The equations include industry dummies and a dummy variable for year 2008. We report the marginal effects of the variables instead of their coefficient estimates. The pseudo R^2 of the Tobit model is computed using the procedure suggested by Windmeijer (1995).

Independent Variables	Coefficient	p-value
Intercept	0.884	(0.298)
Independent	0.177	(0.000)
Affiliated	0.800	(0.030)
CFR	-0.007	(0.000)
Cross-List	-0.163	(0.068)
Growth	-0.053	(0.553)
Size	-0.030	(0.334)
Log (Board Size)	0.176	(0.188)
Intangible	-0.972	(0.023)
BG	0.044	(0.050)
UO Family	0.129	(0.454)
UO Foreign	-0.080	(0.064)
Industry & Year dummies	Included	
p-value of the LR test that (*Independent= Affiliated*)	0.017	
Sample Size	236	
Pseudo R^2	0.14	

Table 7 Board Composition and Performance

The table reports the results of OLS and fixed/random effects estimates of the impact of board composition (*Independent* and *Affiliated*) variables along with other governance characteristics (*Cross-list, CFR, BG*, *BSize*, *UO Family* and *UO Foreign*) and other firm characteristics (*Growth*, *SD Return*, *Intangible* and *Size*) on Tobin's *q* and *ROA*. All variables are defined in Table 4. The equations include industry dummies and a dummy variable for year 2008. Hausman tests recommend the use of a fixed effects model for the Tobin's *q* and *ROA* regressions. The p-values for the OLS coefficients are computed using firm-clustered standard errors.

	Tobin's *q*				**ROA**			
	OLS		**Fixed Effects**		**OLS**		**Fixed Effects**	
Independent Variables	Coef.	p-value.	Coef.	p-value.	Coef.	p-value.	Coef.	p-value.
Intercept	4.542	(0.000)	4.542	(0.000)	0.173	(0.185)	0.625	(0.211)
Independent	-0.848	(0.012)	-0.381	(0.059)	-0.095	(0.028)	-0.085	(0.082)
Affiliated	-0.356	(0.067)	-0.134	(0.099)	0.004	(0.873)	-0.039	(0.152)
Growth	0.105	(0.382)	0.060	(0.220)	0.058	(0.015)	0.011	(0.058)
Cross-list	0.377	(0.061)	0.205	(0.047)	0.043	(0.016)	0.034	(0.035)
CFR	0.326	(0.433)			0.023	(0.561)		
SD Return	-2.267	(0.166)	-0.725	(0.263)	-0.229	(0.336)	0.055	(0.841)
Intangible	2.173	(0.000)	0.848	(0.219)	-0.017	(0.870)	-0.110	(0.451)
Size	-0.170	(0.000)	-0.435	(0.002)	-0.007	(0.413)	-0.028	(0.244)
Log (BSIZE)	0.023	(0.293)	0.023	(0.293)	0.002	(0.502)	0.005	(0.147)
BG	-0.081	(0.509)			0.007	(0.727)	0.009	(0.621)
UO Family	0.279	(0.341)			0.066	(0.083)	0.071	(0.244)
UO Foreign	-0.025	(0.841)			0.012	(0.679)	0.015	(0.791)
Industry Dummies	Included		-		Included		Included	
Year Dummy	Included		Included		Included		Included	
p-value of the LR test that (*Independent= Affiliated)*	0.077		0.368		0.024		0.137	
Sample Size	236		236		236		236	
Adjusted R^2	0.31		0.61		0.16		0.24	

Table 8 Robustness and Extensions

Table 8 presents the results of our additional robustness tests of the relationship between *Independent* and *Tobins's q*. The first model includes an additional dummy variable, *Second*, which is equal to 1 if there is a second largest shareholder in the ownership structure of the firm which is not affiliated with the dominant shareholder. In the second model, we weight our observations by the variable (1-% of gray directors). The third model tests for the additional impact of audit and corporate governance functionality and the fourth model considers whether the educational background of directors is relevant. In the fifth estimation, we use a narrow definition of independence of board members, by considering only those directors as independent who were not directors before 2006. All other variables are defined in table 4. Estimation method is OLS and the reported p-values computed using firm-clustered standard errors.

	1: Second ≥ 10%		**2: Weighted by (1-%Gray)**		**3: Committees**		**4: Education**		**5: Alternative Definition of Independence**	
Independent Variables	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**
Intercept	4.462	(0.000)	4.513	(0.000)	4.797	(0.000)	4.419	(0.000)	4.299	(0.000)
Independent	-0.774	(0.004)	-0.823	(0.020)	-0.910	(0.005)	-0.651	(0.052)	-0.464	(0.183)
Affiliated	-0.415	(0.021)	-0.333	(0.054)	-0.377	(0.018)	-0.363	(0.074)	-0.299	(0.104)
Second	0.007	(0.065)								
Audit / CG Committee Functional					0.137	(0.092)				
Growth	0.081	(0.498)	0.108	(0.588)	0.104	(0.559)	0.075	(0.539)	0.088	(0.452)
Cross-list	0.366	(0.030)	0.374	(0.026)	0.368	(0.013)	0.327	(0.093)	0.331	(0.093)
CFR	0.471	(0.233)	0.287	(0.243)	0.330	(0.136)	0.298	(0.441)	0.299	(0.451)
SD Return	-2.205	(0.155)	-2.433	(0.040)	-2.456	(0.020)	-2.301	(0.183)	-2.139	(0.222)
Intangible	2.303	(0.000)	2.197	(0.007)	2.198	(0.007)	2.152	(0.000)	2.103	(3.53)
Size	-0.170	(0.002)	-0.166	(0.000)	-0.171	(0.000)	-0.164	(0.005)	-0.161	(0.008)
Log (BSize)	0.019	(0.488)	0.021	(0.382)	0.024	(0.296)	0.027	(0.375)	0.019	(0.531)
BG	0.063	(0.604)	-0.074	(0.537)	-0.079	(0.468)	-0.041	(0.753)	-0.039	(0.775)
UO Family	0.279	(0.314)	0.259	(0.466)	0.283	(0.376)	0.241	(0.408)	0.259	(0.369)
UO Foreign	-0.017	(0.890)	-0.017	(0.961)	-0.028	(0.927)	-0.040	(0.781)	-0.063	(0.642)
Industry & Year Dummies	Included		Included		Included		Included		Included	
p-value of the LR test that (*Independent= Affiliated)*	0.277		0.166		0.101		0.132		236 0.184	
Sample Size	236		236		236		236			
Adjusted R^2	0.32		0.22		0.25		0.14		0.28	

Appendix A

Table A.1 Variable Definitions and Data Sources

Variable name	Definition	Source of Data
Board Size	The total number of directors	Annual reports, Corporate Governance Compliance Reports
Family	The number of directors who are members of the controlling family (if there is any) divided by the total number of directors	Annual reports, Corporate Governance Compliance Reports
Military / Bureaucrat	The number of directors who are associated with military (retired army officer) or who are retired or current state employees divided by the total number of directors	Annual reports, Corporate Governance Compliance Reports
Politician	The number of directors who are current or ex-members of the parliament divided by the total number of directors	Annual reports, Corporate Governance Compliance Reports
Parent Employee	The number of directors who are current or ex-employees of the parent or any related company.	Annual reports, Corporate Governance Compliance Reports
Independent	The number of directors who are declared to be independent by the firm divided by the total number of directors	Annual reports, Corporate Governance Compliance Reports
Non-executive	The number of directors who are declared to be non-executive by the firm divided by the total number of directors	Annual reports, Corporate Governance Compliance Reports
Executive	The number of directors who are declared to be executive by the firm divided by the total number of directors	Annual reports, Corporate Governance Compliance Reports
Audit Committee functionality	A dummy variable which takes on the value of 1 if the names of audit committee members are disclosed	Annual reports, Corporate Governance Compliance Reports
CG Committee functionality	A dummy variable which takes on the value of 1 if the names of CG committee members are disclosed.	Annual reports, Corporate Governance Compliance Reports

University	The fraction of directors with a university degree (Bachelor, master or PhD)	Annual reports, Corporate Governance Compliance Reports
MBA	The fraction of directors with an MBA degree	Annual reports, Corporate Governance Compliance Reports
Female	The fraction of female directors	Annual reports, Corporate Governance Compliance Reports
Size	Log of total assets (Mn YTL)	
Age	2006 (or 2008) minus the year of foundation	Annual Reports
Tobin's *q*	The book value of assets minus the book value of equity plus the market value of equity divided by the book value of total assets. We compute the mean value of *q* for 2006-2007 and 2008-2009.	Istanbul Stock Exchange Data downloaded via the Stock Ground Terminal at the Sabanci University.
Cross-list	A dummy variable which takes on the value 1 to identify firms whose shares are traded either as direct listing on a US stock exchange or as an American Depository Receipt (ADR)	Bank of New York and JP Morgan ADR/Cross-listing databases
CFR	The cash flow rights of the controlling shareholder, calculated by multiplying the voting rights of the ultimate shareholder through the ownership chain in a pyramidal structure. This variable is available only for a single cross-section in 2006.	Annual Reports
Second	The percentage voting rights of a second large shareholder (which is not affiliated with the dominant shareholder.	Annual Reports
SEO	A dummy variable which takes on the value one if the company had a seasoned equity issue in 2006 or 2007 (or 2008 or 2009).	Istanbul Stock Exchange
BG	A dummy variable which takes on the value one if the company is part of a diversified business group.	Annual reports
UO Family	A dummy variable which takes on the value 1 if the ultimate controlling owner of the company is a family.	Annual Reports

UO Foreign	A dummy variable which takes on the value 1 if the ultimate controlling owner of the company is a foreign entity.	Annual Reports
ROA	The mean value of net income plus interest expense divided by total assets measured over 2006-2007 or 2008-2009..	Istanbul Stock Exchange Data downloaded via the Stock Ground Terminal at the Sabanci University.
Intangible	Intangible assets divided by total assets measured over 2005-2006 or 2007-2008.	Istanbul Stock Exchange Data downloaded via the Stock Ground Terminal at the Sabanci University.
Growth	Growth rate of assets measured over 2005-2006 or 2007-2008.	Istanbul Stock Exchange Data downloaded via the Stock Ground Terminal at the Sabanci University.
SD Return	Standard deviation of monthly stock returns over 2005-2006 or 2007-2008.	Datastream

Appendix B:

Most listed companies in turkey exhibit pyramidal ownership structures. The following figure presents an example of separating the cash-flow rights (*CFR*) from the voting rights (*VR*) using pyramidal structures.

Dogan Gazetecilik A.S., which is one of the most influential media companies with a market capitalization of $150 Mn. in 2006, has a single large shareholder: *Dogan Yayin Holding* with 74.47%, the remaining 24.86% of the outstanding shares is distributed among a large number of dispersed shareholders (free float). Further inspection of the ownership of this largest direct owner shows that 63.02% of the shares are held by *Dogan Sirketler Grubu Holding*, 2.3% of the shares are held by the *Dogan Family* and the rest (34.01%) are held by dispersed shareholders. The owners of the *Dogan Sirketler Grubu Holding* are *Adilbey Holding* with 52% of the shares and Dogan Family with 13.7%. The remaining 34.29% are held by dispersed shareholders. The sole owner of the *Adilbey Holding* and the ultimate owner of the *Dogan Gazetecilik A.S.* is the Dogan Family.

Since Dogan Family at each level has the majority control, *VR* amounts to 74.47%. Multiplying and summing over all relevant control chains, we come up with 32.54% of *CFR*, which is substantially lower than *VR*.

Appendix C: Instrumental Variables Estimation

This section offers an additional robustness check which consists of estimating a system of two equations with *q* and *Independent* as the endogenously determined variables using a two-stage least squares instrumental variables model. While this approach is theoretically appealing, it has its own problems: it is notoriously difficult to find appropriate instruments which should identify the variable *Independent* and firm performance. A good instrument is relevant, i.e. it should predict the endogenous variable, and exogenous, i.e., it should not be correlated with the other endogenous variable. In our case, a good instrument for *Independent* (performance) should be highly correlated with this variable and it should have a zero correlation with performance (*Independent*).

In line with DKS (2008), Demsetz and Villalonga (2001) and Durnev and Kim (2005), we use the *alpha* and *beta* from the market model of the firm's stock returns as instruments for *Independent*. We estimate *alpha* and *beta* by OLS regressions using 24 monthly returns over 2005–2006 (for 2006 board data) and over 2006-2007 (for 2008 board data). We use lagged *q*, lagged *Size* and two-digit industry dummies as instruments for *q*.

In the first stage, we regress *q* against the independent variables from Table 5 along with these three instrumental variables and we regress the variable *lndependent* against the right-hand-side variables used in the first regression of Table 4 along with the two instrumental variables (*alpha* and *beta*). We then use the predicted values from the first stage as regressors in the second stage along with the same independent variables used in the first stage excluding the instrumental variables.

The results of the 2SLS estimation are reported in Table A.2. This exercise produces a more negative coefficient of the variable *Independent*, which is significant at the 5% level. A similar result is obtained when the same exercise (using lagged *ROA*) is carried out for ROA. The coefficient of *Independent* is negative, larger in absolute value and significant at the 5%

level and better. Hence, leaving the problem of the quality of the instrumental variables for *Independent* and firm performance aside, the results of the instrumental variables estimation do not reverse our inference from the OLS estimation. The fraction of independent directors in the board is negatively associated with firm performance also in a simultaneous equation framework.

Table A.2 Endogeneity of Performance and Board Independence: Instrumental Variables

Table A.2 reports the results from the second stage of estimating a system of two equations with *q* and *Independent* as endogenously determined variables using a 2SLS instrumental variables model. We use the *alpha* and *beta* from the market model of the firm's stock returns as instruments for *Independent*. We estimate *alpha* and *beta* by OLS regressions using 24 monthly returns over 2005–2006 (for 2006 board data) and over 2006-2007 (for 2008 board data). We use lagged *q (ROA)*, lagged *Size* and two-digit industry dummies as instruments for *q (ROA)*.

	Independent		***Tobin's q***		***Independent***		***ROA***	
Independent Variables	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	0.434	(0.088)	4.965	(0.000)	0.389	(0.105)	0.218	(0.091)
Tobin's q / ROA	-0.015	(0.353)			-0.128	(0.369)		
Independent			-1.128	(0.049)			-0.663	(0.001)
Affiliated			-0.372	(0.021)			-0.010	(0.607)
Growth	0.062	(0.133)	0.114	(0.522)	0.060	(0.149)	0.061	(0.010)
Cross-list	0.051	(0.151)	0.410	(0.006)	0.041	(0.244)	0.051	(0.009)
CFR	0.043	(0.436)	0.526	(0.034)	0.040	(0.459)	0.063	(0.060)
SD Return	-0.327	(0.223)	-2.503	(0.023)	-0.412	(0.102)	-0.235	(0.105)
Intangible	0.049	(0.774)	2.472	(0.001)	0.042	(0.808)	0.071	(0.465)
Size	0.007	(0.462)	-0.175	(0.000)	-0.006	(0.534)	-0.012	(0.028)
Log *(BSize)*	0.017	(0.535)	0.025	(0.275)	0.022	(0.429)	0.006	(0.072)
BG	-0.051	(0.036)	-0.1071	(0.356)	-0.052	(0.034)	-0.002	(0.869)
UO Family	-0.047	(0.054)	0.077	(0.147)	-0.042	(0.590)	0.072	(0.082)
UO Foreign	-0.046	(0.052)	-0.334	(0.068)	-0.036	(0.619)	0.005	(0.894)
SEO	0.030	(0.262)			0.026	(0.322)		
Age	-0.002	(0.023)			-0.001	(0.039)		
Sample Size / Adj. R^2	236 / 0.18		236 / 0.25		236 / 0.16		236 / 0.23	