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Equity Ownership Structure, Risk Taking, and Performance

An Empirical Investigation in Turkish Listed Companies

Abstract: *The paper describes the main characteristics of ownership structure of Turkish nonfinancial firms listed on the Istanbul Stock Exchange (ISE) and examines the impact of ownership structure on performance and risk-taking behavior of Turkish firms. Turkish corporations can be characterized as highly concentrated, family owned firms attached to a group of companies generally owned by the same family or a group of families. Ownership structure is defined along two attributes: concentration and identity of the owner(s). We conclude that there is a significant impact of ownership structure—ownership concentration and ownership mix—on both performance and risk-taking behavior of the firms in our sample. Higher concentration leads to better market performance but lower accounting performance. Family owned firms, in contrast to conglomerate affiliates, seem to have lower performance with lower risk. Government-owned firms have lower accounting but higher market performance with higher risk.*

Key words: *corporate governance, ownership structure, performance, risk.*

The relationship between equity ownership structure and firm performance has become a key issue in understanding the effectiveness of alternative corporate governance mechanisms. In light of massive privatization efforts in former Eastern block countries as well as experiences of developed economies of the United States, Japan, and Western Europe, researchers face a vast amount of data to test

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various corporate governance issues raised by the theory. In this paper, the impact of concentration of ownership and ownership mix, if any, on the performance and risk-taking behavior of Turkish nonfinancial companies listed on the Istanbul Stock Exchange (ISE) from 1992 to 1998 is examined. With public offerings of equity through initial public offerings (IPOs), direct foreign investment, and a large public sector in the economy, the Turkish market offers a very rich combination of corporate governance schemes to be compared. Moreover, privatization of publicly owned companies is still being debated on the basis of the impact of ownership mix on performance. A related issue surfaces with respect to the method of privatization. The merits of public offering of equity, which leads to a more diffuse ownership versus private placement through block sales that results in a concentrated ownership, is another controversy to be resolved. Hence, we address ownership structure and ownership mix issues in the Turkish market in order to shed some light on this debate.

The literature on corporate governance provides us with several testable hypotheses as well as empirical evidence from different countries. The theoretical debate focuses on agency relationship. Separation of ownership and management gives rise to a conflict of interest between owners and managers as their agents. Jensen and Meckling (1976) explore the costs of agency relationship on the corporation. They claim that there exist governance mechanisms by which this conflict can be resolved to a certain extent. This assertion indicates that governance scheme is likely to affect a firm's performance. Fama (1980) argues that a well-functioning managerial labor market will impose the necessary discipline on managers. Likewise, markets for corporate control, if they function properly, are expected to serve as an incentive for managers to act in the best interest of owners (see, for example, Jensen and Ruback 1983; Martin and McConnell 1991). Grossman and Hart (1986), on the other hand, point out that if ownership is widely dispersed, no individual shareholder will have the incentive to monitor managers since each will regard the potential benefit from a takeover to be too small to justify the cost of monitoring. Shleifer and Vishny (1986) point out the benefits of ownership concentration in enhancing the functioning of a takeover market.

Large equity ownership may impose potential costs on the company too. Lack of diversification on the part of a large shareholder will expose him to unnecessarily high risks. As he controls the strategic decisions of the firm, he may pass up some profitable projects on the basis of total risk, rather than merely evaluating the projects in terms of their systematic risk. Large equity ownership may have some direct costs on other stakeholders in the firm—most notably, the minority shareholders and employees. Large shareholders can divert funds for their personal benefit in the form of special (hidden) dividends and preferential deals with their other businesses. On the other hand, Shleifer and Vishny (1986) argue that large shareholders have the capability of monitoring and controlling the managerial activities. Thereby, they are liable to contribute to corporate performance. The overall impact of large shareholders seems to be ambiguous. Actually, there are both

theoretical and empirical studies suggesting a quadratic-shaped relationship between level of ownership and firm performance (for example, McConnel and Servaes 1990; Stulz 1988). At lower levels of ownership concentration, companies benefit from resolution of the agency problem, however, as the share of large owner increases, potential costs take over, surpassing the benefits.

Whether the ownership structure is related to performance and risk-taking behavior of Turkish nonfinancial companies is tested in this paper. Ownership structure is defined along two dimensions: ownership concentration and ownership mix. Ownership concentration refers to the percentage of shares owned by majority shareholder(s), whereas ownership mix is related to the identity of the major shareholder. For empirical testing, after controlling for size and leverage, we attempt to uncover the impact of both ownership concentration and ownership mix on corporate performance and risk-taking behavior.

We found significant effects of ownership structure on both corporate performance and risk-taking behavior. Specifically, as the concentration in ownership increases, we experience lower accounting-based performance and higher market performance. This is consistent with the findings reported in other emerging markets such as China (Xu and Wang 1997) and the Czech Republic (Claessens 1997). When the effects of ownership mix variables are considered, we observe the dominant effect of conglomerate affiliation, family ownership, and government ownership in the Turkish market. Government-owned firms tend to have lower accounting but higher market performance with higher risk. On the other hand, family owned firms, unlike conglomerate affiliates, seem to have lower market performance with lower risk.

Ownership Structure in Turkish Corporations

In terms of ownership structure, Turkish corporations can be characterized as highly concentrated, family owned firms attached to a group of companies generally owned by the same family or a group of families. The group usually includes a bank, which does not have significant equity ownership in member firms. Very large groups are well-diversified conglomerates, sometimes with pyramidal structures. Others are usually vertically integrated companies in the same line of business. Although professional managers run these companies, family members are highly actively involved in strategic as well as daily decisions. Joint ventures with foreign firms are not uncommon. Some of the largest companies are government-owned monopolies.

Our sample consists of nonfinancial corporations listed on the ISE between 1992 and 1998. Most (73 percent) of these companies are ranked among the largest 500 manufacturing companies compiled by the Istanbul Chamber of Industry. Transportation and service corporations in our sample are clearly comparable in size with the largest 500. Hence, it will not be wrong to label our sample as largest companies in Turkey with public ownership.

Table 1

Descriptive Statistics of the Ownership Concentration Variables (in percent)

	Mean	Median	Standard deviation	Min.	Max.
<i>LSH1</i>	43.46	40.07	21.16	0.52	99.30
<i>LSH3</i>	62.13	64.00	19.07	0.82	99.30
<i>OTHER</i>	31.86	28.84	18.52	0.70	99.15
<i>CASH</i>	61.18	61.79	18.95	1.00	99.80

Notes: Ownership concentration variables are described in percentages as: *LSH1*—percentage share of the largest shareholder; *LSH3*—total shares of the largest three shareholders; *OTHER*—percentage of shares held by diffuse shareholders; *CASH*—cash flow right(s) of the controlling shareholder(s).

Ownership concentration refers to the distribution of the shares owned by a certain number of individuals, institutions, or families. Ownership mix, on the other hand, is related to the presence of certain institutions or groups such as government or foreign partners among the shareholders. These two categories of measures incorporate both the influence of shareholders as well as identity of owners with their unique incentive mechanisms and preferences. Table 1 reports the summary statistics on various features of ownership concentration for our sample of companies. The average percentage of total shares held by outside dispersed shareholders whose shares are less than 1 percent (*OTHER*) is 32 percent. On the other hand, the average percentage share of the largest shareholder (*LSH1*) is 43 percent and the mean value of the cumulative percentage of shares held by the largest three shareholders (*LSH3*) is 62 percent. Most of the Turkish firms have a complex network of ownership. By using this pyramidal ownership structure, we calculate cash flow rights (*CASH*) of the ultimate controlling owner by considering both direct ownership and indirect ownership via the shares of the parent company. In order to explain the pyramidal and complex network of ownership structures, consider the case of Koc Holding, a holding company, and Arcelik, a manufacturer of consumer durables, owned by the Koc family. The controlling family owns and controls the majority stake of 65.52 percent of Koc Holding and 10.55 percent of the shares of Arcelik, which is also an affiliate of Koc Holding. Given that Koc Holding holds 38.25 percent of the shares in Arcelik, cash flow rights of the controlling family in that company is 35.61 percent $[(0.6552 \times 0.3825) + 0.1055]$. In our sample, the mean value of cash flow rights of the controlling ultimate owner (*CASH*) is 61 percent. These figures provide clear evidence that most of the Turkish firms have concentrated ownership and only a small percentage of shares are held by dispersed and unorganized investors.

In addition to ownership concentration characteristics, we also examine the identity of owners with ownership mix variables. Each ownership identity class has common goals and interests. These common goals and interests generate similar incentive mechanisms, which will guide them to act in predetermined ways. We have attempted to differentiate owner identity groups based on their commonalities and define them as binary variables that take the value of one for the presence of the common characteristic, zero otherwise.

The conglomerate affiliation (*CONG*) defines whether a firm is a member of a conglomerate or not. On the other hand, family ownership (*FAM*) captures the attributes of a firm controlled by a family, yet not a member of a conglomerate. Hence, the two variables *CONG* and *FAM* are mutually exclusive. Foreign ownership (*FRGN*) measures the stake of foreign owners among the shareholders. *FRGN* takes the value of one if foreign ownership in a firm exceeds 10 percent. Government ownership (*GOV*) intends to capture the characteristics of government-controlled firms. A firm is considered to be government-owned if a government agency owns more than 50 percent of shares outstanding.

Summary statistics of ownership mix variables are presented in Table 2. In many cases, the largest shareholders of a company are members of the same family or other companies in the group. We have identified 30 percent of the companies in our sample as a member firm in one of the distinct conglomerates. Obviously, there have to be some advantages of the conglomerate form of ownership. It is obvious that conglomerates enable their owners to diversify when there are no other possible diversification alternatives in the underdeveloped capital markets. Besides, member firms in a conglomerate pool their funds for efficient allocation within the group. To the extent that the financial system lacks operational efficiency due to high transaction costs and taxes, local optimization of resource allocation within a group would make sense.

On average, 44 percent of the firms belong to a family or a group of families that diverge from a conglomerate with more family involvement in the corporate governance system and less institutionalization. In our sample, 74 percent either belongs to a conglomerate or is controlled by a family, verifying the intense involvement of families in the Turkish corporate governance system.

Foreign investments take the form of a portfolio investment or direct investment. Since portfolio investors own a very small percentage of shares, they do not have much interest in the control of the company. We concentrate on direct investments where the foreign partner has a certain role in the firm's governance structure. Hence, foreign ownership is defined on the basis of shares held above 10 percent of equity, with an average value of 17 percent for our sample.

Government-controlled firms constitute 6.2 percent of our sample in 1998, a decline from 10.5 percent in 1992. The government is the ultimate controlling owner in these firms. Historically, firms owned and controlled by the government have been under the influence of politicians. Since economic realities may not coincide with political expectations and interests, government ownership has its

Table 2

Number of Firms and Descriptive Statistics of the Ownership Mix Variables
(in percent)

Date	1992	1993	1994	1995	1996	1997	1998	Avg.
No. of firms	105	121	136	154	175	194	194	NA
<i>CONG</i>	33.3	31.4	30.1	30.5	29.1	27.3	27.3	29.9
<i>FAM</i>	36.2	40.5	43.4	44.2	45.7	48.5	49.0	43.9
<i>FRGN</i>	17.1	15.7	17.6	17.5	16.6	18.0	18.6	17.3
<i>GOV</i>	10.5	8.3	7.4	7.1	7.4	6.2	6.2	7.6

Notes: Number of firms included in the sample is reported in the first row. Ownership mix variables (in percentages) are conglomerate affiliation (*CONG*), family ownership (*FAM*), foreign ownership (*FRGN*), and government ownership (*GOV*). *CONG* defines whether a firm is a member of a conglomerate or not. *FAM* categorizes firms that are not a member of a distinct conglomerate but owned by a single or group of families. *FRGN* defines whether firms have foreign partners who own at least 10 percent of equity. *GOV* defines the firms that are controlled or owned by the government agencies. The yearly mean value of each ownership mix variable and overall pooled data is presented in columns.

unique identity characteristics. Megginson et al. (1994) support this argument with their conclusion that government-owned firms are less efficient than privately owned firms. Conditional on the success of the privatization program, we expect further declines in the share of government ownership in the near future.

We used ISE's electronic database and ISE yearbooks for 1992–2000 to obtain the data on ownership structure. Because of the increase in the number of firms listed on the ISE, the number of firms included in the sample increases each year. As can be seen in Table 2, the number of firms in the sample was 105 in 1992 and rises to 194 in 1998. Banks, leasing companies, investment companies, holding companies, and insurance firms are excluded from the sample.¹

Ownership Structure and Performance

Ownership Concentration and Performance

We first investigate the impact of ownership concentration on firm performance. Basically, two groups of variables are employed to measure performance: accounting and market-based. Accounting-based variables of performance measure are return on equity (*ROE*) and return on total assets (*ROA*). Price-to-earnings ratio (*PE*) and stock returns (*RET*) are the market-based variables of performance.

Ownership concentration (*CON*) is defined with three related measures: (1) cumulative percentage shares of the largest three shareholders (*LSH3*); (2) cumulative percentage ownership of outside stockholders, who are anonymous, diffuse, and relatively less powerful in the one-share-one-vote system, and those with individual shares less than 1 percent of shares outstanding (*OTHER*); and (3) cash flow right(s) of the ultimate controlling owner(s) (*CASH*).

To test the hypothesis that ownership concentration influences a firm's performance, we regress an ownership variable on a performance variable in the presence of the control variables within a multiple ordinary least squares (OLS) regression model:

$$PER_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 CON_{it} + \varepsilon_{it}, \quad (1)$$

where *PER* is one of the performance variables of *ROA*, *ROE*, *RET*, or *PE*. *SIZE*, *BETA*, and *LEV* are the three control variables to denote firm size, measured as the natural log of total assets; leverage, measured as the ratio of debt-to-total assets; and beta, calculated as the regression coefficient in a time-series regression of monthly stock returns on the return on ISE index, respectively. Ownership concentration variables, *CON*, are *LSH3*, *OTHER*, and *CASH*. In the above model, β_i 's are the parameters and ε_{it} is the error term. The model is estimated for each relevant combination of the explanatory and dependent variables. Since our sample consists of time-series-cross-section data, we corrected OLS estimations by generalized method of moments (GMM) methodology. Problems that are likely to be encountered in pooled data are generally resolved by applying GMM. GMM utilizes Newey and West (1987) methodology in correcting both heteroskedasticity and autocorrelation.²

According to the results presented in Table 3, we can assert that ownership concentration is related to both accounting- and market-based measures of performance, albeit in opposite directions. Whereas higher concentration in ownership is found to be positively related with *PE* and *RET*, accounting measures *ROA* and *ROE* decline as ownership concentration increases. In models with accounting measures of performance, we consistently observe negative coefficients for *LSH3* and positive coefficients for *OTHER*, with some coefficients attaining statistical significance. R-square values are satisfactory and all F-test values are significant at the 0.01 level. This shows that increase (decrease) in the concentration of ownership is associated with lower (higher) accounting profitability in our sample.

We employ two measures of market performance in this study. These are the price-to-earnings ratio (*PE*) and stock returns (*RET*). *PE* is found by dividing the firm's end-of-year market value by the net income for that year. As the ratio of market value to earnings, *PE* shows how much the market is willing to pay for a dollar of reported earnings. It captures the growth prospects of earnings as well as their riskiness. Having controlled for the risk with control variables of model (1), *PE* reflects the market's assessment of the firm's potential, hence, used as a

Table 3

Ownership Concentration and Performance

Constant	LEV	SIZE	BETA	LSH3	OTHER	CASH	R ²	F-test
Panel A: $ROA_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 CON_{it} + \varepsilon_{it}$								
6.024 (1.30)	-0.208 (-6.84)*	1.069 (3.74)*	-0.104 (-0.12)	-0.049 (-2.02)*			0.213	54.122
2.281 (0.50)	-0.210 (-6.92)*	1.052 (3.67)*	-0.243 (-0.29)		0.036 (1.48)		0.209	52.898
6.222 (1.33)	-0.206 (-6.93)*	1.039 (3.60)*	-0.227 (-0.27)			-0.046 (-2.00)*	0.211	53.347
Panel B: $ROE_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 CON_{it} + \varepsilon_{it}$								
12.474 (0.68)	-0.359 (-3.21)*	2.161 (2.30)*	-0.318 (-0.13)	-0.185 (-2.28)*			0.101	22.325
-1.464 (-0.09)	-0.366 (-3.28)*	2.099 (2.21)*	-0.844 (-0.33)		0.133 (1.78)**		0.094	20.602
11.772 (0.64)	-0.361 (-3.19)*	1.988 (2.09)*	-0.657 (-0.27)			-0.126 (-1.60)	0.093	20.279

(continued)

Table 3 (continued)

Constant	LEV	SIZE	BETA	LSH3	OTHER	CASH	R ²	F-test
Panel C: $PE_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 CON_{it} + \varepsilon_{it}$								
44.687 (3.00)*	0.187 (2.14)*	-2.569 (-2.11)*	1.388 (0.31)	0.123 (1.60)			0.027	4.873
53.756 (3.03)*	0.193 (2.22)*	-2.523 (-2.05)*	1.827 (0.39)		-0.088 (-1.05)		0.025	4.507
45.908 (3.16)*	0.197 (2.20)*	-2.408 (-2.00)*	1.609 (0.35)			0.526 (0.59)	0.024	4.291
Panel D: $RET_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 CON_{it} + \varepsilon_{it}$								
10.577 (6.72)*	0.005 (0.54)	-0.455 (-4.68)*	0.461 (1.21)	0.014 (1.59)			0.036	6.647
12.114 (7.20)*	0.004 (0.50)	-0.464 (-4.71)*	0.541 (1.43)		-0.018 (-1.95)*		0.038	7.069
10.426 (6.69)*	0.004 (0.48)	-0.446 (-4.62)*	0.503 (1.32)			0.015 (1.67)**	0.036	6.673

Notes: Figures are coefficient estimates for the following model: $PER_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 CON_{it} + \varepsilon_{it}$; t -values are reported in parentheses. * denotes statistical significance at the 0.05 level and ** denotes significance at the 0.10 level. Performance (PER) variables are return on total assets (ROA), return on equity (ROE), price to earnings (PE) ratio, and average monthly stock returns in twenty-four months (RET). Control variables are leverage (LEV), size ($SIZE$), and market risk ($BETA$). Ownership concentration variables, CON , are total shares of the largest three shareholders ($LSH3$), percentage of shares held by diffuse shareholders ($OTHER$), and cash flow right(s) of the controlling shareholder(s) ($CASH$).

performance measure in our study as in Zeckhauser and Pound (1990). We extend the analysis by including stock returns as another market performance indicator. Stock returns are mainly determined by the market on the basis of the investors' assessments, and they are good indicators of a firm's performance perceived by the market. We employ average monthly stock returns in twenty-four months around the year in which measurement on variables of interest are taken. For example, average returns over 1997–1998 are used with ownership and control variables at the end of 1997. In both models of market performance, all control variables have expected signs. Although leverage and beta are positively related to *RET* and *PE*, we observe an inverse relationship between size and performance variables. These results are consistent with earlier findings for the Turkish market as reported by Akdeniz et al. (2000). As measures of ownership concentration, *OTHER* and *CASH* are significant in the *RET* model; we do not have significant coefficients in the *PE* model. *OTHER* has negative signs in both of the models; *LSH3* and *CASH* have positive signs.

It is worth noting that the signs for the coefficients for control variables *SIZE*, *BETA*, and *LEV* vary depending on the performance measure employed. In models with accounting performance models, *SIZE* is positively related with both *ROA* and *ROE*, whereas *LEV* and *BETA* carry negative coefficients. We attribute this apparent anomaly to the detrimental effects of high inflation on financial statements in this time period.

Ownership Mix and Performance

We also investigate the impact of ownership mix on firm performance. In particular, we are interested to see if foreign ownership (*FRGN*), government ownership (*GOV*), family ownership (*FAM*), and affiliation to a conglomerate (*CONG*) have any impact on performance. In the literature, there is evidence on the role played by institutional investors in monitoring corporate decisions, thereby affecting performance. For example, Smith (1990) finds that institutional investors in the United States, with or without seats on the board, monitor companies so as to improve their performance. Similarly, Gorton and Schmid (1996) provide evidence on stronger operating results by German corporations owned by banks.

Two types of institutional investors with a potential for monitoring stand out in large Turkish corporations. They are the foreign investors and the government. Foreign ownership is usually the result of direct investment in a joint venture. Portfolio investments by foreign investors are hard to keep track of unless their share exceeds 5 percent. Even then, foreign shareholders do not get involved in monitoring corporate decisions. On the government side, 7.6 percent of our sample is owned by the government. Almost all of those government-owned firms are subject to privatization. Those with less than 50 percent government ownership have already been privatized. Others have offered shares to the public, but the

government still controls the management. However, they, too, are targeted for further privatization by either public offering or private placement of their shares.

To test the impact of ownership mix on performance, we regress performance variables defined earlier on ownership mix dummies one at a time. We control for size, leverage, and market risk as before. The following model is estimated:

$$PER_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 MIX_{it} + \varepsilon_{it}, \quad (2)$$

where MIX_{it} is a dummy variable that takes a value of one for a particular type of ownership, zero otherwise. Ownership types are foreign ownership (*FRGN*), government ownership (*GOV*), family ownership (*FAM*), and conglomerate affiliation (*CONG*). Other terms in Equation (2) are the same as before. Hence, we run the above model for each relevant combination of ownership mix and performance variables.

The results for the accounting-based performance measures are presented in Table 4. Only one of the dummies designating government ownership (*GOV*) turns out to be significant, with a negative sign. Control variables, with the exception of *BETA*, are significant with a positive coefficient for *SIZE* and negative coefficient for *LEV*, findings are consistent with the concentration models.

The results of the regression analyses that examine relationship between ownership mix and market-based performance are documented in Table 5. In particular, family owned firms have lower *PE* ratios and returns, whereas firms owned by the government command higher returns. Apparently, the market considers factors other than accounting profits in evaluating companies. For family owned companies, we suspect that it is the agency problem between majority shareholder(s) and minority shareholders. Government-owned companies in our sample are in the privatization program. Expectations of the market with respect to the timing and method of privatization may play a role in the valuation of those companies.

Among the other dummy variables in the *PE* and stock return (*RET*) models, affiliation to a conglomerate (*CONG*) has a positive sign, however, only the coefficient in the *PE* model is significant. Benefits to conglomerate affiliation deserve some further discussion. It has been conjectured that conglomerate form brings certain advantages in procuring debt financing to group companies, especially when the group includes a bank. Yülek (1996) finds that in his sample of Turkish firms, the ratio of debt to assets of companies belonging to a conglomerate that own a bank is 53 percent versus 48 percent for the rest of the firms.³ In our sample, the ratio of debt to assets of conglomerate-affiliated and nonaffiliated firms are 53.82 percent and 55.27 percent, respectively, the difference lacking statistical significance. Apparently, conglomerate affiliation does not lead to higher leverage. Banking legislation limits the amount of loans to a specific company to a fraction of bank's equity. In addition, banks are further constrained in the amount of loans to their equity participations. Fierce competition between banks to attract financially sound, relatively larger companies, such as those listed on the ISE, has

Table 4

Ownership Mix and Accounting-Based Performance

Constant	LEV	SIZE	BETA	CONG	FAM	FRGN	GOV	R ²	F-test
Panel A: $ROA_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 MIX_{it} + \varepsilon_{it}$									
4.759 (1.04)	-0.215 (-7.13)*	0.980 (3.31)*	-0.101 (-0.12)	-0.246 (-0.25)				0.206	51.817
4.643 (1.03)	-0.215 (-6.97)*	0.980 (3.31)*	-0.087 (-0.10)		0.072 (0.07)			0.206	51.782
5.455 (1.21)	-0.215 (-7.22)*	0.902 (3.17)*	-0.075 (-0.09)			1.953 (1.25)		0.210	53.361
3.259 (0.75)	-0.212 (-7.19)*	1.069 (3.74)*	0.152 (0.18)				-4.226 (-2.53)*	0.218	55.898
Panel B: $ROE_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 MIX_{it} + \varepsilon_{it}$									
6.971 (0.40)	-0.384 (-3.43)*	1.810 (1.81)**	-0.288 (-0.12)	2.189 (0.77)				0.089	19.322
6.996 (0.40)	-0.385 (-3.43)*	1.836 (1.86)**	-0.221 (-0.09)		0.734 (0.27)			0.087	19.046
8.361 (0.46)	-0.384 (-3.42)*	1.740 (1.67)**	-0.300 (-0.12)			2.114 (0.52)		0.088	19.199
3.452 (0.22)	-0.374 (-3.40)	2.084 (2.31)*	0.425 (0.18)				-12.994 (-1.99)*	0.104	22.991

Notes: Figures are coefficient estimates for the following model: $PER_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 MIX_{it} + \varepsilon_{it}$; t -values are reported in parentheses. * denotes statistical significance at the 0.05 level; ** denotes statistical significance at the 0.10 level. Performance measures are return on asset (ROA) and return on equity (ROE) ratios. Ownership mix variables are conglomerate affiliation (CONG), family ownership (FAM), foreign ownership (FRGN), and government ownership (GOV). CONG defines whether a firm is a member of a conglomerate or not. FAM categorizes firms that are not a member of a distinct conglomerate but owned by a single or group of families. FRGN defines whether firms have foreign partners who own at least 10 percent of equity or not. GOV defines the firms that are controlled or owned by the government agencies.

Table 5

Ownership Mix and Market-Based Performance

Constant	LEV	SIZE	BETA	CONG	FAM	FRGN	GOV	R ²	F-test
Panel A: $PE_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 MIX_{it} + \varepsilon_{it}$									
45.835 (3.03)*	0.199 (2.29)*	-2.379 (-2.05)*	1.736 (0.39)	7.575 (1.98)*				0.034	6.091
51.354 (3.30)*	0.221 (2.54)*	-2.433 (-2.09)*	0.674 (0.15)		-5.900 (-2.12)*			0.030	5.362
48.381 (3.16)*	0.207 (2.35)*	-2.408 (-2.04)*	1.504 (0.33)			1.518 (0.46)		0.023	4.211
48.380 (3.10)*	0.205 (2.30)*	-2.383 (-2.02)*	1.302 (0.29)				2.587 (0.41)	0.024	4.229
Panel B: $RET_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 MIX_{it} + \varepsilon_{it}$									
10.788 (6.88)*	0.006 (0.77)	-0.427 (-4.32)*	0.478 (1.25)	0.352 (1.19)				0.033	6.127
11.637 (7.53)*	0.008 (1.00)	-0.449 (-4.71)*	0.347 (0.89)		-0.861 (-2.79)*			0.043	8.058
10.935 (6.93)*	0.006 (0.77)	-0.430 (-4.29)*	0.474 (1.23)			0.137 (0.36)		0.031	5.804
11.641 (7.62)*	0.005 (0.58)	-0.469 (-5.01)*	0.327 (0.84)				1.727 (3.12)*	0.047	8.854

Notes: Figures are coefficient estimates for the following model: $PER_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 BETA_{it} + \beta_4 MIX_{it} + \varepsilon_{it}$; t -values are reported in parentheses. * denotes statistical significance at the 0.05 level. Performance measures are price to earnings ratio (PE) and average monthly stock returns in twenty-four months (RET). Ownership mix variables are conglomerate affiliation ($CONG$), family ownership (FAM), foreign ownership ($FRGN$), and government ownership (GOV). $CONG$ defines whether a firm is a member of a conglomerate or not. FAM categorizes firms that are not a member of a distinct conglomerate but owned by a single or group of families. $FRGN$ defines whether firms have foreign partners who own at least 10 percent of equity or not. GOV defines the firms that are controlled or owned by the government.

eliminated advantages that conglomerates owning a bank used to enjoy. In short, lack of significant difference in leverage between conglomerate affiliates and others is hardly surprising. Yet there has to be some advantage in the conglomerate form of ownership. As mentioned above, these are diversification benefits, and efficient allocation of resources within the group in an otherwise operationally inefficient market with high taxes and transaction costs. In our opinion, higher valuation as depicted by larger average *PE* values for conglomerate affiliates is an indication of the market's perception of such advantages.

Ownership Structure and Risk

Owners and managers generally have differing risk preferences. Agency theory predicts that managers, who have invested their nondiversifiable human capital in the firm, are going to pass up risky projects that are desirable from the perspective of a diversified stockholder. To the extent that they can diversify, owners tend to take relatively higher risks than managers. For example, Saunders et al. (1990) show that owner-controlled banks exhibit higher risk-taking behavior than manager-controlled banks. On the other hand, viewing the common stock of a firm as a call option, stockholders have the incentive to take higher risks at the expense of creditors if the latter cannot monitor shareholders. Downs and Sommer (1999) examine the managerial ownership and risk-taking relation and conclude that there is a significant positive relation between managerial ownership and risk. By giving managers an ownership stake, risk preferences of managers can be altered in order to align the conflicting interests of managers and owners.

Ownership Concentration and Risk

We investigate whether ownership concentration is related to risk-taking behavior of our sample companies. We employ capital market measurements such as total risk (*STDEV*) and market risk (*BETA*) of equity for risk-taking behavior. Hence, for ownership concentration, we use the leverage and size as control variables similar to models (1) and (2), with the performance measures replaced by the risk variables as the dependent variable of the model.

$$RISK_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 CON_{it} + \varepsilon_{it}. \quad (3)$$

We estimate model (3) with standard deviation of monthly returns (*STDEV*) and market model beta (*BETA*) as dependent variables and the same set of explanatory variables.⁴ To calculate *STDEV* and *BETA*, we employ monthly returns over the three-year period prior to the time period in which other measurements are taken. Findings, summarized in Table 6, indicate that risk models with *BETA* and *STDEV* as the capital market risk measures are significantly related to ownership concentration measures. Models with *BETA* have a lower explanatory power

Table 6

Ownership Concentration and Risk

Constant	LEV	SIZE	LSH3	OTHER	CASH	R ²	F-test
Panel A: $BETA_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 CON_{it} + \varepsilon_{it}$							
0.231 (1.27)	-0.001 (-2.16)*	0.050 (4.13)*	-0.001 (-0.17)			0.047	13.423
0.074 (0.35)	-0.001 (-1.79)**	0.054 (4.43)*		0.002 (2.51)*		0.056	16.095
0.274 (1.54)	-0.001 (-1.88)**	0.052 (4.29)*			-0.001 (-1.69)**	0.051	14.527
Panel B: $STDEV_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 CON_{it} + \varepsilon_{it}$							
0.390 (14.00)*	0.001 (4.30)*	-0.012 (-6.74)*	0.001 (3.17)*			0.088	29.193
0.438 (14.14)*	0.001 (4.39)*	-0.012 (-6.85)*		-0.001 (-3.32)*		0.090	29.719
0.392 (14.23)*	0.001 (4.45)*	-0.011 (-6.69)*			0.001 (2.53)*	0.084	27.488

Notes: Figures are coefficient estimates for the following model: $RISK_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 CON_{it} + \varepsilon_{it}$; t -values are reported in parentheses. * denotes statistical significance at the 0.05 level; ** denotes 0.10 significance level. Risk measures are defined as market risk ($BETA$), total risk ($STDEV$). Ownership concentration measures are total shares of the largest three shareholders ($LSH3$), percentage of shares held by diffuse shareholders ($OTHER$), cash flow right(s) of the controlling shareholder(s) ($CASH$).

with low R-square values. Whereas *LSH3* lacks significance, the percentage of shares held by diffuse shareholders (*OTHER*) carries a positive sign and cash flow right(s) of the controlling shareholder(s) (*CASH*) has a negative sign. This is in sharp contrast with the models where *STDEV* is the dependent variable. Here, all ownership concentration variables are significant and shares owned by largest three shareholders, *LSH3* and *CASH* are positively related to risk, whereas the coefficient for *OTHER* is negative. Hence, we observe that firms with concentrated ownership have higher total risk and lower market risk than companies with diffuse ownership. If we bear in mind that firms with diffuse ownership are usually run by professional managers with little or no interest in the firm, low market risk can be explained in terms of risk-averse managers who cannot diversify their human capital. Moreover, presence of large shareholders is expected to increase the incentive to take higher risk by those shareholders at the expense of creditors. Significant positive coefficients for ownership concentration variables *LSH3* and *CASH* are consistent with this argument as well. It is also interesting to note that both control variables size and leverage (*LEV*) have expected signs in the *STDEV* models. Larger firms have less total risk and higher leverage. *BETA* models, however, have counter-intuitive signs, especially for leverage.

Ownership Mix and Risk

Finally, we consider the role of ownership mix as it relates to risk-taking. It is hypothesized that different ownership groups with their unique incentive mechanisms and preferences should have different risk attitudes. We modify model (3) to incorporate ownership mix variables instead of concentration variables:

$$RISK_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 MIX_{it} + \varepsilon_{it}. \quad (4)$$

As before, *RISK* in model (4) is either the standard deviation (*STDEV*) of three-year monthly returns of the common stock of firm *i* in year *t*, or the beta coefficient (*BETA*) of the stock estimated by the market model, considering three-year monthly stock returns. Explanatory variables are the same as before.

We estimate model (4), which incorporates ownership mix dummies one at a time in order to reveal the impact of ownership mix dummies on risk-taking behavior of Turkish firms. The results are presented in Table 7. As with previous models involving ownership mix, family ownership (*FAM*) and government ownership (*GOV*) have significant coefficients in the capital market risk model.

A significant negative sign of the family ownership (*FAM*) indicates that family owned firms have relatively less market risk. Firms owned by a single family are managed by either a family member or a manager who has close ties to the family. This causes an alignment with the risk preferences of managers and owners, leading to a decrease in a firm's market risk. This finding is consistent with the performance relationships. On the other hand, conglomerate affiliates (*CONG*) reveal

Table 7

Ownership Mix and Risk

Constant	LEV	SIZE	CONG	FAM	FRGN	GOV	R ²	F-test
Panel A: $BETA_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 MIX_{it} + \epsilon_{it}$								
0.229 (1.21)	-0.001 (-2.22)*	0.050 (4.29)*	-0.007 (-0.25)				0.048	13.435
0.300 (1.66)	-0.001 (-1.99)*	0.047 (4.18)*		-0.104 (-3.15)*			0.062	17.801
0.220 (1.18)	-0.002 (-2.22)*	0.051 (4.35)*			-0.018 (-0.54)		0.048	13.488
0.269 (1.40)	-0.002 (-2.35)*	0.047 (3.92)*				0.125 (2.22)*	0.055	15.531
Panel B: $STDEV_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 MIX_{it} + \epsilon_{it}$								
0.407 (14.53)*	0.001 (4.99)*	-0.011 (-6.53)*	-0.012 (-2.12)*				0.082	26.868
0.406 (14.73)*	0.001 (5.10)*	-0.011 (-6.66)*		-0.002 (-0.37)			0.077	25.312
0.402 (14.56)*	0.001 (5.02)*	-0.011 (-6.53)*			-0.004 (-0.70)		0.078	25.391
0.422 (15.17)*	0.001 (4.75)*	-0.013 (-7.35)*				0.052 (6.40)*	0.104	34.948

Notes: Figures are coefficient estimates for the following model: $RISK_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 MIX_{it} + \epsilon_{it}$; t -values are reported in parentheses. * denotes statistical significance at the 0.05 level. Risk measures are defined as: $BETA$ —market risk; $STDEV$ —total risk. Ownership mix variables are conglomerate affiliation ($CONG$), family ownership (FAM), foreign ownership ($FRGN$), and government ownership (GOV). $CONG$ defines whether a firm is a member of a conglomerate or not. FAM categorizes firms that are not a member of a distinct conglomerate but owned by a single or group of families. $FRGN$ defines whether firms have foreign partners who own at least 10 percent of equity or not. GOV defines the firms that are controlled or owned by the government.

lower total risk, as reflected in the negative significant coefficient of the *STDEV* model.

Government-owned or controlled firms are perceived as risky companies in the market, and government ownership (*GOV*) is positively related to both definitions of risk, *BETA* and *STDEV*. Hence, the profile of firms with government-held shares can be described as large enterprises with high risk and high *PE* ratio. Drawbacks of government ownership as a corporate governance mechanism are well-known in the literature. Yet, high risk, despite their large size, deserves further explanation. In our opinion, the ambiguities as to the timing and method of privatization of government shares in those firms add to the return variability. It is not uncommon to read or hear about conflicting news on if or when a government-owned company is going to be privatized. The method of privatization is also a subject of market gossip. It makes a huge difference whether a large company is going to be sold by a public offering of equity or privately placing its majority shares as a block sale. Amid all the uncertainties, fluctuation in these shares is not at all surprising.

Summary and Conclusions

In this paper, we investigated the impact of ownership structure on performance and the risk-taking behavior of Turkish companies listed on the ISE. We define ownership structure along two dimensions: ownership concentration and ownership mix. Those two categories incorporate both the influence power of shareholders as well as the identity of owners with their unique incentive mechanisms and preferences. Ownership concentration is defined as the percentage share of the largest three shareholders, percentage of dispersed shareholders, and cash flow right(s) of the ultimate owner(s). Ownership mix refers to the type of shareholders. Hence, we identify ownership identities (mix) as family ownership, foreign ownership, government ownership, and conglomerate affiliation. In our empirical models, ownership mix variables are taken as dummy variables. We also employ control variables to account for differences in firm size and leverage.

The results indicate that firms with concentrated ownership have higher *PE* ratios and higher average returns. Firms affiliated with a conglomerate and government-owned firms have higher returns and command higher earnings multiples. Family owned firms, on the other hand, experience lower returns with low *PE* ratios. Signs of control variables *SIZE*, *BETA*, and *LEV*, are consistent with the literature in these models. However, models with accounting measures of performance yield inconsistent results in terms of both ownership and control variables.

Concerning the risk-taking behavior of our sample of companies, our results reveal that highly concentrated and less diffuse firms have higher risk, as suggested by the larger standard deviation of monthly stock returns. Government-owned firms in our sample display higher risk, although they are larger on average. Family owned firms, on the other hand, have lower risk.

The overall findings in this paper are consistent with the empirical findings in the literature in general. Whereas we observe concentration of ownership as a significant determinant of corporate governance mechanism, identity of controlling owners seem to have a vital role in a performance–ownership relationship. Among the ownership mix variables, conglomerate affiliation is the most complex governance mechanism. Although the market rewards this mechanism, it is highly questionable whether this form of ownership is economically efficient. Hence, we believe that this issue merits further investigation.

Notes

1. Investment companies are closed-end mutual funds that invest in a portfolio of securities. Holding companies invest only in member firms of a conglomerate.
2. GMM will not correct for cross-sectional dependence, leading to an underestimation of standard errors. One could employ the Fama-MacBeth method to overcome this problem; however, with only seven annual observations, this is not feasible.
3. Yülek (1996) does not report any statistical test for the significance of the difference.
4. We have also employed the standard error of the market model as a measure of firm-specific risk. The results (not reported) do not yield any meaningful relationship between firm-specific risk and ownership structure variables. Control variables were not significant either.

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