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How do business group firms utilize internal capital markets?

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Abstract

Purpose – The purpose of this study is to provide evidence for how business group firms transfer financial resources among affiliated firms by examining the differences in the level of debt financing and the choices of new equity financing between group affiliated and non-affiliated firms in an emerging market, Turkey. The role of affiliated banks for internal capital market transactions is also to be examined.

Design/methodology/approach – Univariate analysis and simple pooled OLS regression analysis are performed to examine the role of group affiliation on the level of several debt financing measures. Additionally, a Logit regression analysis is used to analyze the behavior of affiliated firms in their equity financing decisions by issuing new shares.

Findings – Group affiliated firms transfer funds in the group by using transactions such as trade debt, and issuing cash rights and bonus shares. The affiliated firms – especially with a bank in the group – support their higher growth with new equity issues in the forms of cash rights and bonus shares along with higher trade debt. Moreover, non-affiliated firms utilize a higher percentage of debt to shareholders, while affiliated firms without a bank utilize a higher financial debt. These findings are consistent with the idea that the role of the group bank is very important in financing choices of affiliated firms.

Research limitations/implications – This paper provides direct measures of external and internal funds by focusing on new equity issues and debt structure, which can be applied in different economic environments, rather than using indirect measures or not readily available datasets such as connected party transactions.

Originality/value – The paper provides additional evidence to assess the efficiency of the use of internal capital markets. Moreover, the role of group affiliated banks among affiliated firms has not yet been extensively addressed in the literature and an examination of this issue leads to a better understanding of their roles in diversified business groups.

Keywords Internal markets, Corporate finances, Group accounts, Emerging markets, Turkey

Paper type Research paper



1. Introduction

Underdeveloped markets may cause problems for firms seeking to reach sufficient external financing in emerging economies. Financial markets in these countries bear several market imperfections such as high information asymmetries between managers or controlling shareholders and investors, low disclosure requirements, insufficient intermediaries' functions, and a limited number of financial analysts. These imperfections are highly likely to create financing constraints for individual firms and to impede their growth potential. Khanna and Rivkin (2001) indicate that

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business groups are important in emerging economies as they may reduce the problems of market imperfections.

Business groups consist of several separate legal entities that are linked to each other with closely related shareholdings. A Pyramid ownership structure is common with a small number of large shareholders or family members controlling a holding company at the top of the pyramid (Morck, 2004). This type of structure allows all firms to be controlled through a chain of ownership relations. Almeida and Wolfenzen (2006) provide a model for the rationale of existing business groups and argue that business groups are attractive if external funds are costlier than internal funds. A business group brings internally available funds together in a pool and reallocates them among group firms by performing several connected party transactions[1]. Connected party transactions (such as acquisitions of assets, asset sales, equity transfer, sales of equity stakes, trading relationships, direct cash payments or loan guarantees, cash receipts, etc.) ensure controlling shareholders transfer funds from profitable firms to financially constrained firms with good investment opportunities. Thus, firms can finance their capital requirements by utilizing readily available sources.

The main objective of this study is to examine how business groups utilize internal capital markets among affiliated firms within the group. We examine differences in financing choices of affiliated firms versus non-affiliated firms. Earlier studies indirectly evaluate internal capital markets by looking at the relationship between firm value and ownership structures. In this paper, direct measures of external and internal funds are examined by focusing on new equity issues and debt structure[2]. The effects of a group affiliated banks within this analysis is also examined. Many business groups in emerging markets are organized around a holding company and a bank serving as the main financial source of the business group providing a natural mechanism for capital transfers. Having a group-affiliated bank may also support the use of internal capital markets through relaxing the pressures that restrict fund transfer. Overall, this paper sheds light on how business group firms utilize internal capital markets.

This study contributes to the existing literature regarding emerging markets from two aspects. First, it provides additional evidence that enables us to assess the efficiency of the use of internal capital markets. Second, the role of group affiliated banks among affiliated firms has not yet been extensively addressed in the literature and an examination of this issue leads us to a better understanding of their roles in diversified business groups.

The rest of this paper is as follows. In section 2, we present a brief review of the related literature along with a description of the relationship between the structure of Turkish business groups and their internal capital market transactions. Explanations for the sample, sample period and characteristics of firms are given in section 3. Empirical results are presented in section 4, and we conclude in section 5.

2. Internal capital markets and Turkish business groups

Business groups utilize internal capital markets to solve the financing problems of affiliated firms by redistributing available sources from profitable firms to financially constrained firms with sufficient future growth potential. Several studies provide evidence for the availability of internal capital markets (e.g. Lamont, 1997; Shin and

Stulz, 1998; Scharfstein, 1998). Rajan *et al.* (2000) argue that allocation of funds by multidivisional firms is positively related with the diversity of investment opportunities.

Khanna and Palepu (1997, 1999, 2000) show that internal capital markets imitate the institutions of financial markets, and that the effectiveness of internal capital markets depends on the scale and scope of business groups. Almeida and Wolfenzen (2006) argue that a pyramid structure can be set up by business groups to create internal capital markets. The related literature shows that highly diversified business groups with a pyramidal type of ownership structure are particularly well suited to the institutional context in most developing countries. For instance, Orbay and Yurtoglu (2006) report the ownership and control structures of publicly listed firms in Turkey and show that pyramids are common devices created by holding companies and that non-financial firms are the most frequent owners at the direct level.

According to Djankov *et al.* (2006) the mean ownership concentration of Turkish firms is 59 percent, which is higher than that of firms in the civil (49 percent) and common (44 percent) law countries. Hence, the controlling owners of firms also control several transactions including capital transfers among affiliated firms. This view is supported by the index of ex-ante control of self-dealing transaction reported by Djankov *et al.* (2006) as the indication of average approval by disinterested shareholders. This index is 0.33 for Turkey, which is close to the value of the mean of the civil law countries, but lower than that of the common law countries, which is 0.58.

Figure 1 provides an example of a Turkish business group which is typically structured as a pyramid. The figure refers to the largest Turkish pyramidal groups, Koç Group, and shows that Koç Holding, as a publicly traded company, has direct and indirect ownerships in several publicly listed firms. The major owner of Koç Holding is Temel Ticaret, a private firm owned 100 percent by the Koc family that controls more than 160 public and private firms. Figure 1 presents controlling shareholdings of public firms in Koç Group. This fact creates a complex ownership structure with a lot

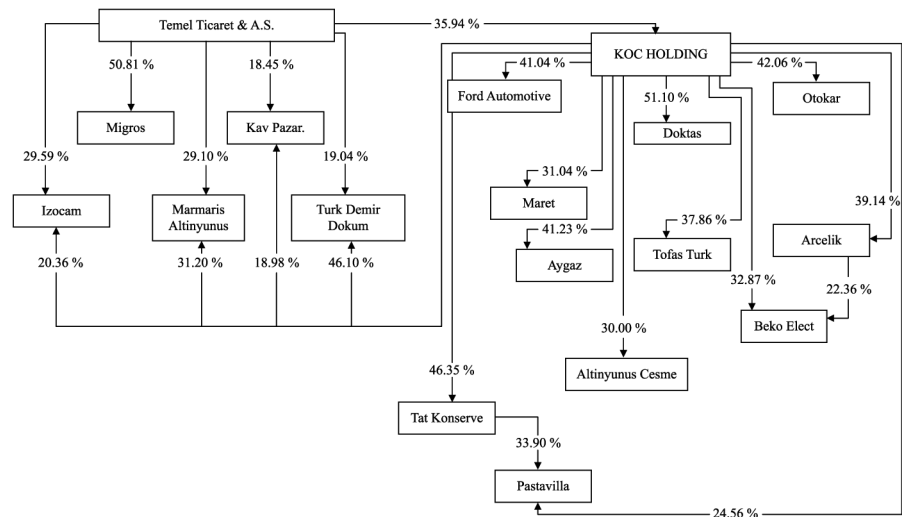


Figure 1.
Ownership structures
(based on 10 percent or
more ownership) of
publicly traded Koç Group
member firms as of
December 31, 2000

of cross shareholdings between companies, and brings the holding company and the family to the top of the pyramid. Koç Group also has a private bank in its control[3].

There are several indicators showing that the level of stock market development is not sufficient for Turkish firms to obtain their equity financing externally. Djankov *et al.* (2006) report that the mean of the stock market's capitalization to GDP ratio from 1999 to 2003 is 35.3 percent, whereas it is 48 percent for the civil and 48.6 percent for the common law countries. Initial public offerings illustrate the similar view. They also report that the ratios of equity issued by newly listed firms to GDP are 1.48 percent, 2.54 percent, and 3.7 percent for Turkey, the civil, and common law countries, respectively.

There are two types of seasoned equity offerings available in Turkey:

- (1) cash issues; and
- (2) bonus issues.

Cash issues are offered in exchange for cash through two issuing processes; rights and restricted issues. While the cash restricted issues are offered to the new investors at the market price, the cash right issues are commonly offered at a nominal price and are fully subscribed. Gonenc and Hermes (2008) argue that issuing cash right offerings by business group firms is a transaction of internal capital markets to demand new equity financing from other affiliated firms. Thus, diversified business groups reallocate internal sources from buyer firms to issuing firms. Minority shareholders also participate in this cash transferring process, which allows the holding company or the family to remain in control. Bonus issues are distributed to existing shareholders without any cash payments. The argument here is that bonus share issues are also used as internal capital transactions among affiliated firms. Bonus shares are issued by using internal funds, especially the revaluation funds, which occur for the adjustment of the book value of fixed assets and their accumulated depreciation for inflation. Business group firms derive an important advantage from bonus issues since such issues are not taxable in Turkey. When a firm in the business group receives bonus shares from another group firm, the value of its assets increases and this provides an opportunity for the firm to raise new capital in the form of either equity or debt.

Turkish firms are not able to use external debt markets sufficiently for their external financing needs. There are several indicators to provide information about the lack of depth of the debt market in Turkey[4]. The different measures include the ratio of the total domestic credit to the private sector, private credit by deposit money banks and other financial institutions, the private bond market capitalization, and the public bond market capitalization. The first two indicators measure the development of credit markets and the last two indicators measure the development of bond markets. All variables are measured relative to GDP. The means of these four ratios are 37.3 percent, 14.1 percent, 0.3 percent, and 22.7 percent over the period from 1991 to 2004, respectively. The means of the same four ratios for 23 emerging countries[5] in the same period are 65.0 percent, 48.1 percent, 8.1 percent, and 20.7 percent, respectively. These values indicate that the levels of domestic and private credits provided by depository institutions are very low in Turkey. Moreover, government bonds are the dominant instruments in the debt market; and private industrial firms therefore are crowded out in issuing bonds. This conclusion is further strengthened by the indication of low debt-holder protection, which is presented by Djankov *et al.* (2007).

The index of creditor rights for Turkey (3) is lower than the median value (4) of 23 emerging countries.

As the external debt market is limited for Turkish firms, the majority of debt is short-term and in three types; financial debt from banks, trade debts, and finally debt to shareholders. Differences in these debt alternatives between affiliated and non-affiliated firms indicate various forms of internal capital market utilization by group firms. For instance, non-affiliated firms that are not able to use sources of other firms should be more dependent on debt to its shareholders directly. Trade debt should be higher for affiliated firms due to possible connected party transactions among firms in a group.

A specific feature of Turkish groups is to have a group affiliated bank operating within the group umbrella. This situation generates the question whether the affiliated bank monitors group activities of other affiliated firms. For instance, in the bank-oriented economic system of Japan, the main bank that has a large fraction of long-term intercorporate debt relationships plays an important monitoring role. However, in Turkey a holding company holds the majority of the group bank's shares and controls its main functions. Therefore, the monitoring function of the group bank is weak and in favor of the interests of controlling shareholders. Moreover, the Turkish banking system allows all commercial banks to operate in all financial markets. This also indicates that a bank in the group may support the use of internal capital markets through relaxing the pressures to restrict fund transfers. Moreover, a group affiliated bank may reduce the information asymmetries and enable risk sharing among affiliated firms. Therefore, affiliated firms with a bank in the group are separately classified and separate analyses are conducted for this group.

3. Sample and methodology

Balance sheet financial data and new equity issues provided by the official web site of Istanbul Stock Exchange (ISE) are used as the source for data. The ISE database does not provide group affiliation information. Affiliated and unaffiliated firms are distinguished by using the ownership structures derived from the balance sheet notes. Therefore, the sample is restricted to listed firms only because unlisted firms do not have to provide this information. For firms that are not quoted in the stock exchange, collection of this information is impossible. The data cover the period from 1991 to 2003. Financial and public utility firms are excluded from the data set since these firms typically have unusual financial and regulatory policies. The sample is split into affiliated and non-affiliated firms. Turkish business groups, as in many emerging markets, are organized around a holding company and use pyramidal ownership structures. A firm is classified as an affiliated firm if a holding company is the major owner that controls the highest total direct and/or indirect voting rights. In some cases, a holding company is a direct controlling shareholder of a firm. Otherwise, the major shareholder is a business group, which has indirect control over the firm. Non-affiliated firms are those whose owners are families and individuals that have no relationships with a holding company.

Since the sample period covers a long period and because there have been significant fluctuations in macro economic variables in this period, all data except market values are deflated by the appropriate GDP deflators with the year 2000 as the base year. Thus, all values report changes in real terms.

Table I provides an overview of the sample size by reporting the number of firms and the percentages of firms in specific classifications. Our total sample presents an unbalanced panel. The total number of firms ranges from 64 in 1991 to 176 in 2003 with an average of 133 throughout the sample period. On average, 54 percent of all observations belong to business group firms and the rest to non-affiliated firms. Almost half of the group firms are affiliated with a commercial bank in the control of group holding company.

The first statistical analysis is a simple univariate analysis to test whether the mean values of several financing alternatives and firm characteristics are statistically different between affiliated and non-affiliated firms and between affiliated firms with and without bank involvement. In this analysis the following variables are calculated based on the approach of Fama and French (2005): Growth in assets (dA/A), the amount of the new equity issued in excess of other internal sources relative to assets (dEq/A) and the new debt issued (dL/A). The difference between (dA/A) and the sum of (dL/A) and (dEq/A) provides the internal financing sources (dOther Sources/A). Moreover, the compositions of new share issues (percentage of the amount of cash right issues and bonus issues in the amount of the total equity after issuing new shares) and liabilities is examined to identify whether there are differences in financing alternatives between affiliated and non-affiliated firms. The percentage of short and long term total debt, and the percentage of total financial debt (Debt1), trade debt (Debt2), and debt to shareholders (Debt3) are also compared between affiliated and non-affiliated firms and between affiliated firms with and without bank involvement.

A simple pooled OLS regression analysis is performed with all available observations in the sample period. The effect of group affiliation on the level of several debt financing measures is examined by using two group dummies: a dummy variable for affiliated firms (GrpDum) and another dummy variable for groups firms with a bank in the group (GrpBank). The model used in this regression analysis is as follows:

$$\text{Debt financing}_{it} = b_0 + b_1(\text{GrpDum}_{it}) + b_2(\text{GrpBank}_{it}) + b_3(\text{MtoB}_{it}) + b_4(\text{Tangibility}_{it}) + b_5(\text{Profit}_{it}) + b_6(\text{Size}_{it}) \sum_{j=1}^{12} b_j(\text{Year}_j) + \varepsilon_{it}$$

	1991		1997		2003		Average	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Total sample	64		132		176		133	
Non affiliated	29	0.44	57	0.43	86	0.49	61	0.46
Affiliated	37	0.56	75	0.57	90	0.51	72	0.54
Affiliated firms with a bank	24	0.65	42	0.56	43	0.48	39	0.54
Affiliated firms without a bank	13	0.35	33	0.44	47	0.52	33	0.46

Notes: This table provides an overview of the sample in the period 1991 to 2003. The first column (*n*) shows the number of firms and the second column (percent) shows the percentage of firms in the related group of firms. A firm is determined as an affiliated firm if the existence of a holding company as the major owner. If a business group includes a bank, firms in this group are classified as Affiliated Firms with a Bank

Table I.
Summary statistics:
number and percentage
of firms

where i represents the firm and t represents the year. Market-to Book ratio (MtoB), the amount of net fixed assets (Tangibility), Profitability (Profit), and firms' size (Size) are variables to control firms' characteristics as these are common variables for explaining the level of financing alternatives in the literature. The definitions of variables are given in Table II.

Next, a Logit regression analysis is estimated that controls for several firm characteristics and the behavior of affiliated firms in their equity financing decisions by issuing new shares. The model is the following:

$$\begin{aligned} \text{Equity financing}_{it} = & b_0 + b_1(\text{GrpDum}_{it}) + b_2(\text{GrpBank}_{it}) + b_3(\text{MtoB}_{it}) \\ & + b_4(\text{GrpBank}_{it} * \text{MtoB}_{it}) + b_5(\text{Growth}_{it}) \\ & + b_6(\text{GrpBank}_{it} * \text{Growth}_{it}) + b_7(\text{Profit}_{it}) + b_8(\text{Size}_{it}) + \varepsilon_{it} \end{aligned}$$

The dependent variable takes value of 1 for observations where firms issue new shares in any type of seasoned equity offerings. We run the same model for observations where firms issue cash rights and bonus shares together and for observations where firms issue only bonus shares. GrpDum and GrpBank are the two main variables to analyze the effects of group affiliation and affiliation with a group bank as well. The following independent variables are used: MtoB controls for the valuation effect of current shares in the market, growth in assets (Growth) controls for the current growth performance, Profit controls for the effect of profitability, and Size controls for the size effect. Two interaction variables are used as well. Group*MtoB controls for the effect of valuation of shares in the market in order to study whether group firms issue new

Variable	Definition	Symbolization
Growth in assets	$(\text{Total assets}_t - \text{total assets}_{t-1})/\text{total assets}_t$	dA/A
New debt issued	$(\text{Total liabilities}_t - \text{total liabilities}_{t-1})/\text{total assets}_t$	dL/A
New equity issued	$(\text{Equity}_t - \text{equity}_{t-1})/\text{total assets}_t$	dEq/A
Other sources	Growth in assets - (new debt issued + new equity issued)	dOther Sources/A
Leverage	Total liabilities _t /book value of total assets _t	Leverage (Book V.)
Short-term debt ratio	Total short-term liabilities _t /total liabilities _t	Short-term Debt R
Long-term debt ratio	Total long-term liabilities _t /total liabilities _t	Long-term Debt R
Total financial debt	Total financial liabilities _t /total liabilities _t	Debt1
Total trade debt	Total trade liabilities _t /total liabilities _t	Debt2
Debt to shareholders	Liabilities to owners, subsidiaries and other group firms/total liabilities _t	Debt3
Size	Book value of total assets in billions of local currency	Size (Billion TL)
Tangibility	Fixed assets _t /total assets _t	Tangibility
Profitability	Operating income _t /total assets _t	Profit
Market to book ratio	$(\text{Market value of equity}_t + \text{book value of debt}_t)/\text{total assets}_t$	MtoB

Notes: This table provides an overview of the sample in the period 1991 to 2003. This presents financing alternatives along with several characteristics and statistical comparisons for the differences of variables between affiliated and non-affiliated firms and also among affiliated firms based on the case of whether they have a bank in control in the group. A firm is determined as an affiliated firm if the existence of a holding company as the major owner. If a business group includes a bank, firms in this group are classified as Affiliated Firms with a Bank

Table II.
Summary statistics:
definition of variables

shares when their stocks are overvalued. Business groups may utilize internal capital markets to transfer funds among firms to support growth potential. Therefore, the interaction variable $\text{Group} \times \text{Growth}$ is used to determine if the need for financing is derived by new investments.

4. Empirical results

4.1 General view of financing decisions of group firms

In the first part of this section, we examine financing alternatives and several characteristics of affiliated and non-affiliated firms including whether there is a bank in the group. The aim from this analysis is to assess the roles of new equity and new debt for both affiliated and non-affiliated firms' financing choices. Table III reports the results and statistical comparisons for the differences between pairs of classifications.

The results in Table III report that sample firms on average have negative asset growth measured by dA/A (-1.54 percent) along with a decreasing real value of total liabilities ($dL/A = -1.66$ percent). Equity increases (dE/A) are small (0.03 percent) during the sample period. Since the sum of new financing ($-1.66 + 0.03 = -1.63$) is more negative than asset in growth ($-1.63 < -1.54$), the difference [$-1.54 - (-1.63) = 0.09$] must be complemented with the other items of shareholders' equity ($d\text{Other Sources}/A$) such as retained earnings. These figures imply that in the sample period, Turkish firms did not grow and their debt financing decreased in real terms. These firms used their internally generated funds (mainly their profits from previous periods) more than equity financing.

Several differences on financing choices are observed between affiliated and non-affiliated firms. Asset growth in real terms for affiliated firms is less negative (-0.5 percent) relative to that for non-affiliated firms (-2.8 percent), and the difference between the two groups is statistically significant at 10 percent significance level. Affiliated firms support their growth by issuing mostly new equity (0.44 percent), while non-affiliated firms mainly use their internal sources (0.81 percent).

The comparison of book value of total debt (Leverage) shows that affiliated firms (55.90 percent) are higher leveraged than non-affiliated firms (52.7 percent), and the difference is statistically significant. To find out whether the reason for this difference can be explained by the different characteristics of the two groups, multivariate regressions are performed in the next section. The compositions of debt maturity for the two groups are similar. Approximately 77 percent of debt is short-term. There are significant differences in the types of classifications of total liabilities between the two groups of firms. Non-affiliated firms have a higher percentage of debt to shareholders (Debt3) than affiliated firms (38.4 percent versus 34.2 percent). Affiliated firms have higher financial (Debt1) and trade debt (Debt2) than non-affiliated firms (38.6 percent versus 36.1 percent, and 27.3 percent versus 25.5 percent for financial and trade debt, respectively). We interpret these findings as consistent in some aspects with the utilization of internal capital market by business group firms. Since non-affiliated firms are not able to utilize internal capital markets to raise new financial sources, they borrow directly from its shareholders more than affiliated firms do. The level of trade debt is higher for affiliated firms because of connected party transactions among firms in the group. A higher level of financial debt of affiliated firms is surprising, but this may be related to bank participation in this group.

Table III.

Summary statistics:
financing alternatives
and the difference
between affiliated and
non-affiliated firms

Variables	All	Non-affil. (1)	Affiliated (2)	Difference (1) (2)	Without a bank <i>t</i> -stat	Affil. with a bank (3)	Difference (4)	Difference (3) (4)	<i>t</i> -stat	(1) (4)	<i>t</i> -stat
dA/A (%)	-1.54	-2.78	-0.51	-2.27	(-1.87)*	-3.83	2.17	-6.01	(-3.67)**	-4.95	(-3.73)**
dL/A (%)	-1.66	-3.14	-0.42	-2.72	(-2.45)**	-1.87	0.75	-2.62	(-1.88)*	-3.89	(-3.11)**
dEquation/A (%)	0.03	-0.46	0.44	-0.89	(-1.46)	-0.13	0.90	-1.02	(-1.47)	-1.35	(-2.00)**
dOther sources/A (%)	0.09	0.81	-0.53	1.34	(1.82)*	-1.83	0.53	-2.36	(-2.39)**	0.29	(0.38)
Leverage (Book V., %)	54.43	52.67	55.90	-3.23	(-2.95)**	57.41	54.68	2.73	(1.79)*	-2.01	(-1.65)*
Short-term debt R. (%)	76.57	76.58	76.56	0.02	(0.03)	78.10	75.32	2.78	(2.56)**	1.26	(1.33)
Long-term debt R. (%)	23.43	23.42	23.44	-0.02	(-0.03)	21.90	24.68	-2.78	(-2.56)**	-1.26	(-1.33)
Debt1 (%)	37.43	36.09	38.55	-2.46	(-1.84)*	40.07	37.33	2.74	(1.54)	-1.24	(-0.81)
Debt2 (%)	26.47	25.53	27.26	-1.72	(-1.92)*	25.50	28.68	-3.18	(-2.57)**	-3.14	(-2.93)**
Debt3 (%)	36.10	38.37	34.19	4.19	(3.68)**	34.43	33.99	0.44	(0.29)	4.38	(3.40)**
Cash right issues (%)	8.82	8.46	9.12	-0.66	(-0.77)	7.94	10.07	-2.13	(-1.83)*	-1.61	(-1.57)**
Bonus issues (%)	20.17	18.35	21.69	-3.34	(-2.65)**	18.42	24.33	-5.91	(-3.43)**	-5.98	(-4.17)**
Size (Billion TL)	63,304.15	43,587.61	79,808.45	-36,220.8	(-6.51)**	53,946.13	100,634.70	-46,688.6	(-4.38)**	-57,047.1	(-8.66)**
Tangibility (%)	31.91	33.61	30.49	3.12	(3.39)**	29.33	31.42	-2.09	(-1.7)*	2.19	(2.1)**
Profitability (%)	14.55	14.06	14.96	-0.90	(-1.29)**	13.93	15.79	-1.86	(-2.03)**	-1.73	(-2.14)**
Market to book	1.33	1.41	1.27	0.14	(2.47)**	1.38	1.18	0.20	(2.72)**	0.23	(3.77)**
No. of observations	1,635	745	890			397	493				

Notes: A firm is determined as an affiliated firm if the existence of a holding company as the major owner. If a business group includes a bank, firms in this group are classified as Affiliated Firms with a Bank

The percentages of cash right issues and bonus issues provide evidence on the choice of new equity financing. There are no significant difference in the percentage of cash right issues between the two groups of firms (8.5 percent for non-affiliated versus 9.1 percent for affiliated firms). The percentage of bonus issues in the amount of total equity is significantly larger for affiliated firms (21.7 percent) than that for non-affiliated firms (18.4 percent). This result implies that affiliated firms, when they have extra internally generated funds in the firm, convert their internal sources to the new issues and distribute them as bonus shares to their shareholders who are mainly holding company and other firms in the group.

Firm characteristics are reported in the second section of Table III. Affiliated firms are larger in total assets (size) but smaller in net fixed assets (tangibility) than non-affiliated firms. Accounting profitability is the same for the two groups. However, non-affiliated firms, on average, have a higher market to book ratio (1.41) than affiliated firms (1.27), and the difference is statistically significant at 1 percent level.

4.2 The role of having a bank in the group

Table III also presents the differences in financing alternatives between affiliated firms with and without a bank in the group as well as the financing alternatives between non-affiliated firms and affiliated firms with a bank. This comparison first shows that growth, new debt and new equity financing are even more pronounced for affiliated firms with a bank in the group (2.17 percent growth and 0.75 percent new debt versus 0.90 percent new equity). These numbers imply that business group firms with a bank in the group have increased their assets and provided the financing they need by using both new debt and equity issues. The sources of new equity financing come from both cash right shares and bonus shares as consistent with the argument of utilizing internal capital markets. The percentage of cash right issues and bonus issues are significantly larger for affiliated firms with a bank (10.07 percent and 24.33) than that for affiliated firms without a bank (7.94 percent and 18.42 percent) and non-affiliated firms (8.46 percent and 18.35 percent). These results indicate that some of business group firms raise new equity financing from their cross shareholders in the same group by issuing cash right shares. Some of group firms convert their extra internal sources to a new equity and distribute to other firms in the group. All these activities are associated with the participation of a bank and consistent with our argument that having a group-affiliated bank may support the use of internal capital markets through relaxing the pressures that restrict fund transfer.

Affiliated firms without a bank in the group have a higher financial debt (40.1 percent) than those without bank in a group (37.3 percent), and have a similar level of this type of financing with non-affiliated firms. Affiliated firms without a bank may not utilize internal capital markets as much as group firms with a bank can; therefore, they need to find funds from outside the group. Affiliated firms with a bank have a higher percentage of trade debt as expected according to cash flow and asset transfer activities among group firms.

The other firm characteristics show that affiliated firms with a bank are larger, have higher tangible assets and profitability than affiliated firms without a bank. However, these firms are valued, on average, less in the capital market than both those without a bank and non-affiliated firms. This evidence confirms to the view that external capital markets are more efficient than internal capital markets. The evidence that firms

having a group affiliated bank have higher accounting performance measures, but they are valued less in the capital market support the misallocation of capital hypothesis. This misallocation is often cited in the literature as a partial cause of the diversification discount; that is the group affiliation decreases the market value of firms. One interpretation of this finding is that internal markets improve accounting performance of affiliated firms, and therefore for affiliated firms with a bank, performance is geared to maximize the accounting returns.

4.3 Debt financing in the internal capital market

Table IV reports the results from OLS regression analysis for the sample period from 1991 to 2003. We use two dummy variables to differentiate the effects of group affiliation (GrpDum) and also affiliation with a group bank (GrpBank). Panel A reports the results where the dependent variable is the leverage ratio as the ratio of total debt to total assets. The estimated coefficients of GrpDum are 0.02 in the first model and 0.03 in the second model, and statistically significant at the 5 and 10 percent levels, respectively. However, the coefficient of GrpBank is not significant. These results show that group affiliated firms have a higher leverage than non-affiliated firms, but having a bank in the group does not create any difference.

Panel B reports the results for the regressions with the dependent variable, which is the ratio of total financial debt to total liabilities. The second model in this panel shows that GrpDum has a positive and significant (0.06) coefficient, and GrpBank has negative and significant (-0.04) coefficient, which indicate that total financial debt of affiliated firms is higher than that of non-affiliated firms, but this higher ratio is not associated with group affiliation with a bank in the group.

The regressions results with the ratio of total trade debt to total liabilities are reported in Panel C. GrpDum has a positive and significant coefficient in the model 1, but when we introduce GrpBank dummy in the second model, the coefficient of GrpDum becomes insignificant. The estimated coefficient of GrpBank is 0.03 and significant at the 1 percent level. This evidence supports the argument that affiliated firms utilize internal capital markets with the help of a group bank.

And finally Panel D presents the results from regressions on debt to shareholders. In the second model, the negative and significant coefficient of GrpBank shows that affiliated firms utilize this type of debt less than non-affiliated firms do.

Overall regression results indicate that the differences in the level of debt financing between affiliated and non-affiliated firms are not attributed to differences in observable firms' characteristics like growth potential, tangibility, profitability and size. The estimated coefficients for variables MtoB, Tangibility, and Profit are negative, and for Size it is positive. The signs of these variables are the usual signs found in the literature. The negative coefficients of tangibility suggest that tangibility probably proxies for asymmetric information problems of Turkish firms, but not the collateral value of assets.

4.4 Equity financing in the internal capital market

Table V presents the results from logit regressions to determine the effect of group affiliation on the choices of equity financing. Panel A reports the results related with the choices of issuing new equity. In this panel, the dependent variable is 1 for observations where firms issue new shares, and zero otherwise. The results in Panel A

Models	Constant	GrpDum	GrpBank	MtoB	Tangibility	Profit	Size	Year dummy	<i>n</i>	R square
<i>Panel A. Dependent variable: leverage (total book value of debt ratio)</i>										
(1)	0.65 (0.08) ***	0.02 (0.01) **		-0.01 (0.00) ***	-0.53 (0.03) ***	-0.51 (0.04) ***	0.01 (0.01)	Yes	1,640	0.23
(2)	0.64 (0.08) **	0.03 (0.01) ***	-0.01 (0.01)	-0.01 (0.00) ***	-0.53 (0.03) ***	-0.51 (0.04) ***	0.01 (0.01)	Yes	1,640	0.23
<i>Panel B. Dependent variable: total financial debt ratio</i>										
(1)	0.16 (0.08) **	0.04 (0.01) ***		-0.03 (0.01) ***	-0.14 (0.03) ***	-0.32 (0.04) ***	0.01 (0.00) **	Yes	1,640	0.11
(2)	0.11 (0.08)	0.06 (0.01) ***	-0.04 (0.01) ***	-0.03 (0.01) ***	-0.13 (0.03) ***	-0.32 (0.04) ***	0.01 (0.00) ***	Yes	1,640	0.11
<i>Panel C. Dependent variable: total trade debt ratio</i>										
(1)	0.14 (0.04) ***	0.02 (0.01) **		0.00 (0.00)	-0.22 (0.02) ***	-0.24 (0.02) ***	0.01 (0.00) **	Yes	1,640	0.14
(2)	0.17 (0.04) **	0.00 (0.01)	0.03 (0.01) ***	0.01 (0.00) *	-0.23 (0.02) ***	-0.24 (0.02) ***	0.00 (0.00)	Yes	1,640	0.15
<i>Panel D. Dependent variable: total debt to shareholders ratio</i>										
(1)	0.03 (0.01) ***	-0.01 (0.00) ***		-0.01 (0.00)	-0.01 (0.00) **	-0.03 (0.01) ***	0.00 (0.00)	Yes	1,640	0.02
(2)	0.03 (0.01) *	-0.00 (0.00)	-0.01 (0.00) ***	-0.00 (0.00)	-0.01 (0.00) **	-0.03 (0.01) ***	0.00 (0.00)	Yes	1,640	0.02

Notes: * Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. GrpDum takes value 1 if a firm is affiliated with a business group. GrpBank is a dummy variable to represent affiliated business group firms with a bank in the group. MtoB is the ratio of sum market value of equity and book value of debt to total assets. Tangibility is the proportion of fixed assets in total assets. Profit is the operating return on assets. Size is measured by the natural logarithm of Assets

Table IV.
Regressions for debt
financing choices

Table V.
Logit regressions on new equity issues

Models	Constant	GrpDum	GrpBank	MtoB	GrpBank* MtoB	Growth	GrpBank* Growth	Profit	Size	n	R square
<i>Panel A. Dependent variable: new share issues</i>											
(1)	-1.76 *** (0.71)	-0.02 (0.13)	0.68 *** (0.15)	-0.14 *** (0.05)		1.13 *** (0.23)		-1.00 *** (0.40)	0.12 *** (0.04)	1,640	0.06
(2)	-1.51 ** (0.72)	-0.02 (0.13)	0.40 ** (0.20)	-0.18 *** (0.06)	0.24 ** (0.12)	1.09 *** (0.23)		-0.95 ** (0.40)	0.11 *** (0.04)	1,640	0.06
(3)	-1.77 *** (0.71)	-0.02 (0.13)	0.68 *** (0.15)	-0.13 *** (0.05)		1.19 *** (0.27)	-0.23 (0.53)	-1.01 *** (0.40)	0.12 *** (0.04)	1,640	0.06
<i>Panel B. Dependent variable: cash rights and bonus issues</i>											
(1)	1.90 ** (0.86)	-0.05 (0.16)	0.44 *** (0.17)	-0.64 *** (0.10)		1.28 *** (0.29)		0.80 (0.47)	-0.15 (0.05)	1,640	0.07
(2)	1.78 ** (0.87)	-0.05 (0.16)	0.62 ** (0.26)	-0.59 *** (0.11)	-0.19 (0.21)	1.30 *** (0.29)		0.77 (0.47)	-0.15 (0.05)	1,640	0.07
(3)	1.92 ** (0.86)	-0.05 (0.16)	0.44 *** (0.17)	-0.64 *** (0.10)		1.20 *** (0.35)	0.26 (0.62)	0.81 (0.47)	-0.15 (0.05)	1,640	0.07
<i>Panel C. Dependent variable: only bonus issues</i>											
(1)	-5.71 (0.81)	-0.06 (0.15)	0.51 *** (0.16)	0.12 (0.05)		0.15 (0.25)		-0.95 (0.45)	0.26 (0.05)	1,640	0.04
(2)	-5.41 (0.83)	-0.06 (0.15)	0.21 (0.22)	0.06 (0.06)	0.25 (0.12)	0.10 (0.25)		-0.86 (0.45)	0.25 (0.05)	1,640	0.05
(3)	-5.78 (0.81)	-0.06 (0.15)	0.51 *** (0.16)	0.12 (0.05)		0.47 (0.31)	-0.98 (0.54)	-1.01 (0.45)	0.26 (0.05)	1,640	0.05

Notes: * Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. GrpDum takes value 1 if a firm is affiliated with a business group. GrpBank is a dummy variable to represent affiliated business group firms with a bank in the group. MtoB is the ratio of sum market value of equity and book value of debt to total assets. Growth is measured by growth in assets $[d(A/A - A_{t-1})/A_t]$. Profit is the operating return on assets. Size is measured by the natural logarithm of Assets

show that affiliation to a business group with a bank in control is one of the major factors to determine the likelihood of issuing new equity. The estimated coefficients of GrpBank are positive and significant at the 1 percent level in each of the three alternative models. Model 2 shows that the coefficient of the interaction of group affiliation with MtoB is 0.24 and significant at the 10 percent level. The interaction with Growth in the model 3 has negative effect with a coefficient of -0.23, but it is insignificant. In all models, of control variables, MtoB and Profit are significantly negative, Growth and Size have significantly positive effects.

Panel B reports the results for observations where firms issue cash rights and bonus shares together. We take the cases of issuing cash right shares and bonus shares together because this is a common practice for Turkish public firms. The results show that affiliation to a business group with a bank is the only major determinant for being issuer of new equity in the forms of both cash rights and bonus shares together. The estimated coefficients of GrpBank are positive and significant at the 1 and 5 percent levels, but the interaction variables don't have effect on the likelihood of issuing two types of shares together.

Panel C reports the results for observations where firms issue only bonus shares. The results in the model 1 show that the estimated coefficient of GrpBank is 0.51 and significant at the 1 percent level. This evidence indicates that the probability of issuing bonus shares increases for affiliated firms with a bank, but not for all group firms, when the interaction variables are not included into the model. However, introducing the interaction variables change the results; the probability of issuing bonus shares for affiliated firms with a bank in the group increases when they have a higher market to book value (Model 2), and decreases when they have higher current investments (Model 3). These results indicate that diversified business group firms are likely to issue bonus shares when the value of their shares is relatively higher. There are always possibilities that these new shares provide liquidity for all type of owners namely for other partner firms, controlling owners, and also dispersed shareholders. The negative and significant estimated coefficient of the interaction variable GrpBank*Growth implies that group firms with a bank are less likely to be bonus issuer when they have higher investments.

5. Conclusions

Turkish firms affiliated with a business group are legally independent and organized in the form of a pyramidal ownership structure. Groups are controlled by a small group of shareholders, where in many cases there is a family at the top of the pyramid. Internal capital markets created among business group firms by transferring sources with the several connected party transactions are a substitute for imperfections of the external capital markets in developing markets. This conclusion relies on the view that controlling shareholders provide financing to group firms by utilizing financing of other firms in the group.

This study examines debt and equity financing choices of Turkish business group listed firms and compares them to non-group listed firms in the period from 1991 to 2003. Since some of the Turkish business groups have a bank in the group, and a group-affiliated bank can provide a natural mechanism for capital transfer, the position of affiliated firms with a bank in the group is also investigated. The data used in this

study are not available for the firms that are not quoted in the stock exchange. Therefore, the conclusions are restricted to listed firms only.

The results show that group affiliated firms transfer funds in the group by using transactions such as trade debt, cash right and bonus shares. The affiliated firms with a bank in the group have a higher growth in assets. These firms support their higher growth with new equity issues in the forms of cash rights and bonus shares along with higher trade debt. Moreover, non-affiliated firms utilize a higher percentage of debt to shareholders, while affiliated firms without a bank utilize a higher financial debt. These results are not affected by the differences in size, profitability and market to book ratio between non-affiliated firms and affiliated firms with and without a bank in the group. All these findings are consistent with the idea that the role of the group bank is very important in financing choices of affiliated firms.

Notes

1. The discussion about the importance of internal capital markets began with corporate diversification literature based on the problems of external capital markets, specifically the information asymmetries and the potential conflicts of interest between buyers and sellers (Khanna and Palepu, 1999). The benefit of external financial markets could not be economically realized because the indirect costs outweigh the net benefit. This will cause market failure. In such cases, corporate diversification creates an internal capital market that enhances improved efficiency by transferring funds from one division to another (Lamont, 1997; Houston *et al.*, 1997; Shin and Stulz, 1998; and Scharfstein, 1998).
2. Recent studies use connected party transactions. These datasets are unique, but not readily available elsewhere (e.g. Cheung *et al.*, 2006).
3. Figure 1 is based on the ownership structures of firms in 2000. In 2005, there were two important developments in Koç Group as it acquired majority shares in Tupras, which is Turkey's major petroleum company, and it merged Koc Bank with Yapı Kredi Bank, one of the largest Turkish banks.
4. Financial Structure Dataset (revised February 21, 2006) provided by Thorsten Beck at World Bank, <http://econ.worldbank.org/staff/tbeck>.
5. Emerging countries mentioned are Argentina, Brazil, Chile, China, Colombia, Czech Republic, Hong Kong, Hungary, India, Israel, South Africa, South Korea, Sri Lanka, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Russia, Singapore, Turkey, and Venezuela.

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