

Business Group's Diversification and Firm Value: a Comparison of Pakistani Business Group Affiliated and Unaffiliated Firms

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ABSTRACT

This study was an empirical examination of the impact of business group affiliation and different diversification levels on various measures of firm performance in a transition economy, Pakistan. A panel sample of around 236 companies was constructed for the period 2002 to 2008. Results obtained from summary statistics, univariate comparisons and multiple regression analysis showed that unlike to most of emerging market's literature and similar to U.S. conglomerates' lines of business, affiliates of business groups underperform unaffiliated firms in Pakistan. Further, analysis showed that the performance of group-affiliated firms relative to unaffiliated firms differs systematically across diversification categories and the least and intermediate diversified group firms significantly underperformed than unaffiliated firms based on different performance measures. Regression analyses at different diversification levels confirmed these findings when controlled for several other firm-specific variables. In addition, this study found evidence indicating that groups subsidize their unprofitable firms, which is associated with negative effect of cash flow dummy that reduce significantly the value of affiliated firm's Tobin's q more than unaffiliated firms.

Key Words: Business Groups, Emerging Market, Karachi Stock Exchange, Pakistan.

1. Introduction

The increased emphasis on governance issues, and especially corporate governance issues, in the last five years has resulted in profound changes in the Pakistani corporate governance landscape. It has also attracted the attention of academic and business practitioners to corporate governance in Pakistan because Pakistan provides a natural laboratory for testing the effects of corporate governance that may be non-testable in developed markets. This factor is most evident if one takes business groups as an example. Business groups are seen to be playing an increasingly important role in Pakistan and a key aspect of the Economic Reform in Pakistan that has been generating this nation's growth is the establishment of business groups. Over the last 15 years business groups in Pakistan have grown from being non-existent to a point where they contribute a significant portion of the nation's industrial output.

Business groups serve as the primary economic engine for the development of the national and local economies in Pakistan. The reason that business groups have been used by the government as a tool of economic reform is that Pakistan has needed to move from a hierarchical system that typifies central planning to a market-based system. The Pakistani government knew that the nation needed an intermediary institution that would facilitate the enterprise reform and, thereby, the economic transition. The solution was the encouragement of business group formation that would facilitate the movement towards the market based system.

The phenomenon of business groups, including the effects business groups, has been a subject for a debate in academic literature for a number of decades. Business groups are seen to play a significant role in many countries in the world, including both developing and developed economies. Yet, in spite of their important role, there has been no consensus reached on business groups' performance in different countries. Since there is a lot of controversy surrounding the effects of business groups on the economy immature markets, studies of business groups in other countries can serve to resolve ambiguity regarding the effects of business

groups. In particular, countries like Pakistan that are generally characterized as economy in the transitional stage can serve this purpose because the process of transition makes many effects of business groups more pronounced and testable. For this, Pakistan is now often seen as a natural candidate for analyzing the role of business groups (e.g., Perotti and Gelfer, 2001) due to the most commonly cited reasons that are: an undeveloped capital market, weak law-enforcement and an undeveloped legal system, the segmented nature of information flows.

Pakistani listed firms offer an ideal setting for the purpose of the present study because, as an emerging country, Pakistan represents an ideal case of the co-existence of small non-group firms and large business groups, both significantly contributing significantly to the country's economic activities. Similarly, group affiliated firms in Pakistan are typically members of only one business group, so that it is possible to identify the group affiliation of each sample firm without ambiguity.

This study examines the profitability of firms affiliated with diversified business groups and compares their performances with those of unaffiliated firms. In our analysis, definition of the level of group diversification that are, number of industries is used as dummy in order to examine the effect of the level of diversification on firm performance. This study also try to find out whether a significant differences exists between affiliated and unaffiliated firms in their accounting and stock market valuation performance measures. This study shed light on whether business groups are beneficial in emerging markets, as Khanna and Palepu (2000a) for India and Gonenc, Kan and Karadagli (2007) for Turkey discuss.

In summary, this study provides a contribution to the existing literature on the role of business groups in the world and in Pakistan in particular. Overall, the analysis shows that stock market and accounting performance measures of group unaffiliated firms are significantly superior to those of affiliated firms. Thus, our evidence contradicts the most of the emerging market hypotheses that the affiliated group firms outperform unaffiliated group firms in majority of the emerging market

and it focus attention to the sever effects of tunneling in these market. In addition, this study found that the most diversified group affiliated firms have larger accounting and market valuation as comparatively to the least and intermediate group diversified firms.

2. Literature Review

Empirical evidence about the beneficial effects of business groups on economic development via their effects on the member firm performance has remained mixed (Caves and Uekusa's, 1976; Chang and Choi, 1988; Gonenc et al., 2007; Khanna and Palepu, 2000a, 2000b; Khanna and Rivkin, 2001).

Most of the findings in developing countries support the point of view that business groups are facilitating the development in many countries and thus are generally beneficial for their economies. For example, according to Chang and Hong (2000) Korean *chaebol* provide value-enhancing internal product and labor market; Khanna and Palepu (1999a) find that indices constructed for capital, labor and product markets intermediation are positively correlated with accounting and stock market performance for Chilean and Indian business groups. Fisman and Khanna (2004) find that group-affiliated firms in India are more likely to locate in less-developed states than non-affiliated firms, thus increasing social and economic development of the state, and that they also serve to increase a cross-border capital and technology transfer. Fisman (1998) finds empirical evidence from Indonesia that demonstrated a sharp decrease of market value of the firms closely related to the dictator in the event of dictator's death. Groups were also found to establish political connections in Pakistan (White, 1974), Latin America (Strachan, 1976), and Indonesia (Schwartz, 1994).

From the general economic theory point of view, business groups form in response to market imperfections in developing economies. For example when the external capital market is not an efficient mean of raising resources for projects' financing or when the external capital market is small and underdeveloped, business groups come into play and might act as substitutes for the role normally played by such

external capital markets as stock exchanges and banks. The role of internal markets was created within business groups to substitute for an external domestic capital market (Lincoln and Gerlach, 2004).

Gonenc et al., (2007) find that group affiliation in Turkish listed firms improves a firm's accounting performance, but not stock market performance and suggest that internal capital markets play an important role for the existence of business groups in an emerging market context. They find that firms affiliated with intermediate and most-diversified business groups exhibit significantly better performance than do unaffiliated firms, based on accounting performance measures.

In India, Khanna and Palepu (2000a) find that the relation between diversification and profitability among Indian business groups is non-linear; beyond a certain level diversification is associated with higher profits. They find that firms affiliated with groups with intermediate diversification have a mean Tobin's q and ROA significant lower than the mean values for nongroup firms. In contrast, they found that firms affiliated with the most diversified business group have an average Tobin's q significantly greater than the nongroup firms but the most diversified firms represent only 10 percent of the sample group firms.

Khanna and Palepu (2000b) report that, in Chile too high levels of group diversification are associated with better performance. Their interpretation of this finding is that, groups in emerging markets make up for missing institutions. These need not necessarily be under-developed financial markets; imperfections in labor markets, limited enforcement of contracts, inadequate rule of law and other institutional deficiencies may give rise to business groups that generate these public goods for the benefit of group members. Khanna and Palepu (2000b) investigate the effects of group diversification using a sample of Chilean firms, and obtained similar results regarding Indian firms. In this study they reveal that when a group's diversification exceeds a certain level, the net benefit of unrelated diversification is positive.

Using a data set compiled largely from local sources, Khanna and Rivkin (2001) test for effects of group affiliation on the level of firm profitability in 14 emerging

markets: Argentina, Brazil, Chile, India, Indonesia, Israel, Mexico, Peru, the Philippines, South Africa, South Korea, Taiwan, Thailand, and Turkey. They suggest that affiliates perform better than non-affiliates in six countries (India, Indonesia, Israel, Peru, South Africa and Taiwan) and worse than non-affiliates in three (Argentina, Chile and the Philippines), with no difference in profitability levels in the remaining five countries. They suggest that groups can boost the profitability of member firms as they fill the voids left between the missing institutions that normally underpin the efficient functioning of product, capital, and labor markets.

Chang and Hong (2000) find that Korean group-affiliated firms benefit from group membership through sharing intangible and financial resources with other member firms. Further, they show that various forms of internal business transactions, such as debt guarantee, equity investment, and internal trade, are extensively used for the purpose of cross-subsidization.

In contrast, some other studies, based on the evidence from advanced economies, found that performance measures of group-affiliated firms are significantly lower than or not statistically different from those of the unaffiliated firms (Gedajlovic and Shapiro, 1998; Montgomery and Wernerfelt, 1998; Palepu, 1985;). Among the reasons cited in these studies for the underperformance of affiliated firms are inappropriate allocation of decision rights, inefficient allocation of capital, and poor governance. These studies were performed on the aggregate level with respect to different industries, including international and US markets (Lins and Servaes, 2002; Doukas, Holmen and Travlos, 2002). These studies on the impact of diversification on firm's cash flow and excess value found that bidders in unrelated areas of acquisitions experience larger valuation discount and larger drop in excess cash flows than the firm that acquire other businesses in related areas.

In summary, the outcome of diversification of large conglomerates has been a subject for debate in academic literature for a number of years and especially in immature markets for example Pakistan has become increasingly more pronounced.

3. Literature Review on Pakistani Group firms

The research on Pakistani groups firms goes back to the study of White (1974) that examines the financial performance of 43 business families (65 affiliated firms) and 33 non-member firms involved in manufacturing in Pakistan during 1964-1968 period. White's empirical analysis found no significant relationship between the average profit rates (over 1964-1968 period) of family-affiliated firms and non-family controlled firms and the firm-specific variables such as size of the firm, industry membership, or family control. The results of his study also show no statistically significant difference between the financial performance (measured as the 'after-tax net profits' regressed on 'growth of total assets') of family and non-family controlled firms during the 1965-1968 periods. Though, White's additional tests did show a strong positive link between the state sanctioning of the licenses (licenses to enter an industry, capital goods import licenses, and foreign exchange licenses) and business families leading him to conclude that the emergence and existence of business families in Pakistan can be unambiguously explained by political economy hypothesis.

In Pakistan, business groups are informal combinations of legally independent business entities run by the founding families (Ghani and Ashraf, 2005). The family patriarch is the dominant shareholder and manager whereas the immediate and distant family-members help operate various firms within the business groups. Data analyzed by Cheema (2003) reveal that pyramid structures are quite common and much more frequent in Pakistan than in other East Asian economies. Cheema et al., (2003) and Cheema (2003) find evidence of cross-shareholdings, interlocked directorships and pyramid structures to secure majority control for private benefits. Amjad (1982) documents the extensive use of interlocking directorship in Pakistan's corporate structure during the 1960s. Cheema (1999) confirms the persistence of such pyramidal structures among monopoly group companies in the textile sector during the 1980s. Cheema et al., (2003) use a sample of 32

companies suggest that the family firm uses pyramidal structures to exercise control in 66.7% of the textile firms and 78.3% of the non-textile firms in Pakistan. Literature on Pakistan's corporate structure strongly suggests a ubiquity of firms which have a controlling shareholder, often in the form of the family (Amjad, 1982; Cheema, 2003; Ikram and Naqvi, 2005; White, 1974). The control of the family is maintained indirectly by cross-shareholding and interlocked-directorships and these family-business groups are often structured in the form of pyramids (Ikram and Naqvi, 2005). Cheema (1999) confirms the persistence of such pyramidal structures among monopoly group companies in the textile sector during the 1980s. Using the methodology adopted by Claessens, Djankov, and Lang (1999). Amjad (1982) study documents the extensive use of interlocking directorship in Pakistan's corporate structure during the 60s.

Ikram and Naqvi, (2005) reported that in Pakistani firms, family (as a controlling shareholder) maintain its control via cross-holding shareholding and inter-locked directorships, which in turn is facilitated by the pyramidal organization of these firms. They found the fact that tunneling is prevalent in Pakistani business groups. They explained three possibilities like cross-shareholdings by groups firms, the well diversified firms and insurance for group firms that may reduce sensitivity of group firms to industry shocks and group shocks be derived from something else.

Ghani and Ashraf (2005) by using samples of group firms and non-group firms listed on the Karachi Stock Exchange (KSE) during 1998 through 2002 period found that Tobin's q of group firms is lower than Tobin's q of non-group firms. They suggest that even though group firms are profitable during the test period, the external shareholders discount the value of the firm because they fear that these gains will not transfer over to the minority shareholders. In developing countries this discretion is strengthened by weak disclosures and a poorly regulated auditing infrastructure that continues to plague these economies. Among other things, this discretion allows the family controller to seek private benefits, which are attained

by tunneling external investors' capital to associated companies and by allocating profits to expenditures that benefit the controller. The type of expenditures that typically represent private benefits in developing countries include; political lobbying investment, expenditures on posh cars and offices, travel, provision of expensive personal housing, lavish expense accounts etc.

The above discussion suggests that concentrated control in Pakistani business firms, which is supported by interlocking directorship, cross-shareholdings and pyramid structures, may strengthen incentives for excessive private benefit seeking in Pakistan.

4. Sample Construction and Characteristics

This study collects data concerning financial results and business group affiliation for as many firms as possible in as many years as possible. It is notoriously difficult to obtain valid information about business performance and inter-firm relationships in emerging economies. Because reliable information is elusive in emerging economies, we discuss the sources, character, veracity, limitations, and biases of our data in unusual depth.

4.1. Data

The data of our study are obtained primarily from a publicly available database maintained by Securities & Exchange Commission of Pakistan (SECP) and Karachi Stock Exchange (KSE). The data set we use in our study consists of nongroup and group affiliated Pakistani private sector firms listed on the KSE with the required data. This study confines analysis to KSE firms because of stock price data, which are only available for KSE firms. We analyze data from 2002 because it is the year for which we have the most coverage in the database and from this year data presently available on the KSE database which is used to obtain firm-level financial and accounting information.

Sample of this study consists of 236 firms that are traded in the Karachi Stock Exchange (KSE) from the year 2002 to 2008 after data screening. Out of 236 sample firms, 112 are classified as firms affiliated with a diversified business groups and remaining 124 firms are classified as unaffiliated with any business group firms. In analysis of potential benefits of group affiliation this study also supplement the KSE data with a variety of publicly available information sources and some privately collected data. This research relied heavily on a publicly available data base maintained by the SECP and KSE. Like Khanna and Palepu (2000a) study, we verified these data against detailed case studies of three prominent groups, performed a similar test on a random sample of smaller groups, and cross-checked additional prominent groups using local business magazines and historical accounts.

We screened the data in four ways as shown in Table 1, Panel A. First, we eliminated observations with no financial data. Second, following the convention employed by developed-country variance decomposition studies, we removed financial service and real estate firms from the sample. Firms in the financial/real estate sector are typically screened out because the returns in the sector are calculated in a manner that is inconsistent with returns in other sectors of the economy (McGahan and Porter, 1997). Third, we eliminated all firms identified with a “miscellaneous” industry¹ or with no industry whatsoever or de-listed during the period studied. Finally, we tried to eliminate data points containing mistakes and misrepresentations (which might be especially common in samples from emerging economies).

4.2. Diversification Measures

Khanna and Rivkin (2001) argue that conglomerate firms operating in related segments are functionally less diverse and consequently might not suffer a

¹ KSE classify some firms in miscellaneous industry code and normally groups typically diversify by setting up affiliate firms that specialize in a particular industry.

valuation loss to the same degree as conglomerates whose holdings are unrelated. This study tests for such a possibility by estimating group diversification level. In our analysis, definition of the level of group diversification that are, number of industries is used as dummy in order to examine the effect of the level of diversification on firm performance as defined by Gonenc et al., (2007). The number of industries in which the firm operates is used to determine the level of diversification in affiliated groups, for example, if the affiliated firms of the group operate in only one industry, they are classified as least-diversified firms (LDFs); in two to three different industries, as intermediate-diversified firms (IDFs); and in four or more than four industries, as most-diversified firms (MDFs). The two-digit industry codes assigned to the firms by KSE is used to determine the level of diversification in affiliated groups. As shown in Panel B of Table 1, there are 13 LDFs, 48 IDFs, and 51 MDFs of business affiliated firms.

Table 1: Sample Summary

	Panel A; Sample Attrition	Frequency	Valid %
Initial observations		317	100.00
	No return data	17	05.36
	Financial services/real estate	45	14.20
	No/misc. industry classification	19	06.00
Observations after screening		236	74.44
	Panel B; Group Diversifications		
Sample Firms			
Unaffiliated Firms		124	52.54
Affiliated Firms		112	47.46
Total		236	100.00
Group Diversification			
• Group Dummy			
	Least-diversified Firms (LDFs)	13	11.60
	Intermediate-diversified Firms (IDFs)	48	42.86
	Most-diversified Firms (MDFs)	51	45.54
Total		112	100.00
LDFs = Only one industry			
IDFs = 2-3 industries			
MDFs = 4 or more industries			

4.3. Performance measures

This study uses stock market and accounting measures of performance to determine the effects of group membership.

4.3.1. Operating Return on Assets (OPROA)

First performance measure used in this study is operating return on assets (OPROA), is defined as the operating profits, measured as earnings before interest and taxes, divided by total assets. In focusing on operating return on assets, we follow the vast majority of studies (Furman 1998; McGahan and Porter, 1997).

4.3.2. Return on Assets (ROA)

Return on assets (ROA), second performance measure, is defined as the firm's net income divided by total assets. ROA has been the most widely used measure in related studies of business groups performance (e.g. Caves and Uekusa, 1976; Gonenc et al., 2007; Khanna and Palepu, 2000b; Lincoln and Gerlach, 2004).

4.3.3. Tobin's q

Finally, Tobin's q ratio was used to measure market valuation. Tobin's q is defined as the sum of the market value of equity plus short- and long-term liabilities, scaled by total assets. Accounting measures of profitability do have limitations (Benston, 1985), however, and a handful of U.S. decomposition studies opt to use Tobin's q to address the limitations.

Following control variables are also included in this study.

4.3.4. Size

The size of the firm has measured as the natural log of assets. Size = Natural log of average of assets during the period (2002-08).

We argue that firm size influences profitability positively thorough a number of channels. For instance, given that business firms have lower information

asymmetries and are less risky, they have access to lower cost of capital. Also, given that larger firms may have strategic and competitive advantages they may realize superior profits. In the Pakistani context, size may provide larger firms with rent-seeking opportunities that continue to generate quasi-rents even after liberalization.

4.3.5. Debt ratio

The debt ratio is defined as the sum of short-term and long-term liabilities divided by total assets.

Debt ratio is included in this analysis as a control variable to control for the effects of debt structures and differences of liquidity positions. Given that stock markets in Pakistan have typically been small, debt is a major source of funding. Given that the term-lending institutions are government owned and debt financing extended to businesses effectively comes out of public funds, business managers of highly levered firms in Pakistan experience little monitoring due to an inability and a lack of incentive to monitor on the part of bureaucrats. Thus, in Pakistan, we may expect a negative relation between leverage and performance.

4.3.6. Sales growth

The sales growth is the real value rather than the nominal value and is defined as the percentage increase in the sales of the firms in two consecutive years, adjusted for inflation.

This control variable is included to analyze the relationship between a firm's general activities and its performance. Higher growth opportunities make it possible to continuously generate revenue growth through profitable ventures.

5. Results and Discussion

This section consists of summary statistics, univariate comparison and multiple regression analysis of business group affiliated and unaffiliated firms.

5.1. Summary statistics

Table 2 reported the seven-year mean values of sample statistics for a variety of attributes of entire sample and the sub-samples of group-affiliated and unaffiliated firms.

The group affiliates' mean (median) average sales growth in seven years was 69.4% (15.10%). Relatives to the group unaffiliated firms, affiliated firms were smaller in terms of both sales growth and in size. In average seven year, the mean (median) of unaffiliated firms had 79.6% (17.20%) in sales growth and 3.235 (3.187) in size.

Table 2 (Seven years averages):

Sample Summary Statistics and Performance Measures

GROUP	Whole Sample (n = 236)			Affiliated Firms (n = 112)			Unaffiliated firms (n = 124)			F- statistic
	Mean	Std. D	Median	Mean	Std. D	Median	Mean	Std. D	Median	
Sales. G	0.748	2.907	0.167	0.694	3.273	0.151	0.796	2.544	0.172	0.073 (0.79)
Debt Ratio	0.747	0.526	0.696	0.779	0.431	0.713	0.719	0.599	0.666	0.751 (0.39)
Size	3.201	0.630	3.163	3.163	0.492	3.160	3.235	0.733	3.187	0.758 (0.38)
OPROA	0.072	0.107	0.050	0.054	0.097	0.035	0.088	0.113	0.065	6.264*** (0.01)
ROA	0.048	0.081	0.037	0.035	0.075	0.024	0.061	0.085	0.048	5.937*** (0.01)
TOBINQ	1.322	0.752	1.118	1.165	0.417	1.039	1.464	0.939	1.192	9.639*** (0.00)

This table presents sample mean (median) summary statistics. The statistical significant of difference of means is computed by F-test. ***, **, and * denote statistically significant difference between the values of affiliated and unaffiliated firms at 1 percent, 5 percent, and 10 percent significance levels, respectively.

Table 2 showed that affiliated firms have larger debt ratio (0.779) than unaffiliated firms (0.719), but this difference is not statistically significant.

In Table 2, affiliated firms had significantly lower operating profits, with a mean (median) of 5.4 percent (3.5 percent) than unaffiliated firms having mean (median) of 8.8 percent (6.5 percent). In the OPROA measure, it was observed that affiliated firms exhibit a significantly lower ROA (0.035) than unaffiliated firms (0.061).

Finally, Affiliated firms had statistically significant lower Tobin's q ratios, with a mean (median) of 1.165 (1.039), than unaffiliated firms, with a mean (median) of 1.464 (1.192).

From this analysis, this study found that group affiliated firms underperform than unaffiliated firms statistically significant on both stock market and accounting performance measures.

The correlation matrix displayed in Table 3 shows the intercorrelations between performance measures and different variables of this study.

From this Table, it can be seen that the group dummy has a significant negative correlation with three performance measures that are Tobin's q, ROA and OPROA. When we look at correlation of different group diversification levels, we found that the least diversified group firms have significant negative correlation only with Tobin's q performance measure; the intermediate diversified firms have significant negative correlation with all three performance measures and the most diversified have positive but not significant correlation with these performance measures.

Among control variables, debt ratio had a significant negative correlation with ROA and OPROA performance measures whereas it had a significant positive correlation with Tobin's q performance measures.

Table 3: Correlation Matrix

The table reports correlation matrix for different variables of this study. Tobin's q is approximated by (market value of equity + book value of debt)/ (book value of assets). ROA is calculated as (net income)/ (total assets) and OPROA is defined as (earnings before interest and taxes)/ (total assets). The group dummy measures membership in diversified group and the number of industries is used as a measure of group diversification. The least diversified firms (LDFs) refers to group in one industry, the intermediate diversified firms (IDFs) in two to three industries, and the most diversified firms (MDFs) having four or more industries. Among controllable variables, firm size is the natural log of average of assets; debt ratio is total liabilities divided by total assets and sales growth is percentage increase in the sales of the firms in two consecutive years, adjusted for inflation.

Variables	1	2	3	4	5	6	7	8	9	10
1. GROUP	1.00									
2. LDF	0.25**	1.00								
3. IDF	0.53**	-0.12	1.00							
4. MDF	0.55**	-0.13	-0.27**	1.00						
5. Sales Growth	-0.02	-0.05	0.06	-0.06	1.00					
6. Debt Ratio	0.06	-0.03	0.00	0.08	0.00	1.00				
7. Size	-0.06	-0.03	-0.01	-0.05	0.22**	-0.31**	1.00			
8. OPROA	-0.16*	-0.10	-0.20**	0.05	0.04	-0.36**	0.30**	1.00		
9. ROA	-0.16*	-0.09	-0.18**	0.04	0.03	-0.39**	0.33**	0.98**	1.00	
10. TOBINQ	-0.20**	-0.14*	-0.17**	0.00	0.04	0.45**	-0.02	0.31**	0.26**	1.00

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

5.2. Univariate analysis

Univariate analysis was performed in order to compare the performance of affiliated and unaffiliated firms for analyzing the effect of group scope.

In our analysis, number of industries was used as dummies in order to examine the effect of the level of diversification on firm performance. Table 4 reported summary statistics for seven-year average mean values of OPROA, ROA and Tobin's q by group diversification for comparison; this table also reported the performance statistics for the sample as a whole and for the sub-sample of unaffiliated firms.

Table 4:

Tobin's q, ROA and OPROA by Group Diversification (Seven years average)

The table reports unadjusted means, unadjusted medians and test statistic for differences of means for the Tobin's q, ROA and OPROA performance measures by group diversification category. Tobin's q is approximated by (market value of equity + book value of debt)/ (book value of assets). ROA is calculated as (net income)/ (total assets) and OPROA is defined as (earnings before interest and taxes)/ (total assets). The least diversified firms (LDFs) refers to group in one industry, the intermediate diversified firms (IDFs) in two to three industries, and the most diversified firms (MDFs) having four or more industries. All significant levels refer to comparisons of group affiliates of different group diversification to unaffiliated firms. Two-tailed t-tests are used for the pairwise comparisons of means.

Affiliation	Number of Firms	Mean Tobin's q	Median Tobin's q	Mean ROA	Median ROA	Mean OPROA	Median OPROA
Full sample	236	1.322	1.118	0.048	0.037	0.072	0.050
Unaffiliated firms	124	1.464	1.192	0.061	0.048	0.088	0.065
Affiliated Firms	112	1.165	1.039	0.035	0.024	0.054	0.035
LDFs	13	0.901**	0.944	0.019*	0.022	0.029*	0.036
IDFs	48	1.074***	0.992	0.019***	0.010	0.030***	0.018
MDFs	51	1.319*	1.198	0.054	0.048	0.083	0.056

***, **, and * denote significant difference from unaffiliated category at the 1, 5, and 10 percent levels, respectively.

Results in Table 4 suggested that the performance of group-affiliated firms relative to unaffiliated firms differs systematically across diversification categories. Firms belonging to groups with the least amount of diversification had a mean Tobin's q of 0.901 statistically lower than the mean Tobin's q of 1.464 for unaffiliated firms. Group firms with intermediate diversification had a mean Tobin's q of 1.074 significantly lower than the mean Tobin's q of unaffiliated firms. Same result was also obtained for firms affiliated with most diversified business

group having an average Tobin's q of 1.319 significantly lower than the mean Tobin's q of unaffiliated firms.

One of the results obtained from this analysis is that the group affiliated firms underperform than unaffiliated firms in Pakistan. This empirical evidence consistent with the findings of Ghani and Ashraf (2005) who find lower Tobin's q mean value of business group firms than non-group firms for each year and for all seven-years. Their study compares Pakistani business group and firm performance for the period from 1998 to 2002. This finding concluded that in Pakistan external shareholders perceive business affiliated firms to have relatively lower transparency and weaker corporate governance mechanisms than unaffiliated firms. This table also showed that as group level of diversification increases from least diversified firms to the most diversified firms, the mean value of Tobin's q increased from 0.901 to 1.319 showing that external shareholders valued more the most diversified groups perform than the least diversified group firms.

A similar relationship holds for the median and mean values of ROA and OPROA for least and intermediate diversified firms that were significantly lower than the values of unaffiliated firms. In contrast, the most diversified firms having ROA and OPROA values close to the valued of unaffiliated firms.

These findings suggest that in Pakistan the least and intermediate diversified group firms significantly underperform than unaffiliated firms based on both a market-based performance measure (Tobin's q) and an accounting-based performance measures (ROA & OPROA). On the other hand we did not find significant difference between the most diversified group firms and unaffiliated firms based on ROA and OPROA performance measures. In addition, this study found that although the most diversified firms have significantly lower Tobin's q value than unaffiliated firms but it has the highest Tobin's q value (1.319) among different level of group diversified firms.

5.3. Multiple regression analysis

This section reports the results of regression analysis to investigate the relationship between firm performance and group membership, after controlling for a number of other firm characteristics such as firm size, debt ratio and sales growth.

The model used in regression analysis is shown below with different variables which are used by Khanna and Palepu (2000a) in their study for Indian business group and Gonenc et al., (2007) for Turkish business group's comparison.

$$\text{Performance Measure} = \beta_0 + \beta_1 (\text{Group Dummy}) + \beta_2 (\text{Firm Size}) + \beta_3 (\text{Debt Ratio}) + \beta_4 (\text{Sales Growth}) + \varepsilon.$$

In each set of multivariate regression analysis, the dependent variable was one of the three performance measures that were used: Tobin's q, ROA, and OPROA.

Table 5 provides additional evidence concerning the relationship between the value loss in the firm and diversification while controlling for several factors that might influence the value loss in a diversified firm. Specially, this study controls for the firm's use of debt ratio, size, and sales growth.

The first control variable is the firm size, to control for a potential relationship between firm size and performance. Debt ratio is included in the analysis as a control variable to control for the effects of debt structures and differences of liquidity positions. Real sales growth is included to analyze the firm's general activities and its performance.

Panel B and Panel C of Table 5 repeated the specifications of Panel A, on the same sample of firms, using ROA and OPROA as the dependent variables instead of Tobin's q. Specification (i & ii) in Panels A, B, and C used dummies to distinguish between the effects of affiliation with group and with three diversification levels.

Table 5:
The Effects of Group Diversification

This table reports OLS regressions examining the incremental effect of group membership on firm performance. Panel A uses an approximation to Tobin's q, panel B uses ROA and panel C uses OPROA as a dependent variables. The independent variables are a set of firm-specific attributes and group dummies. Tobin's q is approximated by (market value of equity + book value of debt)/ (book value of assets). ROA is calculated as (net income)/ (total assets) and OPROA is defined as (earnings before interest and taxes)/ (total assets). The group dummy measures membership in diversified group and the number of industries is used as a measure of group diversification. The least diversified firms (LDFs) refers to group in one industry, the intermediate diversified firms (IDFs) in two to three industries, and the most diversified firms (MDFs) having four or more industries. Among controllable variables, firm size is the natural log of average of assets; debt ratio is total liabilities divided by total assets and sales growth is percentage increase in the sales of the firms in two consecutive years, adjusted for inflation.

Variables	Panel A: Tobin's q Specification		Panel B: ROA Specification		Panel C: OPROA Specification	
	(i)	(ii)	(i)	(ii)	(i)	(ii)
Constant	0.508* (1.913)	0.523** (1.976)	-0.007 (-0.256)	0.001 (0.038)	0.007 (0.189)	0.020 (0.519)
Group Dummy	-0.220*** (-3.888)		-0.061 (-1.039)		-0.060 (-0.999)	
LDF group dummy		-0.159*** (-2.753)		-0.112* (-1.902)		-0.123** (-2.057)
IDF group dummy		-0.220*** (-3.708)		-0.192*** (-3.168)		-0.207*** (-3.381)
MDF group dummy		-0.113* (-1.906)		0.007 (0.116)		0.016 (0.252)
Firm size	0.115* (1.884)	0.113* (1.855)	0.235*** (3.696)	0.229*** (3.680)	0.210*** (3.248)	0.203*** (3.229)
Debt ratio	0.495*** (8.315)	0.487*** (8.200)	-0.310*** (-4.991)	-0.319*** (-5.251)	-0.289*** (-4.576)	-0.299*** (-4.864)
Sales growth	0.016 (0.284)	0.021 (0.362)	-0.025 (-0.407)	-0.014 (-0.238)	-0.005 (-0.083)	0.007 (0.108)
N	236	236	236	236	236	236
F-statistics	20.657***	14.485***	14.596***	12.249***	12.005***	10.932***
Adjusted R ²	0.251	0.256	0.188	0.223	0.158	0.202

***, **, and * denote significant at 1, 5, and 10 percent levels, respectively. T-values are reported in parentheses below the coefficient estimates.

5.3.1. Tobin's q regressions

Panel A of Table 5 used Tobin's q as a dependent variable and group dummy was introduced that takes the value of 1 if the firm is affiliated with a group and 0 otherwise.

Specification (i) of Table 5, Panel A, regress Tobin's q on a simple collection of firm-specific variables. The regression, significant at the 1 percent level indicated that there was a significant negative relationship between the firms' Tobin's q and group dummy. This suggested that there were statistically significant negative

effects of group affiliation on firm performance, as shown by the negative significant coefficient of the group dummy (-0.22, with a t-value of -3.88). This regression specification suggested that Tobin's q decreases as a result of group dummy.

The remaining specification in Panel A explored the effects of different degrees of group diversification. Specification (ii) in Panel A used dummy variables to differentiate between the effects of groups that were in the most diversified, intermediate diversified, and least diversified categories as defined earlier. Each dummy variable measured the effect of group affiliation relative to focused unaffiliated firms. As shown in specification (ii) of Table 5, Panel A, all three coefficients for LDFs, IDFs and MDFs were negative and statistically significant. The significant level of the estimated coefficients for MDFs is 10 percent and both of the two LDFs and IDFs were significant at 1 percent level. These negative coefficients for each level of diversification showed that Tobin's q value decreases as a result of diversification. These results, consistent with the univariate statistics in Table 4, suggested that group affiliated firms underperform than focused unaffiliated firms.

Among control variables, firm size and debt ratio had a significant positive coefficient on Tobin's q regression suggesting that these effect positively on firm's performance when measured by Tobin's q.

5.3.2. ROA regressions

Panel B of Table 5 repeated the specifications of Panel A, on the same sample of firms, using ROA as the dependent variable instead of Tobin's q.

Regression result from specification (i) Panel B indicated that group dummy had an insignificant negative coefficient (-0.061, t-value is -1.039). This indicates that firm ROA is lower by 6.1 percentage points as a result of group affiliation measured by group dummy, in a sample where average ROA is 4.8 percent. This was consistent but not statistically significant to the result using Tobin's q where the group dummy coefficient is significantly negative.

The dummy variables for each level of diversification in specification (ii) of Panel B showed that firms affiliated with the least and intermediate diversified group had a statistically negative coefficient that is -0.112 and -0.192 respectively. So, this study found that affiliates of the least and intermediate diversified groups decrease ROA in a statistically significant manner. On the other hand, this was also found that there was no statistically significant relationship between the affiliates of the most diversified group firms and the ROA performance measure. These results were consistent with the univariate tests in Table 4.

The analysis of control variables in ROA regression showed that the debt ratio of the firm had a statistically significant negative coefficient suggesting that this ratio might have an adverse effect on firm's ROA. In contrast, the firm size had a significant positive coefficient suggesting that increase in firm's size results in higher ROA consistent with the study of Khanna and Palepu (2000a).

5.3.3. OPROA regressions

Panel C of Table 5 repeated the specifications of Panels A and B using OPROA as the dependent variable. Panel C produces almost identical results when ROA was the dependent variable.

Using Tobin's q, ROA and OPROA as performance measures, we found that group dummy seems to affect significant negative to stock market measure of performance. Consistent with univariate comparison, our regression analyses showed that firms affiliated with specially the least diversified and intermediate groups affect significant negatively to both stock market and accounting based performance measures. These results were also consistent when this study controls other firm specific variables. These results contradict to the mostly emerging markets hypotheses that suggest that group affiliation improves firm performance. The coefficient on group size was statistically significant positive in all regression analysis. The leverage coefficient was significantly positive in Tobin' q regression analysis and it is found significantly negative for ROA and OPROA performance measures.

One of the important reasons for this low performance may be that agency problem is most severe in Pakistani business group as investigated by Ghani and Ashraf (2005). In Pakistan, the corporate governance mechanism such as protection of outside investors and creditors is very poor, timely and full enforcement of laws is highly problematic, and poor quality of external financial disclosures are some of the major reasons of this severity. The neutral and negative effects of group affiliation in Pakistan and other countries suggest that group affiliation need not always be beneficial. The continued existence of possibly inefficient groups is consistent with poorly developed selection environments, where weak organizational forms are not weeded out (Khanna and Rivkin, 2001).

To address these problems requires greater transparency to reveal the control links and the parties acting in concert, plus regulatory and legal reforms to strengthen the rights of minority shareholders, such as lowering the minimum percentage of shareholdings required to block major decisions, call an extraordinary shareholders' meeting, or file class action suits. Such reforms would not only help minority shareholders challenge expropriation; they would also force the controlling shareholder to acquire more ownership rights to maintain control. This should reduce the incentive to expropriate and might force a consolidation of business groups into the more transparent structures prevalent in Europe that capital markets could police more effectively. In sum, we suggest that in well-regulated and transparent markets, family business group affiliated firms could reduce agency problems and perform as well as unaffiliated firms.

5.4. Group Affiliated and Cross-subsidization Effects

From the regression analysis in the Table 5, we found that Tobin's q has a significant negative relationship with the group dummy among performance measures which means that group dummy decreases the value of Tobin's q significantly. One of the most important possible explanations for the value loss observed in business groups firms might be the subsidization of failing or poorly performing business segments by other members of the group. Meyer, Milgrom,

and Roberts (1992) argue that an unprofitable line of business can continue to operate through subsidies from its profitable segments if it is part of a conglomerate. They predict that failing business segments create more value loss as part of a conglomerate than as a stand-alone segment since independent firms have no parent to provide an operating subsidy. Shin and Stulz (1998) argue this, that financial cross guarantees link the members of a group and provide the basis for an internal capital market. Thus a failing group affiliate has resources to other sources of funding that can insulate it from the discipline of the market place.

To test this hypothesis, negative cash flow that is earning before interest and taxes less than zero is used as the measure of a poorly performing firm and as the trigger for a likely cross-subsidy. We tested whether the presence of a negative cash flow has a more negative effect on the market performance measure that is Tobin's q value of a group affiliated firms than on an unaffiliated firms. Such a result was consistent with an unprofitable group affiliated firms draining value from other members of the affiliated firms through cross-subsidies. We run regression analyses for affiliated and unaffiliated firm's Tobin's q as a dependent variable and a negative cash flow dummy as an explanatory variable along with other control variables in the Table 6.

**Table 6:
Group Affiliated and Cross-subsidization Effects**

This table presents coefficient estimates from regressions of Tobin's q of affiliated and unaffiliated firms during 2002-2008. The dependent variable is Tobin's q which is approximated by (market value of equity + book value of debt)/ (book value of assets). The explanatory variables include a negative cash flow indicator and a set of control variables. For the group affiliated firm's analysis, the negative cash flow dummy = 1 when one of the affiliated firms has negative EBIT. For the unaffiliated firm's analysis, the negative cash flow indicator is = 1 when the firms has negative EBIT. Among controllable variables, firm size is the natural log of average of assets; debt ratio is total liabilities divided by total assets and sales growth is percentage increase in the sales of the firms in two consecutive years, adjusted for inflation.

Variable	Affiliated Firms	Unaffiliated Firms
Intercept	0.746*** (3.310)	0.403 (0.972)
Negative cash flow dummy	-0.202** (-2.363)	-0.134 (-1.614)
Firm size	-0.029 (-0.366)	0.133 (1.484)
Debt ratio	0.714*** (8.147)	0.497*** (5.848)
Sales growth	0.083 (1.108)	-0.007 (-0.086)
N	111	123
F-statistics	19.621***	8.875***
Adjusted R ²	0.402	0.204

***, **, and * denote significant difference from unaffiliated category at the 1, 5, and 10 percent levels, respectively. T-values are reported in parentheses below the coefficient estimates.

We observed that the negative cash flow dummy variable has a significant negative relationship with Tobin's q of the group affiliated firm's and it was insignificant for unaffiliated firms. This result suggested that the existence of a poorly performing firm within the group can reduce the value of the affiliated firms. This was consistent with Chevalier (2000) and Whited (2001) who note that cross-subsidization can be a contributory factor, though not the only explaining the loss in value for diversified firms.

In contrast, there might be benefits that arise from membership in a business group and there are benefits associated with the affiliated firms. Lewellen (1971) for instance, notes that by combining business segment with imperfectly correlated earnings, the risk of the firm's debt is reduced and thus increases the firm's debt capacity. The firm's increased debt capacity subsequently generates increased tax shields and corresponding fewer taxes paid for the business conglomerate. One such possible benefit is a co-insurance effect which is the

existence of possible financial benefits that might be attributable to group membership. If affiliate firms are able to co-insure each other's debt because of an imperfect correlation between their cash flows, then the debt capacity of affiliated firms should increase.

In the Table 2, we compared mean debt ratios between group affiliated and unaffiliated firms. This comparison of debt ratios shows that affiliated firms use more debt to finance their assets than do unaffiliated firms. This greater use of debt for affiliated firms suggests that membership in a business group increases a firm's debt capacity.

An important implication of this increased use of debt is that it will generate additional tax shield, which in turn, will result in fewer taxes paid by group affiliated firms.

In this study, we observe that affiliated firms experience a tax rate that is all taxes paid standardized by total sales is significant lower than the tax incurred by unaffiliated firms. The total tax expenditure scaled by total sale is 0.007 for affiliated firms versus 0.015 for unaffiliated firms (not presented in this study). This suggests that the tax savings from the higher interest tax shields of affiliated firms are meaningful and that the higher leverage of affiliated firms results in less taxes paid.

6. Conclusion

This study has the important goal of improving of our understanding of the role of business groups in Pakistani economy and provides a contribution to the existing literature on the role of business groups in the world and in Pakistan particular. Overall, the analysis shows that stock market and accounting performance measures of group unaffiliated firms are significantly superior to those of affiliated firms. Thus, our evidence contradicts to the most of the emerging market hypotheses that the affiliated group firms outperform unaffiliated group firms in majority of the emerging market and it focus attention to the sever effects of tunneling in these market as suggested by Ikram and Naqvi (2005) that tunneling is prevalent in Pakistani business groups. In addition, we find evidence indicating that groups subsidize their unprofitable firms, which is associated with negative effect of cash flow dummy that reduce significantly the value of affiliated firm's Tobin's q more than unaffiliated firms. The increased use of debt by groups might be explained by a possible apparent tax advantages that groups enjoy from this use of debt. Taken as a whole, our evidence implies that group affiliated firms underperform unaffiliated firms in Pakistan.

As is the case with other research, this study admittedly has following limitations; First, even under the assumption that a causal interpretation can be assigned to this correlation, the particular reasons why diversification is good or bad in certain countries or institutional environments cannot be inferred.

Second, this study relies primarily on stock market data and do not address the selection issue associated with the decision to list some group companies but not others. The direction of the bias this induces in estimates of the diversification discount (or premium) is unclear and might be country-specific.

Third, to the extent that differences in performance between group-members and other firms are documented, it is not straightforward to relate such differences to particular group attributes. This problem is especially acute because certain group characteristics tend to coincide nearly perfectly. For example, large diversified groups enjoy close ties with their governments in many emerging

markets, ineffective management by insiders; it is due to over-expansion and diversification into industries beyond the core capabilities of the group.

For future research, this study suggests that there is a need to explore how the logic followed in group diversification strategy differs across these and thus ownership, related resources, entrepreneurial scarcity and informational imperfections must be included as another explanation of diversification in business groups.

Another important issue that could be explored by future studies can analyze the ways in which the characteristics of the country support the creation of business groups by providing opportunities for diversification or induce the transformations of business groups.

For future research it is also suggested that as tunneling is prevalent in Pakistan (Ikram and Naqvi, 2005) the need is to investigate that how do Pakistani businesses tunnel resources? For example, central or powerful firms in the business group, or key shareholders, may be using their influence to tunnel away affiliates' resources. Further research is needed to disentangle these alternative explanations.

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