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Business Group Affiliation and Firm Performance— Evidence from Pakistani Listed Firms

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This study analyses the financial performance of business group affiliated firms relative to stand-alone firms in Pakistan. The investigations are done across the sample period of 1993–2012. The study employs ‘Chop shop’ methodology to construct the excess values (performance measure); in order to compare the results with earlier well documented studies of both developed and emerging countries. Both univariate and regression analyses clearly demonstrate that group affiliated firms are trading at discount (underperform relative to stand-alone firms) during the sample period. Despite the historical success in the past, the findings suggest that business groups evolve differently in the post financial reforms and privatisation programs era. The findings are consistent with the market failure argument and agency theory. However, the study finds a little evidence of efficient internal markets of Pakistani business groups.

Keywords: Business Groups, Group Affiliation, Excess Value, Market Failure Theory, Agency Theory, Chop Shop Methodology

1. INTRODUCTION

Research, on the role of business groups is one of the most extensively investigated areas in the fields of corporate finance and firm strategy. [Chang and Hong (2000); Khanna and Palepu (2000a); Soo, *et al.* (2010)]. Business groups play an important yet poorly understood role in the economies like South Korea, China, Indonesia, Chile, India, and Pakistan [Khanna and Yafeh (2007)]. Business groups are defined as the coalition of legally independent firms that are linked to each other by a constellation of formal (ownership) and informal (social) ties and are accustomed to taking coordinated actions [Granovetter (1994); Khanna and Rivkin (2001)].

A number of researchers propose theoretical perspectives to support the argument that business group affiliation improves firm performance in emerging economies [Kali and Sarkar (2005); Gadhoun, *et al.* (2007); Mishra and Akbar (2007)]. A prevalent view suggests that affiliation with a business group enhances firm performance in the countries with extensive market failures and excessive associated transaction costs [Leff (1978); Hovakimian (2011)]. Khanna and Palepu (1997) opine that business groups serve as substitute of missing business, supporting institutional environment in the developing countries. Khanna and Palepu (2000a) document that advanced countries possess

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developed and well functioning capital, labor and product markets. In contrast certain institutional voids, for instance information and contracting problems, poor law enforcement and weak regulatory and corporate governance systems, etc., exist in emerging economies like South Korea, China, India and Pakistan. Business groups substitute for these missing institutional voids. These are well diversified across various industries and facilitate affiliated firms to internalise market transactions and thus create internal networks of value enhancing mechanism, by providing access to scarce group resources and capabilities. These resources may include information, skills and management, markets, brand names and finance [Mahmood, *et al.* (2011); Lamin and Dunlap (2011)].

The business groups' headquarters are not only concerned with the profit maximisation but also serve for group stability and survival. Estrin, Poukliakova, and Shapiro (2009) present that resource sharing within group affiliates minimises transaction costs and reduces risk. Khanna and Yafeh (2005) provide evidences for risk sharing role of business groups through reallocation of funds from one affiliate with excess cash flows to another having shortage of cash flows and further these help in smoothing income flows among their affiliates. Resource based view suggests that recurring transactions among group firms lead to richer flow of information and thus improve resource allocation [Guillen (2000)]. These privileges are unavailable to stand-alone (unaffiliated) firms and these may contribute positively to the financial performance of group affiliated firms relative to their counterpart stand-alone firms.

The institutional setting plays a vital role regarding group affiliation-performance relationship. As the institutional environment changes, the performance impacts of group affiliation strategy are also expected to evolve differently [Chakrabarti, Singh, and Mahmood (2007)]. Lee, *et al.* (2008), Purkayastha (2013) and Khanna and Palepu (2000b) find evidences that group firms perform better than stand-alone firms during the early periods when institutional environment was underdeveloped in the country and however, these group firms tend to show lower performance in the latter periods as market institutions got matured.

In Pakistan, financial reforms and privatisation programs were initiated in early 1990s and these had dramatically changed the economic landscape for business groups. The business groups had to restructure their group affiliation related strategies, owing to institutional setting that had facilitated them in corporate control until pre-reforms era. Having enjoyed highly privileged licenses and quota systems, big business tycoons, having dominated the corporate sector, have to face much needed stiff market competition and further those business groups, thrived on rent seeking and other inefficiencies in the pre-reforms period, may have suffered in the post reforms era.

A growing number of studies contend that group affiliation harms firm value. Lopez-de-Silanes, *et al.* (1999), La Porta, *et al.* (1997, 1999) and Waseemullah, *et al.* (2017) among others document that the unique business group structure often forms pyramidal ownership structures. Such ownership structures allow an apex firm to achieve an ultimate control over many other firms simultaneously, without making commensurate cash flows investments. The ultimate controller attempts private benefits consumption at the expense of external shareholders; thus posit costs of group affiliation, particularly in emerging markets where legal institutions are poorly developed [Faccio, *et al.* (2001);

Joh (2003); Holmén and Högfeldt (2005); Djankov, *et al.* (2008); Gohar and Karacaer (2009)]. This may engender agency conflicts among the shareholders and the centre of the corporate governance shifts away from traditional principal-agent (P-A) conflicts to principal-principal (P-P) conflicts e.g., conflicts between ultimate controlling shareholders and external shareholders [Claessens, Djankov, and Lang (2000b); Bae, *et al.* (2002); De Holan and Sanz (2006)].

Bertrand, Mehta, and Mullainathan (2002), Ikram and Naqvi (2005) and Dow and McGuire (2009) propose that tunneling is prevalent, although not universal in the business groups of the emerging countries and obviously this activity destroys firm value. Some other researchers argue business groups as in-efficient organisation depending on rent seeking, facing a burden of excessive coordination and bureaucratic costs, concentration of incompetent management and inefficient resource allocation among the group affiliated firms.

A number of researchers examine the group affiliation-performance relationship by applying a unitary lens. However, a unitary theoretical perspective provides partial view of the relationship and thus it is immensely required to investigate the relationship by applying multi-theoretic lens of market failure theory in a changed institutional perspective and agency theory [Wright, *et al.* (2005); George and Kabir (2008)].

In Pakistani context, there is no conclusive evidence regarding the group affiliation-performance relationship. Ghani, Haroon and Ashraf (2011) and Ahmad and Kazmi (2016) find superior performance (measured by ROA) whereas Gohar and Karacaer (2009) observe lower performance of group affiliated firms than stand-alone firms. Further, there is an increasing concern regarding the endogeneity problem and selection bias in group affiliation-performance relationship [Choe, *et al.* (2014)]. OLS has been used in earlier studies that does not appropriately handle these issues and the present study attempts to address them.

The study is primarily concerned with exploring the comparative financial performance of group affiliated firms relative to stand-alone firms in Pakistan. An effort is made to explore whether group affiliation creates value/value loss (premium or discount) in an emerging economy with changed institutional setting in the country. One major concern in performance comparison is matching of the group firms with stand-alone firms of varying characteristics. In order to resolve that issue, Chop shop methodology has been used in the earlier studies conducted in the advanced countries. The principal contribution of the study lies in adopting the modified “Chop-shop” methodology of Berger and Ofek (1995), proposed for measuring the excess values (group affiliation premium/discount). Chop-shop valuation approach is widely used in the finance literature to estimate the imputed value of a group firm as it operates as an average stand-alone firm in the industry and then finding if group firm outperform or underperform than an average standalone firm in the same industry.

2. REVIEW OF LITERATURE

A lot of literature on the surge of group affiliation-performance relationship appears but there is still disagreement of the researchers whether group affiliation creates or destroys firm value. A number of researchers suggest that group affiliated firms outperform stand-alone firms [Hoskisson, *et al.* (2004); Castaneda (2007); Ghosh (2010);

Waqar, Ghani, and Haroon (2011); Shi (2015)] whereas some others argue that opposite is true [Laeven and Levine (2007); van Lelyveld and Knod (2009); Schamid and Walter (2009); Gohar and Karacaer (2009)] and a few of them observe mixed evidences and each scholar can point to empirical support for his position [Khanna and Rivkin (2001)]. A few studies reveal that group affiliation-performance relationship is not universal and these show mixed evidences. Khanna and Rivkin (2001) explore the effect of group affiliation on firm profitability by taking a sample of 14 emerging markets and observe that group affiliation enhances firm profitability in 6 countries whereas it is harmful in 3 countries and even is ineffectual in the remaining 5 countries. Kim (2012) and Hyland and Diltz (2002) reveal that group affiliation itself may not be value enhancing or value destroying activity and that differences in firm characteristics might influence firm value.

Khanna and Yafeh (2005) document that business groups serve not only for the profits maximisation but also helps in reduction of risk for their affiliates. They find evidences of risk sharing role of business groups in many emerging countries for instance South Korea, India, Thailand, Taiwan and Brazil. They suggest that risk sharing is occurred through shared resources, dividends and intra group transfers through flexible loans and receivables. Gopalan, *et al.* (2007) document that group affiliation provide coinsurance function. Similarly, group affiliated firm get benefits of tax shield [Gramlich, *et al.* (2004).

Institutional setting plays a key role in explaining group affiliation-performance relationship. In developing countries, business supporting institutional environment is underdeveloped. The business groups substitute for the external environment and fill the gap of missing labor, capital and product markets [Leff (1978); Khanna and Palepu (1997)]. Chang and Choi (1988) find superior profitability of diversified group affiliated firms relative to stand-alone firms in Korea. They observe 2 percent higher accounting profits for firms affiliated with large business groups than unaffiliated firms. Khanna and Palepu (2000b) find that firms affiliated with the largest business groups perform better than stand-alone firms in India. Large diversified business groups could internalise the bureaucratic and coordination costs associated with the management of diverse operations of the business group more efficiently and are consequently able to generate more value for their affiliated firms.

Claessens, *et al.* (2000a) employ a data set of 2,187 firms from 9 East Asian countries including high income countries (Japan, Singapore, Hong Kong and Taiwan) and low income countries (Thailand, Philippines and Indonesia). They find significantly higher excess values for group firms in low income countries whereas lower excess values for higher income countries. The findings confirm market failure argument that arrangement of finance is critical for firms in the countries with underdeveloped capital markets and business group fills that gap efficiently which results in higher firm performance. Similarly, Buysschaert, *et al.* (2004) find superior financial performance of group affiliated firms in Belgium and however, they discover an inverse link of intra-group financing with firm performance which suggests that business groups face problems in allocation of funds among their affiliated firms.

A number of studies on group affiliation-performance relationship conclude that changes in institutional environment matters. The relationship between strategic choices and financial outcomes is dynamic and contingent on the institutional environment

[Chakrabarti, *et al.* (2007); Purkayastha (2013)]. A few researchers observe that group firms show superior performance during the period of underdeveloped institutional environment and conversely these firms underperform than stand-alone firms in the latter periods when market infrastructure is remarkably developed. The study of Lee, *et al.* (2008) observes that Korean chaebols reveal a declining trend in performance relative stand-alone firms. They find that group firms were trading at premium (higher excess values for group firms than stand-alone firms), started from 1980s until through early 1990s. They observe a declining trend in group premium which finally turned into discount in the mid-1990s. Their findings support market failure theory that group firms decline in performance with the development of institutional infrastructure in South Korea.

The same trend is shown in the study of Khanna and Palepu (2000a). They find higher profitability for group affiliated firms than stand-alone firms in Chile and however, there is a gradual decrease in performance with the development of market infrastructure in the country. Kumar, *et al.* (2008) employ a data set for a period of 1990-2006 and observe that group firms decline in performance, corresponding to stand-alone firms in the post financial reforms era in India. They demonstrate that group firms tend to decrease in performance with the development of market institutions in the country. Moreover, they observe that older group firms perform relatively better in these situations of institutional transitions. Pattanayak (2009) confirms lower performance of group affiliated firms than stand-alone firms in India. They argue that advantageous effect of group affiliation disappears as capital markets get matured.

Lee, *et al.* (2002b) attempt answering few questions regarding the emergence and performance of business groups in South Korea. They focus how business groups emerged and then what happened with them that they declined in performance. They propose that business groups emerged in response to market failures. Further, business groups facilitate their affiliates entering in the new markets which were formerly monopolised by the forerunning businesses. They document few reasons behind the decline in the performance of business groups. They suggest that performance of business groups decreases over the time with the development of institutional setting in the country. Moreover, group firms suffer from in-efficient investment drive that leads to agency conflicts among the shareholders.

Lins and Servaes (2002) observe a significant discount for diversified business groups relative to single segment firms in 7 emerging markets. They suggest that ultimate controllers in group affiliated firms enjoy excess control rights than cash flow rights and that they are motivated in expropriation of firm resources from one firm where they have least cash flow rights to other firms where they have higher cash flow rights. Bertrand, Mehta, and Mullainathan (2000) document tunneling evidence in the Indian business groups. Bae, *et al.* (2002) find that wealth is transferred to dominant shareholders at the expense of minority shareholders within Korean chaebols.

In Pakistani context, the earlier studies show mixed results. Ghani, Haroon and Ashraf (2011) take a sample of KSE listed firms for the years 1998 and 2002 and find higher financial performance (ROA) of group affiliated firms than stand-alone firms. Similarly, Ahmad and Kazmi (2016) document that group firms outperform stand-alone firms in Textile Sector of Pakistan. In contrast, Gohar and Karacaer (2009) employ a

sample of 166 KSE listed firms for a period of 2002 to 2006 and find that group firms underperform than stand-alone firms. The results suggest that group firms fall into serious problem of agency conflicts among the shareholders. These contrasting results stress the need to investigate the group affiliation-performance relationship on a dynamic longitudinal data, by applying relevant methodology of Chop shop in a country facing remarkable changed institutional setting. Both of the earlier studies have ignored the Chop shop methodology that had been widely used in the studies conducted on group affiliation-performance relationship.

2.1. Hypotheses of the Study

- H 1_a: There is a significantly lower financial performance of group affiliates than stand-alone firms.
- H 1_b: There is a significantly higher financial performance of group affiliates than stand-alone firms.

3. METHODOLOGY

The study sample consists of 367 (including 159 stand-alone firms and 208 group affiliated firms belonging to 60 business groups) non-financial firms listed on Karachi Stock Exchange covering a period of 1993-2012.

The study modifies the widely used 'Chop Shop' methodology of Berger and Ofek (1995) to determine group premium or discount so that study results can be compared with the earlier studies, for instance Lang and Stulz (1994), Ferris, *et al.* (2003) and Lee, *et al.* (2008). The excess value is obtained through two main steps. In the first step, imputed value of a group firm is estimated as multiplying the group firm's earnings before interest and taxes with the capital value to earnings before interest and taxes ratio for median stand-alone firm operating in the same industry.¹ In the second step, excess value is calculated as the natural log of the ratio of firm's actual value (defined as market value of equity plus book value of liabilities) to its imputed value.² The positive excess value suggests that group affiliation enhances the performance of the group affiliates whereas negative excess value shows that affiliation with a business group harms firm value.

There are some issues in estimation that are needed to be addressed carefully. One of the major issues is that there may be endogeneity problems (omitted variables, selection bias and reverse causality). Besides the observable factors like group affiliation, there may be some unobservable factors like managerial skills among others that may affect the firm performance but may not be included as regressors in the value equation. In addition, there may be regressors (group affiliation in this case) that may be correlated with the error term.

Most importantly, group affiliation may be endogenous [Bae, *et al.* (2011)] because there are certain factors like firm profitability, risk, growth prospects and/or

¹Following Berger and Ofek (1995) and Lee, *et al.* (2008) industry median is derived from the sample of standalone firms.

²In order to eliminate the firms with extreme excess values, the study follows Ferris, *et al.* (2003) and Lee, *et al.* (2008). Those firms with excess values more than four times the firm's imputed value or one-fourth of the imputed value are excluded from the sample.

firm size among others that motivate a business group to acquire/select a firm under his control; and these factors affecting the propensity of a firm to be a group affiliate may also influence firm performance. Hence, selection of a firm to be a group affiliate or not may not be random rather it is based on some firm specific factors [Choe, *et al.* (2014)] and further, firm performance may be dynamic in nature [Mishra (2014)].

Therefore, the study employs both system Generalised method of moments (GMM) and treatment effects of endogenous self-selection (Heckman selection styled model) to investigate the impact of group affiliation on firm performance. In GMM models, lag dependent variable and explanatory variables are used as instruments following Arellano and Bond (1991); Javid and Iqbal (2008). The treatment effect models consider the effect on an endogenously chosen binary treatment, in this case the choice to be a group affiliate, on another endogenous continuous variable, in this case an indicator of firm performance, conditional on two sets of independent variables. The first set of variables is used to estimate a selection equation that describes the group affiliation choice. The estimates from the selection equation are then used in the value function.

In lines with Yu, Ees, and Lensik (2009), the study uses Heckman styled self-selection treatment effect model as follows:

$$y_{it} = \alpha_0 + \beta_1 D_{it} + \beta_2 x_{it} + \varepsilon_{it} \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

Where y_{it} is the dependent variable (performance indicator e.g., Excess value-EBIT) for firm i at time t , D_{it} is the binary independent variable ($D_{it} = 1$ for group affiliated firm and otherwise $D_{it} = 0$ for standalone firm i at time t). X_{it} are the control variables for a firm i at time t (e.g., list age, leverage, size, risk, profitability and growth) that affect firm performance and ε_{it} is the error term.

The group affiliation decision (selection equation) is given below:

$$D^*_{it} = \delta z_{it} + \mu_{it} \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (2)$$

$D_{it} = 1$ if $D^*_{it} > 0$ and $D_{it} = 0$ otherwise. Z_{it} are the variables that affect the group affiliation decision of the firm, μ_{it} is the error term.

By substituting D_{it} in Equation (2) with Equation (3); firm performance model is as follows:

$$y_{it} = \alpha + \beta_1 (\delta z_{it} + \mu_{it}) + \beta_2 x_{it} + \varepsilon_{it} \quad \dots \quad \dots \quad \dots \quad \dots \quad (3)$$

If $D^*_{it} > 0$; $D_{it} = 1$ and

$$y_{it} = \alpha + \beta_2 x_{it} + \varepsilon_{it} \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (4)$$

Where $D^*_{it} \leq 0$; $D_{it} = 0$

In line with the reasoning of Heckman’s (1979) two step procedure, the study employs two-steps procedure to estimate the regression coefficients of Equations (3) and (4). In the first step, the probability of group affiliation is found and obtaining the estimates of selection correction—called lambda (hazards). In the second step, the lambda (hazards) estimates from the first step are included in the regression model of firm performance.

Fig. 1. Variable Definitions

Excess Value-EBIT

It is calculated as natural logarithm of actual value to imputed value ratio (as discussed above). The positive value implies that group affiliated firm outperforms than standalone firms operating in the same industry (group affiliation premium) and negative value indicates that group affiliated firm underperforms than stand-alone firms operating in the particular industry (group affiliation discount) [Lee, *et al.* (2008)].

Group Affiliation

Dummy A dummy variable of 1 is given for firms affiliated with a business group and 0 if a firm is stand-alone. Group firms are selected on the basis of ultimate control of members under the umbrella of a particular group. The ultimate control is determined by examining the social ties, management, cross directorate-ships, cross shareholdings and pyramidal structures.

List Age

Natural logarithm of the number of years till 2012 from the date of firm listing on the stock exchange [Yu, Ees, and Lensik (2009)].

Leverage

Leverage is defined as total liabilities/total assets [Yu, Ees, and Lensik (2009)].

Size

The natural logarithm of market capitalisation is taken as a proxy of firm size.

Risk

Risk is the standard deviation of return on capital employed.

Profitability

Firm profitability is measured by earnings before interest and taxes/total sales [Lee, *et al.* (2008)].

Growth

Growth is calculated as market value of equity/book value of equity [Manos (2001)].

4. EMPIRICAL FINDINGS

Table 1 demonstrates the information pertained to Pakistani business groups included in the sample. The statistics show the number of business groups covered in the study sample every year, average number of firms and minimum/maximum number of firms belong to each business group every year.

Table 1
Information of Pakistani Business Groups in Each Year

Year	No. of Business Groups	Avg No. of Firms	Median No. of Firms	Min No. of Firms	Max No. of Firms
1993	45	2.7560	2	1	10
1994	45	2.7780	2	1	10
1995	45	2.6222	2	1	9
1996	46	2.7177	2	1	9
1997	45	2.9333	2	1	10
1998	46	2.9133	2	1	10
1999	47	2.8722	2	1	10
2000	47	2.9155	2	1	10
2001	56	3.5000	3	1	13
2002	56	3.5000	3	1	13
2003	56	3.4820	3	1	13
2004	56	3.4290	3	1	13
2005	56	3.3930	3	1	13
2006	56	3.4111	3	1	13
2007	56	3.3755	3	1	13
2008	56	3.3578	3	1	13
2009	56	3.3578	3	1	13
2010	56	3.3578	3	1	13
2011	55	3.3090	3	1	12
2012	55	3.2180	3	1	12

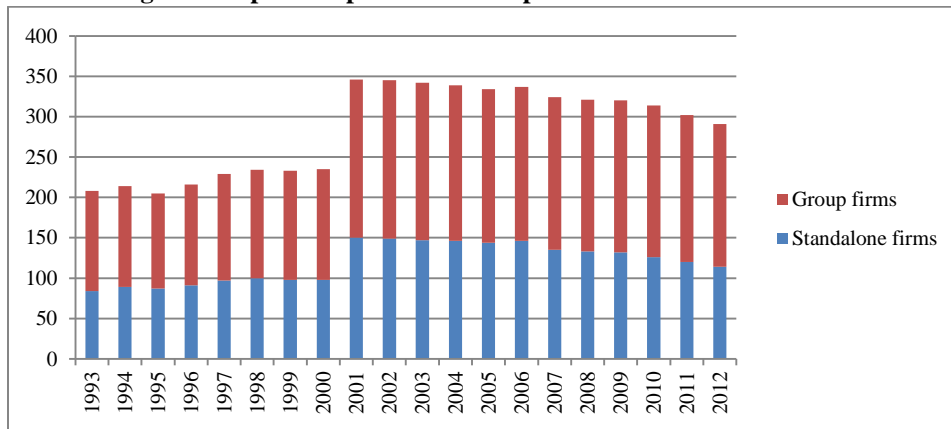
Note: Author Source.

Table 2 presents the information related to composition of sample, categorised into group firms and stand-alone firms every year. The figures show that sample comprises of group (stand-alone) firms of 124 (84) in 1993 which significantly expand to 177 (114) during the sample period until 2012. The same trend is expressed in Figure 2.

Table 2
Number of Group Firms and Standalone Firms in Each Year

Year	Group Firms	Standalone Firms
1993	124	84
1994	125	89
1995	118	87
1996	125	91
1997	132	97
1998	134	100
1999	135	98
2000	137	98
2001	196	150
2002	196	149
2003	195	147
2004	193	146
2005	190	144
2006	191	146
2007	189	135
2008	188	133
2009	188	132
2010	188	126
2011	182	120
2012	177	114
	3303	2386

Note: Author Source.

Fig. 2. Sample Compositions: Group Firms vs. Standalone Firms

Panel A in Table 3 presents the univariate analyses. A comparison of Excess value-EBIT is done across stand-alone firms and group firms. The statistics show that both mean and median excess values-EBIT are remarkably lower for group firms than their corresponding stand-alone firms and the differences of mean and median values are highly significant. The findings clearly show that group discount is present during the sample period. The underperformance (discount) of group firms than stand-alone firms in the post financial reforms era supports Hypothesis 1_a and is consistent with the market failure argument and agency theory.

Table 3 Panel A

Comparative Excess Value-EBIT for Standalone Firms and Group Firms

Variable	Firm	Mean	Median	St. Dev.
Excess Value-EBIT	Standalone	0.0849	0.0662	0.2391
	Group	0.0458***	0.0358***	0.2521
	All	0.0613	0.0500	0.2478

Note: T-tests are used for comparisons of means, and Wilcoxon signed-rank tests are used for comparisons of medians. ***, ** and * denote significance of differences at 1, 5 and 10 percent levels, respectively.

Panel B in Table 3 highlights the financial demographics across group firms and stand-alone firms. The statistics show that group firms underperform than stand-alone firms in terms of market performance measure of Tobin's Q, consistent with the above results and however, these show superior performance in terms of accounting performance measure of ROA (return on assets). Group firms are paying higher dividends than stand-alone firms and these firms exhibit higher listing exposure. Group firms are significantly different in financing policies. The financial leverage is significantly lower for group firms than stand-alone firms. In Pakistani market, larger part of debts comes from the banks and other financial institutions which required higher level of monitoring and transparent financial reporting to safeguard their investment. The ultimate group controllers avoid such monitoring. They use complex pyramidal ownership structures to achieve and maintain their ultimate control over many firms

simultaneously with the least capital invested. Group firms exhibit significantly lower level of risk relative to stand-alone firms. These findings are consistent with risk sharing and group stability arguments of Khanna and Yafeh (2005) and Estrin, *et al.* (2009). Group firms are larger in terms of both total assets and sales. Group firms show relatively higher liquidity (measured by current ratio) consistent with resource sharing argument. These can transfer surplus funds from one firm to another firm with shortage of funds.

Table 3 Panel B

Comparative Financial Characteristics for Standalone and Group Firms

Variables	Firm	Mean	Median	St. Dev.
Tobin q	Standalone	1.3470	0.9710	1.6130
	Group	1.1110***	0.9190***	0.9160
	All	1.2100	0.9380	1.2620
ROA	Standalone	-0.0100	0.0030	0.1620
	Group	0.0110***	0.0170***	0.1280
	All	0.0020	0.0100	0.1430
Dividend Payout Ratio	Standalone	0.1150	0.0000	0.3920
	Group	0.1750***	0.0000***	0.4040
	All	0.1500	0.0000	0.4000
Dividend Yield	Standalone	0.0190	0.0000	0.0580
	Group	0.0340***	0.00***	0.0710
	All	0.0280	0.0000	0.0660
List Age	Standalone	27.2120	21.0000	12.8320
	Group	30.6280***	25.0000***	35.4460
	All	29.1950	23.0000	28.3060
Leverage	Standalone	0.9120	0.7200	0.9490
	Group	0.7490***	0.6680***	0.6040
	All	0.8180	0.6890	0.7720
Growth	Standalone	0.15	0.0360	0.6200
	Group	0.16	0.0860***	0.5360
	All	0.16	0.0680	0.5720
Risk	Standalone	0.2310	0.0510	0.5540
	Group	0.1670***	0.0570	0.4240
	All	0.1940	0.0540	0.4840
Total Assets	Standalone	1136.0000	392.0000	2732.0000
	Group	3105.0000***	910.0000***	7989.0000
	All	2279.0000	656.0000	6413.0000
Sales	Standalone	971.0000	385.0000	1936.0000
	Group	2682.0000***	1020.0000***	6661.0000
	All	1965.0000	684.0000	5295.0000
Group Diversification	Standalone	1.0000	1.0000	0.0000
	Group	8.5620***	7.0000***	6.0660
	All	5.3900	3.0000	5.9400
Current Ratio	Standalone	1.1850	0.8740	1.4830
	Group	1.3680***	0.9990***	1.6760
	All	1.2910	0.9480	1.6000
Fixed Assets Ratio	Standalone	0.5730	0.5960	0.2390
	Group	0.5340***	0.5390***	0.2200
	All	0.5510	0.5580	0.2290

Note: T-tests are used for comparisons of means, and Wilcoxon signed-rank tests are used for comparisons of medians. ***, ** and * denote significance of differences at 1, 5 and 10 percent levels, respectively.

Table 4 presents the correlation metrics among the variables. The Variance Inflation Factor (VIF) procedure confirms that there is no strong correlation among the explanatory variables indicating that there exists no serious problem of multicollinearity.³

Table 4
Correlations

Variable	Excess Value-EBIT	Group Affiliation Dummy	List Age	Leverage	Size	Risk	Profitability	Growth
Excess Value-EBIT	1							
	–							
Group Affiliation Dummy	–0.0771	1						
	<i>0.0000</i>	–						
List Age	–0.0056	0.1251	1					
	<i>0.7432</i>	<i>0.0000</i>	–					
Leverage	0.2354	–0.0574	0.0217	1				
	<i>0.0000</i>	<i>0.0007</i>	<i>0.2014</i>	–				
Size	–0.1348	0.2558	0.1820	–0.2255	1			
	<i>0.0000</i>	<i>0.0000</i>	<i>0.0000</i>	<i>0.0000</i>	–			
Risk	–0.0205	–0.0599	0.0335	0.1945	–0.1766	1		
	<i>0.2281</i>	<i>0.0004</i>	<i>0.0485</i>	<i>0.0000</i>	<i>0.0000</i>	–		
Profitability	–0.4852	0.0700	0.0451	–0.0968	0.1475	0.0825	1	
	<i>0.0000</i>	<i>0.0000</i>	<i>0.0080</i>	<i>0.0000</i>	<i>0.0000</i>	<i>0.0000</i>	–	
Growth	0.0708	0.0410	–0.0392	–0.1049	0.2568	–0.0718	0.0892	1
	<i>0.0000</i>	<i>0.0158</i>	<i>0.0212</i>	<i>0.0000</i>	<i>0.0000</i>	<i>0.0000</i>	<i>0.0000</i>	–

Note: All coefficients greater than 0.05 values are significant at 1 percent significance level. P-values are in italics.

Table 5 reports the pooled OLS and GMM regression results. Group affiliation dummy is –0.0155 ($p < 0.10$) and –0.0158 ($p < 0.05$) which suggest that group firms tend to show lower Excess value-EBIT (group discount) than their corresponding stand-alone firms in Pakistan during the 1993-2012 period. The findings suggest that group firms underperform than stand-alone firms during the post financial reforms period despite a historical success in 1950s and 1960s. Consistent with univariate results, the empirical results support Hypothesis 1_a.

The presence of group discount is consistent with market failure theory that group firms decline in performance because their advantageous effect disappears with the development of institutional setting in the country during the post financial reforms and liberalisation period. The regression results support Hypothesis 1_a, consistent with the studies of Khanna and Palepu (2000a) for Chile; Lee, *et al.* (2008) for South Korea; Pattanayak (2002) for India and Purkayastha (2013) for India and Japan. Further, the findings lend support to the agency theory that business groups form pyramid structures and the ultimate controllers in these group firms are engaged in tunneling. They plunder firm resources away from the minority shareholders for their personal benefits. The findings strongly support to the earlier studies of Bertrand, *et al.* (2002); Bae, *et al.* (2002); Lee, *et al.* (2002_b) and Lins and Servaes (2002).

Leverage is significantly positively related to firm value, consistent with tax shield argument and pecking order theory. However, firm size is negatively related to firm value. The impact of risk is negative as per expectations. However, firm profitability is

³VIF procedure is adopted and however, the results are not reported for brevity.

negatively associated with firm value. The negative relationship confirms the presence of earning management practices adopted by firms in Pakistan and further it indicates the lack of confidence of the investors at the reported earnings. The findings are consistent with the earlier studies' results for instance Lee, *et al.* (2008). Moreover, firm growth positively affects firm value.

Table 5

Pooled OLS and GMM Results of Group Affiliation and Excess Value-EBIT

Variable	Pooled OLS Model	GMM Model
Excess Value-EBIT _{t-1}	0.3316*** <i>0.0000</i>	0.3208*** <i>0.0000</i>
Group Affiliation Dummy	-0.0155* <i>0.0786</i>	-0.0158** <i>0.0457</i>
List Age	<i>0.0020</i>	<i>0.0025</i>
Leverage	0.7363 0.1418*** <i>0.0000</i>	0.7146 0.1479*** <i>0.0000</i>
Size	-0.0067** <i>0.0190</i>	-0.0061* <i>0.0576</i>
Risk	-0.0235* <i>0.0798</i>	-0.0299* <i>0.0698</i>
Profitability	-0.1408*** <i>0.0000</i>	-0.1153** <i>0.0334</i>
Growth	0.0221*** <i>0.0000</i>	0.0237*** <i>0.0000</i>
Intercept	-0.0276 <i>0.2084</i>	-0.0427* <i>0.0752</i>
<i>Adjusted R-squared</i>	<i>0.2216</i>	<i>0.2203</i>
<i>F-statistic</i>	<i>93.7112***</i>	
<i>Prob(F-statistic)</i>	<i>0.0000</i>	
<i>Hansen J-statistic</i>		<i>9.7420</i>
<i>Prob(J-statistic)</i>		<i>0.1359</i>

Note: ***, ** and * denote to coefficients significant at 1, 5 and 10 percent respectively. P-values are in italics.

Table 6 reports the regression results of treatment affects models. At first step, a binary dependent variable of group affiliation dummy is regressed on firm characteristics to determine the firms' propensity to be a group affiliate. At the second step, the obtained estimates are used in the value regression. The results show that group affiliation dummy variable is strongly negative and significant even after controlling the endogenous self-selection, indicating that group affiliation harms firm value.

Table 6

Treatment Effects' Results of Group Affiliation and Excess Value-EBIT

Variable	Model 1
Group Affiliation Dummy	-0.3158*** <i>0.0000</i>
List age	0.0014*** <i>0.0000</i>
Leverage	0.1417*** <i>0.0000</i>
Size	0.0043 <i>0.2540</i>
Risk	-0.0643*** <i>0.0000</i>
Profitability	-0.1100*** <i>0.0000</i>
Growth	0.0191*** <i>0.0000</i>
Intercept	0.1018*** <i>0.0000</i>
Group Affiliation Dummy as Dependent Variable:	
List Age	0.0090*** <i>0.0000</i>
Leverage	0.0050 <i>0.9300</i>
Size	0.1851*** <i>0.0000</i>
Risk	-0.0783 <i>0.1820</i>
Profitability	0.2495** <i>0.0170</i>
Growth	-0.0166 <i>0.2800</i>
Intercept	-0.8539*** <i>0.0000</i>
<i>Athrho</i>	0.7936*** <i>0.0000</i>
<i>Lnsigma</i>	-1.3006*** <i>0.0000</i>
<i>Wald Chi-squared</i>	371.6900*** <i>0.0000</i>
<i>Rho</i>	0.6604
<i>Sigma</i>	0.2724
<i>Lambda</i>	0.1799
<i>Wald test of Rho=0</i>	13.8100*** <i>0.0002</i>

Note: ***, ** and * denote to coefficients significant at 1, 5 and 10 percent respectively. P-values are in italics.

Table 7 reports the regression results of interaction analysis to highlight the role of internal markets of business groups in affecting their affiliated firms' performance, relative to stand-alone firms in Pakistan. The impact of firm characteristics like firm listing exposure, leverage, size, growth and profitability may affect firm excess value differently for group firms than stand-alone firms, depending upon the strength of business groups in providing the internal markets. Group affiliated firms may get benefits from the value enhancing internal networks of resource sharing. These firms may share resources like information, skills, finance, markets and these may even help each other in getting loans [Guillen (2000); Khanna and Palepu (2000a)].

Table 7

GMM Results of Interaction Analyses

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Excess Value-EBIT _{t-1}	0.5804*** <i>0.0000</i>	0.3329*** <i>0.0000</i>	0.3188*** <i>0.0000</i>	0.3197*** <i>0.0000</i>	0.6161*** <i>0.0000</i>	0.5645*** <i>0.0000</i>
Group Affiliation Dummy	-0.1105*** <i>0.0050</i>	-0.1056*** <i>0.0000</i>	-0.0475** <i>0.0165</i>	-0.0229*** <i>0.0000</i>	0.0044 <i>0.6448</i>	-0.0302*** <i>0.0005</i>
List Age	-0.0051 <i>0.5304</i>	0.0006 <i>0.9255</i>	0.0030 <i>0.6527</i>	0.0008 <i>0.8976</i>	0.0041 <i>0.6718</i>	0.0085 <i>0.3761</i>
Leverage	0.1197*** <i>0.0000</i>	0.0851*** <i>0.0074</i>	0.1507*** <i>0.0000</i>	0.1523*** <i>0.0000</i>	0.1194*** <i>0.0000</i>	0.1256*** <i>0.0000</i>
Size	0.0092*** <i>0.0031</i>	-0.0015 <i>0.6020</i>	-0.0106*** <i>0.0090</i>	-0.0062** <i>0.0470</i>	0.0137*** <i>0.0000</i>	0.0099*** <i>0.0006</i>
Risk	0.0015 <i>0.9524</i>	-0.0212 <i>0.1474</i>	-0.0314** <i>0.0442</i>	-0.0546* <i>0.0542</i>	0.0059 <i>0.8465</i>	-0.0077 <i>0.7750</i>
Profitability	-0.3440*** <i>0.0000</i>	-0.1370** <i>0.0124</i>	-0.1173** <i>0.0287</i>	-0.1150** <i>0.0395</i>	-0.1214* <i>0.1048</i>	-0.3710*** <i>0.0000</i>
Growth	0.0132** <i>0.0329</i>	0.0189*** <i>0.0002</i>	0.0240*** <i>0.0000</i>	0.0222*** <i>0.0000</i>	0.0135** <i>0.0140</i>	0.0106* <i>0.0656</i>
Group Affiliation Dummy*List Age	0.0299** <i>0.0180</i>					
Group Affiliation Dummy*Leverage		0.1404*** <i>0.0002</i>				
Group Affiliation Dummy*Size			0.0062** <i>0.0578</i>			
Group Affiliation Dummy*Risk				0.0402 <i>0.3066</i>		
Group Affiliation Dummy*Profitability					-0.5576*** <i>0.0000</i>	
Group Affiliation Dummy*Growth						0.0046 <i>0.5795</i>
Intercept	-0.0759** <i>0.0346</i>	-0.0118 <i>0.6865</i>	-0.0241 <i>0.3802</i>	-0.0360 <i>0.1336</i>	-0.1360*** <i>0.0007</i>	-0.1130*** <i>0.0017</i>
Adjusted R-squared	<i>0.1849</i>	<i>0.2262</i>	<i>0.2204</i>	<i>0.2199</i>	<i>0.1789</i>	<i>0.1917</i>
Hansen J-statistic	<i>7.1442</i>	<i>9.5461</i>	<i>9.7998</i>	<i>10.2821</i>	<i>7.5728</i>	<i>7.0537</i>
Prob(J-statistic)	<i>0.4140</i>	<i>0.2158</i>	<i>0.2002</i>	<i>0.1731</i>	<i>0.3718</i>	<i>0.4233</i>

Note: ***, ** and * denote to coefficients significant at 1, 5 and 10 percent respectively. P-values are in italics.

The sign of interaction between group affiliation and list age is positive and significant whereas it is insignificantly negative for list age variable. It shows that firm listing exposure positively affects group firms' value and however, it seems ineffectual for stand-alone firms. Similarly, both leverage and interaction between group affiliation dummy and leverage are significantly positive. This suggests that impact of leverage is positive for both stand-alone and group firms (consistent with pecking order theory) but the strength of relationship is stronger for group firms. Business groups may transfer

Table 7

Treatment Effects' Results of Interaction Analyses

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Group Affiliation Dummy	-0.3556*** <i>0.0000</i>	-0.3302*** <i>0.0000</i>	-0.3293*** <i>0.0000</i>	-0.3139*** <i>0.0000</i>	-0.2276*** <i>0.0000</i>	-0.3230*** <i>0.0000</i>
List Age	-0.0003 <i>0.5110</i>	0.0014*** <i>0.0000</i>	0.0014*** <i>0.0000</i>	0.0014*** <i>0.0000</i>	0.0012*** <i>0.0020</i>	0.0014*** <i>0.0000</i>
Leverage	0.1420*** <i>0.0000</i>	0.1248*** <i>0.0000</i>	0.1416*** <i>0.0000</i>	0.1423*** <i>0.0000</i>	0.1467*** <i>0.0000</i>	0.1406*** <i>0.0000</i>
Size	0.0026 <i>0.5130</i>	0.0041 <i>0.2810</i>	0.0026 <i>0.6040</i>	0.0042 <i>0.2710</i>	0.0004 <i>0.9260</i>	0.0042 <i>0.2690</i>
Risk	-0.0617*** <i>0.0000</i>	-0.0631*** <i>0.0000</i>	-0.0643*** <i>0.0000</i>	-0.0791*** <i>0.0000</i>	-0.0632*** <i>0.0000</i>	-0.0655*** <i>0.0000</i>
Profitability	-0.1100*** <i>0.0000</i>	-0.1123*** <i>0.0000</i>	-0.1101*** <i>0.0000</i>	-0.1103*** <i>0.0000</i>	-0.0570*** <i>0.0010</i>	-0.1098*** <i>0.0000</i>
Growth	0.0200*** <i>0.0000</i>	0.0187*** <i>0.0000</i>	0.0192*** <i>0.0000</i>	0.0188*** <i>0.0000</i>	0.0193*** <i>0.0000</i>	0.0153*** <i>0.0010</i>
Group Affiliation Dummy*List Age	0.0029*** <i>0.0000</i>					
Group Affiliation Dummy*Leverage		0.0344* 0.0950				
Group Affiliation Dummy*Size			0.0026 0.5990			
Group Affiliation Dummy*Risk				0.0330 0.1180		
Group Affiliation Dummy*Profitability					-0.1910*** 0.0000	
Group Affiliation Dummy*Growth						0.0068 0.2130
Intercept	0.1308*** <i>0.0000</i>	0.1100*** <i>0.0000</i>	0.1100*** <i>0.0000</i>	0.1011*** <i>0.0000</i>	0.0737*** <i>0.0010</i>	0.1066*** <i>0.0000</i>
Group Affiliation Dummy as Dependent Variable						
List Age	0.0083*** <i>0.0000</i>	0.0089*** <i>0.0000</i>	0.0089*** <i>0.0000</i>	0.0090*** <i>0.0000</i>	0.0090*** <i>0.0000</i>	0.0090*** <i>0.0000</i>
Leverage	0.0048 <i>0.9330</i>	0.0093 <i>0.8700</i>	0.0041 <i>0.9420</i>	0.0053 <i>0.9270</i>	0.0032 <i>0.9560</i>	0.0046 <i>0.9360</i>
Size	0.1860*** <i>0.0000</i>	0.1857*** <i>0.0000</i>	0.1844*** <i>0.0000</i>	0.1856*** <i>0.0000</i>	0.1932*** <i>0.0000</i>	0.1847*** <i>0.0000</i>
Risk	-0.0748 <i>0.2010</i>	-0.0780 <i>0.1830</i>	-0.0784 <i>0.1820</i>	-0.0788 <i>0.1720</i>	-0.0703 <i>0.2310</i>	-0.0780 <i>0.1840</i>
Profitability	0.2359** <i>0.0270**</i>	0.2461** <i>0.0200</i>	0.2502** <i>0.0160</i>	0.2415** <i>0.0220</i>	0.0363 <i>0.6870</i>	0.2494** <i>0.0170</i>
Growth	-0.0167 <i>0.2770</i>	-0.0164 <i>0.2840</i>	-0.0166 <i>0.2790</i>	-0.0164 <i>0.2860</i>	-0.0169 <i>0.2740</i>	-0.0174 <i>0.2540</i>
Intercept	-0.8480*** <i>0.0000</i>	-0.8593*** <i>0.0000</i>	-0.8505*** <i>0.0000</i>	-0.8563*** <i>0.0000</i>	-0.8850*** <i>0.0000</i>	-0.8514*** <i>0.0000</i>
Athrho	0.7458*** <i>0.0000</i>	0.7668*** <i>0.0000</i>	0.7942*** <i>0.0000</i>	0.7737*** <i>0.0000</i>	0.5663*** <i>0.0000</i>	0.7972*** <i>0.0000</i>
Lnsigma	-1.3186*** <i>0.0000</i>	-1.3092*** <i>0.0000</i>	-1.3005*** <i>0.0000</i>	-1.3070*** <i>0.0000</i>	-1.3710*** <i>0.0000</i>	-1.2997*** <i>0.0000</i>
Wald Chi-squared	387.3800*** <i>0.0000</i>	372.2500*** <i>0.0000</i>	370.8500*** <i>0.0000</i>	373.6800*** <i>0.0000</i>	396.3500*** <i>0.0000</i>	372.9500*** <i>0.0000</i>
Rho	0.6326	0.6451	0.6608	0.6491	0.5126	0.6625
Sigma	0.2675	0.2700	0.2724	0.2706	0.2539	0.2726
Lambda	0.1692	0.1742	0.1800	0.1757	0.1301	0.1806
Wald test of Rho=0	7.3600 0.0067	11.8500 0.0006	12.6000 0.0004	12.7800 0.0004	5.1300 0.0236	13.6200 0.0002

Note: ***, ** and * denote to coefficients significant at 1, 5 and 10 percent respectively. P-values are in italics.

surplus funds from one firm to another firm having shortage of funds and thus timely availability of funds may help in availing the opportunities and reduction in cost of funds, risk and uncertainty [Estrin, *et al.* (2009); Khanna and Yafeh (2005)]. The use of external funds contributes positively to the excess value if the internal capital markets are efficient [Peyer (2002)]. Similarly, interaction between group affiliation and size variable is significantly positive indicating that firm size is significantly positively related to firm value. The findings provide evidence that group firms are efficient networks of internal markets that help each other by providing inputs, assets and other valuable resources.

More interestingly, both profitability and interaction between group affiliation and profitability variables are significantly negative which propose that firm profitability is negatively associated with firm value. These results are consistent because earnings management practices are well pronounced in the firms of the countries with weak corporate governance and regulatory system. Moreover, the ultimate group controllers are more entrenched that further augment the potential of earning management practices which may ultimately hamper group firms' value [Shah (2009)].

Table 7 reports the interactive regression results of Treatment effect models. These results are highly consistent with the above GMM results.

5. SUMMARY AND CONCLUSION

Like many other emerging economies, business groups are ubiquitous in business environment of Pakistan. Business groups are endogenous response to weak legal system, underdeveloped financial system and missing other market institutions which support business environment. Financial reforms and other privatisation and liberalisation programs initiated in early 1990s strengthen the financial sector. This study sheds light on the group affiliation-performance relationship in a changed institutional environment which is expected to evolve differently. The study extends and supports the institution-based theory of group affiliation and agency theory by adding a dynamic, longitudinal and temporal component.

The results confirm that group firms are trading at discount and affiliation to a diversified business group harms firm value in Pakistan. The results support the market failure argument that business groups decline in performance because the institutional environment got gradually developed in the post financial reforms and liberalisation era in Pakistan. The group affiliation benefits, owing to market failures, disappear and these business groups face stiff competition from the external markets and have to frame policies according to the changing institutional environment for their survival. The results are highly consistent with the market failure theory. The study also finds an empirical evidence of severe agency conflicts among the ultimate controlling shareholders and external shareholders. The ultimate controllers in these business groups engage in tunneling firm resources for their personal consumption that detriment to the external shareholders' wealth.

However, the study finds a little evidence in favor of business groups' internal markets argument. The internal networks permit the affiliated firms sharing valuable resources, like information, inputs and capital which may be a source of value creation. The study finds both positive and negative traits of business group affiliation and however, negative attributes outweigh the positive and net effect of group affiliation is clear. Group affiliation is seen as a value destroying economic organisation.

The study is very important in Pakistani context as it provides guidance to managers, practitioners and investors and further it contributes to the existing finance literature. The business groups have to restructure and modernise their activities related to group affiliation, instead of depending upon rent seeking or other inefficiencies in order to compete in the changed institutional setting of capital, labor and product markets. Further, it also sheds lights on an important corporate governance issue that business groups are engaged in tunneling firm resources that detriment the firm value and cause severe agency conflicts among the controlling shareholders and external shareholders.

This study excludes the financial service firms and further it is a firm level study. In future it is important to examine the performance relationships within business groups. Other sources of costs and benefits to group affiliation, like financial constraints, internationalisation strategy, among others are required to be explored in future. Moreover, agency conflicts among the ultimate group controllers and minority shareholders should be explored further in future studies.

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