The Effect of Business Group Affiliation on the Pricing of New Equity Issues

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Abstract

Information asymmetry is one of the important reasons for mispricing the new equity issues [1].It is identified as one of the important reasons for observing underpricing of initial public offerings (IPO). Therefore, firm attributes that help in reducing the information asymmetry affect the degree of IPO underpricing. The business group affiliation (BGA) is one of the important, firm-specific attributes which exhibit diversified operation and longer operating history. As a result, a BGA firm has a reduced degree of information asymmetry while issuing new equity. Due to these reasons it is expected to observe a lower degree of underpricing of IPO for BGA firms. Empirical evidence of our study reveals that the BGA in itself is not significant in determining the degree of IPO underpricing. However, BGA IPOs exhibit a lower degree of underpricing subject to the interaction effect of business group affiliation with other issue-specific characteristics such as issue mechanism and oversubscription. The study reveals that group affiliation acts as a moderator in determining the degree of IPO underpricing in emerging markets.

Keywords: Business group, Initial public offering, Oversubscription

Introduction

Uncertainty associated with demand results in complexity of pricing the commodity. The pessimistic demand estimation forces the supplier to set the price lower than its intrinsic value. The information asymmetry results in different prices perceived by suppliers and various consumers. The gap between the price perception of supplier and consumer is further accentuated due to information asymmetry between the supplier and the consumer or within various classes of consumers [1]. The same is found true in the case of pricing new equity issues which are commonly known as initial public offerings (IPO). The phenomenon of IPO underpricing is observed in most of the financial markets. The empirical evidence shows that the pricing of new equity issues is a challenge in most of the financial markets. The observed underpricing of initial public offerings is primarily attributed to information asymmetry [1]. It has been observed that certain firm-specific attributes help in reducing this information asymmetry thus aiding the better price discovery of equity issues. Literature indicates that

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specific firm characteristics such as business group affiliation (BGA) and its diversification help in the same. Business groups (BG) with high family control are commonly observed in many developed as well as emerging economies and are attributed to the lack of and/or weak institutional support. Firms that are affiliated with BGs show some noteworthy differentiating characteristics related to their capital structure, source of capital, governance and performance. In the process of expansion of business operations, given the concentration of wealth, business groups tend to diversify their business strategically so as to obtain economies of both scale and scope. As a result, BGA firms tend to exhibit better performance as compared to stand alone firms. Given this, it is very likely that investors' value group affiliated firms relatively higher, everything else remaining the same. In the context of IPO, literature indicates that IPO underpricing, among other things, is also a function of BG affiliation. The empirical studies in this regard have reported mixed results with studies on Japanese keiretsu firms indicating less underpricing [2]. This is attributed to the strategy adopted by keiretsu stabilizing group earnings. On the other hand, Korean Chaebol and Indian BGA firms are observed to be more underpriced as compared to stand alone firms. This is attributed to the perceived expropriation behavior of the BGs due to the discrepancy in the cash flow and control rights of BG in the affiliate firms as a consequence of a pyramid holding structure of the group, particularly in those firms which are at the bottom of the pyramid [3, 4, 5].

This study is focused on understanding the influence of BGA on the degree of IPO underpricing. In the process of the formation and expansion of a business group, the group widens its operational activity. As a result, business groups exhibit a higher degree of diversification. The higher degree of diversification is obtained through either vertical integration or horizontal integration. Therefore, business groups exhibit wider operations in different markets. The scale and scope of operations enables investors to obtain more information about the BG and BGA firms. As a result, the degree of information asymmetry associated with BGA firms issuing an IPO is relatively less than stand-alone firms [6].

A BGA firm will also have a longer operating history before approaching the capital markets as the availability of internal capital access from the BG allows a BGA firm to delay going public thus improving the chances of commanding a higher premium. This longer operating history also helps in reducing the degree of information asymmetry associated with the firm in isolation. Due to these factors the IPOs of BGA firms may tend to show reduced uncertainty of being subscribed fully (due to higher demand). The tendency of issuer and underwriter to underprice intentionally to reduce the risk of unsold inventory [7,8] may not hold true in the case of a BGA firm. On the other hand, the reputation, diversification of group, and advantages of being a member of a group reduce the information asymmetry at the investor level, thus allowing the promoters to price the issue closer to the actual value of the firm given the first-hand information they are privy to. Therefore, it would be logical to assume that the observed underpricing of IPOs of BGA firms will be lower as compared to stand-alone firms. This study proposes to analyze the significance of group affiliation (if any), particularly with respect to diversified BGs in the pricing of new equity issues. The rest of the paper is as follows. Section 2 reviews extant literature associated with BGA firms and its relation to the pricing of new equity issues. Section 3 elaborates the data and methodology, followed by section 4, which reports the results and discusses the same. Section 5 concludes the study and states the limitations.

Business Group Affiliation and IPO Underpricing

The operations of individual business entities collaborating in the form of strategic groups both in formal and informal structures has been and is prevalent across the world [9]. The formal representations of these groups are referred by different names in different economies. For instance they are identified in the literature as 'conglomerates' in the United States, 'chaebol' in Korea, 'keiretsu' in Japan, 'groupo' in Latin America and 'business houses/groups' in India. According to institutional void theory, the evolution of business groups is attributed to the institutional void created by the lack of formal institutions/markets or inefficient functioning of these formal institutions. The literature identifies the group's role as one that tends to fill the void specifically benefitting the firms affiliated or owned by these groups [10, 11]. In emerging economies most of the groups can be identified by family or community ties through interlocking financial holdings. This relationship is proposed to benefit the BGA firms in terms of 1) internal availability of capital at a lower cost 2) overall diversification and reach of business operations, and 3) longer operating history. This, in turn, is assumed to enable the BGA firm to reduce the overall cost of operations and lead to relatively better performance compared to a non BGA firm.

Lensik, Molen and Gangopadhyay [12] observed that the performances of member firms within a business group co-vary. BGA firms show less constraint on availability of capital than stand-alone firms. Also the BGA firms exhibit lower sensitivity towards the change in cash flow than the stand alone firms. The internal availability of capital helps in reducing the cost of capital and the cost of raising funds.

Williamson [13] has come up with an integrated explanation regarding the firm structure and transaction cost by extending the theory of the firm by Coase [14]. Williamson [13] proposes that, the structure of the firm evolves to support the overall functioning of business operations by minimizing the transaction cost. The linkage between the theory of the firm and transaction cost theory explains the evolution of a BG and justifies the intermediation role of a BG in emerging markets. The diversification of a BG extends the above role to resource, product, labor and financial markets thus lowering the operating cost. Chatterjee and Wernerfelt's [15] empirical results support a resource-based view where they found that access to external financial resources is linked with related diversification whereas internal financial resources are linked with unrelated diversification. Therefore, a well-diversified BG is assumed to have access to internal financial resources and thus, is likely to add greater value to firms affiliated to the group. Superior firm performance, group reputation, and certification effect will allow the investors to price the new equity issue closer to the intrinsic value of the BGA firm [12] thus resulting a in lower degree of underpricing.

Other than the above, the access to an internal capital market allows the BGA firm to stabilize before it accesses the external capital market to satisfy its capital needs. Given this, the BGA firms have a longer and more stable operating history, thus reducing the degree of information asymmetry associated with the firm.

Gopalan, Nanda and Seru [19] find evidence of intra-group loans that the member firms offers to weaker firm to avoid the bankruptcy of the weaker member firms. The internal capital market is used to finance the firm that is in financial distress free of cost. This is done to avoid the negative spillover effect in safeguarding the reputation of a firm that will be damaged if the member firm goes bankrupt. This delays any negative performance effects both at the group and individual levels, thus limiting negative information dissemination about BGA firms in the

market. In such cases, intra-group support is extended by the BG drawing resources from other member firms within the group to improve performance. The group would like to avoid the probability of default and failure of the member firm to safeguard its reputation and avoid negative spillover effects of such performance on the other firms within the group. Such observations are difficult for the investors to evaluate because poor performing firms may also not be publicly listed and do not have any requirement for mandatory disclosures. As a result, even poorly performing member firms within the BG may have a relatively higher valuation than similar non BGA firms.

The extant literature has empirical evidence linking group affiliation and IPO underpricing in different countries and/or economies though the direction of the linkage is not uniform across countries. A study based on a sample from the Philippines found that family owned business groups seeking foreign underwriters show a greater degree of underpricing [16]. Studies based on Indian firms have also concluded that IPOs of BGA firms are more underpriced than the stand alone firms [4, 5]. Marisetty and Subrahmanyam [5] support greater underpricing of BGA firms due to a tunneling effect that outweighs the effect of certification of a BGA firm. However, tunneling was evident in larger groups and particularly in firms at the bottom of the pyramid where the difference in the control and capital rights is much wider, and only affected the other income and not operational income [17]. The access to internal capital markets far outweighs the negative impact of the tunneling which was in any case negligible according to the study. Though the access to internal capital markets could have lost relevance due to strengthening of the Indian capital market institutions, making access to capital much easier for BGA firms, the internal capital would still enable BGA firms to satisfy its capital need.

The study by Ghosh [4] supports signaling, as opposed to private intermediation, justifying that Indian BGA firms are more underpriced because they would like to revisit the market to raise the capital in future. This would be true in BGs which relied on equity capital for their growth, which are few and far between, though the strengthening of the capital market institutions over the years would have encouraged more and more firms, both BGA or non BGA, to access the equity markets for their financing needs. Even then, the signaling theory may only apply to larger BGs or firms in industries having high growth rates. The reason is, the magnitude of its operation and growth opportunity creates more capital requirements for large BGA firms. As a result, the probability of visiting capital markets to satisfy its capital requirement by such firms is high. In such situations, the signaling effect is quite critical to make the future issues successful. These studies differ in terms of the time horizon of the data set considered for testing the hypothesis. The Securities and Exchange Board of India (SEBI)- the Indian capital market regulator - has brought in a large number of changes strengthening the equity issuance mechanism and widening the participant base. This made access and availability of capital in the equity markets comparatively easier than before. Given this, the interpretation of the above empirical results are likely to suffer from a temporal constraint.

Contrary to the Indian studies, BGA (keiretsu) firms of Japan resulted in a lower degree of underpricing than that of others since they are expected to produce stable earnings in the future [2]. The study related to Korean chaebol exhibits a greater degree of underpricing in the interest of maintaining the controlling stake for the private benefit of its promoters [3]. The review of extant literature shows that group affiliation, being an endogenous, firm-specific characteristic, has positive as well as negative influence in determining the IPO underpricing and this could be attributed to the maturity of the capital markets and suffers from a temporal constraint as there could be a change in the regulatory environment and depth of capital market over time. The

results of these studies are significantly related to country-specific exogenous factors in which the business groups are operating and one cannot establish generalized cause-effect relationships. The results may also vary based on the strategy adopted by BGA firms in terms of profit maximization versus profit stabilization [18] or having a degree of both strategies.

This study proposes to contribute to the existing literature by exploring group affiliation as a critical variable which investors take into consideration while evaluating the price of any new equity issue. From the financing aspect, BGAs have access to internal capital markets [8,16] and financial support extended by member firms [19], diversification of BG [20], cost sharing by group member firms [21], and tunneling[2] and propping[3] behavior [22]. The availability of internal capital also helps in reducing the cost of capital, not only with respect to the interest/expected return, but also the cost of raising the same from other external sources. It is also observed that BGA firms have better access to external funds, as most often, financial institutions are more willing to lend to BGA firms as compared to stand-alone firms [12]. Most of the business groups are diversified and due to the promoters' ownership stake in member firms, the promoters' wealth is also diversified. The firms that have higher diversification of controlling shareholders' wealth reduce the overall risk of portfolio which reduces the degree of underpricing [23].The above mentioned characteristics of BGA firms have a positive influence on firm performance. This in turn leads to investors, during an IPO, being more likely to bid higher for BGA firms as compared to non BGA firms. On the other hand, the negative influence of tunneling on the IPO pricing of BGA firms may be overstated as the tunneling effect [17] is mostly observed through the non-operating profit components and any effect of the same is observed to have been considered by the market during the price discovery process. Bertrand, Mehta and Mullainathan [17] provide evidence that tunneling activity observed in Indian BGs is largely observed only through non-operating profit items of the firm such as miscellaneous and non-recurring income. They also identified that market forces consider the phenomenon of tunneling for the purpose of valuation. Based on this evidence, our study argues that the investors will consider the effect of tunneling while valuing an IPO. Therefore, the negative influence of tunneling would be too small or already incorporated in the IPO prices. However, the positive influence of certification effect associated with BG will help in reducing the degree of information asymmetry.

Other than the above, the availability of an internal capital market delays the need for the BGA firms to approach the capital markets thus providing the investor with a longer operating history to assist in valuing the same. Empirical results indicate that well established firms with longer operating history would need less monitoring and, as a consequence, will be less underpriced [24]. The stage of organizational lifecycle of a firm is also found to be critical in identifying the need to raise funds through an IPO issuance. Khanna and Rivkin [21] report that the performances of member firms belonging to the same business group tend to co-vary. This indicates that positive performance of any BGA firm may have a positive spillover effect on the other member firms improving the overall group performance.

The formation of Indian business groups is based on various social ties such as family, friends, cast, religion, language, ethnicity and geographical location. According to the

[2]Tunneling is the expropriation of resources of one firm for the benefit of another firm belonging to the same business group.

[3] Propping is the phenomenon where entrepreneurs use their personal money to support the firm when it is in trouble and benefit the minority shareholders.

institutional void theory by Khanna and Palepu [11], emerging markets lack the efficient network of intermediaries that help in providing input resources. In addition, market imperfections lead to an increase in the cost of resources. Therefore, when the business groups evolve as a result of the network effect, the common resources are shared between intra group firms. The resources such as financial needs, human resources and various intangible resources are shared within the group firms which support the functionality of intermediary institutions. Therefore, the BG can easily overcome market imperfections through its internal mechanism. This network effect results in the improved performance and efficiency of a firm [11]. The cross holding of promoters' ownership stake in various firms within the group leads to a decrease in agency cost and also lowers the resource cost and transaction cost enabling the firm to post better results. Given the above facts associated with business groups, investors should be willing to pay a relatively higher price for firms that are affiliated with BGs as opposed to non BG firms, everything else being the same. Extant studies consistently report that the performance of BGA firms is always better due to the value-creating factors far outweighing the effect of value-decreasing factors like tunneling.

The review of extant literature provided above indicates that BGs are associated with certain costs and benefits, the benefits far outweighing the costs. Reduced degree of information asymmetry, longer operating history, availability of internal capital markets and access to scarce resources due to diversification are some of the important factors that help BGA firms to reduce the degree of underpricing of new equity issues. The institutional void theory also supports the existence of BGs in emerging markets with having significant advantages in terms of operational efficiency due to low cost input and financial resources accessible to them. IPO underpricing is commonly estimated with respect to two specific price discovery points. The first is the offer price which is predetermined by non-investors (promoters and underwriters) and the second is the observed price on the listing day as determined by the investors. Most of the studies in literature attribute the degree of underpricing as estimated by the difference between the above two prices with respect to the mechanics of price discovery in determining the offer price of the issue. This justifies underpricing of new issues, due to information asymmetry and risk averse behavior of the issuer and the underwriter, to make it successful. In case there is a difference in the mechanics (auction versus book building), the degree of underpricing would also be impacted though not necessarily eliminated. Due to longer operating history and reputation the BGA firms need not lower the price intentionally to obtain the full subscription. Therefore, in this study we propose that BGAs help in determining the offer price of new equity issues more accurately and help in reducing the degree of underpricing. The study proposes following hypotheses.

H_1: Business group affiliation (BGA)is significant in determining the IPO underpricing

H_{1a}: BGA, being a firm-specific variable, moderates the relationship between issue-specific variables and IPO underpricing

Data and Methodology

The data is sourced from IPOs issued from Jan. 2000 to Dec. 2010 in India. There are 452 IPOs related to our study during this period. The data of IPOs issued is obtained from the SEBI database as provided on their website. The data for firm-specific variables is obtained from Prowess database provided by the Centre for Monitoring Indian Economy (CMIE). The data for

oversubscription and the issuance method is obtained from Capitaline database. We use different databases due to the requirements of different variables which are not available in a single database. All these sources are standard and widely used to obtain the data in Indian markets and will not have any significant impact on the results of the study.

To analyze the impact of BGA the data of group affiliation for each firm is obtained from CMIE. CMIE database provides BG affiliation of a firm. The firms that are not affiliated to BG are described as a private Indian, private foreign, or non-resident Indian (NRI). The state owned and central government owned firms are also defined accordingly. However, firms that have affiliation of government ownership are outside the scope of this study. Therefore, firms with government ownerships are ignored in the analysis of understanding the impact of group affiliation on the degree of underpricing.

The degree of underpricing is computed as,

$$\text{Degree of IPO Underpricing} = \frac{Opening\ Price\ on\ Listing\ day - Offer\ Price}{OfferPrice} \times 100$$

The analysis of impact of group affiliation on degree of underpricing is undertaken by defining the BGA variable as a binary, assuming a value of one (1) if the IPO is issued by a BGA firm, otherwise zero (0). To test the proposed hypothesis we use OLS regression estimation method. The degree of IPO underpricing is defined as the dependent variable. The issue-specific characteristics such as issue size and issue mechanism, and firm-specific characteristics, such as total assets and age of the firm, are considered as control variables to analyze the significance of business group affiliation in explaining the degree of underpricing. The variables for the empirical work are considered from those obtained from other empirical studies in the literature [4,5, 25].

Variable Definition:

Ln Issue Size: Natural log of issue size of an IPO in Indian rupees

Group affiliation: is a binary variable that takes value of one if a firm is affiliated to a business group, otherwise zero

Ln Oversubscription: Natural log of oversubscription ratio which is total demand of number of shares to the total number of shares offered by a firm through IPO

Issue Mechanism: is a binary variable which takes value of one if the IPO is offered with fixed price method, otherwise zero

ListingYear: is categorical variable to control the time period of issuance that denotes the year of IPO issuance

Ln Age at Listing: Natural log of number of years from the year of incorporation to the listing year

Ln Total Asset: Natural log of total asset of a firm

Industry: is a two digit National Industrial Classification (NIC) code equivalent to SIC code referred in the United States

Group affiliation*Issue Mechanism: Interaction between group affiliation and issue mechanism

Group affiliation*Oversubscription: Interaction between group affiliation and Oversubscription

Table 1 shows the year frequency distribution of IPOs issued by BGA firms and non business group affiliated firms (NBG henceforth) from 2000 to 2010. Over the sample period, there are 99 IPOs issued by firms that are BGAs and 330 by firms that are not affiliated with business group. In year 2003, the sample does not show any IPO, issued by BGA firms.

Table 1: Descriptive statistics of year-wise number of issues with group affiliation

Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**Total**
BG	12	2	5	0	6	17	16	25	4	3	9	99
NBG	35	14	1	3	13	32	59	75	36	12	50	330

Table 2 describes the overall picture of IPO underpricing in the last decade. The average underpricing is 28.01% for BGA IPOs and 23.90% for non BGA IPOs. The minimum underpricing shows negative value indicating that few issues are overpriced. The average issue size of BGA IPOs is Rupees 7506.9 million and Rupees1480.9 million for non BGA IPOs with an average oversubscription of 26.08 and 18.92 respectively. The average age of a BGA firm is 17 years as compared to 13 years for NBG firms. This supports the fact that the availability of an internal capital market allows the BGA firms to go public late in the organizational life cycle. This helps in reducing the information asymmetry due to longer operating history [24].

Indian IPOs are issued either by following a fixed pricing mechanism or a book building (BB) mechanism. In a fixed pricing mechanism, the final price is decided by the issuer a priori. In a BB mechanism price discovery takes place based on number of shares and the price bid by the investors. Therefore, issue mechanism is considered as one of the important parameters for the analysis. It is a categorical variable. The issues that offered with fixed pricing mechanisms are denoted as one (1) otherwise zero (0). Given the above, multivariate analysis by considering ordinary least square regression method is undertaken to test the hypothesis.

Table 2: Descriptive statistics of IPO variables based on group affiliation

	BG					**NBG**				
	N	Mean	Min.	Max.	S. D.	N	Mean	Min.	Max.	S. D.
Underpricing(%)	99	28.01	-36.36	295.83	49.26	330	23.90	-53.92	526.00	49.16
Issue Size (RupeesMillion)	99	7506.9	36	117000.0	1760.27	330	14801	20.6	52607.9	365.3
Oversubscription	99	26.08	1.00	159.40	32.18	330	18.92	0.91	179.97	28.94
Age	99	17	0	107	20	330	13	0	69	9

Table 3 shows the year trend in IPO underpricing in percentage. Based on the following table it is observed that year 2000 and 2004 exhibit a relatively higher degree of underpricing for BG firms and year 2001 and 2005exhibit a greater degree of underpricing for NBG firms.

Table 3: Year-wise descriptive statistics of underpricing based on group affiliation

Listing Year	**Underpricing**					
	BG			**NBG**		
	Count	Mean	S.D.	Count	Mean	S.D.
2000	12	52.02	101.89	35	35.78	76.41
2001	2	-14.17	22.39	14	47.67	144.87
2002	5	10.95	24.86	1	3.58	
2003	0			3	33.93	23.32
2004	6	48.32	40.37	13	32.91	34.83
2005	17	31.99	22.09	32	47.97	65.53
2006	16	39.81	62.61	59	22.99	22.03
2007	25	18.68	27.01	75	24.33	28.99
2008	4	31.73	27.39	36	5.04	14.44
2009	3	3.30	2.95	12	1.33	11.82
2010	9	5.35	8.26	50	10.43	17.37
Total	99	28.01	49.26	330	23.9	49.16

Table 4 presents the Pearson correlation coefficient matrix of IPO variables which are considered in the analysis. For the observed significant correlation coefficient we checked the VIF scores for all the models which are below 10 within the acceptable range [26].

Results and Discussion

Table 5 presents the regression results for underpricing as a dependent variable. In the empirical analysis of hypothesis testing we used five regression models by controlling issue-specific and firm-specific characteristics in analyzing the impact of group affiliation and interaction of group affiliation with issue-specific characteristics such as issue mechanism and oversubscription.

In these models issue-specific characteristics such as issue size, issue mechanism, oversubscription and listing year, and firm-specific characteristics such as total asset as a proxy for firm size, age and industry code, are used as control variables. In model 1 and 2 we consider most of the firm-specific and issue-specific characteristics such as issue size, total asset as a proxy for firm size, industry code and listing year as control variables. The business group affiliation is considered as a dummy variable along with other firm-specific controls as mentioned above. Model 1 and 2 are important to test H1 where the group affiliation is considered as an independent variable by controlling other issue-specific and firm-specific

variables. In both these models, the variable of our interest, BGA, is found insignificant in determining the degree of IPO underpricing.

Table 4: Pearson Correlation matrix of IPO variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Issue Size (Rs Cr.) (1)	1	-.03	.09	.05	-.153***	-.02	.290***
Open Underpricing (2)		1	-.05	.519***	.147**	-.02	-.04
Age At Listing (Years) (3)			1	-.02	-.03	.149***	.614***
Oversubscription (4)				1	-.05	-.05	.02
Issue Mechanism (5)					1	.05	.01
Group Affiliation (6)						1	.262**
Total Asset (7)							1

*** Correlation is significant at the 0.01 level (2-tailed). ** Correlation is significant at the 0.05 level (2-tailed).

Table 5a: Regression results in analyzing the influence of group affiliation on underpricing

Dependent Variable: Degree of Underpricing

	Model 1		**Model 2**	
Independent Variables	β	p	β	p
LnIssue Size	-0.140	0.078*	-0.130	0.107
Group Affiliation	0.045	0.302	0.046	0.295
LnOversubscription	0.546	0.000***	0.546	0.000***
Issue Mechanism	0.109	0.041**	0.110	0.039**
Listing Year	-0.044	0.358	-0.044	0.354
LnAge at Listing			0.032	0.496
LnTotal Asset	-0.026	0.700	-0.046	0.537
Two Digit NIC Code	0.042	0.346	0.044	0.323
N		391		391
R Square		0.344		0.345
Adjusted R Square		0.332		0.331
F		28.752***		25.182***

In columns, ***, **, and * indicate significance at 1%, 5% and 10% level, respectively.

Table 5b: Regression results in analyzing the influence of group affiliation on underpricing with interaction effect

Dependent Variable: Degree of Underpricing

	Model 3		Model 4		Model 5	
Independent Variables	β	p	β	p	β	p
LnIssue Size	-0.137	0.085*	-0.143	0.069*	-0.139	0.075*
Group Affiliation	-0.385	0.106	0.023	0.604	-0.393	0.095*
LnOversubscription	0.548	0.000***	0.363	0.000***	0.367	0.000***
Issue Mechanism	-0.714	0.113	0.105	0.047**	-0.690	0.121
Listing Year	-0.045	0.351	-0.047	0.325	-0.047	0.318
LnAge at Listing						
LnTotal Asset	-0.021	0.759	-0.006	0.926	-0.001	0.985
Two Digit NIC Code	0.043	0.326	0.023	0.603	0.025	0.575
Group affiliation *Issue Mechanism	0.911	0.066*			0.879	0.072*
Group affiliation *Oversubscription			0.230	0.001***	0.228	0.001***
N		391		391		391
R Square		0.350		0.361		0.367
Adjusted R Square		0.336		0.348		0.352
F		25.741***		27.099***		24.590***

In columns, ***, **, and * indicate significance at 1%, 5% and 10% level, respectively.

These results do not support proposed hypothesis H_1. The overall operation of a business group is highly significant in the Indian economy. Business groups together held 78.96% of assets and 80.4% of total market capitalization in the Indian economy at the end of 2010. These figures represent a significant and larger scale of operation by business group firms in the Indian economy. This scale of operation is justified by observing BGA firms having a larger issue size of IPOs as compared to stand alone firms. This dominating position of BGA firms is likely to drive investors' sentiments while exploring the investment opportunities. The observed insignificance can be due to following two reasons. One reason could be that BG IPOs need not induce underpricing intentionally since it is not required for a BG to opt for underpricing as a signaling mechanism to make the future issues successful. Another reason is that BGA firms have large number of sources to satisfy their financial needs. The reputation of a BG helps in making the issue successful which is justified through higher oversubscription for BG IPOs. In other words, the investors' sentiments are reflected through higher oversubscription for BG IPOs. Therefore, even though group affiliated firms show differentiating characteristics as compared to other firms, these characteristics do not have significant impact on the pricing of new equity issues. Based on these results we interpret that the mere fact of a firm being affiliated to a BG does not have any influence on the degree of information asymmetry at the time of IPO issuance.

Based on the results presented in Table 2, we support Stoughton and Zechner [24] where the BGA firms go public relatively late due to the availability of an internal capital market. The average age is found as 17 years compared to 13 years for standalone firms. However, when the same has been considered in a multivariate model, increased time period of operations (age) associated with BGA firms does not necessarily influence the pricing of new equity issues. The same is justified in the multivariate regression analysis presented in Model 2. In other words, the longer operating history of Indian business groups does not necessarily result in reducing information asymmetry associated with the new equity issues, therefore, it does not exhibit any significance in influencing the degree of IPO underpricing. On the other hand, the oversubscription ratio for BG IPOs is observed higher due to the certification effect associated with BGs. Among the issue-specific variables, the issue mechanism and oversubscription are found significant in determining the degree of IPO underpricing.

Issue mechanism used for pricing the issue has a significant bearing on the degree of information asymmetry. Fixed pricing mechanism does not leave any scope for the investors to reveal their price perception. The positive beta coefficient associated with the issue mechanism supports that a fixed pricing mechanism results in a higher degree of underpricing. On the other hand, book built issues incorporate the investors' price perception within the prescribed price range that helps to reduce degree of underpricing. On average, the book building mechanism resulted in IPO underpricing of 20.49% as compared to 35.66% of degree of underpricing of fixed priced issues. This makes it evident that a book building mechanism helps in reducing the degree of IPO underpricing by 15.17%. Therefore, selection of issue mechanism is critical for the issuer. The results presented in Models 1 and 2 do not support proposed hypothesis H_1 since the BGA itself is found insignificant in determining the IPO underpricing.

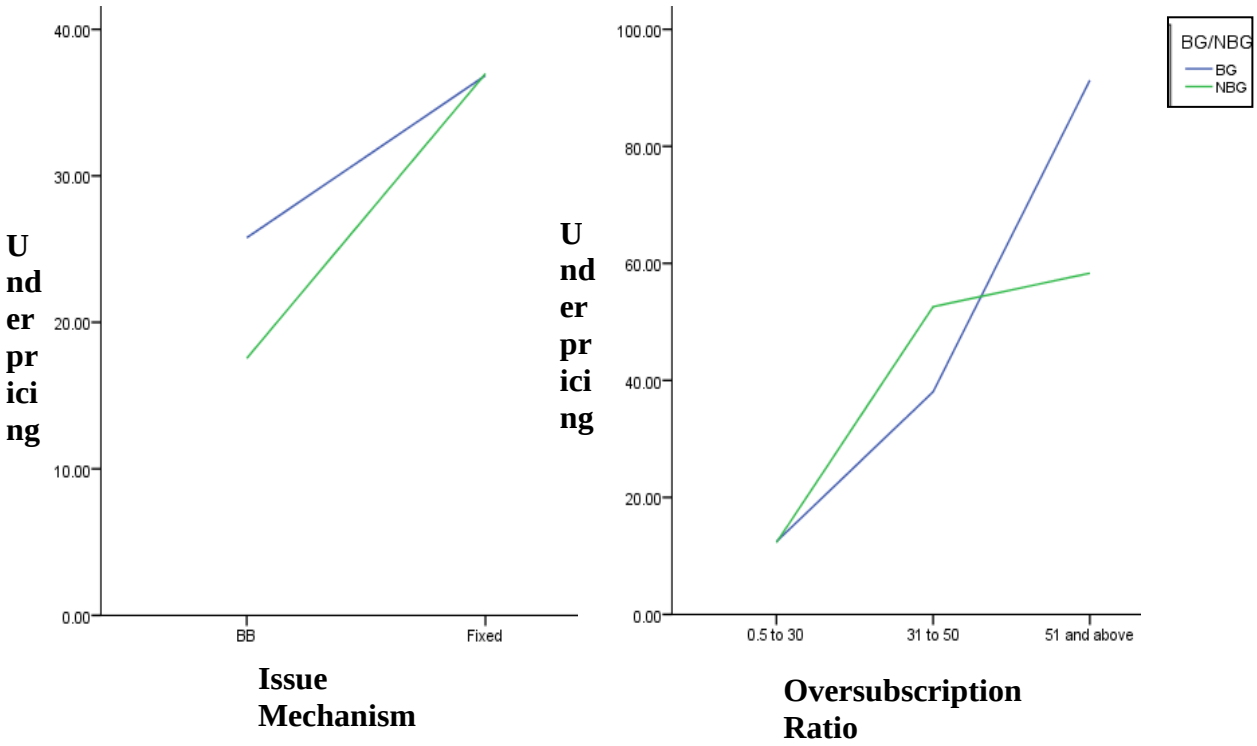
In Models 3 and 4, we test the interaction effect of BGAs with issue-specific variables, such as issue mechanism and oversubscription, with group affiliation. The results reveal that the interaction effect of group affiliation with issue mechanism (presented in Model 3),as well as group affiliation with oversubscription (presented in Model 4) are found significant. In Model 3, the interaction of BGA with issue mechanism is observed significant at 10% level with positive beta coefficient. This interaction effect reveals that the group affiliation serves as a moderating variable in combination with issue mechanism which presents the ability to incorporate the available information that reflects in the price of IPO. If the price is a biased estimator then the transparency of issue mechanism helps in setting the price closer to its fair price [27, 28]. The interaction effect of issue mechanism and group affiliation further helps in reducing the degree of information asymmetry influencing the degree of IPO underpricing. More specifically, if the BG IPOs have opted fixed pricing mechanism, the pricing mechanism exacerbates the IPO underpricing. The reason being fixed pricing mechanism has very little or almost no flexibility to incorporate the market information into the price once it is set. On the other hand BG IPOs issued through book building mechanism help in reducing the degree of IPO underpricing since the book building method has the ability to incorporate the market information into the price of IPO, having the price set within the specified price range. Therefore, the process helps in reducing the degree of information asymmetry associated with pricing of IPO. The inclusion of interaction effect in Model 3 also improves goodness of fit of the model. This effect reveals that BGA, in combination with book building issue mechanism, helps in reducing the degree of IPO underpricing.

In Model 4, we consider the interaction effect of BGA with oversubscription. From Table 2, it is evident that on average, BGA IPOs receive higher oversubscription (26.08 times) as

compared to NBG IPOs (18.92 times). Larger oversubscription also indicates investors' sentiment in BGA IPOs. The reputation of the BG will also enable the investors to exhibit larger interest in BG IPOs as compared to NBG IPOs. This reveals that the higher demand generated for group affiliated IPOs will result in a greater degree of rationing at the time of IPO allocation. The unfulfilled demand will increase the trading activity in the secondary market influencing the price of IPO. Therefore, we interpret it as an impact of unfulfilled demand more than the influence of the degree of information asymmetry associated with initial pricing of new equity issues.

In Model 5 the results are presented by including both interaction variables i.e. interaction of group affiliation with issue mechanism and interaction of group affiliation with oversubscription. Inclusion of both of these variables modifies the significance of group affiliation. In this model BGA is observed significant at 10% with negative beta coefficient. Since the group affiliation is a binary variable its negative effect implies that BG IPOs are less underpriced. However, this is weakly supported and the effect is plausible in the presence of its interaction with issue mechanism and oversubscription. Main effect in Model 5 reveals that the BG IPOs exhibit a lower degree of underpricing subject to the issue method adopted to issue an IPO as well the demand from investors observed through the oversubscription ratio. The interaction variables are found significant with positive beta coefficient which is consistent with our previous models. The model increases the goodness of fit as compared to previous models. Figure 1 helps to interpret the results presented in Model 5.

Figure 1: Graphical representation of influence of issue mechanism (Fig. 1a) and oversubscription (Fig. 1b) on the degree of IPO underpricing of BG IPOs and NBG IPOs.



In Figure 1(a) it is observed that if the BGA IPOs opt book building (BB) mechanism

over fixed pricing, the degree of underpricing is less. However, the degree of underpricing of these BGA IPOs will still be higher as compared to NBG IPOs opting for book building mechanism.

In Figure 1(b) we categorize the oversubscription ratio in three different groups such as 0.5 to 30, 31 to 50, and 51 and above. This figure makes it evident that in the BG IPOs, having lower subscription results in a lower degree of underpricing. However, once it exceeds the oversubscription beyond 50, it leads to a higher degree of underpricing as compared to NBG IPOs.

Due to the certification effect associated with BG, if the investors exhibit greater interest in BG IPOs it increases the oversubscription which leads to a higher degree of underpricing. The investors' sentiments in BG IPOs are critical in observing higher demand. If the demand exceeds a particular threshold of oversubscription for BG IPOs, then it results in observing a higher degree of underpricing because unmet demand of shares through IPO allocation reflects increased trading activity on the listing day that results in higher price.

The positive interaction effect and negative effect of BGA (though with weak significance) leads to mixed impact on degree of underpricing. Since the BGA in itself shows its significance in presence of its interaction with issue mechanism and oversubscription, it implies that the significance of group affiliation is determined by other issue-specific characteristics rather than the firm-specific characteristics.

The results presented in Models 3, 4 and 5 support our hypothesis H_{1a} where the BGA acts as a moderating variable in combination with issue-specific factors such as issue mechanism and oversubscription. The IPOs issued by BGA firms show 26.38% of IPO underpricing if issued through the book building mechanism. Comparatively, the IPOs of BGA firms with fixed pricing issue shows 36.85% of IPO underpricing. NBG IPOs get more benefit through the bookbuilding mechanism than BG IPOs where the underpricing is observed at 17.54% as compared to 36.97% through the fixed pricing mechanism. These results indicate that the BGA firms can reduce the degree of underpricing by opting for the book building method rather than the fixed pricing method. Therefore, even though the group affiliation exhibits subtle differences in firm characteristics, it can influence the degree of IPO underpricing only in consideration with its interaction effect with other issue characteristics. The issue mechanism and oversubscription ratio are significant issue-specific characteristics used to observe the difference between the degree of IPO underpricing of BG IPOs and NBG IPOs. This is where our study differs from the previous studies by Ghosh [4] and Marisetty and Subrahmanyam [5]. These studies conclude that in the Indian context, IPOs of group affiliated firms are more underpriced, either due to the signaling effect or the tunneling effect. Our study supports that the BG IPOs can be potentially less underpriced depending upon the issue mechanism and oversubscription. Among these two issue characteristics, the oversubscription is exogenous in nature where the certification effect of BG will play an important role in inducing the demand for BG IPOs. However, the selection of issue mechanism is completely the issuer's discretionary decision where BG IPOs will benefit by selecting book building mechanism over fixed pricing. The time period of the dataset used in prior studies experienced large number of changes in terms of IPO regulatory environment in India. The effect of these exogenous factors will have impacted the results. The sample considered in this study is for a decade that has a relatively uniform regulatory environment. Therefore, the moderation effect of business group affiliation is supported as proposed in H_{1a}.

Conclusions

Business group affiliation is one of the important endogenous characteristics of a firm in an emerging market. Institutional void theory identified the reasons of superior performance of a BGA firm in an emerging market. Due to value adding characteristics such as the availability of an internal capital market, diversification, and longer operating history, the effect of business group affiliation is studied in influencing the degree of IPO underpricing. This study shows that business group affiliation in itself does not have a significant impact on IPO underpricing, thus contradicting the results of previous studies reported by Ghosh [4] and Marisetty and Subrahmanyam [5]. However, the study reveals an important moderating effect associated with BGA. The BGA IPOs exhibit a lower degree of underpricing subject to the issue mechanism opted for by the issuer and the overall demand by investors. The effect of BGA affiliation is observable only in the presence of the interaction effect of BG with oversubscription and issue mechanism together. The interaction effect considered by controlling other firm-specific and issue-specific characteristics is also found significant in determining the degree of IPO underpricing. It implies that BGA plays a role of moderator in determining the degree of underpricing. Bookbuilding method helps the BG IPOs to reduce the degree of underpricing as compared to fixed pricing mechanisms. A lower degree of oversubscription of BG IPOs results in reducing the degree of underpricing as compared to NBG IPOs. Once they exceed a particular threshold of oversubscription rate, the BG IPOs result in a higher degree of underpricing.

The implications of this study can be viewed from the issuers' perspective and the investors' perspective. The BGA firms benefit by selecting a bookbuilding issue mechanism that helps in reducing information asymmetry and eventually lowers the degree of IPO underpricing. It has been found that BGA firms issue IPOs later in their organizational life cycles. Therefore, they have a longer operating history prior to issuing an IPO. A longer operating history helps in reducing the degree of information asymmetry and increases demand, resulting in a higher oversubscription ratio. The higher oversubscription results in a higher degree of rationing of IPO shares. The unfulfilled demand during the allocation influences the price and trading activity on listing day resulting in a higher degree of underpricing. Hence, issuers can focus on these factors while issuing new equity issue. Similarly, investors can look at the issue mechanism followed by the BGA firms while making investment decisions. The study recommends that investors evaluate other issue-specific characteristics in addition to the group affiliation while making the investment decision in the case of Indian IPOs since the group affiliation in itself does not influence the IPO performance of the listing day. The influence of BGA is always subject to the issue mechanism and demand by the investors.

The study acknowledges the limitation of the sample size available related to the IPOs issued by BGA firms.

The study contributes to the literature by linking the strategic and financial benefits of group affiliation to analyze the influence on the pricing of new equity issues with respect to other issue-specific characteristics. It reveals a moderating effect of business group affiliation associated with issue-specific characteristics in determining the price of new equity issues.

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The Effect of Business Group Affiliation on the Pricing of New Equity Issues

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Abstract

Information asymmetry is one of the important reasons for mispricing the new equity issues. It is identified as one of the important reasons for observing underpricing of initial public offerings (IPO). Therefore, firm attributes that help in reducing the information asymmetry affect the degree of IPO underpricing. The business group affiliation (BGA) is one of the important, firm-specific attributes which exhibit diversified operation and longer operating history. As a result, a BGA firm has a reduced degree of information asymmetry while issuing new equity. Due to these reasons it is expected to observe a lower degree of underpricing of IPO for BGA firms. Empirical evidence of our study reveals that the BGA in itself is not significant in determining the degree of IPO underpricing. However, BGA IPOs exhibit a lower degree of underpricing subject to the interaction effect of business group affiliation with other issue-specific characteristics such as issue mechanism and oversubscription. The study reveals that group affiliation acts as a moderator in determining the degree of IPO underpricing in emerging markets.

Keywords: Business group, Initial public offering, Oversubscription

French abstract*

The Effect of Business Group Affiliation on the Pricing of New Equity Issues

L'effet de l'affiliation à un Groupe sur la cotation des nouvelles émissions d'actions

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Résumé

L'asymétrie d'information est l'une des raisons les plus importantes d'une mauvaise évaluation de prix lors d'une nouvelle émission d'actions. Elle est identifiée comme une raison principale de la sous-évaluation des offres publiques initiales. Par conséquent, tout attribut d'une entreprise qui aide dans la réduction de l'asymétrie de l'information influence le degré de sous-évaluation d'une offre publique initiale. L'appartenance à un groupe est un attribut spécifique important, car elle permet de présenter un fonctionnement plus diversifié et une histoire d'exploitation plus longue. En conséquence, lorsqu'une firme émet de nouvelles actions, l'appartenance à un groupe réduit l'asymétrie de l'information. Pour ces raisons, on s'attend à observer un moindre degré de sous-évaluation lors d'une offre publique initiale pour des entreprises qui sont affiliées à un groupe. Notre étude empirique révèle que l'affiliation à un groupe en soi n'est pas significative dans la détermination du degré de sous-évaluation d'une offre publique initiale. Cependant, des introductions en bourse, en étant affilié à un groupe, présentent un plus faible degré de sous-évaluation, en raison de l'effet d'interaction, dues à l'appartenance à un groupe, avec d'autres caractéristiques spécifiques comme les mécanismes d'émission et la sur-souscription de titre. L'étude révèle que l'appartenance de groupe agit comme un modérateur pour déterminer le degré de sous-évaluation d'une offre publique initiale dans les marchés émergents.

Mots-clés: Un groupe, offre publique initiale, sur-souscription

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German abstract*

The Effect of Business Group Affiliation on the Pricing of New Equity Issues

Der Effekt der Zugehörigkeit zu einer Unternehmensgruppe auf die Preisbildung bei Aktienemissionen

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Zusammenfassung

Die Informationsasymmetrie ist einer der wichtigsten Gründe für die Fehlbewertung von neu ausgegebenen Aktien. Sie wurde als eine der wichtigsten Erklärungen für die Beobachtung von Unterbewertung bei Erstemissionen (IPO) identifiziert. Daher beeinflussen Unternehmensattribute, die bei der Reduktion der Informationsasymmetrie helfen, den Grad der Unterbewertung der IPO. Die Zugehörigkeit zu einer Unternehmensgruppe (business group affiliation, BGA) ist eins der wichtigen, firmenspezifischen Attribute, welches eine lange, diversifizierte Unternehmensentwicklung ermöglicht. Infolgedessen weist ein BGA-Unternehmen bei der Emission neuer Anteile ein reduziertes Maß an Informationsasymmetrie aus. Aus diesen Gründen wird ein geringerer Grad an Unterbewertung der IPO von BGA-Unternehmen erwartet. Empirische Beweise unserer Studie zeigen, dass die BGA an sich nicht signifikant für die Bestimmung des Ausmaßes der IPO-Unterbewertung ist. Jedoch weisen die IPOs der BGA-Unternehmen einen geringeren Grad von Unterbewertung in Abhängigkeit von dem Interaktionseffekt von Unternehmensgruppenzugehörigkeit mit anderen emissionsspezifischen Charakteristika wie bspw. Emissionsmechanismus und Überzeichnung aus. Diese Studie zeigt auf, dass Unternehmensgruppenzugehörigkeit bei der Bestimmung des Ausmaßes der IPO-Unterbewertung auf Wachstumsmärkten als Moderator agiert.

Keywords: Unternehmensgruppe; Börseneinführung; Überzeichnung

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Spanish abstract*

The Effect of Business Group Affiliation on the Pricing of New Equity Issues

El Efecto del *Business Group Affiliation* (BGA) en el Precio las Nuevas Emisiones de Renta Variable

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Resumen

La asimetría de la información es una de las razones importantes para la manipulación de precios de las nuevas emisiones de acciones. Se identifica como una de las razones importantes para la observación de la infravaloración de las ofertas públicas iniciales (OPI). Por lo tanto, los atributos de la firma que ayudan en la reducción de la asimetría de la información afecta el grado de infravaloración de salida a bolsa. La pertenencia a un grupo empresarial o *Business Group Affiliation* (BGA) es uno de los atributos importantes, específicos de las empresas que presentan una operación diversificada y una historia de funcionamiento más largo. Como resultado, una firma de BGA tiene un grado reducido de asimetría de la información mientras emite nuevas acciones. Debido a estas razones, se espera observar un menor grado de infravaloración de la salida a bolsa de BGAs. La evidencia empírica de nuestro estudio revela que el BGA en sí mismo no es importante para determinar el grado de infravaloración de salida a bolsa. Sin embargo, las OPIs de los BGA presentan un menor grado de infravaloración sujeto al efecto de la interacción de la afiliación al grupo empresarial con otras características de temas específicos, como mecanismos de emisión y sobresuscripción. El estudio revela que la afiliación al grupo actúa como moderador en la determinación del grado de la infravaloración de la OPI en los mercados emergentes.

Palabras Clave: Unidad de negocio, oferta pública inicial, sobresuscripción.

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Arabic abstract*

The Effect of Business Group Affiliation on the Pricing of New Equity Issues

أثر انتمائات مجموعات الأعمال على تسعير الاسهم الجديدة

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الملخص

تعتبر لا تماثلية المعلومات أو عدم توافقها من أحد أهم الاسباب لاشكالات تسعير الاسهم الجديدة. بل انها تعتبر من اهم الاسباب مراقبة بيع الاسهم عند طرحها للاكتتاب العام تحت مستوى سعرها الحقيقي. لذلك فان سمات الشركات التي تقلل من لا تماثلية المعلومات هي نفسها التي تقلل من بيع الاسهم عند طرحها للاكتتاب العام تحت مستوى سعرها الحقيقي. الانتماء لمجموعات الأعمال هي احدى السمات التي تبين تنوعا في العمليات مع تاريخ رصين في التعامل مع المعاملات المختلفة. نتيجة لذلك يكون لديها درجة أقل من لا تماثلية المعلومات عند اصدار الاسهم الجديدة و بالتالي سوف يكون هنالك درجة أقل من بيع الاسهم عند طرحها للاكتتاب العام تحت مستوى سعرها الحقيقي. حيث اثبتت دراسات ميدانية ان الانتماء لمجموعات الأعمال بحد ذاته لا يقلل من بيع الاسهم عند طرحها للاكتتاب العام تحت مستوى سعرها الحقيقي. و لكن الاكتتاب العام لأسهم هذه الشركات يكون متميزا في تسعيره الحقيقي نظرا لتفاعل عوامل اخرى مع سمات الشركات و طرحها للأسهم مثل الية الطرح و الاكتتاب فائض الطلب. تكشف هذه الدراسة ان الانتماء لمجموعات الأعمال يقوم بدور عامل معدل في تحديد درجة بيع الاسهم عند طرحها للاكتتاب العام تحت مستوى سعرها الحقيقي في الاسواق الناشئة.

الكلمات الدالة: مجموعات الأعمال؛ الاكتتاب العام للأسهم ؛ الاكتتاب مع وجود طلب فائض

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Chinese abstract*

The Effect of Business Group Affiliation on the Pricing of New Equity Issues

企业集团所属在新股发行定价中的作用

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[摘要]

[信息不对称是对新股发行错误定价的重要原因之一。信息不对称也被确定为首次公开发行股（IPO）抑价的重要原因之一。因此，企业对减少信息不对称的属性直接影响IPO 抑价程度。业务组关系（BGA）是企业特有的重要属性之一，其表现出多样化的操作和更长的经营历史。这样一来，一个 BGA 公司在发行新股时会降低信息不对称的程度。由于这些原因，对 BGA 企业来说，IPO 抑价的的程度应该较低。我们研究的经验证据显示， BGA 本身并不显著决定 IPO 的抑价程度。然而，当 BGA 和其他属性，如发行机制和超额认购，交互作用时，BGA 的 IPO 会有一个较低的抑价程度。该研究表明，组关系是确定 IPO 在新兴市场的抑价程度的一个调节变量。]

Keywords: [**关键词**：业务组，首次公开发行，超额认购]

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