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Business groups and corporate transparency in emerging markets: Empirical evidence from India

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Abstract This study examines the difference in corporate transparency of firms affiliated with business groups and unaffiliated firms in India. Based on previous studies we measured corporate transparency using equity analysts' forecast error and dispersion. We find that firms affiliated with business groups are less transparent than unaffiliated firms. Lack of transparency leads to higher analyst forecast error and dispersion. This study also finds that business group-affiliated firms with more intra-group capital transactions have higher forecast error and dispersion. The findings of this study suggest that firms affiliated with business groups are less transparent due to their reliance on internal capital markets, and therefore lack incentives to disclose information to market participants. As a result, the information asymmetry between business groups and the capital market is higher, restricting the activities of information intermediaries such as equity analysts, who play an important role in the external capital market.

Keywords Corporate transparency · Corporate disclosure · Corporate governance · Business groups · Emerging markets · India

Corporate transparency is the disclosure of firm-specific information to outside constituents of publicly traded firms (Bushman, Piotroski, & Smith, 2003). It is integral to corporate governance and crucial for the efficient functioning of capital

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markets (Healy & Palepu, 2001). The lack of disclosure of firm-specific information increases the information asymmetry between the firm and market participants such as investors, equity analysts, and other stakeholders (Verrechia, 2001). Increased information asymmetry between a firm and its financial stakeholders creates difficulty in evaluating or predicting the performance of the firm, leading to the loss of investor confidence, which subsequently increases financing costs (Healy, Palepu, & Sweeny, 1995; Krishnaswami & Subramaniam, 1999). Moreover, lack of disclosure or corporate transparency restricts the effective functioning of market intermediaries such as equity analysts, who play an essential role in capital markets delivering new information about a firm to investors and stock traders (Healy, Hutton, & Palepu, 1999; Lang & Lundholm, 1996). In the long run, lack of information disclosure impedes the effective functioning of capital markets (Khanna, 2000; Rajan & Zingales, 1995).

Due to a lack of disclosure practices, corporate governance rules, and enforcement processes in comparison to developed countries, the lack of corporate transparency appears particularly prevalent in emerging market economies (Bushman et al., 2003; Oman, Fries, & Buiter, 2003). Moreover, in emerging market economies the corporate sector is dominated by "business groups"—groups of legally independent firms operating in a wide variety of industries under common ownership and control (Carney, 2008; Cuervo-Cazurra, 2006; Ghemawat & Khanna, 1998; Peng & Delios, 2006). To overcome inefficiencies of the external markets evident in emerging markets, firms affiliated with business groups trade capital, products, and managerial resources among group associates (Khanna & Palepu, 1997; Li, Ramaswamy, & Petitt, 2006). This reliance on group-specific internal capital, products, and managerial/labor markets provides little motivation or incentive to disclose information to stakeholders outside the groups, exacerbating the problem of information asymmetry in the market (Douthett, Jung, & Kwak, 2004). However, empirical research on the role of business groups in emerging market economies emphasizes that business groups enhance the efficiency by substituting internal markets for underdeveloped or inefficient external capital markets (Khanna & Palepu, 1997, 2000; Khanna & Rivkin, 2001; Leff, 1978).

The impact of business groups in general, and their use of internal markets in particular, on corporate transparency in emerging market economies is under-researched (Kali, 2003; Khanna, 2000). This study examines the difference in terms of corporate transparency between firms that are affiliated with business groups and unaffiliated or independent firms. The primary focus of this study is to examine the impact of business groups and their use of internal capital market on corporate transparency in India. We argue that due to the efficiency of internal capital markets and their accessibility, group-affiliated firms have little incentive to disclose information to external markets in order to reduce financing costs. The lack of transparency in group-affiliated firms may also arise due to the reluctance of their controlling owners to disclose information, for the protection of their controlling interests in the group (Ali, Chen, & Radhakrishnan, 2007; Claessens & Fan, 2002). Both the above factors lead to lack of corporate transparency in business groups, which subsequently increases information asymmetry between business groups and the market (Rajan & Zingales. 1995).

Based on previous studies, we measure corporate transparency using the characteristics of equity analyst forecast behavior. By collecting information about a firm, evaluating its current performance, and making future forecasts, equity

analysts play an intermediary role between the firm and the market. The accuracy and dispersion of analysts' forecasts reflect the availability of firm-specific information being produced and distributed in the markets by the firm (Healy & Palepu, 2001; Krishnaswami & Subramaniam, 1999; Lang & Lundholm, 1996; Tsang, 2001). Previous studies have shown that increased corporate disclosure or transparency results in higher forecast accuracy (lower forecast error) and less forecast dispersion among analysts covering a given firm (Bhat, Hope, & Kang, 2006; Hope, 2003; Irani & Karamanou, 2003; Lang & Ludholm, 1996). Based on these measures, first, we examine whether Indian business group-affiliated firms are less transparent than unaffiliated firms. Second, we examine whether the extent of lack of transparency is contingent upon the intensity of internal capital-market transactions among the business group firms.

Existing research on corporate governance in emerging market economies focus on the pyramidal ownership structure of business groups and its impact on expropriation of minority shareholders due to the conflict of interest between controlling owners and minority shareholders (Almeida & Wolfenzon, 2006a, b; Bertrand, Mehta, & Mullainathan, 2002; Chang, 2003). This study examines how business groups deter the effective functioning of specialized information intermediaries such as equity analysts in the external capital market. Equity analysts play alternative corporate governance roles by providing information to less informed investors and act as outside monitors (Claessens & Fan, 2002; Lang, Lins, & Miller, 2004; Sun, 2009). By collecting private information and scrutinizing companies' public disclosure, equity analysts disseminate credible information to investors which enables them to impose discipline on value-destroying managers. Moreover, their expertise and experience in analysis of financial reports enable them to monitor managers who disclose fraudulent information. Equity analysts play an important role particularly in emerging economies with weak corporate governance mechanisms such as weak shareholders rights by providing additional information to shareholders and scrutiny of the firm (Lang et al., 2004; Sun, 2009). Consequently, the findings of this study will provide implications for future research to examine the role of business groups in development of market intermediaries which are essential for effective functioning of the external capital market. Due to the efficiency of internal markets, business groups may disclose less information which deters the effective functioning of alternative corporate governance mechanisms such as the equity analysts in emerging market economies.

This paper is organized as follows: The following section provides a theoretical background and hypotheses for the role of internal capital markets and corporate transparency, together with an outline of the Indian institutional context. The next section describes the data used and the measurement of variables. The results of the empirical analysis are presented in the next section. The final section discusses the results and their implications.

Business groups, internal capital markets, and corporate transparency

Internal and external capital markets

The major distinguishing feature of emerging market economies compared to developed economies is the institutional context and the transaction costs incurred

by firms in the market (Khanna & Palepu, 1997; North, 1990; Williamson, 1985). In comparison to developed economies, external markets in emerging economies are either underdeveloped or lack effective regulations for trade, contract enforcement, and communication. Poor information disclosure and lack of information intermediaries in emerging markets, especially in capital, labor, and product markets, create "institutional voids," which lead to high transaction costs (Khanna & Palepu, 1997; Khanna & Rivkin, 2001). In such circumstances, business groups utilize their internal capital, labor, and product markets by efficiently allocating scarce resources among affiliated firms within the same business group. Business groups also use internal markets efficiently to reduce transaction costs arising due to information asymmetry between investors and the firm in the capital market. Further, they use vertical integration in the product market to help group-affiliated firms overcome the market imperfections (Khanna & Palepu, 1997, 2000; Leff, 1978; Li et al., 2006).

Internal capital markets have the advantage of efficient resource allocation, enabling them to overcome inefficiency arising from information asymmetry (Gertner, Scharfstein, & Stein, 1994; Stein, 1997). When controlling shareholders/owner-managers in a firm allocate capital through the internal capital market, they have greater incentive to effectively monitor resource allocation than would an external financial institution (Gertner et al., 1994). The internal competition for resources among different divisions in a conglomerate firm may also result in increased efficiency in allocating financial resources in the internal capital market (Stein, 1997). However, when there is a severe agency problem between the majority and minority shareholders, internal capital markets may end up misallocating capital by cross-subsidizing poorly performing divisions or investing in divisions with low growth opportunities (Lamont, 1997; Scharfstein & Stein, 2000; Shin & Stultz, 1998). In this regard, studies limited to developed countries find the costs of using internal capital markets exceed the benefits (Rajan, Servaes, & Zingales, 2000; Scharfstein & Stein, 2000).

External capital markets in emerging economies are characterized primarily by weak corporate governance and financial disclosure rules. The lack of securities regulations and enforcement lead to information asymmetry (Khanna & Palepu, 1997; Khanna & Rivkin, 2001). Moreover, financial intermediaries such as financial analysts, mutual funds, investment bankers, venture capitalists, and financial press are not fully evolved and securities regulations are weak (Khanna & Palepu, 2000). In this context, the internal capital markets in business groups play an efficient role by reducing financing constraints for group affiliates. For instance, business groups jointly mobilize resources from their affiliates to enter into new ventures and coordinate intra-group capital transactions by lending and investing among group affiliates. Business groups also act as intermediaries between independent affiliates and the market by providing collateral for affiliates to raise capital from the market and managing their relationships with external financial institutions (Khanna & Palepu, 1999a; Shin & Park, 1999). On the other hand, if there is a conflict of interest between controlling family shareholders and minority shareholders, the internal capital market may be used to cross-subsidize poorly performing affiliates (Claessens & Fan, 2002). Several studies of business groups in emerging market economies find internal capital markets achieve useful ends, such as market intermediation for products, finance, and labor (Khanna & Palepu, 2000; Khanna & Yafeh, 2007; Shin & Park, 1999).

Internal capital markets and corporate transparency

In emerging market economies, which usually have imperfections in their external capital market, the efficiency of internal capital markets in business groups is a useful source of capital financing. Thus, there is little incentive for group-affiliated firms to rely on external capital markets to finance their investment projects. Consequently, group-affiliated firms, which have easy access to internal capital markets, lack incentives and motivation to disclose information and improve transparency, and thereby mitigate information asymmetry and reduce financing costs (Krishnaswami, Spindt, & Subramaniam, 1998; Rajan & Zingales, 1995). Lack of reliance on the external capital market by business group-affiliated firms restricts the demand for services provided by information intermediaries in the market, such as equity analysts. Further, the lack of information disclosure creates difficulties for financial analysts in evaluating group-affiliated firms, which plays an important role in providing information about the firm to the market. This reinforces the information asymmetry between the firm and external stakeholders (Kali, 2003; Khanna, 2000). In addition, business groups in many emerging economies have access to various benefits from governmental policies. Groups receive capital in preferential lending terms, reducing their reliance on external equity markets and limiting incentives to build credibility through improved transparency in external capital markets (Khanna & Yafeh, 2007).

The ownership and control structure of business groups also leads to lack of transparency. In instances where family owners control group-affiliated firms through cross-shareholding or interlocking of ownership, in order to protect their controlling interest in the group or ability to channel funds across group firms controlling owners are reluctant to disclose information (Claessens & Fan, 2002; Khanna & Palepu, 1999b). Previous studies find that cross-shareholding among group affiliates has negative correlation with corporate transparency in emerging economies (Patel, Balic, & Bwakira, 2002).

Based on our study of the above literature, in this study we test the following hypotheses. First, we hypothesize that business group firms are less transparent than non-business group firms as a result of their use of well-developed internal capital markets and arbitrary transactions among affiliated companies. Second, we examine whether the use of internal markets is a predictor of lack of transparency. We suggest that group-affiliated firms that make maximum use of internal capital markets will be less transparent, leading to greater information asymmetry.

Hypothesis 1 Firms affiliated with business groups are less transparent compared to unaffiliated firms.

Hypothesis 2 Firms affiliated with business groups that make greater use of their internal capital markets are less transparent compared to firms affiliated with groups that make less use of internal capital markets.

Indian institutional context and business groups

The context of this study is the transparency of Indian business groups. Currently India is undergoing rapid transformation through market-oriented reforms. Since the

1990s India has been liberalizing its economy and attempting to establish regulations for effective functioning of stock markets. It is one of the world's largest emerging economies in terms of stock market capitalization (56.4% of GDP as of 2003), the number of listed firms (5,644 firms) and turnover ratio (138.5%). It also has a large investor base with more than 13 million shareholders (Patel et al., 2002; S&P, 2004). Similar to other emerging economies, business groups dominate the Indian corporate sector, with a high level of diversification, intra-group trade, and family ownership (Kedia, Mukherjee, & Lahiri, 2006; Khanna & Rivkin, 2001; Khanna & Yafeh, 2007).

Business groups in India have an extensive history, dating back to the early nineteenth century when merchant families invested in diversified industries by floating joint stock companies. These families, known as "promoters," owned and controlled a set of legally independent firms through the cross-shareholding of equities, the interlocking of directorates, and other informal coordination activities. After India gained independence in 1947, the socialist economic policy further reinforced market imperfections. The import-substitution policy induced trading firms to enter new businesses, and the industrial licensing policy, aiming to limit concentration, together with the antitrust regulation, led to significant industrial diversification (Ghemawat & Khanna, 1998). Even after the adoption of market-based reforms in 1991, business groups retained their competitiveness through their efficient use of internal capital, labor, and product markets. Similar to groups in other emerging economies, the intra-group capital market plays a prominent role in Indian business groups (Khanna & Palepu, 1999a, 1999b, 2000; Lensink, Van der Molen, & Gangopadhyay, 2003). Group affiliates invest in each other through cross-shareholding, borrow and lend to and from other group affiliates, and pool finances to fund new ventures (Bertrand et al., 2002; Lensink et al., 2003). In a study of group- and non-group-affiliated firms between 1989 and 1997, Lensink et al. (2003) found that group affiliates face fewer financing constraints in India, due to their access to borrowing from other group affiliates, and group affiliates invest substantially in each other's businesses, as is the case in other emerging economies (Khanna & Yafeh, 2007; Shin & Park, 1999). For the above reasons India provides an ideal context to test the hypotheses.

Methods

Data source and sample

As a dependent variable we measured analyst forecast error and forecast dispersion as a proxy for corporate transparency. Analyst forecast data were obtained from the Institutional Brokers Estimate System (I/B/E/S) Summary History Tape. Although the I/B/E/S has collected data on Indian firms since 1993, we compiled sample firm-years from 1995 to 2003 for firms listed on the Bombay Stock Exchange (BSE), as some data for the period 1993 to 1994 were missing. In order to ensure that regulatory changes for corporate governance, especially corporate disclosure, did not impact the results during the study period, we consulted the corporate disclosure regulations as set out by the Securities and Exchange Board of India (SEBI), which is the statutory body in charge of compliance with corporate governance and

disclosure practices for listed firms. Strict disclosure practices of listed firms were not mandatory until the mid 1990s. In order to improve corporate governance practices, SEBI instituted the Kumar Mangalam Committee in 1999. The recommendations for mandatory and stricter disclosure practices were only introduced in Clause 49 of the *SEBI Act* in 2002. Since our study covers a period until 2003, we assume changes in regulatory policies on disclosure practices have no affect on our results, as the strict enforcement of these laws occurs after our study period.

For financial data and business-group classification, we used the PROWESS database, compiled by the Center for Monitoring Indian Economy (CMIE). PROWESS is the most reliable Indian corporate database used in previous empirical studies (Bertrand et al., 2002; Khanna & Palepu, 2000). Out of approximately 6,000 firms listed on the BSE, PROWESS covers around 4,500. The BSE classifies shares into three major groups: specified shares, or A group, and non-specified shares, B1 and B2 groups. However, only specified A group shares are traded actively in the secondary market. Specified A group shares typically have a large capital base with a widespread shareholding, a steady dividend, good growth record, and high trading volume in the secondary market. Relatively liquid securities are placed in the B1 category, and all newly listed securities are placed in the B2 group. The BSE periodically shifts the companies among the categories, with fewer than 200 shares classified as specified A group at one time. In terms of volume of annual turnover, the specified A group consists of more than 90% of total annual turnover. We include only specified A group shares in our study. We expect that due to their large trading volume, disclosure standards will be higher in these firms. We exclude firms with missing values for forecast error and forecast dispersion, financial institutions and regulated utilities under government supervision. Based on these criteria, we obtained 711 firm-year observations representing 119 firms in our final sample.[1] Our sample includes 460 affiliates of 96 business groups, of which 262 affiliates belong to top 50 groups in terms of total assets, representing their flagship listed firms with the largest market capitalization in the BSE.[2] Our sample of independent firms includes 61 firms with a sample size of 251 for nine years of observation.

Dependent variables

The dependent variables for corporate transparency or disclosure are analyst forecast error and dispersion. Firms provide information to the market directly through periodic disclosures (annual reports), occasional disclosures, and investor relations activities. Together with direct information, equity analysts access information from other sources, which they interpret and disseminate to market participants (McNichols & Trueman, 1994). Lang and Lundholm (1996) found that analyst

[1] A yearly breakdown of the sample shows that it is well balanced in each year: 1995: 61 (8.57%), 1996: 114 (16.03%), 1997: 112 (15.75%), 1998: 81 (11.39%), 1999: 76 (10.68%), 2000: 86 (12.09%), 2001: 84 (11.81%), 2002: 54 (7.59%), 2003: 43 (6.04%).

[2] For example, our sample includes the Tata Group: Tata Chemicals, Tata Motors, Tata Power, Tata Tea, Titan Industries, and Tata Steel; the AV Birla Group: Grasim Industries, Hindalco, Indian Rayon, and Indo-Gulf Fertilizers; Thapar Group: Ballarpur Industries, Crompton Greaves, and JCT Ltd; Wadia Group: Bombay Dyeing; TVS Iyenger Group: TVS Motors and Sundaram Fasteners; and Bajaj Group: Bajaj Auto.

forecasts are more accurate and less dispersed for firms with more open disclosure policies, which make information about the firm available to the market. Therefore, in this study, following the prior studies, we examine the changes in corporate transparency of Indian firms as measured by analysts' forecast error and forecast dispersion.

Forecast error, which measures analysts' forecast accuracy, is defined as the absolute value of the difference between actual EPS (earnings per share) and the median analyst forecast of EPS. The difference is deflated by stock price to facilitate comparison across firms. The median analyst forecast we use here is the final one calculated before the actual EPS figure is released.[3] In this study, we transform forecast error into logarithmic form because its distribution is highly skewed.[4] The equation for computing Log(Forecast Error) is as follows:

$$\text{Log(Forecast Error)} = \text{Log}(|(\text{actual EPS} - \text{median analyst forecast of EPS})/\text{stock price}|)$$

Forecast dispersion among analysts is the standard deviation of the analysts' forecasts of EPS. The standard deviation is deflated by stock price to facilitate comparison across firms. The standard deviation we use here is the final one calculated before the actual EPS figure is released. In this study, we transform forecast dispersion into logarithmic form, due to its highly skewed distribution.[5] The equation for computing Log(Forecast Dispersion) is as follows:

$$\text{Log(Forecast Dispersion)} = \text{Log}(|\text{standard deviation of analyst forecasts of EPS}/\text{stock price}|)$$

Independent variables

The business *Group Dummy* takes the value of 1 if the firm belongs to the business group at the fiscal year-end and 0 otherwise. We follow the PROWESS classification of business group affiliation. Although there is no legal definition for identifying business groups in India, PROWESS provides a comprehensive classification of business group affiliation, taking into account historical family ties, government

[3] Before the actual EPS figure is released, analysts usually forecast the EPS of a particular fiscal year several times. The frequency of forecasting differs depending on the analyst. The I/B/E/S collects the forecast data from individual analysts around the world once a month, and with it calculates statistics such as mean, median, standard deviation, etc. Only the final estimates of the analysts are included in the monthly calculation. Thus, the I/B/E/S Summary History Tape provides calculated statistics of analysts' forecasts of EPS once a month. In this study, we use the final, calculated median of analysts' forecasts of EPS before the actual EPS is released.

[4] In Table 1, Panel A, the mean and median of Forecast Error is .04 and .01 respectively. Further, the minimum and maximum values of this variable are .00005 and 1.30, respectively. These values show that the distribution of Forecast Error is skewed, and thus log transformation is needed for normality. For example, the mean and median of Log(Forecast Error) are −4.55 and −4.53, respectively, showing that the distribution of Log(Forecast Error) is closer to normality than the Forecast Error.

[5] In Table 1, Panel A, the mean of Forecast Dispersion is .027, while the median of Forecast Dispersion is .01. Further, the minimum and maximum values of this variable are .0002 and 1.0181, respectively. These values show that the distribution of Forecast Dispersion is skewed, and thus log transformation is needed for normality. For example, the mean and median of Log(Forecast Dispersion) are −4.56 and −4.59 respectively, showing the distribution of Log(Forecast Dispersion) to be closer to normality than Forecast Dispersion.

sources, and company information. This classification is comprehensive, up-to-date, and has been used in previous empirical studies (Bertrand et al., 2002; Khanna & Palepu, 2000).

Use of the internal capital market is measured by intra-group financial transactions. We construct one variable *Internal Capital Transaction* to measure intra-group financial transactions. Group affiliates transact through the internal capital market by borrowing, lending, and investing in group firms. We consider three such transactions. They are "investment in group firms," which is the group-affiliated firms' investment in shares and debentures in other affiliated firms; "affiliated firms' loans to other group-affiliated firms"; and "borrowing from other group-affiliated firms." These are the only three variables included in the database and have been used in previous studies to measure intra-group financial trade of Indian business group-affiliated firms (Khanna & Palepu, 1999b). To provide consistency across the sample we added together all three intra-group capital transaction variables and deflated the figure by the market value of the group-affiliated firms.

Control variables

We used five control variables which have impact on analyst forecast error and dispersion, as per previous studies. Firm size proxy is *Log(Market Value)*, which is the market value of the firm's equity, defined as the closing price of the common stock at the fiscal year-end multiplied by the number of common shares outstanding. Previous studies have found positive associations between forecast accuracy and market value, larger firm size, and less dispersion of analyst forecasts (Lang & Lundholm, 1996), and larger firm size and less forecast error (Brown, Richardson, & Schwager, 1987; Eddy & Seifert, 1992).

We also control for *Standard Deviation of Stock Returns*, which is defined as the historical standard deviation of daily stock returns computed for one year. This variable reflects the internal uncertainty of a firm, and thus affects analyst forecast characteristics. As this variable reflects the reliability of information contained in a stock price, analyst forecasting for firms with higher standard deviation of stock returns becomes more difficult and thus less accurate (Chang, Cho, & Shin, 2007).

Number of Analysts is the total number of analysts following a firm in a given year. We expect the number of analyst will have a negative impact on forecast error and dispersion, as they represent the quantity and quality of information about the firm being disseminated into the market, reducing the information asymmetry between the firm and market (Alford & Berger, 1999; Lang & Lundholm, 1996).

Leverage is the firm's debt-to-asset ratio and we expect a positive relationship between leverage and analyst forecast error and dispersion. Finally, variability in earnings increases the difficulty of forecast earnings, especially for firms that show losses, thus leading to greater forecast error and dispersion (Hope, 2003). Accordingly, our *Earnings Dummy* takes a value of 1 if earning is negative and 0 otherwise (Chang et al., 2007). We expect a positive relationship between the negative earnings dummy and forecast error and dispersion.

With firm-year records, we used General Linear Square (GLS) Random-Effects models to test the hypotheses. GLS models provide corrections for the presence of autocorrelation and heteroscedasticity in pooled time series data (Kmenta, 1986). We

chose random-effects estimation over fixed-effects as the independent variable of group dummy does not change over time (Allison, 2009).

Results

Descriptive statistics

Table 1, Panels A and B, shows the descriptive statistics for variables used in this study. As shown in Panel A, the mean and median of forecast error are 4% and 1%

Table 1 Descriptive statistics for variables.

Panel A Pooled sample (1995~2003).

Variables	Mean	Median	Standard deviation	Minimum	Maximum
Forecast Error	0.04	0.01	0.12	0	1.3
Log(Forecast Error)	−4.55	−4.53	1.68	−9.82	0.26
Forecast Dispersion	0.02	0.01	0.06	0	1.01
Log(Forecast Dispersion)	−4.56	−4.59	1.33	−8.40	0.01
Group Dummy	0.64	1	0.47	0	1
Internal Capital Transaction	0.20	0.02	0.54	0	6.15
Number of Analysts	1.72	1.79	0.70	0	2.94
Leverage	0.93	0.95	0.05	0.30	1
Earnings Dummy	0.04	0	0.21	0	1
Log(Market Value)	6.46	6.52	1.80	−1.11	11.64
Standard Deviation of Stock Returns	11.70	7.54	17.85	0	185.18

Panel B Comparison between business group-affiliated and unaffiliated firms.

	Group Firms			Non-Group Firms			Difference	
	N	Mean	Median	*N*	Mean	Median	Mean	Wilcoxon Z
Forecast Error	460	0.05	0.01	251	0.03	0	−0.02*	−4.61***
Log(Forecast Error)	460	−4.36	−4.34	251	−4.91	−4.97	−0.56***	−4.61***
Forecast Dispersion	460	0.03	0.01	251	0.01	0	−0.01*	−5.60***
Log(Forecast Dispersion)	460	−4.36	−4.40	251	−4.93	−5.02	−0.57***	−5.60***
Group Dummy	460	1	1	251	0	0	−1***	−26.64***
Internal Capital Transaction	460	0.31	0.10	251	0	0	−0.31***	−21.15***
Number of Analysts	460	1.72	1.79	251	1.71	1.79	−0.01*	−0.19
Leverage	460	0.95	0.95	251	0.91	0.94	−0.03*	−6.00***
Earnings Dummy	460	0.04	0	251	0.04	0	0	−0.13
Log(Market Value)	460	6.20	6.14	251	6.94	7.01	0.74***	5.89***
Standard Deviation of Stock Returns	460	11.36	7.05	251	12.32	8.04	0.95	1.76***

* $p < .1$, ** $p < .05$, *** $p < .01$.

of the actual stock price, respectively. The mean and median of forecast dispersion are 2% and 1% of the actual stock price, respectively. The mean and median values of Log(Forecast Error) are −4.55 and −4.53, respectively, and those of Log(Forecast Dispersion) are −4.56 and −4.59, respectively. This suggests that the distribution of Log(Forecast Error) and Log(Forecast Dispersion) are less skewed and closer to normality. Panel B compares the descriptive statistics of business group and non-group firms. Our sample includes 460 business group-affiliated firms and 251 non-affiliated (independent) firms. Both the mean and median of forecast error and forecast dispersion are higher for group-affiliated firms than for non-group firms. Log(Forecast Error) and Log(Forecast Dispersion) show the same pattern. The differences in mean and median of the log variables are significant at the 1% level, indicating that transparency for business group-affiliated firms is lower than that for non-affiliated firms. There is no significant difference between the mean and median values of leverage and number of analysts following the group affiliates and independent firms. However, independent firms have a higher mean value for market capitalization as well as the standard deviation of stock returns.

Tables 2 shows the Pearson correlations between variables used in this study. Log(Forecast Error) has a significant positive correlation with Log(Forecast Dispersion). Both Log(Forecast Error) and Log(Forecast Dispersion) have positive and significant correlation with the group dummy and group internal capital market variable. The significance of Log(Forecast Dispersion) is higher for internal capital transactions compared with Log(Forecast Error). The group dummy has a significant and positive correlation with leverage and internal capital transactions, indicating that listed firms often invest and provide loans to or borrow from other group firms, as consistent with prior research (Khanna & Palepu, 1999a; Lensink et al., 2003). Both Log(Forecast Error) and Log(Forecast Dispersion) have negative and significant correlation with Log(Market Value) and number of analysts and positive and significant correlation with negative earnings dummy.

Table 2 Correlation coefficients.

Variables	1	2	3	4	5	6	7	8
1. Log(Forecast Error)	1							
2. Log(Forecast Dispersion)	.65***							
3. Group Dummy	.16***	.20***						
4. Internal Capital Transaction	.23***	.31***	.27***					
5. Number of Analysts	−.29***	−.15***	.00	−.05				
6. Leverage	.03	.01	.26***	.05	.13***			
7. Earnings Dummy	.36***	.29***	−.00	.19***	−.07*	−.16***		
8. Log(Market Value)	−.33***	−.29***	−.19***	−.23***	.52***	.13***	−.12**	
9. Standard Deviation of Stock Returns	.13***	.09*	−.02	−.05	−.26***	−.21***	.06*	−.41***

* $p < .1$, ** $p < .05$, *** $p < .01$.

Regressions of Log(Forecast Error) and Log(Forecast Dispersion)

Table 3, Panels A and B, provides results for Hypotheses 1 and 2. We used GLS regression to test our hypotheses. The regression model is divided into two different panels. Panel A is constructed as follows:

Model 1 Log(Forecast Error) = a + b_1Group Dummy + b_2Number of Analysts + b_3Leverage + b_4Earnings Dummy + b_5Log(Market Value) + b_6Standard Deviation of Stock Returns + Industry Dummy + Year Dummy + e

Model 2 Log(Forecast Error) = a + b_1Internal Capital Transaction + b_2Number of Analysts + b_3Leverage + b_4Earnings Dummy + b_5Log (Market Value) + b_6Standard Deviation of Stock Returns + Industry Dummy + Year Dummy + e

Panel A shows the regression results for Log(Forecast Error). We used 711 firm-year observations between 1995 and 2003 in Model I and 460 group-affiliated firms in Model II. Model I shows the result for the impact of the group dummy on forecast error. The group dummy has a positive association with forecast error after controlling for the number of analysts, leverage,

Table 3 Regression results of Log(Forecast Error) and Log(Forecast Dispersion).

	Panel A Log(Forecast Error)		**Panel B** Log(Forecast Dispersion)	
	MODEL I	**MODEL II**	**MODEL III**	**MODEL IV**
Group Dummy	0.42**		0.54 ***	
	(2.38)		(3.79)	
Internal Capital Transaction		0.29**		0.30***
		(2.56)		(3.54)
Number of Analysts	−0.33***	−0.30***	−0.10	0.01
	(−3.14)	(−2.95)	(−0.14)	(0.20)
Leverage	0.36	0.40*	0.15	0.22
	(1.63)	(1.86)	(0.93)	(1.35)
Earnings Dummy	1.61***	1.53***	0.61***	0.54***
	(6.62)	(6.25)	(3.52)	(3.09)
Log(Market Value)	−0.32***	−0.32***	−0.29***	−0.28***
	(−6.74)	(−6.45)	(−7.91)	(−7.48)
Standard Deviation of Stock Returns	−0.00	−0.00	−0.00	−0.00
	(−0.39)	(−0.36)	(−1.15)	(−1.12)
Industry Dummy	Included	Included	Included	Included
Year Dummy	Included	Included	Included	Included
R Square	0.20	0.25	0.28	0.28
Model Chi Square	220.58***	221.47***	259.74***	257.57***
N	711	460	711	460

* $p < .1$, ** $p < .05$, *** $p < .01$.

The data presented in the parentheses are "t-value"

earnings dummy market value, and standard deviation of stock returns. The estimated coefficient of the group dummy signifies that analyst forecast error is 52% higher for firms affiliated with business groups compared with unaffiliated firms.[6] This result supports Hypothesis 1, indicating that group-affiliated firms have lower transparency than unaffiliated firms in India. Model II shows the impact of the intensity of internal capital market transactions carried out by the firms affiliated to business groups on forecast error. According to Hypothesis 2, we would expect lower levels of transparency for group-affiliated firms with high levels of intra-group capital trade, thereby making it difficult for analysts to forecast correctly, which in turn leads to higher forecast error. The regression results show that internal capital transactions have significant and positive associations with forecast error. In other words, greater involvement among group members in terms of loans, borrowings, and investment in other group firms leads to higher forecast error. Among the control variables, number of analysts and Log(Market Value) have a significant negative association, and leverage and negative earnings dummy have positive and significant association with Log(Forecast Error), suggesting that larger firms with positive earnings and a large analyst following disclose comparatively more information, as consistent with prior research (Brown et al., 1987; Eddy & Seifert, 1992).

Panel B shows the regression results for Log(Forecast Dispersion). In Hypothesis 1, we predicted group firms would have higher forecast dispersion than non-group firms. Model III shows the group dummy has a positive and significant association with Log (Forecast Dispersion). The estimated coefficient signifies that analysts' forecasts are 71% more widely dispersed for group-affiliated firms than for unaffiliated firms.[7] This result indicates that in India group-affiliated firms have lower corporate transparency than unaffiliated firms, and is consistent with Hypothesis 1. Model IV shows the impact of the intensity of internal capital market transactions carried out by the firms affiliated to business groups on Log(Forecast Dispersion). In Hypothesis 2, we hypothesized lower corporate transparency around group firms with high levels of internal transaction, leading to higher forecast dispersion. Consistent with our hypothesis, the regression results show that internal capital transactions among group firms have significant and positive associations with forecast dispersion. The Log(Market Value) has negative association and earnings dummy has positive association with Log(Forecast Dispersion), suggesting larger firms with positive earnings disclose more information than smaller firms.

The results in Table 3, Panels A and B, support our two hypotheses that business group-affiliated firms have lower corporate transparency, in comparison to unaffiliated firms. Group-affiliated firms with higher use of internal capital market have lower transparency compared to group-affiliated firms with lower use of internal capital market.

Discussion, limitations, and conclusion

Business groups dominate the corporate sector of India and other emerging market economies. Previous research emphasizes the fact that business groups create value

[6] The economic magnitude of the group dummy is calculated as $\exp(0.42) - 1 \fallingdotseq 0.52$.

[7] The economic magnitude of group dummy is calculated as $\exp(0.54) - 1 \fallingdotseq 0.71$.

by efficiently utilizing their internal capital, product, and labor markets where external markets are underdeveloped or inefficient. This study examined the role of business groups, specifically the role of internal capital markets, on corporate transparency in India. Using analysts' forecast error and forecast dispersion as proxies for information asymmetry between management and financial stakeholders, we find business group-affiliated firms, especially those with higher use of their internal capital market, are less transparent than those of unaffiliated or stand-alone firms in India.

The findings of this study have several implications for the role of business groups in corporate disclosure and corporate governance in India and other emerging markets where business groups play a dominant role in the economy. Business groups increase efficiency by conducting transactions in the internal capital, labor, and product market among group-affiliated firms. Our findings show the efficiency-enhancing role of business groups may negatively impact the corporate transparency in these markets. Due to their reliance on internal markets, group-affiliated firms are less motivated or lack incentives to disclose information to outside constituents, exacerbating the scarcity of information. Lack of disclosure restricts the effective functioning of information intermediaries such as equity analysts who engage in information discovery and their individual efforts collectively improve corporate transparency (Claessens & Fan, 2002). Lack of transparency increases the information asymmetry between the firms and their shareholders leading to suboptimal investment made by the shareholders in these firms.

Similar to previous studies, this study calls for devising effective corporate governance policies in India, particularly information disclosure policies. For instance, after the economic crisis the Korean government introduced regulations to improve corporate transparency, directing business groups to prepare consolidated financial statements detailing investments and transactions effected among group-affiliated companies. It also implemented the international accounting standards (IAS), increased governmental supervision of external auditors, permitted class-action lawsuits against external auditors, and implemented effective regulations of outside directors. These measures have contributed significantly to improving the quantitative and qualitative information environment of Korean firms (Chang et al., 2007). In a similar vein, Nowland (2009), in his study of corporate disclosure practices of eight Asian countries, found that national corporate governance codes had a positive impact on corporate disclosure practices.

Together with strengthening corporate disclosure standards, policy makers should also concentrate on developing external market institutions (Khanna & Palepu, 1997, 1999a, b). Policies to develop external markets in emerging markets where firms can access external markets without incurring large transaction costs may lead to increased corporate transparency. If a firm has high demand for external financing, it may be willing to provide information to equity analysts, whose certification improves the credibility of the released information. This may act to gradually improve the information environment in these economies.

Besides the role of government in improving transparency, business groups need to contribute to improve the information environment through unilateral commitment to become transparent by disclosing credible information. Business groups

compete in emerging economies through their reputation in the capital, product, and labor market (Khanna & Rivkin, 2001). In order to raise capital from the stock market or financial institutions, Indian and Korean business groups such as the Tata and Samsung group commit the reputation of the entire group for group affiliates. These groups are also known for their umbrella brand name that represents high quality goods and services in the product market. The reputable group brand also helps these groups to attract the best talents in these countries (Chang & Hong, 2000; Khanna & Rivkin, 2001; Khanna & Yafeh, 2007). Lack of transparency may negatively impact their reputation in the market. As a result, Tata group in India has adopted a corporate code of conduct to disclose credible financial information (Tata Code of Conduct, 2011) in a timely manner. Other business groups need to devise such policies in order to enhance their reputation.

This study, as with most research studies, is characterized by some inherent limitations. First, we based our empirical study on India as a context for emerging market economies and examined corporate transparency between 1995 and 2003, when regulations on corporate disclosure were weak. However, emerging market economies vary in terms of their level of market development, the rules regarding corporate governance, and the characteristics of the corporate sector. The findings of this study may not be generalizable to other emerging market economies. Further studies based on other emerging market economies will contribute to generalizing the findings of this study. In addition, it would be interesting to examine differences in corporate transparency between group-affiliated and unaffiliated firms following the introduction of corporate disclosure regulations.

Second, while this study finds the negative impact on corporate transparency of a particular set of variables in internal capital markets, future studies incorporating additional variables can provide insights into the role of internal capital markets on corporate disclosure. The impact of the ownership and control mechanism in business groups on corporate disclosure is yet to be explored in existing research. This study hypothesized that lack of transparency may be due to controlling owners' reluctance to disclose information in order to protect their control over the group. However, due to data constraints, this study could not analyze the impact of the ownership structure of business groups on corporate disclosure in India. Future studies may analyze this aspect to improve our understanding of the lack of transparency in business groups.

Finally, this study found the use of internal capital markets by firms affiliated with business groups leads to a lack of corporate disclosure, which creates impediments for effective functioning of information intermediaries in the market, such as equity analysts. Future studies may examine how the dominance of business groups may create impediments for the development of other intermediaries in the external capital market.

In conclusion, on a broader level this study shows that business groups are efficient economic organizations in emerging economies, as they can efficiently replicate imperfect external markets through internal market mechanisms. However, their reliance on internal markets leads to information asymmetry between the group and the market, which creates impediments for effective functioning of market intermediaries, such as equity analysts, exacerbating the scarcity of information in the capital market.

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