Firm Value and its Non - Linear Relationship with Endogenous Promoter Ownership in India

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Abstract

In India, promoters own a significant portion of the shares of the listed firms. The investors also swear by the names of the promoters behind the firms. In this context, the paper studied the relationship between promoter ownership and firm performance among NSE listed companies by first testing for endogeneity of the promoter ownership variable. The paper also studied the impact of deferential promoters' holding on performance of these firms. The paper used 2SLS model to study the relationship while taking Tobin *Q* as a proxy for firm performance. The results showed the existence of a strong relationship between promoter ownership and firm performance, while the non linear study showed a slight U shaped relationship, indicating a slight reduction in performance of the firm to a certain point with an increase in promoter ownership and then a gradual increase in firm performance with an increase in promoter ownership after that point. The results of the non linear study were significant as it showed that the performance of the firms was maximum when the promoter holding in the firms was the highest. This goes against the theory of promoter entrenchment and justifies the craze of Indian investors for promoter led firms with substantial holdings. The research also recommended regulators not to further reduce the maximum promoter holdings which was brought down to 75% for private listed firms in the year 2013 by SEBI.

Key words : **endogeneity, promoter ownership, firm value, regulations, corporate governance, boards, Tobin *Q*, 2SLS, polynomial, non - linear model, Durban - Wu - Hausman (DWH) Test**

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Despite a growing number of firms being run by professional managers, a large number of them across the world are still owned and run by promoters. Many of the world's largest multinational firms, including Samsung, BMW, and Walmart are controlled by promoters and their families. Promoters have large voting rights, clout, and also control the board which takes key decisions, including the selection of CEOs. In India, promoters, on an average, own more than 50% of the shares of the listed firms and have a control on the board and on the daily workings of the firms. The promoters like Ambani, Adani, Wadia, Tata, and Birla are very popular both among the big institutional investors as well as among the retail investors. They hold various amounts of stakes in many of their group firms. They own majority stake in most of the firms and play a crucial role in the firms' decision making.

Investors and researchers across the world have been working on understanding the relationship between ownership structure and firm performance. Would the performance of the firm with diffused ownership vary from

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the performance of the firms where the ownership group owns substantial share stake ? What is the nature of the relationship and to what extent does the firm's performance gets affected by varying ownership stake ?

Need and Importance of the Study

In India, a promoter is the major ownership group and draws the attention of the investors. Majority of the investors, including the retail investors, swear by the name of the promoters and the promoting families. Also, the increase and decrease in stake of the promoters in these firms is constantly monitored and the share price which reflects the performance of the firm changes with the changing stake. In this context, it is important to study the relationship between promoter stake and firm performance so that the investors can take a rationale investing decision based on whether the substantial stake of the promoters really matters.

Theoretical Background

For centuries, firms were traditionally owned and managed by owners, but with increasing complexity and large-scale production during the industrial revolution, professional managers started managing the firms which gave rise to separation of ownership and control. Berle and Means (1932) showed that by 1930s, a majority of the large firms in the U.S. were not run by the owners, but by managers who held little or no ownership in the firm. As the capital markets evolved, the owners diluted their stake and raised money to fund large-scale productions. Also, the owners diversified the holdings in many firms to manage financial risk. According to Demsetz (1983), the owner's diversification became one of the reasons for the owner not being represented adequately at the time of taking crucial decisions. Managers could take advantage of the dispersed ownership and engage in self serving behavior such as shirking, non value maximizing efforts, and empire building (Morck, Shleifer, & Vishny, 1988). The owners' position was similar to that of a principal and the managers' position was similar to that of an agent. This separation of ownership and control gave rise to what is called the agency cost theory where the relationship between the shareholder and the manager was seen as the relationship between the principal and the agent.

On the other hand, when promoters own a significant equity stake, they have greater voting rights and greater control of the board, and the possibility of resorting to non value maximizing objectives exists. The entrenchment hypothesis says that the value of the firm would be less when managed by owners who control a substantial fraction of the firm's equity. Over a period of time, to align the interest of the managers with the owners and reduce the agency costs, the managers were given shares. As the share ownership of the managers increased, the incentive for self serving decreased. Therefore, greater the portion of shares held by managers, greater would be the manager's interests in alignment with the shareholders.

The Problem of Endogeneity

Researchers studying the relationship between ownership structure and firm performance prior to the year 2000 considered ownership to be exogenous. Demsetz (1983) argued that the ownership structure was an endogenous outcome of many decisions that reflected the influence of shareholders and trading for shares on the market. Demsetz and Lehn (1985) provided evidence of the endogeneity of a firm's ownership structure in their research. They argued that the ownership structure varied systematically in ways that are consistent with value maximization. They studied the variation in ownership structure in 511 U.S. companies and found no significant relationship between ownership concentration and accounting profit.

McConnell and Servaes (1990), who found the relation between ownership and firm performance to be non-

monotonic, referred to the causality problem in their paper between insider ownership and Tobin's *Q*. The authors argued that managers and founders were more inclined to retain a large proportion of shares in high-performing firms. In this scenario, a positive relation between Tobin's *Q* and insider ownership existed in which the line of causality ran from Tobin's *Q* to insider ownership rather than the other way around.

Kole (1996) also provided evidence of a reversal of causality in the ownership - firm performance relation, suggesting that firm performance could be a determinant of the ownership structure rather than being determined by ownership structure. They said that, other things being equal, managers may prefer equity compensation when they expect their firms to perform well.

Cho (1998) in his research discussed potential problems in treating ownership structure as exogenous and addressed the issue of endogeneity of ownership structure using the 2SLS equation. The research showed that firm performance was an important determinant of insider ownership. This result suggested that managers in firms with higher firm performances held a larger fraction of their firm's shares. The 2SLS regression suggested that investment affected firm performance which, in turn, affected ownership structure, thereby reversing the interpretation of the results from OLS regressions.

Demsetz and Villalonga (2001) studied the relation between ownership structure and corporate performance by treating ownership as a multi-dimensional and endogenous variable. The authors found no statistically significant relation between ownership structure and firm performance. Their study said that diffusion of firm's ownership perhaps serves the shareholders better than shareholder concentration. According to the authors, even though the diffused ownership structure allows the professional management to serve their self-interests, the benefits of professional management should balance out the cost of diffused ownership. If the compensating benefits balance out, there should be no systematic relationship between firm performance and ownership structure.

Performance based incentives, insider information, and employee stock options also make firm performance affect ownership structure. The insider information about firm performance would make the management team alter the ownership structure. Leveraged buyout is one the extreme cases where the management is buying out shares and altering the ownership structure based on the future performance expectations of the firm. This makes the ownership endogenous, and it is possible that ownership is affected by firm performance and hence, endogeneity should be taken into consideration before trying to understand the relationship between ownership structure and firm performance.

Literature Review

Researchers have studied the non- linear relationship between various ownership measures and firm performance measured by different variables. Han and Suk (1998) used stock returns as a performance measure to examine the effect of ownership structure on firm performance. The study was conducted on selected companies listed on NYSE for the period from 1988 - 1992. Their research concluded that as managers' equity ownership increased, the returns to shareholders increased. But they also found that the square of insider ownership was inversely related to stock returns, which indicated that excess insider ownership had a negative effect on firm performance, probably due to manager's entrenchment. The regression equation had stock return as a dependent variable and insider equity, square of insider equity, and level of institutional ownership as independent variables. Beta coefficient of the firm, size measured in terms of natural log of market value of equity, and earnings to market price were the other variables.

Short and Keasey (1999) compared the governance system in the UK with the U.S. A comparative analysis of key differences between the U.S. and UK governance systems suggested that the management should become entrenched at higher levels of ownership in the UK as the UK management did not have the same freedom as their

U.S. counterparts to mount takeover defenses and institutional investors in the UK were more able to coordinate their monitoring activities. Market value of equity and return on shareholder equity were taken as performance measures and percentage of shares held by directors ; square of percentage of shares held by directors ; cube of percentage of shares held by directors, institutions, and other major shareholders were taken as a proxy for ownership, while size, growth, leverage, and R&D expenditure were taken as control variables. The results indicated that a non-linear relationship existed between performance and managerial ownership for both accounting and market measures of performance.

De Miguel, Pindado, and de La Torre (2004) provided evidence on how ownership influences firm value. The empirical evidence supported not only the monitoring, but also the expropriation effects. Tobin's *Q* was taken as a proxy for firm performance. Percentage of shares held by shareholders with significant share, and the square of it was taken as an independent variable. The results confirmed the convergence-of-interest and the entrenchment effects on the relationship between firm value and insider ownership, even though Spanish insiders got entrenched at higher ownership levels than their U.S. and UK counterparts. Ownership concentrations, insider owner, debt ratio, intangible to fixed assets, and firm size were the independent variables. Estimation method was used to avoid problem of endogeneity by using the instrumental variable.

Gugler, Mueller, and Yurtoglu (2008) studied the effect of insider information on both American companies and Anglo Saxon companies in Europe. Tobin's *Q* and Marginal *Q* were taken as independent variables and proxy for performance measure. Insider shareholding and square of insider shareholding were taken as the proxy of ownership to study the non-linear relation. Sales and R&D expenditure were taken as control variables. The paper confirmed that managerial entrenchment had a negative effect on firm performance for both measures. The authors also found that while the presence of institutional ownership improved the performance in the USA, it had a negative impact on Anglo-Saxon countries in Europe. Endogeneity was controlled by estimating the model using GMM, which takes the lagged first difference of the variables as instruments for the potential endogenous variables.

Ming and Gee (2008) examined the impact of ownership structure on firm performance of the Malaysian public listed companies. Dividend yield and stock returns were taken as performance variables. Beta, market capitalization, and earnings per share were the independent variables. Percentage of director holding, square of director holding, and percentage of institutional holding were the independent variables. The authors provided evidence that suggested that insider and institutional shareholding did not influence corporate performance. The results also suggested that institutional shareholders failed in their monitoring role and principal agent problem will not be solved by increasing the director's shareholding in the company. The issue of endogeneity was also not addressed.

Park and Jang (2010) investigated the relationship between insider ownership and firm performance on 251 companies in the restaurant industry based on quarterly data from 2001 to 2006. Two - stage least square (2SLS) estimation methods for linear and non-linear models was used. Tobin's *Q* was the proxy for firm performance and percentage of shares held by corporate officers and board members was the proxy for ownership. The authors found an overall positive and significant relationship between insider ownership and firm performance. The quadratic model showed that restaurant firm performance increased until insider ownership was between 38% and 40%, and then it decreased. On the other hand, the piece-wise regression model showed that insider ownership had a positive impact on firm performance within a range of 5% - 25% and a negative influence beyond 25% insider ownership.

Iturralde, Maseda, and Arosa (2011) based their paper on research done on non-listed Spanish family firms' performance measured by ROA on firms included in the SABI (Iberian Balance Sheet Analysis System) database for 2006. Insider ownership, insider ownership square, and insider ownership cube were taken as the proxy for ownership. Debt, firm size, age, and sectors were the control variables. The authors concluded that in family

owned firms, firm performance increased with relatively high and low levels of insider ownership and fell at intermediate levels. Insider ownership and firm performance also differed in Spanish firms based on the generation managing the business.

Garcia - Meca and Sanchez-Ballesta (2011) studied the effects on Tobin's *Q* on Spanish companies' ownership structures (ownership concentration, insider ownership, and bank ownership). The authors used cross-sectional data from the years 1999 - 2002 on companies listed on the Madrid Stock Exchange. The control variables were firm size, debt ratio, intangibles, and time. The authors found that ownership concentration influenced firm value favorably, but at higher levels, it had a detrimental effect.

Pant and Pattanayak (2007) studied the effect of insider ownership on firm value in India for the period of 2000 - 01 to 2003 - 04 on BSE listed firms. The paper provided evidence that the relationship between insider shareholding and firm value was not linear in nature and showed a non-monotonic relationship. Tobin's *Q*, which was taken as a proxy for firm value, first increased, then declined, and finally increased as ownership by insiders rose. Sales, leverage, age, operating income, capital expenditure, research and development, selling intensity, capital intensity, and liquidity were the control variables. Insider holding, square of insider holding, and cube of insider holding were taken as proxy for ownership.

In the recent past, research into firm performance on Indian companies brought forward some interesting insights. Parmar, Reddy, and Chauhan (2015) showed that size alone did not affect firm performance and there were other variables which influenced firm performance. On the other hand, Ahamed (2014) showed that interlock of multiple directorship helped the companies to increase performance as it improved transparency and fairness in conduct of companies.

Research Gap

The paper focuses on the promoter as an ownership form. Research in many countries has focused on various forms of ownership like CEO ownership, top shareholders, state ownership, foreign ownership, foreign institutional ownership, domestic institutional ownership, and individual ownership. There is an absence of a comprehensive research using promoter holding as a proxy for ownership variable. This reason for the absence of a comprehensive study on promoters might be due to the absence of substantial holding by the promoters in a majority of the firms in the countries where the research was done. However, given the large shareholding of promoters in Indian companies (average of 54% of the total holdings) and also the clout they have over the board and on the daily decision making, promoter ownership is taken seriously in India and ,therefore, it is the variable of interest.

Also, most of the research done in the world, into studying the non - linear relationship between firm performance and ownership structure did not consider the endogeneity issues of promoter ownership. Studies using various ownership measures in India also did not consider endogeneity of the promoter ownership. Given the endogeneity issue mentioned in the previous research, the objective of this paper is to find the nature of relationship between firm performance and promoter ownership by considering promoter ownership as endogenous.

Methodology

(1) Hypotheses

- **H_0:** There exists no linear relationship between promoter ownership and firm performance.
- **H_1:** There exists a linear relationship between promoter ownership and firm performance.

(2) Data and Time Period : The sample for the study are the listed companies on India's premier stock exchange - National Stock Exchange (NSE) and the data were taken from CMIE's (Centre for Monitoring Indian Economy) Prowess database. After segregating the companies based on the Indian stock market regulator - Securities Exchange Board of India (SEBI) guidelines (minimum promoter ownership of 25% of total ownership), cleaning the data and removing the banking sector companies, the sample had 3771 firm year observations spread over a 5 year period. The study covers a time period of 5 financial years, that is, from April 1, 2011 - March 31, 2012 to April 1, 2015 - March 31, 2016.

(3) Variables of Interest

(i) Firm Performance Measures : Based on the literature review, it is found that the researchers used either an accounting measure (accounting profit, return on assets) for capturing firm performance or a market measure (Tobin's *Q*) for measuring firm performance. Some of the researchers have used both the accounting measure as well as the market measure.

Accounting measure may change between company to company based on its accounting policies like depreciation policy, inventory evaluation, and investment timing decision (Oswald & Jahera, 1991). Managers can manipulate the accounting ratios by postponing the investment decision to next year even though the investment might contribute significantly to the company in the future. This is done in order not to reduce the return on equity which would impact the manager's compensation. The paper argues for market measure as a better form of measuring the firm performance as the market has a monitoring mechanism to control and overcome management entrenchment. The popular market measure used to capture firm performance is Tobin's *Q* (Craswell, Taylor, & Saywell, 1997 ; Demsetz & Villalonga, 2001 ; Morck et al., 1988) and the paper uses Tobin's *Q* as firm performance measure.

(ii) Ownership Measures : Prior researchers used various ownership measures based on the focus of their research. Some like Demetz and Lehn (1985) took the fraction of the shares held by the five largest shareholders. Demsetz and Villalonga (2001) took both fractions of shares - held by management and shares held by top five shareholders. Morck et al. (1988) captured ownership as percentage of shares held by shareholders who were board of directors and Craswell et al. (1997) used both fraction of shares - held by company directors and shares held by institutional investors as the institutional owners held a substantial portion of the shares and also had a say on the board.

Since the focus of the research is promoter ownership, the paper took percentage of shares held by the promoter to the total number of shares as proxy for ownership. The Indian Companies Act, 2013 defined "promoter" as a person (a) who has been named as such in a prospectus or is identified by the company in the annual returns referred to in section 92; or (b) who has control over the affairs of the company, directly or indirectly whether as a shareholder, director, or otherwise; or (c) in accordance with whose advice, directions, or instructions the board of directors of the company is accustomed to act. Promoter stake is measured as a percentage of the total shares held by the promoters. According to SEBI guidelines on disclosure, a promoter should have a minimum holding of 25%.

(iii) Control Variables : Size (LOG_SALES) was taken as a proxy for size as the services sector has grown substantially, and the recent research papers have been taking the same as proxy for size. Larger firm size requires more investor investment for a fraction of equity and ,therefore, more the promoter money is put in one basket. According to some other researchers also, it was felt that firm size affects both performance of the firm as well as

the percentage stake held by the insider. Sales vary from company to company, and a large discrepancy exists among firms. Generally, the logarithmic transformation stretches extremely small values and condenses extremely large values, making the data more normally distributed (Clark, 1984).

Age (LOG_AGE) is the number of years of the company after incorporation. Firm performance tends to depend upon the age of the company, with startups taking time to earn profits and firms with bigger age having better performance with depreciated asset base and established brand image. So, controlling for age removes the discrepancy that exists because of the differences in ages of companies.

Leverage (LEV) captures the increase or decrease in the value of the firm due to the difference that exists among firms, which are leveraged and those which are not. Generally, leverage would get tax advantage, but it entails paying of interest, which reduces the performance of the firm. Therefore, leverage tends to have a negative relationship with firm performance. Therefore, this variable has to be controlled when performance of a company is a dependent variable.

According to Demsetz and Villalonga (2001), capital investment (CAPEX), R&D investment (RandD), and advertising and marketing expenditure (ADVMKTG) indicate the level to which a firm invests in intangible capital, and so, the extent to which the performance measure can get affected.

Dividend payout ratio (DIV_POUT) influences promoters or other investor's preference for holding stock in a firm. Some of the investors like the institutional investors prefer dividends due to their fiduciary duty (Craswell et al., 1997). Market risk (BETA) and firm specific risk (FIRM_RISK) measure the risk involved in owning a stock. Firm specific risk is especially important as it measures the risk of putting a large part of the wealth on a single company and so, variation in risk causes variation in ownership structure. Market risk and firm risk also play a

Table 1. Definition of Variables

Dependent Variables	Symbol	Description
Tobin's *Q* Ratio (Performance Measure)	TOBIN_*Q*	(Market value of equity + Book value of debt)/Book value of total assets
Independent Variables		
Promoter Shareholding (Ownership Measure)	PROM	Promoter ownership shares/ Total number of shares of the company
Control Variables		
Size	LOG_SALES	Log of sales
Age	LOG_AGE	The number of years that have passed since the incorporation year to the observation year.
Leverage	LEV	Book value of long term borrowings / Book value of total assets
Dividend Payout Ratio	DIV_POUT	Dividend per share / Earnings per share
Capital Investment	CAPEX	Capital expenditure (Change in gross fixed assets) / sales
R&D Investment	R and D	R&D investment/ sales
Advertising and Marketing Expenditure	ADVMKTG	Advertising and marketing expense / Total revenue
Market Risk	BETA	CMIE Prowess
Firm Specific Risk	FIRM_RISK	Standard error of estimate from a regression of the daily return on a stock on Nifty market portfolio calculated for the 2012 - 2016 time period.
Industry Fixed effects	I_i	NIC Code
Time Fixed Effects	T_t	Year

very important role in the ability of the insider to make a profit from insider trading. Higher market risk and firm risk give better prospects to profit from the use of inside information, and therefore, there exists a stronger causation effect from variations in expected firm performance to variations in management shareholdings (Demsetz & Villalonga, 2001).

Industry fixed effects *(Ii)* has to be controlled as different industries have different regulations which affect the performance of the firms in the industry. It accounts for heterogeneity among different industries. As it is a panel data, variations in time due to cyclicality has to be controlled and hence time fixed effects (T_t) is considered in the regression equations. It accounts for difference between the two subsample periods (refer to Table 1 for definition of the variables).

Analysis and Results

(1) Descriptive Statistics : The Table 2 gives the descriptive statistics of the sample. The firms have a mean Tobin's *Q* of 1.23 and the mean of the promoter holding is 54.9%, which shows a considerably high holding by the promoters. The minimum age of a firm in the sample is 4 years and the maximum age of a firm in the sample is 152 years. The mean Capex is 0.8 and the average leverage of the firms in the sample is 27.8%. The mean investment in research and development is very low at 0.4% and the advertisement and marketing expenses have a mean of 4% for the sample under consideration. On an average, the firms paid a dividend of 24 % of the earnings.

(2) Empirical Specifications : The paper studies the relationship between promoter ownership and Tobin's *Q* using pooled OLS regression without fixed effects as well as with industry and time fixed effects. Industry specific effects are important as it controls for within group variations across different industries (Zhou , 2001).

Under each of the pooled OLS model and fixed effects model, both the linear form with and without control variables, cubic form to study the non - linear relationship with and without control variables are studied. Since the review of literature showed the existence of endogeneity of the promoter, Durban - Wu - Hausman (DWH) test is conducted to check for existence of endogeneity. Checking for existence of endogeneity was important as 2SLS regression technique is justified in case of existence of endogeneity and in case of absence of endogeneity, OLS estimation will be sufficient (Davidson & MacKinnon, 1993).

Table 2. Descriptive Statistics for the Period of Study (2012- 2016)

Variables	*N*	Mean	Median	*SD*	Skewness	MIN	MAX
TOBIN_*Q* (%)	3,771	1.232	0.803	1.163	2.731	0.049	8.209
PROM (%)	3,771	0.549	0.5492	0.127	-0.127	0.257	0.897
AGE	3,771	36.556	29	21.857	1.426	4	152
CAPEX (%)	3,771	0.799	0.025	36.366	60.873	-0.964	2227.034
LEV (%)	3,771	0.278	0.269	0.213	0.5220113	0	1.563
LOG_SALES	3,771	3.923	3.931	0.694	-0.004	1.466	6.613
RandD (%)	3,771	0.004	0	0.016	11.242	0	0.355
ADVMKTG (%)	3,771	0.039	0.024	0.046	2.178	0	0.364
BETA	3,771	1.0770	1.06	0.362	0.430	-0.110	2.870
DIV_POUT (%)	3,771	0.243	0.167	1.119	37.163	0	56.50
FIRM_RISK	3771	1.720	1.602	1.005	0.612	-2.096	6.216

Equation 1 studies the relationship between firm performance variable (TOBIN_*Q*) and ownership variable (PROM). Equation 2 studies the relation in the presence of control variables (ADVMKTG, RandD, LOG_AGE, LEV, CAPEX, and LOG_SALES). Equation 3 considers PROM as a dependent variable and Tobin's *Q* as independent variable along with other exogenous variables which have to be controlled.

$$TOBIN\_Q = b_0 + b_1 PROM + e_1 \quad (1)$$

$$TOBIN\_Q = b_0 + b_1 PROM + b_2 ADVMKTG + b_3 RandD + b_4 LOG\_AGE + b_5 LEV + b_6 CAPEX + b_7 LOG\_SALES + e_2 \quad (2)$$

$$PROM = b_0 + b_1 TOBIN\_Q + b_2 BETA + b_3 FIRM\_RISK + b_4 LOG\_SALES + b_5 LEV + b_6 DIVPOUT + e_3 \quad (3)$$

The non linear relationship is studied using the cubic form as shown in equation 4 (without control variable) and 5 (with control variables) :

$$TOBIN\_Q = b_0 + b_1 PROM + b_2 PROM^2 + b_3 PROM^3 + e_4 \quad (4)$$

$$TOBIN\_Q = b_0 + b_1 PROM + b_2 PROM^2 + b_3 PROM^3 + b_4 ADVMKTG + b_5 RandD + b_6 LEV + b_7 CAPEX + b_8 LOG\_AGE + b_9 LOG\_SALES + e_5 \quad (5)$$

(i) DWH Test : In the DWH test, regression is conducted in which the suspicious endogenous variable (PROM) is regressed against all the exogenous variables in both equation 2 and equation 3 to generate Promoter Residual (PROM_RES) (resultant equation 6) :

$$PROM = b_0 + b_1 TOBIN\_Q + b_2 BETA + b_3 FIRM\_RISK + b_4 LOG\_SALES + b_5 ADVMKTG + b_6 LEV + b_7 RandD + b_8 CAPEX + b_9 LOG\_AGE + b_{10} DIVPOUT + e_6 \quad (6)$$

In the second stage, the residual of PROM, (PROM_RES) is saved and is added as additional independent variable in equation 2 and regression is conducted (Equation 7).

$$TOBIN\_Q = b_0 + b_1 PROM + b_2 ADVMKTG + b_3 RandD + b_4 LOG\_AGE + b_5 LEV + b_6 CAPEX + b_7 LOG\_SALES + b_8 PROM\_RES + e_7 \quad (7)$$

After going through the results, if the coefficient of the residual, PROM_RES is significantly different from 0 in *t* - test, it indicates that PROM in equation 2 is an endogenous variable correlating with the error term e_2. In such circumstances, using OLS estimation in equations 1, 2, 4, and 5 becomes both biased and inconsistent, justifying the use of 2SLS (Cong, 2004).

The results of the DWH Test to test for endogeneity of the promoter ownership are given in Table 3. In step 1, PROM_RES is generated and saved. In step 2, having saved the PROM_RES, it is introduced along with all the variables in equation 2 and regression is conducted to generate the coefficient of PROM_RES (refer equation 6). The results of the second step show that the coefficient of the PROM_RES is significantly different from zero at the 1% level of significance. According to the DWH test, if the residual of the suspected endogenous variable is having a coefficient which is significantly different from 0, then the variable is endogenous. According to the test,

Table 3. Results of DWH Test

Dependent Variable	STEP I PROM	STEP II TOBIN_*Q*
Independent Variable		
(Intercept)	0.673*** (0.024)	-20.38*** (0.385)
TOBIN_*Q*	0.013*** (0.002)	
PROM		29.9*** (0.523)
BETA	-0.024*** (0.007)	
FIRM_RISK	0.014*** (0.002)	
LOG_SALES	-0.014*** (0.004)	0.8*** (0.024)
ADVMKTG	0.12** (0.050)	-1.94*** (0.324)
LEV	-0.002 (0.013)	-0.99*** (0.076)
RandD	-0.011 (0.127)	2.5*** (0.772)
CAPEX	0.0001 (0.00005)	-0.0008** (0.0003)
LOG_AGE	-0.027*** (0.004)	0.75*** (0.029)
DIV_POUT	-0.003* (0.002)	
PROM_RES		-29.9*** (0.535)
N	3771	3771
F Stats	24.98***	632.07***
Adjusted R^2	0.075	0.632

Note : Statistical significance at 1%, 5%, and 10% levels is represented by ***, **, and *, respectively.

PROM in equation 2 is endogenous and so the results of the OLS regression performed based on equations 1,2, 4 and 5 could be biased and inconsistent.

The findings are in tune with previous research which treated different forms of ownership structure (institutional ownership, foreign ownership, and managerial ownership) as endogenous variables while modeling the relationship with firm performance (Cho, 1998 ; Demsetz & Lehn, 1985 ; Demsetz & Villalonga, 2001 ; McConnell & Servaes, 1990). This justifies the use of 2SLS and includes the endogenous PROM in simultaneous equation.

(ii) 2SLS with Tobin's *Q* as Dependent Variable : 2SLS model is based on simultaneous equations (equation 2 and equation 3). In equation 2, Tobin's *Q* is dependent variable and PROM is considered endogenous. In equation 3, PROM is the dependent variable and Tobin's *Q* is considered to be endogenous. In the first stage of the 2SLS estimation, PROM, which is the endogenous variable, is taken as a dependent variable and regressed with all the exogenous variables of both the equations 2 and 3 (resultant equation 6). Using equation 6, the predicted value of PROM (PROM CAP) is obtained. In the second stage, PROM is replaced by PROM CAP in equation 5 and regression (equation 8) is run.

$$TOBIN\_Q = b_0 + b_1 PROM\ CAP + b_2 PROM\ CAP^2 + b_3 PROMCAP^3 + b_4\ ADVMKTG + b_5\ RandD + b_6\ LEV + b_7 CAPEX + b_8\ LOG\_AGE + b_9\ LOG\_SALES + e_8 \quad (8)$$

Estimation of the coefficient in equation 8 using 2SLS is both consistent and unbiased (Woodbridge , 2003).

(iii) 2SLS with PROM as Dependent Variable : Similarly, a 2SLS is conducted on endogenous Tobin *Q*. 2SLS technique is based on simultaneous equations - equation 3 and equation 2. In the first stage of the 2SLS estimation, TOBIN_*Q*, which is the endogenous variable, is taken as a dependent variable and regressed with all the exogenous variables of equation 3 and equation 2 (resultant equation 9) :

$$TOBIN\_Q = b_0 + b_1 PROM + b_2 BETA + b_3 FIRM\_RISK + b_4 LOG\_SALES + b_5\ LEV + b_6\ ADVMKTG + b_7\ RandD + b_8\ CAPEX + b_9\ LOG\_AGE + b_{10}\ DIVPOUT + e_9 \quad (9)$$

Using this equation 9, the predicted value of TOBIN_*Q* (TOBIN_*Q* CAP) is obtained and in the second stage, TOBIN_*Q* is replaced by TOBIN_*Q* CAP and OLS regression (Equation 10) is run.

$$PROM = b_0 + b_1\ TOBIN\_Q\ CAP + b_2\ TOBIN\_Q\ CAP^2 + b_3\ TOBIN\_Q\ CAP^3 + b_4\ BETA + b_5 FIRM\_RISK + b_6 LOG\_SALES + b_7\ LEV + b_8\ DIVPOUT + e_{10} \quad (10)$$

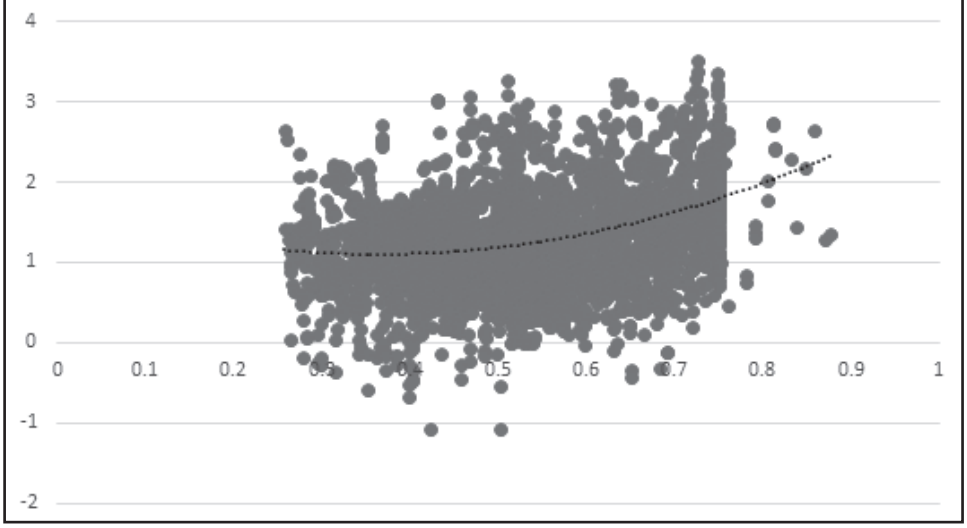
Estimation of the coefficient in equation 10 using 2SLS is both consistent and unbiased (Woodbridge, 2003).

Table 4. Pooled Data OLS Regression Estimate of Tobin *Q* on Promoter Ownership and Other Firm Characteristics

Dependent Variables	Model 1 TOBIN_*Q*	Model 2 TOBIN_*Q*	Model 3 TOBIN_*Q*	Model 4 TOBIN_*Q*	Model 5(1) TOBIN_*Q*	Model 5 (2) PROM
Independent Variables						
Intercept	0.577*** (0.082)	-0.122 (0.160)	1.850* (0.988)	-1.11 (0.900)	1.17* (0.695)	0.419*** (0.020)
PROM	1.193*** (0.147)	1.007*** (0.134)	-4.046 (5.894)	8.708 (5.324)	0.05 (0.102)	
$PROM^2$			5.55 (11.313)	-17.637* (10.224)	-98.15*** (6.141)	
$PROM^3$			-0.837 (7.00)	12.443** (6.332)	150.315*** (7.315)	
TOBIN_*Q*						0.002 (0.002)
$TOBIN\_Q^2$						0.165*** (0.007)
$TOBIN\_Q^3$						-0.036*** (0.002)
ADVMKTG		5.258*** (0.373)		5.359*** (0.374)	-2.456*** (0.295)	
RandD		6.746*** (1.041)		6.814*** (1.040)	3.006*** (0.700)	
LOG_AGE		-0.103*** (-3.4)		-0.105*** (0.030)	0.679*** (0.026)	
LEV		-1.611*** (-19.91)	-	-1.003*** (0.081)	0.365*** (0.068)	0.365**(0.017)
CAPEX		-0.0003 (0.0004)		0.0002*** (0.0004)	-0.000812*** (0.0003)	
LOG_SALES		0.349*** (0.025)		0.342*** (0.025)	0.703*** (0.022)	-0.092*** (0.004)
BETA						0.167*** (0.009)
FIRM_RISK						0.0003 (0.002)
DIV_POUT						-0.005*** (0.001)
N	3771	3771	3771	3771	3771	3771
F Stats	65.780***	141.820***	27.460***	111.680***	752.350***	125.380***
Adjusted R^2	0.017	0.207	0.021	0.209	0.697	0.253

Statistical significance at 1%, 5%, and 10% levels is represented by ***, ** , and *, respectively.

Figure 1. Predicted Tobin *Q* and Promoter Ownership (Pooled Estimate)



(3) Results : The Table 4 reports the results of the pooled OLS regression with five model specifications. The Model 1 reports the results of a simple linear equation with promoter ownership (PROM) as independent variable and Tobin *Q* as independent variable (Equation 1). The results show that Tobin *Q* depends on PROM with significance level of 1%. A high *F* statistic and significance at 1% proves the model fit. The model has an adjusted R^2 of 0.017.

The Model 2 studies the relationship in the presence of the control variable. Again Tobin *Q* is affected by PROM with a significance level of 1% (Equation 2). The control variables (ADVMKTG, RandD, AGE, LEV, and SALES) except CAPEX show a significant effect on Tobin *Q* at the 1% level. While ADVMKTG, RandD, and SALES have a positive coefficient, LEV, AGE, and CAPEX have a negative coefficient. While leverage is known to have a negative relationship with firm performance based on the previous research findings, age interestingly has a negative coefficient, showing that the younger firms performed well in India. This might be due to changing business models and the inability of the older firms to cope with change. CAPEX has a negative coefficient but is not significant. Use of control variables increased the adjusted R^2 to 20.7.

The Model 3 studies the non - linear relationships. In the baseline model, TOBIN *Q* is regressed on PROM, square of PROM, and cube of PROM (Equation 4). Though the model is significant at the 1% level, the relationship between PROM and TOBIN_*Q* is not found to be significant. The Model 4 captures the non linear model with control variables (Equation 5). Interestingly, all the control variables, including CAPEX, show a significant relationship at the 1% level. Though PROM is not significant, square of PROM is significant at the 10% level, and cube of PROM is significant at the 1% level. Square of PROM has a negative relationship and cube of PROM has a positive relationship, indicating U non linear relationship. The overall model is found to be fit with a significance level of 1% and *F* - statistic of 111.68.

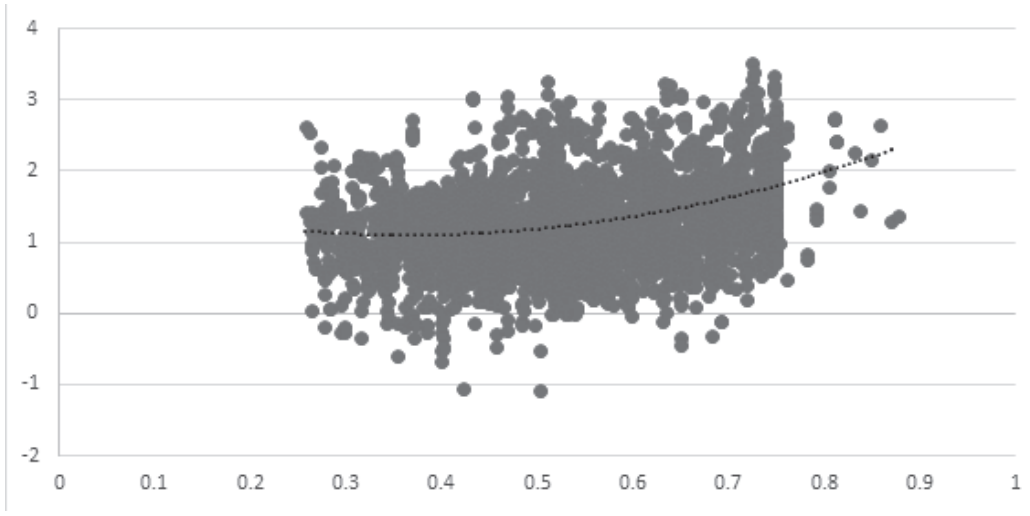
The Model 5 considers PROM endogenous and uses the 2SLS model. In Model 5(1), Tobin *Q* is the dependent variable and in Model 5(2), PROM is the dependent variable and Tobin *Q* is considered endogenous. The results of Model 5 show PROM having a positive coefficient, square of PROM having a negative coefficient, and cube of PROM having a positive coefficient with square of PROM and cube of PROM being significant at the 1% level. All the control variables show a significant relationship at the 1% level. The model has a high *F* - statistics of 752.35 and a very high adjusted R^2 of 69.7%. Controlling for endogeneity made the model more robust. Therefore, we reject the null hypothesis (H_{01}) which states that there exists no linear relationship between promoter

Table 5. Fixed Effects Regression Estimate of Tobin *Q* on Promoter Ownership and Other Firm Characteristics

Dependent Variables	Model 6 TOBIN_*Q*	Model 7 TOBIN_*Q*	Model 8 TOBIN_*Q*	Model 9 TOBIN_*Q*	Model 10(1) TOBIN_*Q*	Model 10(2) PROM
Independent Variables						
Intercept	0.577***	-0.122	1.850*	-1.110	1.166*	0.419***
	(0.082)	(0.160)	(0.988)	(0.900)	(0.695)	(0.020)
PROM	1.193***	1.007***	-4.046	8.708	0.052	
	(0.147)	(0.134)	(5.894)	(5.324)	(0.102)	
$PROM^2$			5.55	-17.637*	-98.150***	
			(11.313)	(10.224)	(6.141)	
$PROM^3$			-0.837	12.442**	150.316***	
			(7.005)	(6.332)	(7.315)	
TOBIN_*Q*						0.002
						(0.002)
$TOBIN\_Q^2$						0.165***
						(0.007)
$TOBIN\_Q^3$						-0.036***
						(0.002)
ADVMKTG		5.258***		5.358***	-2.456***	
		(0.373)		(0.374)	(0.295)	
RandD		6.746***		6.813***	3.006***	
		(1.041)		(1.040)	(0.700)	
LOG_AGE		-0.103***		-0.104***	0.679***	
		(0.030)		(0.030)	(0.026)	
LEV		-1.611***		-1.601***	-1.003***	0.365***
		(0.080)		(0.081)	(0.068)	(0.017)
CAPEX		-0.0002		-0.0002	-0.0008***	
		(0.0004)		(0.0004)	(0.0003)	
LOG_SALES		0.349***		0.341***	0.703***	-0.092***
		(0.025)		(0.025)	(0.022)	(0.004)
BETA						0.167***
						(0.009)
FIRM_RISK						0.0003
						(0.002)
DIV_POUT						-0.005***
						(0.001)
N	3771	3771	3771	3771	3771	3771
Industry Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
F Stats	65.780***	141.820***	27.460***	111.68***	752.350***	125.380***
Adjusted R^2	0.017	0.207	0.021	0.209	0.697	0.253

Statistical significance at 1%, 5%, and 10% levels is represented by ***, ** , and * , respectively.

Figure 2. Predicted Tobin *Q* and Promoter Ownership (Industry and Time Fixed Effects Estimate)



ownership and firm performance and accept the alternate hypothesis (H_1) which states that there exists a linear relationship between promoter ownership and firm performance. The results are similar to the findings obtained by Iturralde et al.'s (2011) study on Spanish firms and Pant and Pattanayak's study on Indian firms. However, the results are different from Gugler, Mueller, and Yurtoglu (2008) study's conducted on Australian firms.

The Figure 1 shows the plot of predicted Tobin *Q* on Y axis and percentage of promoter ownership on the X axis. The graph shows that as the promoter stake increases from 20% to 40%, the firm performance drops. Then the firm performance steadily increases with promoter ownership. This shows that promoter ownership is high at the lower and upper bounds of ownership, and it initially goes down and then starts to increase and the performance peaks at the highest percentage of ownership.

The Table 5 shows the results of fixed effects regression estimate of TOBIN_*Q* on PROM controlling for industry fixed affects (I_i) and time fixed effects (T_t) based on equations 11, 12,13,14, 15, and 16.

$$TOBIN\_Q = b_0 + b_1 PROM + b_2 IND + b_3 T + e_{11} \quad (11)$$

$$TOBIN\_Q = b_0 + b_1 PROM + b_2 ADVMKTG + b_3 RandD + b_4 LOG\_AGE + b_5 LEV + b_6 CAPEX + b_7 LOG\_SALES + b_8 IND + b_9 T + e_{12} \quad (12)$$

$$TOBIN\_Q = b_0 + b_1 PROM + b_2 PROM^2 + b_3 PROM^3 + b_4 IND + b_5 T + e_{13} \quad (13)$$

$$TOBIN\_Q = b_0 + b_1 PROM + b_2 PROM^2 + b_3 PROM^3 + b_4 ADVMKTG + b_5 RandD + b_6 LOG\_AGE + b_7 LEV + b_8 CAPEX + b_9 LOG\_SALES + b_{10} IND + b_{11} T + e_{14} \quad (14)$$

$$TOBIN\_Q = b_0 + b_1 PROM\,CAP + b_2 PROM\,CAP^2 + b_3 PROM\,CAP^3 + b_4 ADVMKTG + b_5 RandD + b_6 LOG\_AGE + b_7 LEV + b_8 CAPEX + b_9 LOG\_SALES + b_{10} IND + b_{11} T + e_{15} \quad (15)$$

$$PROM = b_0 + b_1 TOBIN\_Q + b_2 TOBIN\_Q\,CAP^2 + b_3 TOBIN\_Q\,CAP^3 + b_4 BETA + b_5 FIRM\_RISK + b_6 LOG\_SALES + b_7 LEV + b_8 DIVPOUT + b_9 IND + b_{10} T + e_{15} \quad (16)$$

The Model 6 captures the linear relationship between TOBIN_*Q* and PROM (equation 11) while Model 7 captures the results of the relationship with control variables (Equation 12). Model 8 captures non-linear polynomial study (cubic form) without control variables (Equation 13) and Model 9 captures the non linear polynomial study (cubic form) with control variables (14). Model 10 (1) and 10(2) capture the 2SLS model with control for industry and time fixed effects. The results obtained in the models are similar to the results shown in Table 4, reinforcing the robustness of the models.

Figure 2 shows the plot of predicted Tobin *Q* on Y axis and percentage of promoter ownership on the X axis when controlled for industry and time effects. The plot shows the same trend as Figure 1.The figure shows that promoter ownership is high at the lower and upper bounds of ownership and it initially goes down and then starts to increase and the performance peaks at the highest promoter ownership.

Conclusion and Policy Implications

The findings of this study on Indian firms are similar to the findings conducted by Iturralde et al. (2011). The study shows that the performance of the firm is high at lower levels of promoter holding. At these levels of promoter holdings, the entrenchment by the promoters is not possible. The fear of corporate control and the presence of other major shareholders including institutions, both foreign and local, ensure monitoring and prohibit any non-value maximizing activity by the managers.

As the promoter ownership increases, the performance of the firm initially decreases. But as the promoter's stake increases further, the performance of the firm again starts increasing. In fact, the performance of the firm is the best when the promoter holding is the maximum. This might be because of the substantially large resource of the promoters is locked within the firm, and the promoters are the ones who are at a maximum loss if the firm does not do well. Also, there is closer monitoring by the promoters on the day to day affairs of the company and this prohibits or minimizes the agency costs resulting out of professional managers running the day to day affairs of the firm.

As the paper has shown that increased promoters' stake results in maximizing the firm performance, the government and policymakers should take this input while formulating regulations on the maximum holdings of promoter ownership. The government in the latest legislation (Companies Act, 2013) reduced the maximum promoter holding in Indian listed companies to 75% from 80%. The paper has shown that reduction in promoter holding would reduce the firm performance so that any decision on further reduction in promoter holding should be studied carefully. Also, as the paper has found a slight reduction in firm performance as the promoter holding was increasing till a certain point, the paper calls for greater monitoring, especially by financial institutions in firms where the promoter holding is between 30% to 50%. For retail investors, the paper shows that it makes sense to invest in firms with substantial promoter owning. This also perhaps explains the reason behind the craze for promoter led companies who own a large proportion of shareholding in their firms.

Limitations of the Study and Scope for Further Research

The scope of research is restricted to Indian companies and can be generalized to the listed companies on NSE. Indian corporates have a unique ownership structure which is basically run by well known and popular promoter led industrial houses who not only own large proportion of the shares in listed companies, but also run the day to day affairs of the company in most cases. So, the study is restricted to the Indian context and cannot be generalized to any other emerging market, trade block, or global markets.

The research is a comprehensive study in understanding the relationship between promoter ownership holding

and firm performance in India. However, the paper also offers scope for further research. The study can be extended to cover some of the Asian countries where the promoters own substantial portion of the shares in listed companies. This study can also bring up important policy recommendations. There are a number of firms in India, which are controlled by foreign promoters/companies. These entities hold a minimum of 51% stake in Indian firms. There exists scope for research to study whether there is a significant difference in performance of firms, which are majorly held by foreign promoters/companies and those held by Indian promoters. Research can also be done to see if there is a significant difference between promoter owned firms with substantial institutional holding and promoter owned firms with less or no substantial financial institution holding. This would help to find out whether the financial institutions play a significant role in improving the performance and adding value to the firms. Finally, studies can be done to see if there is any significant difference in firm performance between government promoted firms and private firms. This study would also have policy recommendations regarding the need for disinvestment.

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