
Capital contribution, insider ownership and firm performance: evidence from Indian IPO firms

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Abstract: Several studies have explored the nonlinear relationship between insider ownership and post-IPO firm performance, whereas the inter-relationship among pre-IPO cash contribution, insider ownership and firm performance has not been investigated. Our study attempts to do so for an emerging economy, India using panel data of 199 IPO firms for the sample period of 2007 to 2018. Results indicate that there is a nonlinear relationship between insider ownership and post-IPO firm performance with lower ownership levels indicating positive impact and higher ownership levels indicating negative impact. Further, the study finds that pre-IPO cash contribution of owners has a long-term increasing negative impact, though these results significantly differ across varying levels of insider ownership. The study controls for endogeneity in the variables.

Keywords: initial public offering; IPO; insider ownership; capital contribution; firm performance; promoter ownership.

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1 Introduction

An initial public offer (IPO) is the first instance that exposes a private firm to the public interest. The main reason for the decision to go public is to raise equity capital (Ritter and Welch, 2002), to overcome financing constraints arising out of the restricted availability of bank loans (e.g., Coleman and Carsky, 1999; Mahéroul, 2000), to leverage risk (Baker and Wurgler, 2002) and to overcome the problems and challenges to growth (Mazzola and Marchisio, 2002). Through IPO, initial owners of the firm intend to reduce their shareholdings to attain a more diversified portfolio. Yet it is seen that family owned firms resist sharing of control over the firm by continuing to retain significant equity shares in firms post-IPO (Ehrhardt and Nowak, 2003). Concentration of insider ownership is seen to be the dominating feature of most emerging market economies (La Porta et al., 1999).

Increasing insider ownership (through managerial holdings and director's shareholding) though was argued to be a way to align the incentives of the managers and owners thus reducing the agency problems, downside of higher concentration of insider ownership (including family owners) is well established in the literature (Morck et al., 1988; Selarka, 2005; Pant and Pattanayak, 2007). These studies argue that too much inside ownership could result in higher entrenchment effects that would outweigh the incentive alignment benefits of ownership concentration, resulting in a nonlinear relationship between insider ownership concentration and firm performance.

Additionally, in emerging markets relatively less developed capital markets and legal systems with poor external corporate governance mechanisms enhances the degree of information asymmetry (Boateng et al., 2018). In an environment with high information asymmetry, manager owners may indulge in expropriation of firm's wealth (Fama and Jensen, 1983) thus enhancing entrenchment effects.

The empirical evidence in the literature indicates indecisiveness on the relationship between insider ownership and post-IPO firm performance. While there are several studies that indicate positive impact (Mazzola and Marchisio, 2002), there are others who find a negative impact (Jaskiewicz et al., 2005) with several others finding nonlinear relationship between ownership and post-IPO firm performance (Kim et al., 2004; Michel et al., 2014). The present study adds evidence to this literature. Along with doing so, the current study attempts to estimate the relationship between capital contribution of insider owners in pre-IPO period and the firm performance in post-IPO period. As pointed out by Anderson and Reeb (2003), when a high proportion of family wealth is invested in the firm, the family members are keen on the long-term welfare of the firm. However, from the socio-emotional wealth (SEW) perspective, if a firm's equity is a small part of total family wealth, family's long-term orientation overrides its propensity to loss aversion

(Sciascia et al., 2015). With higher proportion of wealth invested in the firm, the family members are more concerned about preserving their SEW. Cash contribution by pre-IPO owners indicates the quantum of family wealth invested in the firm. The present study attempts to estimate the relationship between pre-IPO cash contribution and post-IPO firm performance. To the best of our knowledge this is the first study in the literature to do so. Thus the present study contributes to the literature in three ways:

- 1 In studying the nonlinear relationship between insider ownership and post-IPO firm performance, the current study attempts to add evidence to this literature in the framework of an emerging market economy – India.
- 2 In studying the relationship between pre-IPO cash contribution and post-IPO firm long run orientation to performance, the study attempts to fill this research gap in the current literature.
- 3 Further, the present study analyses the varying impact of pre-IPO cash contribution on post-IPO firm performance with insider ownership levels.

The paper is organised as follows: hypothesis tested in the present study are developed based on background literature discussed in the next section, followed by data and methodology section. Empirical results are reported next with result discussions. Finally, the paper is concluded in the last section followed by limitations and scope for future research.

2 Background literature review and hypothesis development

2.1 Family firm research

Jensen and Meckling (1976) posit that managers with higher ownership tend to decrease the agency costs as the interests of the management are aligned with the interests of the minority shareholders (the incentive alignment effect). The conflicts between managers and shareholders is referred to as Type I agency problem. As the ownership of family increases, the family interests are aligned with the interests of the minority shareholders and family owners are better placed in monitoring the managers. Thus, family firms are likely to have lower Type I agency problems (Ho and Kang, 2013). However, increased ownership can also lead to entrenchment of minority shareholders due to increased control by the family members and reduced monitoring (Morck and Yeung, 2003). This is referred to as Type II agency problem in the literature. Type II agency problem is likely to be more dominant in family firms as the family members have higher incentives for expropriation and monitoring of managers (Villalonga and Amit, 2006). The impact of family involvement on performance depends on which of the two effects dominate. If the incentive alignment effect dominates, the firm performance is expected to improve and if the entrenchment effect dominates, expropriation of minority shareholders may lead to lower performance of the firm (Cheng et al., 2012). Ding et al. (2011) find that compared to non-family firms, family firms are smaller, and have a higher level of abnormal returns, lower leverage ratios, greater cash flows from operations, greater profitability, and a higher level of return volatility. This implies that the Type II agency problem is more dominant in family firms. Therefore, the results of studies on performance of family firms produce mixed results.

Several in the literature (Chua et al., 1999; Donaldson and Davis, 1991) have attributed the positive impact of family involvement to the stewardship of the family members towards the firm (Gomez-Mejia et al., 2011). Donaldson and Davis (1991) introduced the stewardship theory as an alternative to the agency theory. They find that firms with CEO duality have better performance as the same person (agent) exerts greater command and authority over the firm decisions as his/her motives are aligned with those of the shareholders (principal). Davis et al. (2010) find support for the presence of stewardship amongst family members present in employee or leadership positions in family firms. Family managers prefer organisational benefit over self and have a long-term perspective. Family shareholders have a long-term horizon since they intend to pass on the firm to their descendants (Chua et al., 1999; Anderson and Reeb, 2003; Le Breton-Miller and Miller, 2006; Minetti et al., 2015) and family CEO's have longer tenures than non-family CEO's (Zellweger, 2007). Family firms with long-term orientation are found to have a better performance (Le Breton-Miller and Miller, 2006) and are expected to work towards the preservation of wealth of the firm and the family. However, these firms have non-financial incentives apart from financial goals which may be competing against each other and result in situations where the long-term orientation is not the first priority (Lumpkin and Brigham, 2011).

Other proponents find support in the SEW theory derived from the behavioural agency theory (Gomez-Mejia et al., 2007) where they argue that family firms are generally averse to risk, but are ready to take risks to safeguard their SEW. Such firms have been found to prefer control over profit and diversify less to preserve their SEW. However, when the control is challenged, they are ready to take risks. Higher levels of family involvement is an indicator for higher consideration for SEW (Miller et al., 2011). Berrone et al. (2012) state family influence, oneness of the family with the firm, social relationships, emotional bonds and long-term horizon as the dimensions of SEW. The SEW perspective explains the mixed results for studies on performance of family firms. While these firms are found to be long-term orientated and work for the long-term welfare of the stakeholders, their strategic decisions are also influenced by the socio-emotional choices which may not always align with the financial considerations (Gomez-Mejia et al., 2011). Apart from the SEW perspective, the mixed results can also be attributed to the differences in the level of family involvement.

2.2 Impact of insider ownership on performance

The empirical evidence on the impact of family involvement on performance of firms is mixed. This is highlighted in the summary of literature given in Table 1. While some studies (Anderson and Reeb, 2003; Martínez et al., 2007; Miller et al., 2007; Isakov and Weisskopf, 2014; Barontini and Caprio, 2006; Andres, 2008; Chu, 2011; Chung and Chan, 2012; Bouzgarrou and Navatte, 2013; Lee and Barnes, 2017) find a positive impact of family involvement, others find a negative (Cucculelli and Micucci, 2008; Hillier and McColgan, 2009; Morck et al., 1988; Jameson et al., 2014; Sciascia and Mazzola, 2008; Masulis et al., 2011; Bertrand et al., 2008; King and Santor, 2008) or a nonlinear relationship (Che and Langli, 2015; Ng, 2005; Cheng et al., 2012; Kim et al., 2004; Chen, 2005). These are discussed further.

Anderson and Reeb (2003) find that both young and old family firms have higher Tobin's Q than non-family firms. Martínez et al. (2007) study Chilean firms over the ten-year period 1995–2004 and find that family firms outperform non-family firms.

Table 1 Literature survey focusing on family involvement and firm performance

<i>Sl. no.</i>	<i>Author(s)</i>	<i>Objective of the study</i>	<i>Sample</i>	<i>Broad results</i>
1	Anderson and Reeb (2003)	To study the impact of founding family ownership and presence of family members in management on firm performance	USA	Family firms perform better than non-family firms regardless of firm age. Performance is better if family member is CEO.
2	Martinez et al. (2007)	Impact of family ownership on firm performance	Chile	Family firms perform better than non-family firms.
3	Miller et al. (2007)	Variation in performance of lone founder businesses vis a vis that of firms with participation of multiple family members	USA	Lone founder firms perform significantly better than other firms, while family firms as a group do not outperform other firms. The empirical results depend on the way family business is defined.
4	Isakov and Weisskopf (2014)	Impact of family ownership on firm performance	Switzerland	Founding family firms and firms with active lone founder holding a large stake have higher profitability. A non-linear relationship between family ownership and performance. High family ownership is associated with high profitability but lower valuations while low ownership is associated with high profitability and higher valuations.
5	Barontini and Caprio (2006)	To study the impact of family ownership and control on firm performance	Continental Europe	Family controlled firms have higher value and operating performance.
6	Andres (2008)	Impact of large shareholding on firm performance	Germany	Family firms perform better than widely held firms and other controlling shareholder firms. Founder CEOs do better than professional and descendant CEO's, but professional and descendant CEOs in family firms do better than non-family firms. Tobin Q results show that market assesses descendant and professional CEOs in family firms as similar to non-family firms. Non-linear relationship does not exist.
7	Chu (2011)	Impact of family ownership on firm performance	Taiwan	Family ownership positively impacts firm performance. The relation is stronger for firms with family members in top management positions and stronger for SMEs.
8	Chung and Chan (2012)	Performance of affiliate firms in large business groups	Taiwan	Direct family ownership of affiliate positively impacts its performance and family leadership improves this relationship. Pyramidal ownership is negatively related to affiliate performance and family leadership does not affect this relationship.
9	Bouzgarrou and Navaite (2013)	Impact of family involvement on the performance of the acquirer post an acquisition	France	Univariate analysis: family firms outperform significantly non-family firms around the announcement date. Multivariate analysis: positive impact of family control.
10	Lee and Barnes (2017)	Performance of founding family firms compared to that of non-founding firms	Hong Kong	Founding family firms are not significantly better than non-family firms. Founding family firms with a founder CEO perform better than other founding family firms.
11	Cucculelli and Micucci (2008)	Impact of family succession on firm performance	Italy	Family firms underperform more compared to unrelated firms. Well performing firms are greatly harmed by heir successor as they underperform when compared to founder managed firms. Family firms also find a lower growth in sales after succession.

Source: Compiled by the authors

Table 1 Literature survey focusing on family involvement and firm performance (continued)

<i>Sl. no.</i>	<i>Author(s)</i>	<i>Objective of the study</i>	<i>Sample</i>	<i>Broad results</i>
12	Hillier and McColgan (2009)	Impact of exit of a family CEO on firm performance	UK	Performance improves after the exit of a family CEO is announced.
13	Morck et al. (1988)	Managerial ownership and market valuation	USA	As managerial ownership increases, performance declines and then rises at higher levels of ownership. Older firms have lower performance where founding family is on management.
14	Jameson et al. (2014)	Performance of founder firms and family firms	India	Family firms; founder firms; founder and family firms; family/founder CEO have lower performance.
15	Sciascia and Mazzola (2008)	Impact of family ownership and management on performance	Italy	No relationship between family ownership and performance. Negative and quadratic relationship between presence Of family members in management and performance.
16	Masulis et al. (2011)	Firm characteristics of family group firms	Multiple countries	Lower performance for family group firms as compared to non-group firms. Higher performance for lower level of the pyramid group firms.
17	Bertrand et al. (2008)	Impact of family structure on the performance of business groups	Thailand	Business groups with larger families have lower performance, results stronger for groups where founder is not active. Firms with more sons owning shares, performance is lower.
18	King and Santor (2008)	Impact of family ownership and class of shares on firm performance	Canada	Firms with family ownership + dual class shares have lower performance. Single class shares family firms have higher ROA and similar Q vis a vis other firms, on an average.
19	Che and Langli (2015)	Performance of family firms	Norway	Non-linear relationship – family ownership (50 to 67; positive; 67–90 negative; 90–99 negative and 100% positive); shares held by second largest owner positive; family members on board positive; board size negative but not significant; CEO and chair are family and CEO is on board positive.
20	Ng (2005)	To study the impact of family ownership measured by managerial ownership on firm performance	Hong Kong	Non-linear relationship: negative relation at low ownership (below 16.86%); positive (16.86%–63.17%); negative at higher levels.
21	Cheng et al. (2012)	Impact of managerial ownership on firm performance	Hong Kong	Non-linear relationship: for ownership less than 22.18% – negative relationship (management entrenchment effect); for 22.18%–78.02% – positive (convergence of interest); and for higher than 78.02% – negative (entrenchment effect dominates conv. of interest effect).
22	Kim et al. (2004)	Impact of ownership on performance for IPO firms	Thailand	Positive relationship at low (0%–31%) and high (71%–100%) levels of managerial ownership and negative relationship at medium levels.
23	Chen (2005)	To study the impact of managerial ownership on firm performance	Taiwan	0%–3%: positive (insignificant for group firms); 3%–7%: negative; more than 7%: negative impact is weaker for non-group firms.

Source: Compiled by the authors

Studies have also looked at the impact of founder ownership and founder presence in top management positions on the performance of family firms. They find that founder-firms perform better (Miller et al., 2007; Isakov and Weisskopf, 2014), presence of founder and/or family member in top management position has a positive impact on performance (Barontini and Caprio, 2006; Andres, 2008) and family firms underperform after succession (Andres, 2008; Cucculelli and Micucci, 2008). Founder CEO's perform better than professional and descendant CEOs (Andres, 2008). On the other hand, Hillier and McColgan (2009) find better performance for listed the UK firms when family CEO steps down. Anderson and Reeb (2003) study S&P 500 firms over the period 1992–1999 and find better firm performance among founding family-owned firms, especially if a family member is CEO, but the performance decreases as the family ownership increases. Miller et al. (2007) study Fortune 1000 firms for the period 1996–2000 and find that while family firms in general do not perform better, lone founder firms perform significantly better than other firms. Moreck et al. (1988) find that older founding family managed firms have lower Tobin's Q than newer founding family managed firms. Barontini and Caprio (2006) find higher Tobin's Q and return on asset (ROA) for firms with family members on board. Isakov and Weisskopf (2014) find higher profitability and higher valuations for Swiss listed firms with active lone founder holding a large proportion of voting rights. Jameson et al. (2014) find a negative relation between performance and founder ownership for Indian listed firms. Chu (2011) study 786 Taiwan listed family firms for the period 2002–2007 and find that founding family ownership has a positive impact on performance and the impact is stronger for firms where family is involved in top management as well. The positive influence is stronger for smaller firms. This supports the stewardship theory where the family managers act as the stewards. Chung and Chan (2012) study the impact of family ownership and family leadership on sales performance of 6,916 public and private affiliate firms of 252 Taiwan family business groups during 1988 to 2004. They find that presence of family in top management increases the positive impact of direct family ownership of affiliates on performance, but the pyramidal ownership of affiliates has a negative impact on performance. Performance is measured by sales revenue. For private family firms in Norway, Che and Langli (2015) find a positive impact on performance for firms with family members on board; presence of family CEO and Chair, and shares held by second largest holder.

Others in the literature find a negative relationship among family involvement and performance. Sciascia and Mazzola (2008) study 620 privately held Italian firms and find that while presence of family in management has a negative influence on firm performance, the ownership of family does not impact performance. The authors attribute this to the incompetency and non-financial goals of family managers, and to family conflicts, that overpower the positive effects of reduced agency costs and stewardship of family managers. Masulis et al. (2011) find a lower performance for firms belonging to a business group in a large sample of firms from 45 countries. Jameson et al. (2014) find lower performance for family firms, founder firms and firms with CEO being the founder or a family member out of a sample of 1796 Indian listed firms.

Other studies show the presence of a nonlinear relationship between family ownership and performance but percentage of ownership differ across studies indicating difference in the nonlinear spline nodes and sign of the relationship (Ng, 2005; Cheng et al., 2012; Che and Langli, 2015). Ng (2005) and Cheng et al. (2012) find a positive

relation for medium levels of managerial ownership, and a negative relation for lower and higher levels of managerial ownership for Hong Kong listed firms during different sample periods (1995–1998 and 2000–2003). Isakov and Weisskopf (2014) study Swiss listed firms during the period 2003–2010 and find that high level of family ownership is associated with high profitability but lower market value while low family ownership is associated with high profitability and high valuations. For private family firms in Norway, Che and Langli (2015) find a positive relation between performance and family ownership for ownership levels between 50% and 67% and for 100% family ownership, the relation is negative for ownership levels between 67% and 99%. Similar nonlinear relationship is seen in studies focusing on IPO performance (Kim et al., 2004).

2.3 Impact of insider ownership on Post-IPO firm performance

Along with studying the impact of family involvement on performance, studies specifically focusing on IPO's also analyse the post-IPO performance of family firms. These studies are summarised in Table 2. These studies include the post-IPO performance of firms, the retention of ownership by pre-IPO major shareholders and the impact of family ties on post-IPO performance of firms.

Many studies find a decline in post-IPO performance in the long run (Kim et al., 2004; Jaskiewicz et al., 2005). The relation between post-IPO performance and family ownership presents mixed results. Few studies do not find any impact of managerial ownership (Mikkelsen et al., 1997) or family ownership (Mazzola and Marchisio, 2002) on post-IPO performance.

Mazzola and Marchisio (2002) find an increase in profitability and growth of 37 Italian firms with IPO during 1995–1998 during the three-year period pre-IPO and the three-year period post-IPO. They find that Italian family firms perform similar to non-family firms and that ownership does not have an impact on performance. Jaskiewicz et al. (2005) study 153 German and 43 Spanish IPO firms three years post-IPO and find that while family IPO firms underperform as compared to non-family IPO firms, family involvement (ownership and presence in managerial position) has a positive impact on family-firm performance. They attribute lower performance of family IPO firms to smaller size and market undervaluation of older family firms. Studies find greater retention of family ownership post-IPO (Mazzola and Marchisio, 2002 for Italian firms; Ehrhardt and Nowak, 2003 for German firms and Yu and Zheng, 2012 for Hong Kong firms). Yu and Zheng (2012) find that family firms retaining a large proportion of ownership have higher underpricing in IPOs. They posit that this is to avoid large outside block holders and more dispersed ownership in the IPO. The negative impact of retention of insider ownership is found by Djerbi and Anis (2015) in a study of 36 delisted French IPO firms that find higher IPO failure risk for firms with higher retention of ownership.

Ehrhardt and Nowak (2003) study German IPO firms and find that the private benefits to the founding family are larger than the private benefits to other large shareholders, which the authors attribute to expropriation of minority shareholders through dual class shares. Studies on family ties of the board members show negative impact of board ties on performance (Chahine and Goergen, 2013; McGuinness, 2018).

Table 2 Empirical studies on IPO-firm performance including studies on family firm IPOs

<i>Sl. no.</i>	<i>Author(s)</i>	<i>Objective of the study</i>	<i>Sample</i>	<i>Broad results</i>
1	Mikkelsen et al. (1997)	Insider ownership and performance of IPO firms in the long run	USA	Ownership of management is not related to post-IPO performance of firms. Insider ownership falls in the long run. Operating performance falls in the long run (10 years) post-IPO.
2	Mazzola and Marchiso (2002)	Impact of IPO on the long run growth and profitability of family firms	Italy	Pre-IPO period shows a steady growth in turnover and increase in profitability. In the first year post-IPO there is a decline in profitability. In the longer run, family firms grow at a steady rate. Family firms are not very different in terms of performance, indicating that ownership does not impact performance post-IPO.
3	Ehrhardt and Nowak (2003)	Change in the ownership structure and performance of family firms post IPO	Germany	Founding family firms retain control with the family over the firm. Evidence of using dual class shares to expropriate minority shareholders as private benefits to founding family are larger than to other large shareholders.
4	Kim et al. (2004)	Impact of ownership on post-IPO performance of Thai firms	Thailand	Decline in overall performance post-IPO. Managerial ownership and performance depict a non-linear relationship; positive in the range 0%–30% and 71%–100%. And negative in the 31%–71% ownership range.
5	Jaskiewicz et al. (2005)	Long run post-IPO performance of family and non-family firms	Germany and Spain	Negative market returns in the third year after IPO. Though not significant, family IPO firms underperform as compared to non-family IPO firms.
6	Michel et al. (2014)	Impact of public float on post IPO performance	USA	Non-linear relation between public float and performance. Relation is negative for low levels of public float and positive for high levels of public float
7	Hearn (2011)	Impact of family ownership and participation in management on underpricing	North Africa	While board involvement improves performance, concentrated ownership of family board members is detrimental to performance. Underpricing is lesser in family firms as compared to non-family firms.
8	Raju and Prabhudesai (2012)	Post IPO survival of firms	India	In 5th year failure and acquisition rate have been increased to 22.5% and 45.5% respectively, so survival rate is only 30%. Small-sized IPOs are delisted with a failure rate of 50%. Size, underpricing, pre-issue demand, and IPO activity significantly influence the survival of IPOs.
9	Yu and Zheng (2012)	IPO underpricing to retain family control	Hong Kong	Higher underpricing for firms with strong family involvement. Greater retention of ownership for such firms.
10	Chahine and Goergen (2013)	The impact of board ties on firm performance post IPO	USA	Performance is negatively related to strength of family ties.
11	Ding and Pukthuanthong (2013)	Impact of governance on the performance of IPO family firms	Taiwan	Family firms with non-family directors on board and firms with higher retention of family ownership, show better IPO performance. Higher presence of affiliated directors on board negatively impacts firm performance. Reputation of underwriters has a greater impact on performance of family IPO firms than on performance of non-family IPO firms.
12	Cirillo et al. (2015)	Impact of family involvement on IPO value	Italy	Family status and participation in management has a positive impact on IPO value.
13	McGuinness (2018)	Impact of family ties on IPO firm performance	Hong Kong	Firms with family connected board members show lower performance.

Source: Compiled by the authors

Kim et al. (2004) find a negative relationship between managerial ownership in the range 31% to 71% and a positive relationship in lower and higher levels of managerial ownership post-IPO performance for Thai firms. Hearn (2011) finds a negative impact of concentrated ownership of family board members on firm performance for North African IPO firms. Michel et al. (2014) study the public float of 1,801 IPOs in the USA during 1970–2007 and find a nonlinear U-shaped relationship between long-term abnormal returns and public float. As the public float increases, the insider ownership falls. The authors argue that with higher public float, insiders have lower incentives for better performance, but the higher monitoring of outside investors results in higher performance. Hence, firms with higher insider ownership and firms with higher public float depict better performance than firms with medium level of insider ownership. Given the mixed results on the impact of insider ownership on post-IPO performance and evidence of nonlinear relationship, our first hypothesis is stated as:

H1 (alternative) The relation between insider ownership and post-IPO firm performance is significant and nonlinear.

2.4 Pre-IPO contribution and post-IPO firm performance

While most studies have looked at either the impact of family ownership and control, or the presence of family in top management on firm performance, the impact of pre-IPO capital contribution by the family (promoters) on post-IPO firm performance is yet to be documented in the literature (to the best of our knowledge). Family firms are less diversified and hence risk averse. Since, a high proportion of family wealth is invested in the firm, the family members are expected to be keen on the long-term welfare of the firm (Anderson and Reeb, 2003). If a firm's equity is a small part of total family wealth, family's long-term orientation overrides its propensity to loss aversion (Sciascia et al., 2015). Cash contribution by the promoters and promoters group indicates the quantum of family wealth invested in the firm.

We also refer to the literature on venture capital (VC) funding,¹ where it is found that irrespective of the involvement of the VC in management, VC-backed IPOs have lower performance (Chen and Liang, 2016). Chen and Liang (2016) also find that VC-backed firms with higher excess cash retained have lower performance even if the VC's leave the firm's board post-IPO. Extending these findings, our study further argues that the average impact of capital contribution by insiders has varying impact on firm performance in the years following the IPO. The impact of capital investment on performance is visible in the long run. It is thus hypothesised that the impact of capital contribution by insiders on performance would increase over-time during the post-IPO period. Hence, we state our second hypothesis as under:

H2 (alternative) The relationship between Pre-IPO capital contribution by insiders and post-IPO firm performance varies over time; it is lower in the short run and higher in the long run.

Family firm decisions are influenced by SEW considerations, apart from the financial factors. We expect the insider owners to be unwilling to take risks for the preservation of SEW as found in earlier studies (Gomez-Mejia et al., 2018) for firms with high capital contribution. This may result in decisions that may not be based only on financial

considerations in the long run. The impact of capital contribution by insiders on firm performance may vary with the level of insider ownership. The extent of insider ownership decides the long-term perspective of the firm, which in turn impact its decisions. While we have hypothesised earlier that insider ownership has a nonlinear impact on firm performance, it is imperative to understand the impact of pre-IPO capital contribution when the insider ownership is higher as compared to firms where the ownership stakes are lower. Thus we expect that capital contribution will have a differential impact at different ownership levels. We state our third hypothesis as under:

H3 (alternative) The relation between pre-IPO capital contribution by insiders and post-IPO firm performance differs across different ownership concentration levels; it is positive at low levels of insider ownership and negative at high levels.

Detail of data sources and empirical methodology are discussed next.

3 Data and methodology

3.1 Sample data

The sample consists of data for the period of 2007 to 2018. The pre-IPO data was sourced from the prospectuses of firms,² the post-IPO data was sourced from CMIE Prowess database. Our sample consists of all non-financial Indian firms that issued IPO offering during January 2007 to March 2014 thus giving us a five year post-IPO firm performance period. After deleting some firm years for missing information, our final sample has 834 firm year observations for 199 firms.

3.2 Variables

The dependent variable, firm performance is measured as ROA, defined as the ratio of earnings before interest, depreciation, tax and amortisation to total assets. This ensures that the firm-level impact of cost of debt, depreciation and taxes do not affect the performance measure. A similar indicator of firm performance is used by several studies in the literature (Anderson and Reeb, 2003; Ng, 2005; Andres, 2008; Cucculelli and Micucci, 2008; Chahine and Goergen, 2013; Visintin et al., 2017; McGuinness, 2018) where impact of ownership on firm performance is studied.

The definition of insider ownership varies from study to study. While some studies investigate managers' shareholding (Chen, 2005 for Taiwan; Cheng et al., 2012 and Ng, 2005 for Hong Kong; Mikkelsen et al., 1997 for the USA), others investigate founding family ownership (Lee and Barnes, 2017 for Hong Kong; Anderson and Reeb, 2003 for the USA) and large corporate shareholdings (La Porta et al., 1999 for 27 wealthy economies). For the present study, insider ownership is defined as the percentage of shareholding of all persons who are reported as promoters and promoter groups of the company. Promoters are inside shareholders who are in control of the firm during the issue of IPO and hence can be termed as inside owners. Similar definition of inside ownership has been used in other studies relating to Indian context (Pant and Pattanayak, 2007; Selarka, 2005).

The percentage of equity shares owned by promoters and promoters group is introduced as Insider ownership variable to capture the impact of increasing insider ownership on post-IPO firm performance. We include the ownership of promoters group because these represent the indirect control and ownership of promoters through family or other entities. The founders are referred to as promoters in India.

3.3 *Impact of insider ownership on post-IPO firm performance*

In understanding the impact of insider ownership on post-IPO firm performance, two equations are estimated. While the first equation attempts to test if the relationship between insider ownership and firm performance is significant, the second equation tests the hypothesis of nonlinear relation between insider ownership and firm performance.

In studying the impact of insider ownership, two sets of variables are introduced in the study. The first variable measured is the insider ownership in IPO firms defined as the percent of equity shares owned by the promoters and promoters group of the firms. This variable is first introduced in the regression analysis to understand the impact of insider ownership on post-IPO firm performance. Thus the base model is estimated as:

$$ROA_{it} = \beta_0 + \beta_1(Insider\ ownership)_{it} + \alpha_k(Control\ variables)_{ik} + u_{it} \quad (1)$$

Further, the nonlinear relation of insider ownership and firm performance is captured by introducing spline functional form that divided insider ownership into low (low ownership) and high (high ownership) holdings at spline node I. The spline node is created such that the variable is equally spaced over its range. Stata 15.1 software was used to create the node I with the value of 42.395%.³ Thus the equation estimated is as given below:

$$ROA_{it} = \beta_0 + \beta_1(Low - family\ ownership)_{it} + \beta_2(High - family\ ownership)_{it} + \alpha_k(Control\ variables)_{ik} + u_{it} \quad (2)$$

3.4 *Pre-IPO capital contribution and impact on post-IPO firm performance*

In understanding the impact of pre-IPO capital contribution of insider owners on post-IPO firm performance, we introduce the capital contribution in our analysis as cash contributed by the insiders since the inception of the firm until the issue of the IPO. The variable is introduced in its natural log transformation (capital contribution⁴). The impact of capital contribution is estimated in two equations. The first equation tests the significant relationship between capital contribution and firm performance as given below:

$$ROA_{it} = \beta_0 + \beta_1(Capital\ contribution)_{it} + \alpha_k(Control\ variables) + u_{it} \quad (3)$$

While the above equation estimates the average impact of capital contribution of insider owner's, the long-term implication is estimated by interacting the insider owner's capital contribution with post-IPO time dummies. Starting with the IPO time period,⁵ the time dummy IPO time0 takes the value of 1 for the year when the firm underwent IPO and 0 otherwise. For the post-IPO period we include Post-IPO time1, ...post-IPO time5 dummies that take the value of '1' for the indicated time period post-IPO and 0 otherwise. Thus the following equation is estimated:

$$\begin{aligned}
ROA_{it} = & \beta_0 \\
& + \beta_1(\text{Capital contribution} * \text{IPO time0})_{it} + \beta_2(\text{Capital contribution} * \text{IPO time1})_{it} \\
& + \beta_3(\text{Capital contribution} * \text{IPO time2})_{it} + \beta_4(\text{Capital contribution} * \text{IPO time3})_{it} \\
& + \beta_5(\text{Capital contribution} * \text{IPO time4})_{it} + \beta_6(\text{Capital contribution} * \text{IPO time5})_{it} \\
& + \alpha_k(\text{Control variables}) + u_{it}
\end{aligned} \quad (4)$$

3.5 Interaction of pre-IPO capital contribution and inside ownership on post-IPO firm performance

While capital contribution by insiders is expected to significantly impact the firm performance in the post-IPO period, the impact is hypothesised as above to vary with percentage of shareholding of insider owners. This relationship is captured by interacting the spline functional form variables (low ownership and high ownership) with capital contribution as indicated in estimating equation (5).

$$\begin{aligned}
ROA_{it} = & \beta_0 + \beta_1(\text{Capital contribution})_{it} \\
& + \beta_2(\text{Low ownership} * \text{Capital contribution})_{it} \\
& + \beta_3(\text{High ownership} * \text{Capital contribution})_{it} + \alpha_k(\text{Control variables}) + u_{it}
\end{aligned} \quad (5)$$

Control variables included in the study are sales growth, long-term debt, operating cash flow, market to book value and age. All financial variables are winsorised at the 1st and 99th percentiles. Detailed definitions of the control variables are given in Table 3.

Table 3 Definition of control variables

<i>Variable</i>	<i>Definition and expected impact</i>
Sales growth	Year-on-year growth of sales. Sales growth is a proxy for growth opportunities for the firm. Higher opportunities are expected to yield better performance. Hence we expect a positive relation between sales growth and post-IPO firm performance.
Long-term debt	Long-term debt deflated by total assets is a measure of leverage of the firm. Firms with higher leverage have greater financial risk and higher cost of debt. We expect a negative relation between leverage and post-IPO firm performance.
Operating cash flow	Operating cash flows deflated by total assets is a measure of the free cash flow of the firm. Being related to operating income, operating cash flow is expected to have a positive impact on ROA.
Market to book	Market to book ratio is computed for year 0 as industry market to book ratio; for years 1 to 5 as market capitalisation for year t divided by net worth for year (t - 1). Market to book ratio is the market expectation of the firm's future performance. It is expected to have a positive impact on ROA.
Age	Age of the firm from the date of incorporation for the relevant fiscal year. We do not predict the relation between firm age and post-IPO firm performance, and leave it to be decided by the empirical results.

Source: CMIE Prowess database

3.6 Endogeneity

In their meta-analysis of studies on ownership concentration and performance relationship across 18 emerging markets, Wang and Shailer (2013) find three major

reasons for endogeneity in these studies, viz., the measurement error, the causality among the ownership and performance variables, and the omitted variables with an impact on both ownership and performance variables. The firm specific variables could also be endogenous due to the presence of external governance variables. These external governance variables as stated by Jensen (1993) include the legal, political and regulatory environment; the product and factor markets and the capital markets. As pointed out by Demsetz (1983), while ownership is found to have an impact on performance, the owners intend to maximise their return on investment and hence, determine the extent of ownership on the basis of past and expected performance of the firm. Therefore, in the present study, it is imperative to account for the possibility of endogeneity in the variables. The present study addresses this issue by using system GMM estimation method (Arellano and Bover, 1995; Blundell and Bond, 1998). Lags of endogenous variable (at level 2) are introduced as instrument variables to form the moment condition. The fitness of the model is tested using the Arellano bond test⁶ for serial correlation in the first differenced errors and the Sargan test⁷ to test whether the overidentifying moment conditions are valid (Arellano and Bond, 1991). Similar methods have been used in the literature (Cheung and Wei, 2006) to control for endogeneity.

The results of the empirical estimation are discussed next along with sample descriptive statistics.

4 Empirical results

4.1 Descriptive statistics

Table 4 describes the summary statistics for our dependent variable, ROA; independent variables, Insider ownership, capital contribution; and the control variables. The statistics are shown for 834 observations for 199 firms except for capital contribution summary statistics which is for 814 observations due to missing observations.

Table 4 Descriptive statistics

<i>Variable</i>	<i>Mean</i>	<i>Std. dev.</i>	<i>Min</i>	<i>Max</i>
ROA	0.10	0.07	-0.15	0.30
Insider ownership	54.33	16.27	0.04	84.75
Capital contribution	4.07	1.65	-2.30	9.07
Sales growth	0.19	0.44	-0.85	2.15
Long-term debt	0.29	0.24	0.0002	1.21
Operating cash flow	0.02	0.11	-0.34	0.36
Market to book ratio	1.71	2.06	-0.03	12.89
Age	17.07	10.80	1.00	96.00

Notes: The sample consists of 834 observations (814 for capital contribution due to missing observations) for 199 Indian firms which came with an initial public offering during the period January 2007 to March 2014 with financial data up to five years post-IPO (up to 2018).

The mean ROA of our entire sample is 10% ranging from a negative of 15% to 30% with a standard deviation of 0.07. The mean Insider ownership of our entire sample is 54%.

The ownership ranges in developing and Asian countries are much higher than developed nations [Sarkar and Sarkar, (2012), p.8]. Other Indian studies also find a high mean ownership of family (Jameson et al., 2014 find a mean founder ownership of 52.40%, while Ashwin et al., 2015 find a mean family ownership of 39.56%). An ownership of more than 50% gives a majority control over the firm to the family. The literature is wide and varied in this regard as we find the use of ownership cut-offs of 5% to 75% for defining a firm as a family firm (Anderson and Reeb, 2003; Bouzgarrou and Navatte, 2013; Lins et al., 2013; Srinidhi et al., 2014; Che and Langli, 2015). The thresholds of ownership level used to identify family ownership also depend on the institutional environment in which the study was conducted (Gomez-Mejia et al., 2011). The insider ownership for our entire sample for all years ranges from 0.04% to 84.75%.

Mean capital contribution is 4.07 with a standard deviation of 1.65, ranging from -2.30 to 9.07. The negative value of capital contribution arises because of transfer or buyback of shares by the insiders at a value greater than the value incurred for acquiring the shares.

The firm characteristics are measured by the control variables. The mean growth in sales of the firms is 19% with a standard deviation of 0.44. The long-term debt to total assets is 29% on an average with a maximum of 121%. The mean operating cash flow scaled by total assets is 2% ranging from a negative of 34% to a positive of 36%. The market to book ratio is 1.71 on an average. The average age of the sample firms is 17 years with the age ranging from 1 year to 96 years.

The results of the estimated models are discussed next.

4.2 Inside ownership and post-IPO firm performance

We estimate equations (1) and (2) described above using system GMM estimation method. The results are given in Table 5. Column 1 shows the results for equation (1). The study finds that insider ownership has a significant positive impact on firm performance.

The above results indicate that on an average increasing insider ownership results in better firm performance by helping resolve agency problems arising post-IPO (Jain and Kini, 1994).

As argued by several in the more recent literature, insider ownership has a nonlinear relationship with firm performance with some range of insider ownership indicating positive impact while other ranges indicate a negative impact on firm performance (Morck et al., 1988; McConnell and Servaes, 1990; Chen, 2005). The present study estimated the nonlinear relationship as given in equation (2), the results of which are given in column 2 of Table 5.

While, low ownership is seen to have a positive and significant relation with performance, high ownership is seen to have a significant negative impact on performance. The results suggest that a significant nonlinear relationship between insider ownership and firm performance where increasing insider ownership is seen to improve the post-IPO firm performance but beyond a certain threshold level the increase in ownership has a negative impact on post-IPO performance.

The results are similar to the results found by Che and Langli (2015) who for private family firms in Norway find a significant positive relationship between lower family ownership and firm performance and a negative relationship for higher family ownership

(between 67% to 99% of shareholding), though 100% family owned firms are seen to perform poorly. Our results of nonlinear relationship are also in line with studies done for other emerging markets for example, Thailand (Kim et al., 2004), Taiwan (Chen, 2005), among others.

Table 5 Ownership and performance

<i>ROA</i>	<i>Ownership (1)</i>	<i>Ownership levels (2)</i>
ROA_lag1	0.319 (0.023***)	0.300 (0.016***)
ROA_lag2	-0.007 (0.020)	-0.038 (0.012***)
Sales growth	0.002 (0.001)	-0.003 (0.001***)
Long-term debt	-0.106 (0.006***)	-0.113 (0.004***)
Operating cash flow	0.033 (0.007***)	0.034 (0.004***)
Market to book	0.007 (0.0001***)	0.007 (0.0003***)
Age	-0.0001 (0.0003)	-0.0001 (0.0001)
Insider ownership	0.0002 (0.0001***)	
Low ownership	0.0006 (0.0001***)	
High ownership	-0.0002 (0.0001*)	
Intercept	0.075 (0.008***)	0.073 (0.005***)
Sargan test	89.764	91.038
p value	(0.369)	(0.334)
AR (1)	-3.34	-3.312
p value	(0.0008)	(0.0009)
AR (2)	-0.313	-0.365
p value	(0.754)	(0.7151)

Notes: The sample consists of 426 observations for 124 Indian firms which came with an initial public offering during the period 2007–2015 with financial data available from the CMIE Prowess database and other information available from the IPO prospectuses available at the SEBI website, <http://www.sebi.gov.in>. Low ownership and high ownership represent the splines created at the spline node of ownership level of 42.395%. Column 1 shows the GMM regression results for insider ownership on ROA at two lags. Column 2 shows the GMM regression results of Insider ownership splines split at 42.395% level of ownership, on ROA. Heteroskedasticity-consistent standard errors are presented in parentheses. ***, ** and * indicate that the parameter estimate is significantly different from zero at the 1%, 5% and 10% level, respectively.

Table 6 Ownership and capital contribution

<i>ROA</i>	<i>Base model (1)</i>	<i>Year-wise impact (2)</i>
ROA_lag1	0.370 (0.018***)	0.349 (0.017***)
ROA_lag2	-0.059 (0.023**)	-0.083 (0.019***)
Sales growth	-0.001 (0.002)	-0.004 (0.001***)
Long-term debt	-0.099 (0.006***)	-0.090 (0.007***)
Operating cash flow	0.032 (0.008***)	0.037 (0.007***)
Market to book	0.007 (0.001***)	0.007 (0.0005***)
Age	0.0001 (0.0003)	0.001 (0.0003***)
Insider ownership	0.0002 (0.0001***)	0.0002 (0.0001***)
Capital contribution	-0.005 (0.002***)	
CC * year2		-0.010 (0.002***)
CC * year3		-0.011 (0.002***)
CC * year4		-0.012 (0.002***)
CC * year5		-0.013 (0.002***)
Intercept	0.090 (0.010***)	0.097 (0.010***)
Sargan test	89.764	91.038
p value	(0.369)	(0.334)
AR (1)	-3.340	-3.312
p value	(0.0008)	(0.0009)
AR (2)	-0.313	-0.365
p value	(0.754)	(0.7151)

Notes: The sample consists of 415 observations for 120 Indian firms which came with an initial public offering during the period 2007–2015 with financial data available from the CMIE Prowess database and other information available from the IPO prospectuses available at the SEBI website, <http://www.sebi.gov.in>. Column 1 shows the GMM regression results of capital contribution on ROA. Column 2 shows the GMM regression results of capital contribution interacted with years on ROA. Heteroskedasticity-consistent standard errors are presented in parentheses. ***, ** and * indicate that the parameter estimate is significantly different from zero at the 1%, 5% and 10% level, respectively.

Very high levels of ownership outweigh the incentive alignment effect as entrenchment effect takes over (Morck et al., 1988). Further, the positive relationship between low ownership and performance may be due to the presence of higher outside ownership resulting in greater monitoring, especially after the firms have gone public. At high ownership the positive impact of outside ownership gets reduced resulting in the relationship becoming negative.

4.3 Pre-IPO capital contribution and post-IPO firm performance

The relationship between pre-IPO capital contributions of insiders is estimated using the equations (3) to (4). The results are given in Table 6. While the data for all variables are collected across years, the capital contribution of insiders for pre-IPO period is collected since the inception of the firm until the period before IPO. Thus the value of this variable remains same across all the years for the firms.

The results of equation (3) are shown in column 1 of Table 6. We find that pre-IPO capital contribution of insiders on average has a significant (at 1% level) negative impact on post-IPO firm performance. This supports the entrenchment hypothesis where large shareholders expropriate at the expense of minority shareholders (Chen and Liang, 2016).

Further, to estimate the impact of capital contribution over time for the post-IPO years, we interact each post-IPO year with the capital contribution and estimate equation (4). Column 2 in Table 6 presents the results of this estimation. The coefficients for all post-IPO year interaction terms are negative and significant at 1% level. The negative value of the coefficients increases over time. This indicates that the amount of wealth contributed by the insiders has a negative impact on post-IPO performance in the long run.

4.3.1 Interaction effects of capital contribution and insider ownership on firm performance

As discussed above, the average impact of pre-IPO capital contribution is seen to be negative on the post-IPO firm performance. Further interacting the different levels of inside ownership shareholding (low ownership and high ownership) with capital contribution, our study attempts to undertake the differential nonlinear relationship between pre-IPO capital contribution by insider owners and post-IPO firm performance. The study estimates equation (5), results of which are given in column 2 of Table 7. In column 1 the results of equation (3) are reproduced for ease of comparison.

Results indicate that capital contribution at lower levels of inside ownership have significant (at 1% level of significance) positive impact (capital contribution * low ownership), the relationship is seen to be significant (at 1% level of significance) and negative at high levels of insider ownership (capital contribution * high ownership). Our results find support in the study of Italian SMEs (Sciascia et al., 2015) who find high proportion of family wealth invested in firms along with high family ownership to result in low firm performance. While an IPO puts a greater pressure on a firm to show better utilisation of funds (Jain and Shao, 2014), high insider ownership has a negative impact on post-IPO firm performance (Lien and Li, 2014).

With regard to control variables, operating cash flow and market to book are seen to have a significant positive impact on firm performance for all regressions. This shows that the availability of internal funds and market expectation of firm's growth improves

performance post-IPO. Similar to prior studies (Martínez et al., 2007), Long-term debt is seen to have a significant negative impact on firm performance. Contrary to our prediction, Sales growth is negative for the regression on ownership levels and year-wise regression. It is positive for the interaction model, and insignificant for other models. Age is insignificant for all regression models.

Table 7 Impact of capital contribution at different levels of ownership

<i>ROA</i>	<i>Base model (1)</i>	<i>Interaction model (2)</i>
ROA_lag1	0.370 (0.018***)	0.368 (0.012***)
ROA_lag2	-0.059 (0.023**)	-0.055 (0.010***)
Sales growth	-0.001 (0.002)	0.003 (0.001**)
Long-term debt	-0.099 (0.006***)	-0.101 (0.003***)
Operating cash flow	0.032 (0.008***)	0.031 (0.003***)
Market to book	0.007 (0.001***)	0.007 (0.0003***)
Age	0.0001 (0.0003)	-0.0002 (0.0002)
Insider ownership	0.0002 (0.0001***)	
Capital contribution	-0.005 (0.002***)	-0.010 (0.001***)
Low ownership * CC		0.0001 (0.00002***)
High ownership * CC		-0.00005 (0.00002*)
Intercept	0.090 (0.010***)	0.107 (0.004***)
Sargan test	89.764	101.07
p value	(0.369)	(0.423)
AR (1)	-3.340	-3.324
p value	(0.0008)	(0.0009)
AR (2)	-0.313	-0.328
p value	(0.754)	(0.743)

Notes: The sample consists of 415 observations for 120 Indian firms which came with an initial public offering during the period 2007–2015 with financial data available from the CMIE Prowess database and other information available from the IPO prospectuses available at the SEBI website, <http://www.sebi.gov.in>. Column 1 shows the GMM regression results of insider ownership and capital contribution on ROA. Column 2 shows the GMM regression results of capital contribution interacted with Insider ownership splines on ROA. Heteroskedasticity-consistent standard errors are presented in parentheses. ***, ** and * indicate that the parameter estimate is significantly different from zero at the 1%, 5% and 10% level, respectively.

5 Conclusions

Indian firms are characterised by high ownership stakes with the promoters irrespective of the size or age of the firm. An IPO pushes a firm towards greater regulations in addition to internal and external pressure to perform. This paper provides evidence that while insider ownership has a positive impact on the post-IPO performance of Indian firms on an average, the impact is nonlinear, positive at lower levels of ownership and negative at higher levels of ownership. This study also finds that the pre-IPO capital contribution of promoters has a significant negative impact on performance. The negative impact is greater at higher levels of ownership and increases in the longer run. The entrenchment effect is hence seen for the sample firms at higher levels of ownership.

This study contributes to the ownership and performance literature for IPO firms by examining the impact of pre-IPO capital contribution on post-IPO firm performance. Further, this study has practical implications for investors and regulators. IPO investors must study the capital contribution of promoters in addition to the ownership structure of the newly listed firm with an understanding of the impact of ownership on the relationship between capital contribution and post-IPO firm performance.

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Notes

- 1 Venture capitalists have a high equity stake in the firm, similar to family-owned firms as found in the Indian context.
- 2 These prospectuses were accessed from Securities and Exchange Board of India's website (<http://www.sebi.gov.in>) as on March 2019.
- 3 The spline node is determined using the `mkspline [mkspline newvar 2 = old var, display]` command in Stata 15.1 software.
- 4 We take a natural log of the variable to normalise the distribution.
- 5 The time period included in the study indicates fiscal year.
- 6 The Stata 15.1 command is `estat abond`.
- 7 The Stata 15.1 command is `estat sargan`.