

# Top management team and IPO firms' acquisition activity

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## Abstract

**Purpose** – The purpose of this paper is to explore the role of the top management team (TMT) in determining whether IPO firms in high-tech industry will engage in acquisitions during the post-IPO period. **Design/methodology/approach** – The authors collect IPO and TMT data from firm prospectuses, and acquisition and financial data from Securities Data Company Platinum and Compustat, respectively. Poisson regression analysis is applied to test the effect of TMT characteristics on acquisition activity.

**Findings** – Using 135 IPO firms, the authors find evidence that TMT composition directly influences acquisition activity of IPO firms during the post-IPO period. Specifically, the authors find that TMT experience serving as members other firms' boards and TMT experience in senior level management positions are both positively associated with acquisition activity. TMTs with prior IPO experience and TMTs with longer organizational tenures are negatively associated with acquisition activity.

**Originality/value** – This study is among the first to examine the impact of TMT demography on newly public firms' acquisition activity. In doing so, it adds meaningfully to the understanding of the factors driving such firms' strategic behavior.

**Keywords** Top management team, Acquisition, Initial public offering, Upper echelon theory, Managerial demography, High-tech firms

**Paper type** Research paper

## 1. Introduction

This study begins to shed light on some of the factors impacting newly public high-tech firms' decisions to pursue external growth opportunities by examining the impact of the top management team (TMT) on the number and scope of acquisitions post-IPO. The decision to engage in acquisitions post-IPO is fascinating in that TMTs are choosing to compound the challenges of transitioning their firm to the public arena by simultaneously searching for and considering acquisition targets. Prior research suggests that few events in an organization's life "[...] can compare with an IPO in terms of the fundamental change to strategy, structure, personnel, control processes, and standard operating procedures" (Jain and Kini, 2003, p. 1141). Newly public high-technology firms are considered the "embodiment of risk" given their limited operational histories and their need to quickly establish defensible market positions in highly competitive and still



evolving industries (Carpenter *et al.*, 2003). Young post-IPO firms are also at a susceptible point in their development as decisions made during this transition will have far-reaching consequences for their future growth and success (Dalziel *et al.*, 2011). Examining the acquisition activity of newly public high-tech firms, therefore, provides an opportunity to investigate strategic behavior in an important and unique context.

While taking a firm public is inherently difficult, choosing to acquire another firm is similarly risk intensive. Prior research has found that the majority of mergers and acquisitions ultimately fail to achieve their intended returns (Agrawal *et al.*, 1992; Porter, 1987), that few financial benefits accrue to firms after an acquisition (Hayward and Hambrick, 1997), that acquisitions can be detrimental to firm performance (e.g. Cartwright and Schoenberg, 2006; Datta *et al.*, 1992), and that the act of merging into a larger organization can generally entail costs that could stifle innovation (Aggarwal and Hsu, 2014). For instance, Papadakis and Thanos (2010) found that in Greece the failure rate is a little higher (ranges from 50 to 60 percent) than the well cited failure rate of 50 percent. Purchasing any business is an expensive and risky venture, but acquisitions of unrelated businesses have been found to have the worst performance record of all acquisition types (Bergh, 1997; Kaplan and Weisbach, 1992; Porter, 1987). It is therefore of particular interest that certain executives, while in the process of transforming their firms to a publicly traded entities, choose to engage in an activity that if unsuccessful can lead to financial damage, divestiture, removal of top executives, harm to the reputation of managers and the firm, and devaluations by the financial community (Donaldson, 1990; Kaplan and Weisbach, 1992). In regards to the measurement of acquisition performance, it is important to note that even with an enormous amount of research both in strategic management and Finance; there is little or no agreement on how to measure this variable (Papadakis and Thanos, 2010; Zollo and Meier, 2008).

Prior research suggests that the composition of the newly public firm's TMT will have important implications for the amount of acquisition activity a firm might engage in. Upper echelons theory suggests that executives faced with complex problems, such as strategic decisions, are influenced by their experiences, values, and personalities (Hambrick and Mason, 1984). Members of the TMT draw from a variety of information sources as they consider complex issues such as acquisitions. Each executive's interpretation of these ambiguous sources of information results from filtering the available data through their values and cognitive base (Hambrick and Mason, 1984). In addition, a reduced amount of information is typically considered given that each manager's cognitive capabilities are limited (Lord and Maher, 1990). This imperfect and oversimplified assessment of strategic stimuli will be driven in large part by each manager's work experiences, education, and background (Hambrick and Mason, 1984), and is typically impacted most strongly by those cognitive aspects that hold the greatest salience for the manager (Fiske and Taylor, 1991). As upper echelons theory suggests, over time, organizations become reflections of their executive leadership through this process (Hambrick and Mason, 1984). As a result, studying the demographic characteristics of TMTs may help predict firm behavior. For example, prior research has found associations between TMT characteristics and important outcomes such as a firm's choice of strategy (Finkelstein and Hambrick, 1990), level of innovation (Bantel and Jackson, 1989), international diversification (Tihanyi *et al.*, 2000), international alliance formation (Lee and Park, 2008), strategic change (Boeker, 1997), and time of crisis (Greening and Johnson, 1996). Upper echelons theory has also been used to examine IPO firms – though no study to date has examined the impact of the TMT on M&A activity in

newly public firms. The majority of these studies have instead focussed on the leaders of startups as a signal of legitimacy and quality on issues such as short-term firm performance (e.g. Cohen and Dean, 2005; Zimmerman, 2008).

A primary reason that TMT demographic characteristics have proven useful in predicting and explaining the actions of a firm is that they provide insights into managers' cognitive processes. In particular, certain executive characteristics have been linked to the ways in which managers collect, process, and interpret information (Finkelstein *et al.*, 2009). Those characteristics that reduce the amount of information gathered and/or the type and number of information sources used in strategic decision making have been linked with increased commitment to the status quo (Miller, 1991). For example, Hambrick and Fukutomi (1991) suggest that, over time, executives reduce both the amount and quality of the information they gather and, as a result, often become increasingly internally focussed and committed to existing strategies. Thus, TMT demographic characteristics provide insights into how executives gather and process information and provide indicators of how open executives may be to making major strategic changes such as engaging in M&A.

In conclusion, there is a paucity of research examining the influence of TMT composition on acquisition activity post-IPO. Entrepreneurship research seems to have largely ignored acquisitions as credible growth options for such firms (Shrader *et al.*, 2009). The lack of investigation in this area appears to be an important omission in that inter-firm variances in top management compositional characteristics can shape not only how top managers discover and respond to external opportunities, but may also influence their ability to choreograph plans for a successful acquisition while transforming their firms. In addition, these young entrepreneurial firms offer a rich context to observe decision-makers' knowledge and experiences that have a direct impact on organizational outcomes in many different and complicated ways (Boeker and Wiltbank, 2005; Kor, 2003). Additionally, we aim to add to the large body of work that has examined the upper echelons perspective which has mainly focussed on established public firms. Fewer studies have considered early stage companies and even much less attention has been given to firms in the post-IPO stage (Liu *et al.*, 2012).

## 2. Theory development and hypotheses

Post-IPO firms in high-tech industries are likely characterized by high levels of managerial discretion where TMTs may exert a particularly strong influence on organizational actions. Indeed, prior research suggests that executives of IPO firms are particularly influential in determining firm behavior and performance (Certo *et al.*, 2009). Normally, these TMT members would have joined a startup early in its development. Therefore, the firms they lead reflect both the strategies they have put in place as well as their values, ideals, and beliefs (Baum *et al.*, 2001; Beckman and Burton, 2008). Prior researchers have paid close attention to the composition and structure of the TMTs that lead IPO firms through this transition (e.g. Certo *et al.*, 2001, 2003; Kroll *et al.*, 2007). The IPO literature has focussed mainly on the impact of TMT quality and reputation on firm viability (Certo *et al.*, 2009). Other studies have linked TMT characteristics to issues such as IPO survival (e.g. Mousa and Wales, 2012) and firms' capacity for entrepreneurial growth (Kor, 2003).

Hundreds of studies employing the upper echelons perspective have now been published (Finkelstein *et al.*, 2009), and it has become increasingly clear that understanding the behavior of an organization often requires an understanding of its leadership. Given the difficulty of directly assessing executives' cognitive bases, the

vast majority of studies have instead used demographic characteristics as indicators of an individual's information processing capabilities (e.g. Wiersema and Bantel, 1992), with executive tenure, functional background, and educational level being the most widely used measures (Finkelstein *et al.*, 2009). In this study, we employ a wide range of TMT demographic variables including organizational and industry tenure, number of outside directorships, education, functional background, and prior IPO experience to examine their impact on the acquisition activity of post-IPO firms. The following section presents hypotheses associated with each demographic variable.

### 2.1 TMT organizational tenure

Organizational tenure refers to the number of years executives have been with their firms. Previous literature has consistently found that an executive's organizational tenure is negatively associated with the willingness to take risks and respond to changing environmental conditions (Finkelstein and Hambrick, 1990; Hambrick and Mason, 1984). A primary explanation for this is that increased tenure impacts executives' willingness and ability to gather and process information. For example, managers with longer tenures may rely on a restricted knowledge base that impedes their responses to environmental changes (Hambrick and Mason, 1984). Furthermore, Finkelstein and Hambrick (1990) showed that longer tenured TMTs tend to pursue strategies that are imitative of industry trends. The authors suggest that this may be attributable to managers' risk aversion, commitment to prior actions, and restriction in information processing. Reduced information processing tends to increase commitment to the status quo (Staw and Ross, 1980), making long-tenured executives less likely to implement strategies and structures to match environmental requirements (Miller, 1991). Similarly, executive tenure reduces the likelihood that firms will engage in M&A activity (Wiersema and Bantel, 1992).

Taken together, the literature on organizational tenure paints a clear picture of longer tenured executives becoming "stale in the saddle" (Miller, 1991) as they gather and process diminishing amounts of information over time. As a result, long-tenured executives typically grow more complacent and resistant to change and are less likely to pursue major strategic initiatives such as M&A. Therefore, we argue that managers with longer organizational tenures are less likely to engage in risky actions such as acquisitions:

- H1. The organizational tenure of the TMT will be negatively related to a post-IPO firm's acquisition activities.

### 2.2 TMT industry tenure

Similar to organizational tenure, an executive's tenure in an industry has been found to effectively predict a manager's willingness to change (Hambrick and Mason, 1984). Faced with the same strategic choice, the decision making processes of longer tenured managers vary noticeably from those of relatively inexperienced managers (Fredrickson, 1985). More experienced managers tend to draw on extensive industry knowledge. While there are benefits to long industry tenure, there are also drawbacks, among them a reduced willingness to consider new and varied sources of information and greater resistance to change (Finkelstein *et al.*, 2009). For example, Grimm and Smith (1991) argued that industry tenure acts as a roadblock to organizational change due to the limited knowledge base of such executives. Similarly, Hambrick and Mason (1984) maintained that when top executives spend their careers in a single industry

and/or organization they have a more limited knowledge base to draw from, are less able to conduct a strategic search for new opportunities, and are less likely to pursue new ideas beyond their experience. Thus, executives of newly public high-tech firms with long tenure in the industry are likely to focus on internal growth:

*H2.* The industry tenure of the TMT will be negatively related to a post-IPO firm's acquisition activities.

### *2.3 TMT education*

Educational level is another important demographic characteristic that influences an executive's cognitive base. Building on the logic of Hambrick and Mason (1984), numerous studies argue that education is an indicator of a manager's knowledge and cognitive capacity. Managers must understand the firm's key resource strengths and weaknesses and they must possess the skills to manipulate those resources and seize market opportunities to ensure their firm's survival (Grimm and Smith, 1991). As educational level rises, people exhibit a broader and more complex cognitive functioning, are better able to discriminate among a variety of stimuli, and have a greater capacity for information processing (Pegels and Yang, 2000). Highly educated managers have also been found to desire a more thorough and complex understanding of situations (Pegels and Yang, 2000).

With regard to education's impact on M&A activity, previous research suggests that executives' educational achievement is tied to the level of firm innovation (Bantel and Jackson, 1989), business press endorsement (Coombs and Zimmerman, 2002), and level of diversification (Palmer and Barber, 2001). Higher levels of educational achievement, particularly business education such as an MBA, are associated with increases in M&A activity (Palmer and Barber, 2001) as this type of training encourages managers to view the firm as a portfolio of resources and encourages executives to use sophisticated financial strategies such as leveraged buyouts (Bertrand and Schoar, 2003). In addition, entrepreneurs with more education are more likely to be able to develop formal strategic plans (Karami *et al.*, 2006). Finally, higher levels of education may give entrepreneurs greater access to the types of information necessary to discover opportunities (Arenius and DeClercq, 2005). These relationships do not appear to change with firm context, and thus they would seem to hold for IPO firms as well as more established firms. Thus, we hypothesize:

*H3.* The educational level of the TMT will be positively related to a post-IPO firm's acquisition activities.

### *2.4 TMT functional background*

Members of the TMT bring to their job an orientation grounded in previous experience in some primary functional area (Hambrick and Mason, 1984). In the early stages of a technology startup, specific technical knowledge is likely to be useful as the firm is typically focussed on the technical issues involved in developing the company's primary product or service. In high-tech firms, TMTs are often composed of executives with science and/or technology backgrounds who were involved in developing the technologies that led to the creation of the firm (Zucker *et al.*, 1998). The skills required at such a stage are relatively narrow and often related to research and development (Li, 2008). However, at IPO and afterwards, a broader set of senior level managerial skills becomes extremely important as the firm shifts its focus from initial viability and survival to managing complex organizational systems (e.g. Boeker and Karichalil, 2002;

Fischer and Pollock, 2004). The strategic decisions facing a post-IPO firm are increasingly ambiguous, complex, and unstructured, and the manner in which the TMT interprets and perceives information becomes increasingly important. Thus, for a firm to effectively manage growth, it becomes increasingly important that the TMT have the type of general administrative abilities typically associated with senior level executive positions such as CEO and COO.

The functional backgrounds of the TMT are also likely to influence the types of strategies pursued by the firm. Executives with extensive senior level management backgrounds bring with them a portfolio of past business experiences and may prefer growth via acquisition over organic growth. Such executives often possess greater information about the potential outcomes associated with various strategic options (Sitkin and Pablo, 1992) and may be more likely to take risks. Ireland *et al.* (1987) suggest that managerial level influences executives' interpretations of strategic stimuli because executives at higher managerial levels are more likely to be concerned with issues in the general environment and with selecting strategies to maximize firm performance. Brouthers *et al.* (2000) found that managers with functional experience in management pursued more aggressive strategies than managers with functional experience in finance and accounting. Therefore we suggest that:

- H4. The proportion of the TMT with senior level management experience will be positively related to a post-IPO firm's acquisition activities.

### 2.5 TMT directorships

Corporate governance research has focussed significant attention on the connections executives form while serving on other firms' boards of directors. Social class theory studies have suggested that boards aid in the formation of managerial elites, and that a primary motivation of executives to serve on boards is to further their own firm's interests as well as to increase their own social capital through association with such elites (Useem, 1979). A firm may also receive a boost to their perceived legitimacy from having a board composed of well-connected directors (DiMaggio and Powell, 1983). Thus, executives who sit on many boards are likely to possess much richer and broader information than executives with no external ties.

Executives serving on other firms' boards are also likely to possess information about many different firms and industries, and may therefore be more knowledgeable about expansion opportunities for their own organization. Indeed, director experience is a primary source of executive knowledge (Haunschild and Beckman, 1998). Directorships also permit corporate leaders to interact with the business elite and to learn about best business practices (Useem, 1983). This is likely particularly important for newly public firms as many founders of IPO firms, particularly in high-tech industries, come from science backgrounds and may lack both the social networks and the familiarity with acquisitions that their counterparts in larger firms enjoy. Serving on external boards also brings IPO executives into contact with managers from a wide variety of firms, some of whom may be very involved in mergers and acquisitions. Thus, serving on other firms' boards of directors likely increases an executive's familiarity with other firms, other executives, and other industries. In addition, membership on external boards can increase an executive's awareness of potential acquisition candidates. We therefore propose that:

- H5. The number of boards on which the TMT serves will be positively related to a post-IPO firm's acquisition activities.

### 2.6 TMT prior IPO experience

Given how infrequently firms go through the IPO process, having a TMT with prior IPO experience is likely to be very beneficial to a newly public firm. Indeed, research suggests that investors view favorably the presence of such experienced executives at IPO, especially as executives with IPO experience are less likely to associate themselves with lower quality firms (Cohen and Dean, 2005). For example, previous research suggests that entrepreneurs with prior career experience in high status firms have informational and reputational advantages over novice entrepreneurs, and that their prior experience has measurable effects on their firms' ability to obtain external financing (Burton *et al.*, 2002).

While this executive characteristic has not been as heavily studied as organizational tenure, education, or functional background, IPO experience also appears likely to impact managerial cognition. More seasoned entrepreneurs are likely to have major informational advantages over novices in terms of knowledge and experience, particularly with regard to the benefits and dangers of newly public firms engaging in M&A activity. Given the consistently negative findings associated with firm performance following M&A, executives with prior IPO experience may have witnessed some of the difficulties experienced by newly public firms when engaging in acquisition activity.

In addition to their informational advantages, prior research suggests that experienced entrepreneurs are much more likely than novice entrepreneurs to have started their ventures with the goal of generating personal wealth in the form of earnings or capital gains (Westhead *et al.*, 2003). Therefore, it is likely that executives with prior IPO experience may be more interested in exit strategies than in attempting to build their venture through risky actions such as M&A. Such exit strategies allow these seasoned entrepreneurs to redeploy newly won financial resources as starting capital for a new venture (Stam *et al.*, 2008). Furthermore, engaging in acquisitions is a complex and time consuming event that may not appeal to seasoned entrepreneurs looking for an exit strategy. Thus, we hypothesize that:

*H6.* The number of IPOs the TMT has engaged in will be negatively related to post-IPO acquisition activities.

## 3. Methods

### 3.1 Data and sample

We collected data on all US high-tech firms (172) that went public between 2001 and 2005. Firms in high-technology industries (see Loughran and Ritter, 2004 for high-tech definition) were considered because they are often actively engaged in acquisitions to gain access to new technologies possessed by other companies (e.g. Benou and Madura, 2005). We collected TMT information from firm prospectuses (i.e. the 424b form), acquisition data from the Securities Data Company Platinum database, and financial data from both Compustat database and the prospectuses. Building on previous research this study considers the TMT to include all top level executives listed in the IPO prospectus, including the CEO, officers, vice presidents, and other managers (Kor, 2006; Zimmerman, 2008).

To test our hypotheses, we used a lag structure such that acquisitions were measured during the three years following IPO, and TMT characteristics and control variables were measured at IPO. Matching this lag design with financial data resulted in the removal of 37 firms, either because Compustat data was unavailable for the firm

or because information about TMT characteristics were not clearly specified in the prospectus[1]. The final sample included 135 IPO firms.

### 3.2 Measures

*Dependent variable.* We measured acquisition activity as the aggregated number of acquisitions initiated by a focal firm (Song, 1982) in the three years[2] after IPO. We only included acquisitions where a focal firm acquired 100 percent ownership of a target firm.

*Independent variables.* Following earlier studies on TMT composition (e.g. Carpenter *et al.*, 2004; Certo *et al.*, 2006; Pegels and Yang, 2000; Zimmerman, 2008), we calculated an average value for each demographic variable to test the direct relationship of TMT characteristics to acquisition activity (Tihanyi *et al.*, 2000; Wiersema and Bantel, 1992) instead of calculating a Herfindahl-index or a coefficient of variation indicating TMT heterogeneity and diversity.

*TMT directorships.* TMT experience on other firms' boards of directors was calculated as the average number of other boards on which TMT members served.

*TMT education.* To measure TMT education level, members with advanced degrees or specialized certificates, such as MBA, MD, JD, PhD, or CPA, were coded as 1, and those with a bachelors or lower degree were coded as 0. To find the average level of TMT education we divided the sum of all TMT education scores by the number of members.

*TMT functional background.* We placed members into one of ten functional categories (see Wiersema and Bantel, 1992; Zimmerman, 2008): 1 = Management, 2 = Finance, 3 = Marketing, 4 = Engineering, 5 = Law, 6 = Science, 7 = MIS, 8 = Real Estate, 9 = Mix, 0 = Other. The proportion of members in the TMT who have backgrounds in senior level management positions was used to measure this variable. To be considered in this category, the majority of a TMT member's work experience had to be in a senior level position such as CEO, COO, vice president, or division head.

*TMT organizational tenure.* We measured TMT tenure within the organization as the average number of years the members of the TMT had worked at the focal company (Hambrick *et al.*, 1996; Michel and Hambrick, 1992).

*TMT industry tenure.* Tenure in the industry was calculated as the average number of years TMT members worked in the industry in which the focal company operates.

*TMT Prior IPO Experience.* Involvement in prior IPOs was calculated as the average number of IPOs that top managers had been associated with.

*Control variables.* We included a number of control variables that may influence a firm's decision to pursue acquisitions. Since TMT prior experience with acquisitions may affect acquisition activities in the future (Jemison and Sitkin, 1986), we controlled for TMT prior acquisition experience using the ratio of TMT members who had engaged in acquisition prior to IPO. And, we controlled for firm size and age. These were measured, respectively, as the natural log of the total number of employees and the difference between foundation year and IPO year. The firm's financial resources and profitability were controlled for given that firms with sufficient financial resources are more likely to initiate new projects and engage in acquisition activities (Iyer and Miller, 2008). Return on assets was used as a control for firm profitability. Financial resources were measured in two ways: financial slack, measured as the number of months that existing cash balances were sufficient to fund working capital requirements, and the natural log of net proceeds.



We controlled for the firm's strategic intention with respect to growth options by including data on firms' proposed usage of proceeds as well as firms' R&D intensity. This variable was dummy coded as a 1 if the firm intended to use the proceeds for expansion (i.e. acquisitions), and as 0 otherwise. Research and development intensity was used to control for intended organic growth (Kor, 2006). Given that some firms do not have total sales, and that their R&D investments exceed sales early in their development, R&D intensity was calculated by R&D investment divided by total assets. CEO duality was dummy coded based on whether the CEO was also the board chairperson. This variable helps control for managerial discretion. Venture capital backing was measured with a dummy variable where a value of 1 indicates the firm received venture financing prior to the IPO (Jain and Kini, 2003). We added the number of patents to control for firm's internal development capabilities. We also included dummy variables representing each year to control for the possible influence of yearly trends in the numbers of IPOs and acquisitions during the period of study (2001-2005). Finally, industry effects were controlled for using dummy variables based on two-digit SIC codes.

### 3.3 Analysis

The dependent variable is the number of acquisitions made in the three years following IPO. We first checked the validity of an assumption of Poisson regression that requires the variance to equal the mean. Although the mean of our dependent variable is not equal to its variance, the estimate of the log-transformed over dispersion parameter alpha and the goodness of fit test indicates that Poisson regression is appropriate to model our data (Cameron and Trivedi, 2009). The Hausman test also indicated no difference in coefficients between the Negative Binomial model and the Poisson model. We therefore report the results of Poisson regression with the robust option in Stata.

## 4. Results

Table I provides the descriptive statistics and correlations among all variables used in the study. The minimum number of acquisitions was 0, and the maximum was 12. In our sample, 30 firms engaged in at least one acquisition within three years after IPO, while 105 IPO firms did not pursue any acquisition. Our sample firms had 0.55 acquisitions on average over the study's three-year time window. Tolerance and variance inflation factor (VIF) were also checked using ordinary linear squares regression, a more conservative method of checking multicollinearity between independent variables. The values of VIF, with a mean of 2.21 and a maximum of 4.25, suggest that multicollinearity is not an issue with our data (Cohen *et al.*, 2003).

Table II shows the results of the Poisson regression analysis. Model 1 in Table II included all control variables, and Model 2 tested the effects of each firm's TMT characteristics on the number of acquisitions undertaken. Model 1 shows that higher levels of performance decrease the likelihood of acquisition in the post-IPO stage, while the possession of sufficient financial resources and firm acquisition intentions, as stated in the prospectus, marginally encourages acquisitions.

*H1*, *H2* and *H6* propose a negative relationship between TMT organizational tenure, industry tenure, and prior IPO experience and firms' acquisition activity. The results support *H1* and *H6* as the coefficients for both TMT organization tenure and prior IPO experience were negative and significant. These findings indicate that executives with experience in other IPOs and TMTs with long organizational tenures

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Acquisition	1.00																	
2. Firm size	0.11	1.00																
3. Firm age	-0.05	0.34	1.00															
4. ROA	-0.07	0.47	0.22	1.00														
5. Net proceed	0.07	0.69	0.23	0.41	1.00													
6. Financial slack	-0.14	-0.35	-0.05	-0.22	-0.19	1.00												
7. Use of proceed	0.12	-0.13	-0.17	0.05	-0.23	-0.11	1.00											
8. R&D intensity	-0.17	-0.50	-0.22	-0.73	-0.30	0.31	-0.07	1.00										
9. CEO duality	0.20	0.09	-0.07	0.07	0.00	-0.10	0.06	-0.11	1.00									
10. VC backing	-0.03	-0.55	-0.33	-0.37	-0.47	0.21	0.11	0.38	-0.07	1.00								
11. Patent	-0.07	0.42	0.07	0.10	0.52	-0.05	-0.17	-0.06	-0.07	-0.27	1.00							
12. TMT prior acquisition experience	0.08	-0.05	0.01	-0.03	-0.07	-0.16	0.09	-0.06	0.15	-0.02	-0.09	1.00						
13. TMT organizational tenure	-0.07	0.46	0.52	0.34	0.29	-0.10	0.00	-0.28	-0.02	-0.42	0.25	-0.04	1.00					
14. TMT industry tenure	-0.07	0.11	0.16	0.01	0.17	0.03	-0.18	-0.03	-0.03	-0.19	0.16	-0.06	0.30	1.00				
15. TMT education	-0.24	-0.47	-0.02	-0.21	-0.26	0.33	0.02	0.31	-0.11	0.20	-0.14	0.12	-0.15	-0.06	1.00			
16. TMT functional background	0.27	0.35	-0.05	0.21	0.24	-0.19	-0.03	-0.31	0.28	-0.29	0.15	0.04	0.10	0.05	-0.38	1.00		
17. TMT directorship	0.05	0.36	0.08	0.10	0.29	-0.10	-0.13	-0.12	0.03	-0.14	0.59	-0.10	0.19	0.07	-0.19	0.25	1.00	
18. TMT prior IPO experience	-0.07	-0.04	0.17	-0.11	-0.10	0.10	-0.13	0.05	0.17	0.04	-0.04	0.04	-0.02	-0.02	0.23	-0.02	0.16	1.00
Mean	0.55	5.55	10.71	-0.26	18.19	14.76	0.61	0.24	0.45	0.75	71.85	0.16	4.38	11.62	0.57	0.22	0.21	0.06
SD	1.40	1.50	10.00	0.46	0.83	5.57	0.49	0.26	0.50	0.44	334.5	0.20	3.04	4.73	0.34	0.21	0.49	0.19
Min	0.00	2.08	1.00	-1.67	16.35	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	12.00	11.23	86.00	0.73	22.00	42.00	1.00	1.34	1.00	1.00	3000	1.00	18.25	25.71	1.00	0.83	4.50	1.71

Notes: <sup>a</sup>n = 135. Correlation coefficients > |0.16| are significant at  $p < 0.05$

**Table I.**  
Descriptive statistics and correlation matrix<sup>a</sup>

	Model 1	Model 2
Constant	-22.78 (5.87)***	-17.79 (6.86)**
Firm size	0.12 (0.18)	0.60 (0.35)****
Firm age	-0.01 (0.02)	0.07 (0.02)***
ROA	-1.52 (0.35)***	-1.93 (0.42)***
Net proceed	1.10 (0.34)***	0.77 (0.48)
Financial slack	0.12 (0.05)*	0.16 (0.05)***
Use of proceed	0.75 (0.40)****	0.69 (0.40)****
R&D intensity	-1.55 (1.11)	-1.11 (0.82)
CEO duality	0.03 (0.40)	0.81 (0.36)*
VC backing	0.57 (0.44)	-0.24 (0.46)
Patent	-0.01(0.01)****	-0.01 (0.00)**
TMT prior acquisition experience	-0.62 (0.94)	0.17 (1.16)
Industry and year dummies	Y	Y
TMT organizational tenure		-0.57 (0.13)***
TMT industry tenure		-0.01 (0.05)
TMT education		-1.24 (1.07)
TMT functional background		1.34 (0.79)*
TMT directorship		2.94 (0.64)***
TMT prior IPO experience		-7.52(5.02)****
df	20.00	26.00
Log pseudo-likelihood	-100.76	-78.06
Wald $\chi^2$	288.48***	348.22***
Pseudo $R^2$	0.38	0.52

**Table II.**  
Results of poisson  
regression analysis<sup>a</sup>

**Notes:** <sup>a</sup> $n = 135$ . Two-tailed test for hypothesized effects. Robust standard errors are given in parentheses. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ; \*\*\*\* $p < 0.10$

prefer internal development to growth through acquisition. However, we did not find support for *H2* which suggested that the industry tenure of TMTs negatively effects acquisition activity.

*H3-H5* propose a positive relationship between TMT education, senior level management experience, and TMT directorships and IPO firms' acquisition activity. Consistent with *H4* and *H5*, the results indicate that TMT's board experience and senior level management experience are statistically significant and positively related to the number of acquisitions pursued. We did not find support for *H3* which suggested that TMT educational level would positively affect acquisition activity. This may perhaps be due to the fact that TMTs with higher levels of education are more aware of the increased risk associated with mergers and acquisitions, particularly in the face of a firm having just become publicly traded.

## 5. Discussion

Our objective in this study was to further develop an understanding of the role of TMTs in determining organizational action in the post-IPO context. No other study to date has examined the relationship between TMT characteristics and firm's post-IPO acquisition activity. This study's results provide support for our contention that executives matter when it comes to understanding post-IPO firms' strategic decisions (Greening and Johnson, 1996).

More specifically, we found that executives' board experience, senior level management experience, organizational tenure, and prior IPO experience all

significantly impact their firm's acquisition activities. In doing so, our study extends prior research on post-IPO acquisition intensity. Understanding the decision to acquire other companies in any context is important given that acquisitions have a high failure rate (Porter, 1987). However, acquisitions are particularly interesting in the post-IPO context as prior research suggests that a significant number of firms that undergo a public offering fail shortly thereafter (Jain and Kini, 1999). Thus, TMTs that first decide to take their firms public and then engage in acquisitions simultaneously expose their firms to two highly risky and potentially lethal activities. Our research builds on the work of Celikyurt *et al.* (2010) and Brau and Fawcett (2006), expanding on their conclusion that firms may go public in order to fuel future acquisitions. These studies emphasized that high-tech firms view an IPO more as a reputation enhancing strategy than a financing decision (Brau and Fawcett, 2006). We go one step further to show that specific executive characteristics are a primary driver of these acquisition decisions.

This study also contributes new insights to the IPO literature focussing on high-tech firms. In particular, we extend the work of Kor (2006) and Carpenter *et al.* (2003). First, Kor (2006) examined TMT and board compositions and their relationship with high-tech firms' investments in R&D post-IPO. While Kor (2006) focussed on a specific internal growth strategy, our study examines the relationship between a similar set of TMT characteristics and organizational decisions to pursue external growth through acquisitions. Based on the combined results, it is apparent that a firm's executive leadership heavily influences decisions regarding post-IPO firms' growth strategies. With regard to Kor's (2006) research, perhaps the most intriguing finding in our study is that managers with longer organizational tenures are less likely to engage in acquisitions post-IPO. Interestingly, Kor (2006) found an inverse relationship between organizational tenure and the R&D investments often needed for effective organic growth. Taken together, these findings are quite compelling given that firms in high-tech industries cannot afford to become dormant when it comes to developing or acquiring the new technologies essential for competitive advantage. These findings, in part, may help explain the high failure rate of IPO firms (Zeune, 1993). These results also appear to support one of the traditional explanations for a firm's decision to go public – that entrepreneurs with superior information see their growth prospects leveling off and therefore seek to divest their holdings prior to failure (Jain and Kini, 1999). Second, our study informs Carpenter *et al.* (2003) article examining high-tech firms' internationalization strategy prior to IPO. We build on this work by examining high-tech firms in the period after IPO, and by examining their external corporate development strategy.

This research also informs previous discussions regarding executives' risk tolerance. Prior research sheds little light on whether entrepreneurs or traditional managers have a higher propensity for risk taking (Busenitz and Barney, 1997). Decades of research has failed to answer this question, and many researchers have therefore suggested that there are minute, if any, differences between the two (Stewart and Roth, 2001). As a consequence of these equivocal results, literature reviews (Brockhaus and Horwitz, 1986; Chell, 1985; Perry, 1990) have often concluded that entrepreneurs do not have a distinctive risk propensity compared to traditional managers. Even though most researchers seem to agree that entrepreneurs are generally involved in starting ventures with very high failure rates, some still hold to the premise that entrepreneurs do not differ substantially in their risk taking propensity (Ray, 1994). Though it did not explicitly measure risk propensity, this study's findings regarding certain TMT characteristics inform the work of Busenitz

and Barney (1997) and Stewart and Roth (2001) who found a greater propensity toward risk among entrepreneurs than among traditional managers.

This study's results provide several interesting implications for managers and investors. Our study shows that managerial specific factors will impact and shape managers willingness to engage in more risky behavior such as acquisitions post-IPO. Therefore, as CEOs/founders build their executive team they must be very conscious about the effect their team will have on corporate level decisions once they are a public firm. A challenging task thus lurks for these corporate leaders at the helm of IPO firms: How do they build a team that can help them manage the challenges of taking a firm a public, but at the same time be open to different ideas in regards to boundary expansion post-IPO. Here for example we find that for firms interested in rapid acquisitions in such a context, looking for managers with board experience and senior level management experience could be a good start. This is in comparison to managers with experiences in other IPOs and TMTs with long organizational tenures who we found are less willing to engage in acquisitions in the period directly following an IPO. These managers might be more inward focussed where they prefer internal development or are simply more cautious. Managers and investors alike might want to think about how to develop a partial revolving TMT team. Although we understand that at times it might be difficult to make changes in the composition of the TMT. It might be acceptable to have some positions on the TMT that are considered temporary. Once a certain passing challenge (e.g. going through an IPO) is accomplished, then recruiting managers that will help the firm succeed over the long haul should become a priority. Firms already engage in such activities where they might hire for instance a CFO experienced with the IPO process to help ensure the success of this transition. Such action is generally labeled as window dressing in academic circles and is not necessarily encouraged. We here suggest that it might be a useful tactic that is worth thoughtful consideration not only in the period prior to IPO but in the period directly following.

This study's findings also provide numerous avenues for future scholarly investigation. For example, future research may benefit from investigating the drivers of post-IPO acquisition activity in other countries, given that previous literature has shown that firms go public for different reasons depending on national origin. For instance, Italian firms often go public to balance their capital structure and to exploit misevaluation (Pagano *et al.*, 1998), while German firms often engage in IPOs when their investment opportunities and valuations become attractive (Boehmer and Ljungqvist, 2004). Future studies could also benefit from examining the impact of various environmental factors on the relationship between the TMT and acquisition activities. It seems likely that in munificent environments the relationship between TMT characteristics and acquisition intensity may be strengthened. In addition, it would be interesting to examine the extent to which industry growth rates impact acquisition activity. For instance, Wiersema and Bantel (1993) noted that slow industry growth results in a race for market share where companies are more likely to pursue expansion. Future researchers interested in the topic of growth will also benefit from this study in learning about which variables they must control for in a selection model.

Future researchers could also extend this work by examining the differences in managers (e.g. traditional vs entrepreneurial) and the value of strategic alliances in acquisitions and IPOs. Directly building on the work of Qi *et al.* (2015), who found that IPO firms with alliance experience attain higher valuations when compared to those without and that takeover targets with alliance experience ended up receiving higher premiums than those targets that do not have such experience, it seems logical that the

next step could focus on managerial experiences and heterogeneity and how do they impact this relationship. Another fascinating question tackles the issue of how do different managers ensure that their firm will be able to gain the necessary alliance experience needed to secure better valuation before going through an IPO and then how do these different managers achieve better acquisition performance over the long-run.

In conclusion, our results provide evidence that one of the main drivers of post-IPO acquisition behavior has to do with top managers. Our findings are clear in that specific types of executives are more likely to engage in boundary expansion activities than others and therefore possibly view risk/opportunities differently than others.

## Notes

1. We conducted *t*-tests to compare our sample means of acquisition with the means of excluded firms, and found no significant difference. This mitigates concerns of sample selection bias.
2. A three-year time window was chosen to reflect the firm's acquisition intensity in and after IPO. Empirically, when testing acquisition activity in the first year of IPO, both Poisson and Negative Binomial analysis failed to meet convergence given that less than 10 percent of firms engaged in acquisition activities. The results from the sensitivity analysis using different time windows (e.g., two and three years) were consistent with the results presented above.

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