

Lucio Cassia (Italy), Andrea Correale (Italy), Tommaso Minola (Italy)

## The role of Top Management Teams behind investors' valuation of entrepreneurial IPOs

### Abstract

The paper investigates the role of Top Management Teams (TMTs) characteristics behind market performance of IPOs on a secondary market. After highlighting the main differences between entrepreneurial and managerial companies, we identify effective drivers related to TMT characteristics able to distinguish between them. Next, we empirically investigate the impact of TMT characteristics on the market performance of companies listing through IPOs on the Alternative Investment Market (AIM). Last, we verify how TMTs characteristics are relevant when firms under study are led by entrepreneurial-oriented TMTs.

**Keywords:** entrepreneurship, Top Management Teams, firm performance, IPO, alternative investment market.

**JEL Classification:** M10, M13, G10, G14.

### Introduction

Within the literature on entrepreneurship and strategic management, on the ground that intangible resources such as human capital and knowledge are emerging as important drivers to shape firm performance, researchers have been showing an increasing interest towards the impact of entrepreneurship and TMTs on firm performance (Covin and Slevin, 1991; Finkelstein and Halebian, 1993; Covin and Zahra, 1995; Goosen, de Coning and Smith, 2002; Shepherd and Wiklund, 2003; Covin, Green and Slevin, 2005; Handelberg and Vyakaranam, 2005; Haber and Reichel, 2007). Empirical investigations highlight entrepreneurial skills and TMT management style may directly influence firm strategic behaviours. Companies characterized by high levels of business experience, specific knowledge and entrepreneurial orientation would be more likely to generate superior business performances. Beside, from a market perspective, academics highlight firm investors' valuation not only considers the value of tangible and accountable assets, but also they often take into account more intangible-based dimensions. Academics (Wiklund, 1999; Shepherd and Wiklund, 2003) explicitly support the importance of considering firm reputation, knowledge, TMT experience and prestige when analyzing firm market performances. In particular, TMT prestige and firm entrepreneurial orientation may directly influence the value the market attributes to the company, particularly for start-ups and IPOs (Certo, 2003; Certo, Lester, Dalton, Dalton and Cannella, 2006). In this context, we argue that TMT management features influence firm strategic behaviors and performance. Moreover, we sustain TMT characteristics would play an important role in influencing investors' valuation within explicit entrepreneurial settings, such as firms characterized by high levels

of innovation and risk-taking propensity. According to previous idea, we aim to contribute to the literature by empirically investigating the role of TMT characteristics behind market performance of IPOs on a secondary market. As a matter of fact, we find robust evidence for the important role played by TMT in shaping firm market performance; interestingly, we find that this phenomenon is even more pronounced when considering more entrepreneurial organizations.

The paper is organized as follows. The first part sets the theoretical framework and it summarizes the main literature contributions on entrepreneurship and TMTs as well as their role behind market performance of IPOs. We explain the concepts of the entrepreneurial companies and TMTs, meanwhile discussing about the role of entrepreneurial orientation and TMT prestige on firm market performance. The second part describes the dataset, methodology and hypotheses. We define the different subsets respectively composed by managerial and entrepreneurial companies and we statistically compare them to highlight the main differences between different types of organizations. Besides, we discuss our assumptions on the role of TMT characteristics and entrepreneurship behind firm market performance at IPOs and we describe the model we use for our analyses. The paper concludes commenting the most significant results of our study as well as the main implications of our findings.

### 1. Theoretical framework

In order to investigate the role of TMT behind market performance of IPOs, we combine different streams of literature. On one side, we embrace the concepts of entrepreneurial organizations and TMTs within literature about entrepreneurship and management (Andrews and Welbourne, 1996; Cyr, Johnson, Welbourne, 2000; Dess, Ireland, Zahra, Floyd, Janney and Lane, 2003; Dess and Lumpkin, 2005; Cooney, 2005; Beckman and Burton, 2005). On the other side, we refer to the literature on IPOs

in the area of corporate governance and management (Cyr and Welbourne, 1999; Nelson, 2003; Certo, Lester, Dalton, Dalton and Cannella, 2006). In particular, we use the concept of entrepreneurial organizations as a context to investigate the role of TMT characteristics behind firm market performance at IPOs.

During the last twenty years, researchers have shown an increasing interest in the effects of entrepreneurship within organizations and behind firm performance. Since 1983, when Millers firstly introduced the concept of firm entrepreneurial orientation, researchers (Covin and Slevin, 1991; Lumpkin and Dess, 1996; Dess, Lyon and Lumpkin, 2000) have theorized many conceptual frameworks in order to rationalize the construct of entrepreneurial organizations. As of today, the concept of corporate entrepreneurship (entrepreneurship as firm behavior) is extensively recognized as a firm adoption of processes, structures and management styles that can be described either as innovative, proactive and risk taking. Innovativeness regards firm attempts to embrace creativity, experimentation, novelty, technological leadership in both products and processes. Proactiveness relates to firm forward-looking and first mover advantage-seeking efforts to shape the environment by introducing new products or processes, ahead of competition. Risk taking propensity consists of firm activities such as borrowing heavily, committing a high percentage of resources to projects with uncertain outcomes as well as entering unknown markets.

According to Peters and Shepherd (1999), we state companies are characterized by peculiar strategic orientations, approach towards resources, commitment to opportunities, organizational structures and compensation policies. More entrepreneurial organizations would show a major propensity to act autonomously, willingness to innovate and to take risks as well as a major tendency to be aggressive towards competitors and proactive with regard to market opportunities. Besides, they are usually driven by a major perception and exploitation of opportunities, tend to have a revolutionary and short-term commitment to opportunities as well as an episodic use or rent-based approach towards required resources. The other way around, more managerial organizations would be focused upon the use and the optimization of resources current controlled, have evolutionary and long-term commitments to opportunities as well as an ownership-based approach towards resources. For an extensive description of differences between managerial and entrepreneurial firm perspective, see Audretsch & Thurik (2001). Besides, academics argue firm strategic behaviors and corporate entrepreneurial orientation are related to TMT management style and

TMT members' characteristics (Hunter, Webster and Wyatt, 2005). Cooney (2005), Tihula and Pasamen (2006), Harper (2008) explicitly sustain the existence of more entrepreneurial and managerial-oriented TMTs, arguing the crucial difference between them regards risk-sharing and risk-taking propensity. Entrepreneurial TMTs would be mainly composed by entrepreneurs or members with direct financial (share) interests into the company, which are usually also the founders of the firm. More managerial TMTs instead consist of managers coming from the inside of organizations and just few owners. Consistently with previous idea, members of entrepreneurial TMTs hold a control position because of their direct involvement into the ownership of the company, while individuals of managerial TMTs are qualified as members because of their leadership and strategic position within organizations.

In this context, we support the existence of more entrepreneurial-oriented organizations and we state TMT characteristics may be effective drivers to identify them. Next, we confirm the existence of a relationship between TMT characteristics and firm performance, sustaining this phenomenon would be particularly pronounced when considering more entrepreneurial firms, such as organizations characterized by with high levels of innovativeness and risk taking propensity. We sustain it is possible to label a firm as entrepreneurial by analyzing TMT characteristics. TMTs may be considered as entrepreneurial if they include the founder of the company which is still also involved into the ownership of the company, even though in a low ownership position. Besides, even if not including the founder of the company, TMTs may be also classified as entrepreneurial if they own the largest stake of the business, which allows them to directly influence firm strategic management. According to previous idea, we focus our attention on the specific moment of the IPO, one of the main entrepreneurial phases of the history of a company, which usually takes place during periods of high organizational growth of the corporate life cycle. The IPO represents a discontinuity phase in the history of a company, usually associated to a high level of uncertainty about the further development of the organization. We sustain differences between more entrepreneurial and managerial companies would more likely emerge at IPO. Within the literature on IPOs, when studying the effects of TMTs on firm market performance, we find out researchers mainly investigate the impact of TMT prestige on the value investors attribute to the IPO. TMT prestige is defined by D'Aveni (1990) as the property of having status and reputation. Base on the signalling theory, TMT prestige may enhance firm credibility in the market and

influence investors' valuation, particularly considering the premium price the market attributes to the IPO (Michael R. and W. Shaw, 1994; Certo, Lester, Dalton, Dalton and Cannella, 2006). TMT prestige would act as a signal of organizational legitimacy and attract the attention of prestigious institutional investors and venture capitalists. When considering the effect of TMT prestige, researchers usually investigate personal characteristics of single TMT members such as age, tenure, previous work experiences, decision making styles and management skills (Higgins and Gulati, 2006; Mackey, 2008). Next, not only researchers focus on single TMT members' characteristics, but also they consider information about the whole TMT such as size, heterogeneity, background and assignment diversity as well as the distribution of ownership between TMT members (Beatty, Zajac, 1994; Carland J.W., Carland J.C., Ensley, 1998; Angelmar, Kilduff, Mehra, 2000; Pitcher and Smith, 2001; Barnett, Richard, Dwyer, Chadwick, 2004). TMT background diversity and heterogeneity is usually measured through proxies based on past business experiences of TMT members such as prior executive, start-up or finance experiences. This choice bases on the theory that TMT abilities in running business activities would be reflected into the human capital and professional stories of TMT members (Tihula and Pasamen, 2006). In this context, our research aims to investigate the role of TMT characteristics behind firm market performance of young and growing SMEs undertaking an IPO on a secondary market. This research question addresses a very prominent topic which, as to our knowledge, has not been addressed previously. Moreover, we also aim to verify whether such relationship is emphasized when considering firms that we may label as 'entrepreneurial'.

## 2. Methodology

**2.1. Dataset and samples.** The Alternative Investment Market (AIM) is the secondary market of the London Stock Exchange dedicated to the listing of young and fast-growing SMEs. Our specific choice of the AIM is due to several structural characteristics which make it fitting to our purposes. First, the AIM is characterized by a unique admission process that does not stipulate minimum requirements about company size, track record, number of shares in public hands or market capitalization. Second, the AIM is a secondary market dedicated to small, growing and innovative companies, listing through IPO in order to collect capitals to sustain fast expansions. The IPOs on the AIM are usually formed around new business ideas, which enhance the level of entrepreneurship within the dataset. These types of companies usually face high levels of uncertainty, dynamic environmental conditions and fast organ-

izational growths. Third, firms listed on the AIM operate in a wide range of industries, enabling us to study the role of TMTs and entrepreneurship as transversal phenomenon without industry or regional boundaries.

According to our purposes, we focus our analyses on young and growing SMEs listed through IPO on the AIM, during the period 1995-2002. Data are collected from the EurIPO<sup>1</sup> database, which provides for each firm, public financial and non-financial information available on the official prospectuses of IPOs. The dataset is composed by 146 companies and it has been defined by the aggregation of two subsets (73 firms each) that we selected from the EurIPO database as representing different categories of organizations, respectively more entrepreneurial and managerial firms. According to several empirical contributions about entrepreneurship and TMTs, in order to identify more entrepreneurial organizations we consider both the presence of the founder in the TMT and the involvement of TMTs into the ownership structures of companies (Beatty and Zajac, 1994; Beckman, 2005; Chow, 2006). In the case that the founder is included into the TMT, we consider a company as entrepreneurial if the TMT owns at least the 10% of the whole shares of the company, managerial otherwise. In the case that the founder is not included into the TMT, instead we label a company as entrepreneurial only if the TMT owns the larger stake of the business (>50%), managerial otherwise. Numeric dimension of subsets arises from a selection process driven by our necessity to have samples with the same number of observations and the limited availability of information within the EurIPO database we require for subsequent analyses. At aggregate level, the entire dataset is composed by 146 firms in a phase of fast expansion during the years around the IPO. 104 companies (71,23%) present less than ten years from foundation to IPO and 131 firms (89,73%) show values below 25 millions of Euro in both Net Sales and Total Assets. Besides, 80 companies (54,79%) are performing annual average growth rates in net sales between 20%-100% if calculated over four years around the IPO, while 37 firms (25,34%) are more than doubling their net sales annually, during the same period. Last, according to the Standard Industrial Classification (SIC), companies included into the dataset

<sup>1</sup> The EurIPO database collects data on more than 4000 companies that went public through IPO on the European stock exchange during the period 1985-2006. Individual data about the firms are collected from the official IPO prospectuses and annual reports. The dataset combines information of different kind, as accounting data and information on the structure of the offer, ownership structure and post-IPO performance, corporate governance, human capital and intellectual property rights.

embrace in a wide range of industries, although most of them operate in the industries of services (55%) or manufacturing (23%).

Table 1. Firm characteristics at IPO

Firm characteristics	Firms (#)	(%)	Cumulate (%)
Age			
< 5	66	45.21	45.21
6-10	38	26.03	71.23
11-25	29	19.86	91.10
> 25	13	8.90	100
Net sales (mil €)			
< 5	75	51.37	51.37

6-10	29	19.86	71.23
11-25	27	18.49	89.73
> 25	15	10.27	100
Total assets (mil €)			
< 5	58	39.73	39.73
6-10	40	27.40	67.12
11-25	30	20.55	87.67
> 25	18	12.33	100
Average growth in net sales (%)			
< 5	9	6.16	6.16
20		13.70	19.86
80		54.79	74.66
> 100	37	25.34	100

Table 2. Breakdown by industry

Industry	2-digit SIC	Firms (#)	(%)
B – Mining	10-14	1	0,68%
C – Construction	15-17	4	2,74%
D – Manufacturing	20-39	33	22,60%
E – Transportation & public utilities	40-49	5	3,42%
F – Wholesale trade	50-51	7	4,79%
G – Retail trade	52-59	13	8,90%
H – Finance, insurance & real estate	60-67	2	1,37%
I – Services	70-89	81	55,48%

Before proceeding, we compare subsets in order to verify they would be actually statistically different and homogeneous for our further analyses. We particularly focus on three main groups of variables,

respectively related to firm characteristics, TMT composition and ownership structure. Table 3 summarizes results of t-tests of equal means we drawn up on the subsets.

Table 3. Results of t-tests of equal mean drawn up for four groups of variables on the subsets respectively composed by entrepreneurial and managerial companies

Variable	Entrepreneurial	Managerial	T	P
Firm characteristics				
Firm age at IPO	8.69	16.04	-1.92	0.058 *
Firm net sales at IPO (mil €)	8.47	22.81	-1.70	0.091 *
Firm total assets at IPO (mil €)	9.08	66.02	-1.11	0.267
TMT composition				
TMT size (number of TMT members)	5.39	5.28	0.39	0.693
TMT composition (% non executives)	33.96	41.03	-2.73	0.008 ***
CEO founder (founder as CEO)	76.71	21.91	9.34	0.000 ***
CEO shareholder (dummy)	60.27	41.09	2.21	0.029 **
Ownership structure				
TMT shares pre IPO (%)	63.54	23.35	3.33	0.001 ***
TMT shares post IPO (%)	39.87	16.11	8.45	0.000 ***
Ownership concentration pre IPO (%)	66.18	55.37	2.59	0.011 **
Ownership concentration post IPO (%)	48.93	37.09	3.92	0.000 ***

Note: \* = 10% (or .1), \*\* = 5% (or .05), \*\*\* = 1% (or .01) level of significance.

As emerging at the glance, there are no substantial differences in term of firm characteristics between entrepreneurial and managerial companies, although more entrepreneurial organizations seem younger and smaller at IPO. Analyses highlight several differences in terms of TMT characteristics and ownership structure between subsets. Entrepreneurial companies show a more probable presence of the

founder into the TMT (76.71 %), which is also the CEO of the company on the average. Within more entrepreneurial companies, it is more likely the CEO is involved into the firm ownership structure (60.27 %). Next, more managerial organizations show a higher presence of non executive directors into the TMT (41.09 %). Besides, TMTs leading entrepreneurial companies would be more involved into the

ownership structure of the company, both before and after the IPO, confirming more entrepreneurial organizations have also more concentrated ownership structures.

**2.2. Description of the econometric model.** In order to verify the role of TMT characteristics behind the market performance of IPOs, meanwhile controlling possible effects of entrepreneurship, we use the model defined as follows:

$$IPO\ perf. = \sum \beta_i (TMT\ characteristics) + \sum \beta_j (control\ dimensions) + \varepsilon_j$$

We test the model by using the entire dataset (146 firms) in order to verify the role of TMT characteristics behind market performance of IPOs on the AIM. Next, we test the model by using the two different subsets (73 firms each), respectively composed by more entrepreneurial and managerial companies, in order to verify whether investors actually place a specific attention on TMT characteristics and firm level of innovation and risk when valuing more entrepreneurial IPOs.

**2.3. Dependent variable.** According to our purposes, we focus on firm market performance at IPO and we adopt the firm market capitalization as dependent variable of our model. Not only stock market measures are the most prevalent in the literature on IPOs (Ibbotson, Sindelar and Ritter, 1994; Kazantzis and Levis, 1995), but also it directly reflects the whole value that investors attribute to the company. The sole absolute stock price at the moment of the IPO can be misleading in that it fails to account for the worth of firm assets (Welbourn and Andrews, 1996). Start-ups and high-tech companies may have few assets, but enormous growth potential, not perceived in the sole stock price. Besides, the amount of the stock price that is above and beyond the book value (premium price), which is one of the most studied dimensions within the literature on IPOs, may capture the value the market attributes to firm opportunity growth, but it is influenced by dimensional effects due to its relative nature. Although two companies may have the same opportunity growth in absolute term, the youngest and smallest firm presents a higher premium price, unlike the most established and largest one. Last, unlike other accounting measures of performance as EPS, ROA or ROE, firm market capitalization is not susceptible to possible distortions due to specific accounting methods or to manipulation (Lev et Thiagarajan, 1993). In order to avoid previous distortions, we focus on the whole market capitalization of the IPO, measuring it as the offering price multiplied by the number of shares after the IPO.

Table 4 summarizes the main statistics about the market capitalization of companies included into our dataset, considering both the whole sample (146 firms) and the two subsets (73 firms each), respectively composed by managerial and entrepreneurial companies.

Table 4. Main statistics on the dimension of firm market performance at IPO

Dataset	Firm market value at IPO (mil €)			
	Mean	SD	Min	Max
Entire dataset (146 firms)	21.99	22.12	2.16	162.94
Managerial companies (73 firms)	23.21	26.61	2.31	162.94
Entrepreneurial companies (73 firms)	20.77	16.56	2.16	80.02

**2.4. Independent variables.** According to our purposes, we selected different dimensions related to TMTs characteristics as independent variables of the model. We define the variables TMT Size, TMT Graduates, TMT Ownership, CEO Shareholder, CEO Age and CEO Academic Prestige as dimensions of TMT characteristics. TMT Size is defined as the number of directors included into the TMT. Academics argue larger TMTs would be usually associated to higher levels of experience, expertise as well as heterogeneity that may ease the pursuit of superior performances. TMT Graduates and CEO Academic Prestige are variables used to measure TMT prestige. CEO Academic Prestige is a variable reflecting the level of the education of the CEO and it ranks the CEO academic degree through a custom-made scale composed by five different levels from 0 to 4. A TMT led by a CEO with a more prestigious academic degree is associated to a higher value in the scale. The variable TMT Graduates is a proxy of the level of education of the whole TMT and it is measured as the percentage of graduates into the TMT. Besides, we include the variables CEO Age and TMT Size as measures of TMT characteristics because they are usually used by researchers as proxies of the level of experience and learning of organizations. We sustain younger CEOs are characterized by a major entrepreneurial orientation on the average, which may influence investors' valuation of IPOs. CEO Shareholder is a variable dummy reflecting the role of the CEO as shareholder of the company. It assumes value 1 if the CEO is also one of the main shareholders of the company, 0 otherwise. Last, we define the variable TMT Ownership to verify the effects of TMT involvement into the ownership of the company. A large financial (share) interest of the TMT into the company is usually positively evaluated by investors, because it is considered as a signal of the level of the confidence of TMTs into the quality of a company.

**2.5. Control variables.** In order to give more consistence to our analyses, we control several dimensions of entrepreneurship and firm characteristics at IPO (innovativeness, risk taking propensity, firm age, size, profitability and ownership concentration). We define the variable Innovativeness to control firm ability to generate innovation and we adopt the number of Intellectual Property Rights as proxy to measure it. In order to verify the role of firm risk taking propensity, we consider dimensions of both business and financial risk. We define the variable Business Risk and we measure it by the number of risk factors included into the official prospectus of the company at IPO (Cyr, Johnson, and Welbuorne, 2000; Lester et al., 2006). Besides, according to researchers (Dess and Lumpkin, 2005), we define the variable Financial Risk and we measure it by the ratio between debt and equity (i.e. leverage). Next, we define the variable dummy VC Presence to verify possible effects related to the presence of venture capitalists into the ownership structure of the company. The presence of venture capitalists is usually controlled by researchers because they may enhance firm managerial skills and enable the pursuit of superior performances. The presence of venture capitalists may be also interpreted by investors as a signal of high-risk company (Cyr, Johnson, and Welbuorne, 2000; Certo, 2003; Beckman and Burton, 2005). Next, we define the variable SD ROA as additional dimension of volatility and risk and we measure it by the standard deviation of firm ROA, calculated over four years around the IPO. Firm age, size and profitability are controlled as dimensions of firm characteristics. Firm age (Firm Age) is here measured as the natural logarithm of one plus firm age, where the age represents the years between firm foundation and the IPO. Firm (Firm Size) is measured as the natural logarithm of firm total assets at IPO and it is controlled because the value of assets of a company represents one of the main parts of the whole firm market value, according to the most used valuation methods. The use of the log scale is mainly due to the need of mitigating dimensional effects that may drive to misleading results. Firm ROE (ROE) is instead used as proxy of firm profitability because it would directly reflect the creation of value for shareholders. Last, we define the variable Own Concentration to analyze the influence of the level of concentration of firm ownership structure and we measure it as the percentage of shares hold by the main shareholders of the company at IPO (R.P. Beatty, E.J. Zajac, 1994; Lester, Certo, Dalton Cannella, 2006). Table 5 summarizes the structure of the model as well as the main variables defining it and their measurement methods.

Table 5. Structure of the model: variables and measurement methods

Class	Variable	Description
Dependent variable	Firm performance	
	Market Value	Offering price multiplied by number of shares post IPO
Independent variables	TMT characteristics	
	TMT size	Number of directors in the TMT
	TMT graduates	Percentage of graduates in the TMT
	TMT ownership	Percentage of shares retained by TMT members
	CEO age	Age of the CEO
	CEO academic prestige	Custom-made scale (from 1 to 4; No academic degree = 0; Business certificate = 1; Graduate = 2; Post-graduate = 3; Research background = 4)
	CEO shareholder	Dummy variable (0,1)
Control variables	Innovation and risk taking	
	Innovativeness	Number of intellectual property rights
	Business risk	Number of risk factors
	Financial risk	Leverage (debt/equity)
	VC presence	Dummy variable (0,1)
	SD ROA	Std dev of ROA over a four-year period of time
	Firm characteristics	
	Firm age	Log of one plus firm age at IPO
	Firm size	Log of total assets at IPO
	Firm profitability	Return on equity (net earnings/equity)
	Own concentration	Percentage of shares retained by the main investors

### 3. Results of analyses

According to our methodology, we test the model on the entire dataset (146 firms) as well as on the two samples (73 firms each), respectively composed by managerial and entrepreneurial companies. This methodology allows us not only to verify the relationship between TMT characteristics behind firm market performance at IPO, but also it empathises the presence of possible different drivers shaping the market performance of different types of companies. Before proceeding, we control correlation matrices (Table 6).

As emerging at the glance, we evidence Own Concentration is positively correlated to TMT Ownership, especially considering more entrepreneurial organizations. Within companies characterized by more concentrated ownership structures, TMTs tend to hold also significant ownership positions. As expected, this correlation is more evident when considering companies led by entrepreneurial TMTs characterised by a major risk taking propensity.

Table 6. Correlation matrices

Entire dataset (146 firms)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Firm age	1														
2. Firm size	0,133	1													
3. Firm profitability	-0.147 *	0.191 **	1												
4. TMT ownership	-0,025	0,077	0,041	1											
5. Own concentration	0,045	-0.147 *	-0,045	0.362 ***	1										
6. TMT size	0,027	0.137 *	-0,020	0,034	-0.210 **	1									
7. CEO shareholder	0,033	-0,048	-0,059	-0,084	0.242 ***	-0.173 **	1								
8. CEO age	0.178 **	0,053	-0,131	-0,134	-0,070	0,017	0,023	1							
9. CEO acad-prestige	0,048	-0,077	-0.173 **	-0,037	-0,061	0,124	-0,097	0,078	1						
10. TMT graduates	-0,019	-0,024	-0,061	-0,102	-0,035	0,065	-0,061	0,011	0.635 ***	1					
11. Innovativeness	0,132	-0,017	-0,121	0,023	-0,073	0,126	-0,059	0,098	0,001	-0,026	1				
12. VC presence	-0,023	-0,025	0,047	-0,099	-0.139 *	-0,071	-0,095	0,029	0,045	0.201 **	0,001	1			
13. Business risk	-0.280 ***	-0,030	0,022	-0,025	-0.147 *	0.206 **	-0,072	-0,120	0,062	0.143 *	0,128	-0,002	1		
14. Financial risk	0,060	0,107	-0.189 **	-0,040	-0,045	0,049	-0,036	0.206 **	0.208 **	0.195 **	-0,108	-0,038	-0,001	1	
15. SD ROA	-0,115	-0.583 ***	-0.372 ***	-0,022	0,042	0.145 *	-0,004	-0,029	0,091	0,022	0,092	-0,039	0.217 ***	-0,001	1
Subset of entrepreneurial companies (73 firms)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Firm age	1 1111														
2. Firm size	0,138	1													
3. Firm profitability	-0,074	0.398 **	1												
4. TMT ownership	0,034	0,149	0,125	1											
5. Own concentration	0,193	0,045	-0,108	0.467 ***	1										
6. TMT size	0,017	0,113	0,072	0,024	-0.203 *	1									
7. CEO shareholder	-0,057	-0,013	-0,129	-0.224 *	0,072	-0,173	1								
8. CEO age	0.201 *	-0,052	-0,166	-0.293 **	-0,173	0,015	-0,027	1							
9. CEO acad-prestige	0,183	-0.204 *	-0,114	-0,027	0,119	-0,036	-0,128	0,053	1						
10. TMT graduates	0,142	-0,109	0,036	-0,036	0,169	0,029	-0,124	-0,054	0.644 ***	1					
11. Innovativeness	-0,008	-0,088	0,091	0,004	-0,170	0,122	-0,030	-0,030	0,025	-0,096	1				
12. VC presence	-0,090	-0,044	0,071	-0.209 *	-0.234 **	-0,150	-0,189	0,007	0,028	0.230 **	-0,038	1			
13. Business risk	-0,180	-0,002	0,051	0,185	-0,134	0.253 **	0,035	-0,145	-0,032	0,059	0,111	00,002	1		
14. Financial risk	0,055	0,112	-0,142	-0,025	-0,018	0,040	0,004	0.274 **	0,094	0,110	-0,088	00,078	0,060	1	
15. SD ROA	-0,066	-0.670 **	-0.454 ***	-0,058	-0,037	0,189	0,018	0,003	0,169	0,087	-0,006	-00,041	0,170	-0,068	1

Table 6 (cont.). Correlation matrices

Subset of managerial companies (73 firms)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Firm age	1														
2. Firm size	0,115	1													
3. Firm profitability	-0,229 *	-0,053	1												
4. TMT ownership	0,095	0,167	-0,018	1											
5. Own concentration	0,016	-0,300 ***	0,044	-0,094	1										
6. TMT size	0,043	0,168	-0,128	0,011	-0,260 **	1									
7. CEO shareholder	0,147	-0,052	0,031	-0,281 **	0,317 ***	-0,193	1								
8. CEO age	0,170	0,171	-0,085	0,025	0,025	0,019	0,075	1							
9. CEO acad-prestige	-0,047	0,038	-0,241 **	-0,049	-0,223 *	0,276 **	-0,067	0,104	1						
10. TMT graduates	-0,128	0,053	-0,165	-0,267 **	-0,225 *	0,099	-0,010	0,075	0,627 ***	1					
11. Innovativeness	0,196 *	0,022	-0,290 **	0,106	-0,004	0,136	-0,070	0,194 *	-0,016	0,013	1				
12. VC presence	0,110	0,030	-0,001	0,008	-0,046	0,094	0,057	0,094	0,103	0,207 *	0,067	1			
13. Business risk	-0,355 ***	-0,061	-0,007	-0,189	-0,138	0,176	-0,139	-0,101	0,130	0,203 *	0,134	-0,002	1		
14. Financial risk	0,055	0,102	-0,243 **	-0,009	-0,042	0,059	-0,048	0,175	0,280 **	0,249 **	-0,119	-0,230 **	-0,035	1	
15. SD ROA	-0,168	-0,475 ***	-0,225 *	-0,208 *	0,090	0,075	-0,101	-0,094	-0,015	-0,075	0,230 **	-0,065	0,335 ***	0,082	1

Note: \*\*\* 1% significance level, \*\* 5% significance level, \* 10% significance level.



Next, we evidence Business Risk is negatively related to Firm Age in confirmation that younger companies may have a major risk taking propensity, unlike more established ones. Besides, TMT Graduates and CEO Academic Prestige are positively correlated with each other, confirming academic theories stating TMT members would tend to attract managers with similar personal characteristics and abilities. This relationship is also significant when separately considering both managerial and entrepreneurial companies. SD ROA and Business Risk are positively related to each other confirming they are both consistent measures of risk. SD ROA is also negatively correlated to Firm Size suggesting larger organizations tend to have more stable level of assets over the time. All previous considerations and any other possible correlations between independent variables are considered when interpreting following results of analyses.

Table 7 summarizes results of regression analyses undertaken over the different subsets. As emerging at the glance, important relationships between dimensions related to TMT and firm characteristics, and firm market value at IPO emerge. Results of the regression on the entire dataset (146 firms) suggest investors may take into account also TMT characteristics when determining the quality and the value of IPOs on the AIM. Both TMT Size and CEO Academic

Prestige positively influence firm market capitalization at IPO, while CEO Age is negatively related to it. Results are in accordance with extant literature stating large TMTs, which are usually characterized by higher levels of heterogeneity and background diversity, may enable the company to pursue superior performances. The positive effect of CEO Academic Prestige confirms the level of human capital of a firm is interpreted by investors as a signal of the quality of the company (although it must be remarked that TMT graduate is not significant). The negative correlation between the dependent variable and CEO Age may be due to the consideration that younger CEOs tend to have a major entrepreneurial orientation, which may allow the company to identify profitable opportunity growths, more probably. Our interpretation is confirmed by significant correlations between firm market value at IPO and several dimensions of firm level of innovation and risk-taking propensity. The market seems actually positively evaluating those firms, which may enable the company to pursue superior growths and to generate value for shareholders. As expected, control dimensions of firm size and profitability are both positively related to firm market capitalization at IPO, confirming the importance of tangible assets and firm ability to create profit in determining the value of a company.

Table 7. Regression analyses on the determinants of the market value of companies at IPO

Structure of the model		Entire dataset	Entrepreneurial firms	Managerial firms
Dataset	Number of companies	146 firms	73 firms	73 firms
Dependent variable	Firm market performance Market value at IPO (mil €)			
Independent variables	TMT characteristics			
	TMT size	3.88 ***	5.20 ***	6.37 ***
	TMT graduates	-11.7	-10.38	-2.33
	TMT ownership	0.12	9.71	50.13
	CEO age	-0.40 *	-0.28	-0.37
	CEO academic prestige	2.95 *	6.66 ***	1.40
	CEO shareholder	4.72	16.04 ***	13.47 *
Control variables	Innovation and risk taking			
	Innovativeness	0.74 ***	1.91 ***	0.22
	Business risk	0.84 *	0.34	0.40
	Financial risk	0.05	-0.08	-0.05
	VC presence	1.59	4.74 *	-1.34
	SD ROA	6.01	10.84 **	3.41
	Firm characteristics			
	Firm age	1.24	0.82	-0.92
	Firm size	2.56 *	7.81 ***	0.09
	Firm profitability	0.95 **	0.18	0.24
	Own concentration	7.27	-6.16	1.60
Regression statistics	Intercept	-36.25	-135.92 ***	-13.53
	R2 %	30.69	55.56	27.75
	Adj R2 %	22.69	43.87	8.73
	F	3.84 ***	4.75 ***	1.46

Note: \* = 10% (or .1), \*\* = 5% (or .05), \*\*\* = 1% (or .01) level of significance.

The most interesting results emerge when separately testing the model over the two subsets, respectively composed by entrepreneurial and managerial companies (73 firms each). In support of our hypothesis, TMT characteristics and firm level of innovation and risk influence investors' valuation at IPO. We also find out firm level of Innovativeness and Risk is particularly positively related to firm market value when considering more entrepreneurial IPOs. In this case, TMT Size, CEO Shareholder and CEO Academic Prestige are positively correlated to firm market value, moreover with high levels of significance. Besides, the presence of Venture Capitalists into firm ownership structure, which is usually interpreted by investors as a signal of firm opportunity growths, is positively related to the market value of entrepreneurial IPOs.

The other way around, we find out firm market value of more managerial IPOs seems not being influenced by TMT characteristics and firm level of Innovativeness and Risk. In this case, although some feeble positive relationships between firm ownership structure (TMT Ownership and CEO Shareholder) and firm market performance emerge, they have low levels of significance.

Results confirm our initial hypotheses. It is actually important to distinguish between managerial and entrepreneurial companies when valuing IPOs on the AIM, because role and features of human capital play a more significant role in the latter than in the former. TMT characteristics may be effective drivers of value for more entrepreneurial IPOs (firms led by entrepreneurial TMT).

It's also worth to note that risk and innovation factors have an unambiguously strong influence on market performance in the case of more entrepreneurial firms, especially if compared to more managerial organizations. This evidence may suggest two important considerations: first, we may confirm extant literature stating innovation and risk taking are distinguishing factors of entrepreneurial orientation (Miller, 1983; Dess and Lumpkin, 1996). Second it confirms our proposed segmentation to distinguish between entrepreneurial and managerial firms based on TMT features is actually robust.

## Conclusions

We analyze the main differences between managerial and entrepreneurial companies with the objective to verify the role of entrepreneurship and TMT characteristics behind the market performance of IPOs on the AIM. Entrepreneurial and managerial companies significantly and structurally differ in terms of ownership structures and TMT characteristics. Our analyses confirm that dimensions related to TMT composition and firm ownership structures

(such as the presence of founders into the TMT or the level of financial (share) interest of TMT members into the company), may be used as effective drivers to identify more entrepreneurial organizations. Although no significant differences emerge in terms of firm characteristics, we verify more entrepreneurial companies are younger and smaller at IPO, on the average. Besides, entrepreneurial companies tend to have more concentrated ownership structures, both before and after the IPO.

In confirmation of our hypotheses, results of analyses highlight TMT characteristics actually influence the market performance of IPOs on the AIM: namely, TMT size and CEO academic prestige positively influence firm performances whereas CEO age is negatively related to them. According to our expectations, analyses also confirm that firm characteristics (size and profitability) and firm level of innovation and risk influence the value that investors attribute to IPOs. Moreover, TMT prestige is also interpreted as a signal of the quality of the company and it positively contributes in influencing investors' valuation of IPOs.

Next, in support of the importance to distinguish between managerial and entrepreneurial companies, very interesting results emerge when we investigate the two subsets separately. In these cases, we find out all aforementioned variables (not only TMT characteristics but also risk and innovation variables) are more strongly significant when considering more entrepreneurial companies, whereas they lose significance when considering the subset composed by more managerial organizations. Any findings and considerations should be considered in relation to the specificities of companies that we consider in our analyses (i.e. SMEs listing through IPOs on the AIM). In order to confirm our considerations, further investigations may test our findings within more heterogeneous environments. Interesting suggestion may be the adoption of a longitudinal approach, which would help capturing both corporate and financial evaluation dynamics, as well as the variation of firm entrepreneurial orientation over the time. The latter is expected to vary along the corporate life-cycle because more formalized (managerial) management styles may emerge and it could be interesting to control whether this is reflected in changes of company dynamics and firm performances. Finally, a shortcoming of this research is also the use of firm level variables, based on accounting or corporate governance data, exclusively. We expect strong insight to be revealed on the differentiation of entrepreneurial and managerial companies, as well as on the impact of entrepreneurship behind firm performance when the level of entrepreneurship is measured in the

framework of the entrepreneurial orientation paradigm, which has been widely accepted by researchers yet (Covin et Slevin, 1991; Lumpkin et Dess, 1996; Dess, Lyon and Lumpkin, 2000), who have vastly investigated the link between entrepreneurship and firm performances yet, even by the adoption of different research approaches, such as survey-based ones.

## References

1. Audretsch, D.B., A.R. Thurik (2001), "What's new about the new economy? From the managed to the entrepreneurial economy", *Industrial and Corporate Change*, 10(1), 267-315.
2. Andrews A.O., T.M. Welbourne (1996), "Predicting the Performance of Initial Public Offerings: Should Human Resource Management Be in the Equation?", *The Academy of Management Journal*, 39(4), 891-919.
3. Angelmar R., M. Kilduff, A. Mehra (2000), "Top Management-Team Diversity and Firm Performance: Examining the Role of Cognitions", *Organization Science*, 11(1), 21-34.
4. Barnett T., O.C. Richard, S. Dwyer, K. Chadwick (2004), "Cultural Diversity in Management, Firm Performance and the Moderating Role of Entrepreneurial Orientation Dimensions", *Academy of Management Journal*, 47(2), 255-266.
5. Beatty R.P., E.J. Zajac (1994), "Managerial Incentives, Monitoring, and Risk Bearing: A Study of Executive Compensation, Ownership, and Board Structure in Initial Public Offerings", *Administrative Science Quarterly*, 39(2), 313-335.
6. Beckman C.M., M.D. Burton (2008), "Founding the Future: The Evolution of Top Management Teams from Founding to IPO", *Organization Science*, 2(19), 3-24.
7. Cannella A.A.Jr., H.L. Richard, S.T. Certo, C.M. Dalton, D.R. Dalton (2006), "Initial Public Offering Investor Valuations: An Examination of Top Management Team Prestige and Environmental Uncertainty", *Journal of Small Business Management*, 44(1), 1-26.
8. Carland J.W., Carland J.C., M.D. Ensley, (1998), "The Effect of Entrepreneurial Team Skill Heterogeneity and Functional Diversity on New Venture Performance", *Journal of Business and Entrepreneurship*, 10(1), 1-11.
9. Certo S.T. (2003), "Influencing Initial Public Offering Investors with Prestige: Signaling with Board Structures", *Academic of Management Review*, 28(3), 432-446.
10. Certo S.T., R.H. Lester, C.M. Dalton, D.R. Dalton, and A.A. Cannella Jr. (2006), "Initial Public Offering Investor Valuations: An Examination of Top Management Team Prestige and Environmental Uncertainty", *Journal of Small Business Management*, 44(1), 1-26.
11. Cooney T.M. (2005), "Editorial: What is an Entrepreneurial Team?", *International Small Business Journal*, 23(3): 226-235.
12. Covin J., K.M. Green, D.P. Slevin (2005) "Strategic Process Effects on the Entrepreneurial Orientation-Sales Growth Relationship", *Entrepreneurship Theory and Practice*, 30(1), 57-81.
13. Covin J.G., S.A. Zahra (1995), "Contextual Influences on the Corporate Entrepreneurship-Performance Relationship: A Longitudinal analysis", *Journal of Business Venturing*, 10(1), 43-55.
14. Covin, G.J., D.P. Slevin (1991), "A Conceptual Model of Entrepreneurship as Firm Behaviour", *Entrepreneurship Theory Practice*, 16(1), 7-25.
15. Cyr L.A., T.M. Welbourne (1999), "The Human Resource Executive Effect in Initial Public Offering Firms", *The Academy of Management Journal*, 42(6), 616-629.
16. Cyr L.A., D.E. Johnson, T.M. Welbourne (2000), "Human Resources in Initial Public Offering Firms: Do Venture Capitalists Make a Difference?", *Entrepreneurship Theory and Practice*, 25(1), 77-91.
17. Dess G.G., G.T. Lumpkin (2005), "The role of Entrepreneurial Orientation in Stimulating Effective Corporate Entrepreneurship", *Academy of Management Executive*, 19 (1), 147-156.
18. Dess G.G., Lyon D.W., Lumpkin G.T. (2000), "Enhancing Entrepreneurial Orientation Research: Operationalizing and Measuring a Key Strategic Decision Making Process", *Journal of Management*, 26(5), 1055-1085.
19. Dess G.G., G.T. Lumpkin (2005), "Linking Two Dimensions of Entrepreneurial Orientation to Firm Performance: The Moderating Role of Environment and Industry Life Cycle", *Journal of Business Venturing*, 16(1), 429-451.
20. Dess G.G., Ireland R.D., Zahra S.A., Floyd S.W., Janney J.J., P.J. Lane (2003), "Emerging Issues in Corporate Entrepreneurship", *Journal of Management*, 29(3), 351-378.
21. Dess G.G., G.T. Lumpkin (1996), "Clarifying the Entrepreneurial Orientation Construct and Linking it to Performance", *Academic of Management Review*, 21(1), 135-172.
22. Finkelstein S., J. Halebian (1993) "Top Management Team Size, CEO Dominance, and Firm Performance: The Moderating Roles of Environmental Turbulence and Discretion", *The Academy of Management Journal*, 36(4), 844-863.
23. Goosen C.J., T.J. de Coning and E.v.d.M Smith (2002), "Corporate entrepreneurship and financial performance: The role of management", *South African Journal of Business Management*, 33(4), 21-27.
24. Haber S., A. Reichel (2007), "The cumulative nature of the entrepreneurial process: The contribution of human capital, planning and environment resources to small venture performance", *Journal of Business Venturing*, 22(1), 119-145.
25. Handelberg J., S. Vyakarnam (2005), "Four Themes of the Impact of Management Teams on Organizational Performance", *International Small Business Journal*, 23(3), 236-256.

26. Harper D.A. (2008), "Towards a theory of entrepreneurial teams", *Journal of Business Venturing*, 23(1), 613-626.
27. Higgins M.C., Gulati R. (2006), "Stacking the deck: the effects of top management backgrounds on investor decisions", *Strategic Management Journal*, 27 (1), 1-25.
28. Hunter L., E. Webster and A. Wyatt (2005), "Measuring Intangible Capital: A Review of Current Practice", *Australian Accounting Review*, 15(2): 4-21.
29. Ibbotson R.G., J. Sindelar and J. Ritter (1994), "The market's problems with the pricing of initial public offerings", *Journal of Applied Corporate Finance*, 7(1), 66-74.
30. Mackey A. (2008), "The effect of CEOs on firm performance", *Strategic Management Journal*, 29(12), 1357-1367.
31. Michaely R. and W. Shaw (1994), "The pricing of initial public offerings: Tests of adverse selection and signalling theories", *Review of Financial Studies*, 7, 279-317.
32. Miller, D. (1983), "The correlates of entrepreneurship in three types of firms", *Management Science*, 29, 770-791.
33. Nelson T. (2003), "The Persistence of Founder Influence: Management, Ownership, and Performance Effects at Initial Public Offering", *Strategic Management Journal*, 24, 707-724.
34. Pasanen M., S. Tihula (2006), "Entrepreneurial and Management Teams: Comparative Analysis Focusing on SME Performance", *RENT XX Conference*, Brussels, 11(1), 23-24.
35. Pitcher P., A.D. Smith (2001), "Top Management Team Heterogeneity: Personality, Power, and Proxies", *Organization Science*, 12(1), 1-18.
36. Shepherd D., J. Wiklund (2003), "Knowledge-based Resources, Entrepreneurial Orientation, and the Performance of Small and Medium-sized Businesses", *Strategic Management Journal*, 24(1), 1307-1314.
37. Weinzimmer L.G., E.U. Bond III, M.B. Houston, P.C. Nystrom (2003), "Relating marketing expertise on the top management team and strategic aggressiveness to financial performance and shareholder value", *Strategic Management Journal*, 2(1), 133-159.
38. Wiklund J. (1999), "The Sustainability of the Entrepreneurial Orientation-Performance Relationship", *Entrepreneurship Theory and Practice*, 24(1), 37-48.