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Detrimental effects of interventions with the corporate governance mechanisms of young entrepreneurial firms

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**DETRIMENTAL EFFECTS OF INTERVENTIONS
WITH THE CORPORATE GOVERNANCE
MECHANISMS OF YOUNG
ENTREPRENEURIAL
FIRMS**

by

Guclu M. Atinc, B.S., M.B.A.

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Business Administration

COLLEGE OF BUSINESS
LOUISIANA TECH UNIVERSITY

August 2011

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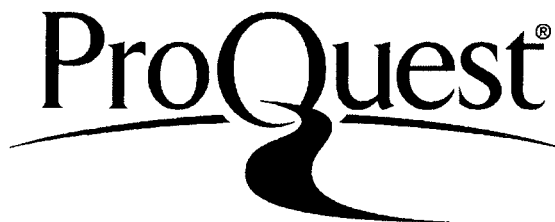
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We hereby recommend that the dissertation prepared under our supervision
by Guclu Atinc

entitled "Detrimental Effects of Interventions with the Corporate Governance
Mechanisms of Young Entrepreneurial Firms"

be accepted in partial fulfillment of the requirements for the Degree of
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ABSTRACT

The purpose of this study is to assess the post-IPO performance structures of young entrepreneurial firms. Based on the propositions of the signaling model, I propose that the firm IPO performance is a determining factor in post-IPO changes in ownership structures. Furthermore, I contend that the new owners that replace the original ones in young IPO firms will be prone to request changes in corporate governance mechanisms such as top management team membership and the boards of directors based on the need to have their own agents looking after their interests as recommended by the agency theory. Following these alterations in corporate governance mechanisms, I propose such changes will be detrimental for the performance of the young entrepreneurial firms as these firms, due to their uniqueness, are still in great need of the tacit knowledge provided by their original decision makers. Finally, moderating effects of the environmental dimensions of dynamism, complexity and munificence are hypothesized to impact the relationship between the rate of change on corporate governance mechanisms and firm performance.

In the literature review section I review studies that explore why firms go public, the main areas of IPO research, the importance of executives and directors in young entrepreneurial firms, the theories related to IPO performance and its measures, the uniqueness of these firms and the potential impact of environment on decision making

routines. I develop a model that explains the interrelated relationships I propose to be present and the corresponding hypotheses. Using the SDC database, I identified 185 young entrepreneurial firms that went public in 2001, 2002, 2003, 2004 and 2005. Based on the previous literature, the criterion I used for being a young entrepreneurial firm was the founding date. Firms that were founded in 1991 and forward were included in this study. Using the Edgar Database, Compustat Research Insight, CRSP, Disclosures, and the company websites, I compiled a database that consists of stock performance, operating performance, and the governance data for these companies for the five years following their IPOs.

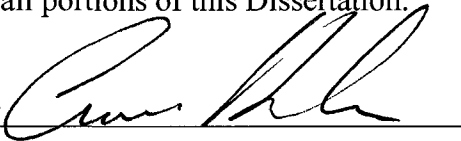
The results revealed that one of the IPO performance measures, underpricing, impacts subsequent changes in blockholder ownership in young entrepreneurial firms. Following the changes in ownership structure, the new owners tend to request changes in one of the corporate governance mechanisms I considered, boards of directors, but not top management teams (TMT). I also observed a negative impact for changes in boards of directors on subsequent firm performance when accounting-based measures are considered; this was not the case with TMTs. Furthermore, the results also showed that two of the environmental dimensions exacerbated the relationship between the changes in corporate governance mechanisms and firm performance. These results implied that young entrepreneurial firms operating in complex and less munificent environments are in more need of the inputs provided by their original directors. The study ends with a discussion of the theoretical and managerial implications of the findings together with the specification of possible future extensions and limitations.

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CHAPTER 1

INTRODUCTION

An Initial Public Offering (IPO) is one of the most critical steps in a firm's developmental process (Daily, Certo, Dalton, & Roengpitya, 2003). With that in mind, researchers acknowledge the fact that most of the issues related to the IPO process a firm goes through are still not fully understood (Filatotchev & Bishop, 2002). The impact of the subsequent changes in corporate governance systems on firm performance during the post-IPO stage remains an area that warrants attention (Certo, Holcomb, & Holmes, 2009). Jain and Kini (1994) contend that changes in corporate governance mechanisms of a firm following the IPO process have a direct impact on the operating performance of that firm. In a more recent article Kroll, Walters and Le (2007) propose that, corporate governance mechanisms that may be effective for large, well-established firms may not be appropriate for younger firms that just underwent an IPO. They in effect question the applicability of classical agency theory contentions for firms that just completed the IPO process.

Certo et al. (2009) mention the tremendous growth in IPO activity in the last decade relative to the one before. According to those authors, close to 3,000 IPOs took place between 1998 and 2007 resulting in over \$600 billion in capital being raised. Research also shows that the majority of these firms are not large companies and are

likely to face different agency prescriptions than large, well established organizations (Kroll et al., 2007). These young firms face what scholars refer to as the liability of newness (Stinchcombe, 1965) in the first years of the post-IPO period and may require relatively different approaches when compared to large corporations (Fama & Jensen, 1983). In that regard, it is the intention of this study to investigate the series of interrelated corporate governance steps young entrepreneurial firms go through following the IPO process. In short, this dissertation aims to explain some of the unknowns resulting from the impact of changes in ownership structure on corporate governance mechanisms such as board composition and TMT structure and consequent operating performance changes together with the potential moderating effect of environment on young entrepreneurial firms.¹

Motivation of the Study and Brief Description of Proposed Relationships

As previous research demonstrates, most of the firms that go public are often small young firms (Certo, Daily, & Dalton, 2001). Young firms that go public within a few years of their original founding date are at a vulnerable point of their developmental processes (Kroll et al., 2007). Decision makers in such companies have to face many challenges regarding the transition from private ownership to public ownership, which includes dealing with regulatory bodies such as Securities and Exchange Commission (SEC) and meeting the expectations of potential investors (Fischer & Pollock, 2004). Investors consider every IPO firm as a new investing opportunity. One obvious reason for this interest is that the share prices of IPO firms, on average, tend to increase on the first

¹ As Kroll, Walters and Le (2007) suggest, young entrepreneurial firms are the ones that are founded within the ten-year period prior to going public for the first time.

day of trading as the initial offer price set by the underwriter is too low (Certo et al., 2009; Loughran & Ritter, 2004). Thus, it is common to earn high returns on the first day of trading of an IPO. Underpricing is formally defined as the difference between a firm's IPO issue price and its first day closing price (Arthurs, Hoskisson, Busenitz, & Johnson, 2008). If the firm is underpriced relative to the value the market places on the shares, which is referred to as underpricing (Heeley, Matusik, & Jain, 2007), the initial investors who bought shares at the price offered by the underwriter will be rewarded as their investment has just appreciated in value, although the management has just left money on the table in the form of lost equity capital that could have been captured by the firm (Ritter, 1991).

While the finance literature primarily concentrates on the initial fluctuations of IPO stock prices (Beatty & Ritter, 1986; Aggarwal, 2000; Cornelli & Goldreich, 2001), this study considers these fluctuations as the starting point for a series of relationships. One of the issues that may be of interest in the post-IPO context is: what happens to firm ownership structure after the IPO? Goergen & Renneboog (2007) report that, in the United Kingdom, on average, old pre-IPO shareholders hold 62.8 percent of the shares immediately after the IPO. That percentage goes down to 51.4, 47.3, 37.7, 33.6 and 31.4 percentages after one, two, three, four and five years respectively. In another article, Mikkelsen, Partch and Shah (1997) report that, once the IPO is completed, firms face continuous changes in their shareholding compositions. For instance, they report that inside ownership falls by over 50 percent after the IPO and keeps falling during the following five years. Adapting a signaling theory perspective (Certo, 2003), finance literature considers initial IPO performance (i.e. underpricing) as a signaling device for

firm quality such that underpriced IPO firms signal more promising future results to potential investors. Furthermore, it has been empirically demonstrated that, original shareholders of IPO firms maybe more willing to transfer shares of stock to outside investors after the IPO for personal income (Welch, 1989). It is proposed that, large first day stock price appreciation following an IPO will attract investors to acquire shares in the company. In other words, once the IPO process signals a potentially promising future for the company, investors will step in to acquire these appealing shares. Some of these investors may be doing this for short-term investment reasons such as quick-entry-and-exit type institutional investors, which do not tend to play an active role in firm corporate governance systems, but others such as buy-and-hold type investors may be more willing to intervene in the governance of the firms. This dissertation proposes that once investors become interested in these companies, some of these investors will acquire blockholder ownership in order to have sufficient power to influence the governance of the focal firm. In a well-established large corporation, such an intervention may not be considered a major threat, while in young entrepreneurial firms, a dramatic change in corporate governance systems may lead to some detrimental effects (Kroll et al., 2007). For this reason, these young entrepreneurial firms may constitute a unique field for corporate governance research. Thus, the focus of this study will be on young entrepreneurial firms that just completed the IPO process.

The changes in ownership structure will also probably lead to changes in firm TMT structure and board composition. Fama and Jensen (1983) contend that directors derive their power from the shareholders. Powerful shareholders like to appoint their own agents as directors to the board of a company in which they have some level of control.

For the purpose of this dissertation, shareholders with blockholder ownership, which corresponds to at least 5 percent ownership in the focal firm (Kroll, Wright, Toombs, & Leavell, 1997) are considered to be powerful enough to make appointments to the board of directors or the executive team. Once the IPO process is completed and firm IPO performance has acted as a signaling mechanism, the post-IPO investors who bought shares in the company are likely to ask for changes in board composition by appointing their directors and asking for changes in TMT structure by appointing their own executives, which is also anticipated by agency theory (Jensen & Meckling, 1976). Among the long-time agency prescriptions for mitigating the agency problem between the executives and the owners is effective monitoring by directors (Booth & Deli, 1996). Instead of relying on oversight by people whom the new investors do not know, newly appointed directors may look after the new shareholders' interests. Thus, the changes in ownership structure after the IPO are likely to lead to changes in board composition. One study reports that, on average, outside representation on the board jumps from less than 50 percent to 67 percent during the five years following the IPO (Curtchly, Garner, & Marshall, 2002). As the SEC requires companies to have at least 50 percent of the directors to be independent directors prior to IPO (Certo et al., 2001), this significant jump in outside representation may be attributed to changes in ownership structure as the new owners, particularly the ones that bought the shares of the firms they consider potentially successful of the future, will appoint directors to the board to look after their interests.

The same logic may also apply to changes in TMT structure. If an active shareholder is interested in appointing his or her own directors to the board, he or she will

not be reluctant to appoint his or her own executives given the chance. The board and executives are two important components of the strategic decision making apparatus (Hillman, Withers, & Collins, 2009). Unlike privately owned firms, publicly traded firms are required to get board approval for strategic decisions (Bruton, Fried, & Hisrich, 2000). So, changes in ownership structure should not only be associated with changes in board structure but also with changes in TMT composition. There is empirical evidence suggesting that, following an IPO, companies may expect to see changes in their TMT structure (Wasserman, 2003). One of the fundamental duties of a board is to select and hire new members of the top management team (Fama & Jensen, 1983). If we expect changes in board composition, corresponding changes in TMT structure should also be expected. Based on agency theory (Jensen & Meckling, 1976), the directors appointed by the new owners should be more willing to hire executives who are likely to act in concert with the new owners. In other words, changes in ownership structure in potentially promising young entrepreneurial firms not only should lead to changes in board composition but also to changes in TMT structure as well.

In summary, based on signaling theory (Certo, 2003; Sanders & Boivie, 2004), promising companies will attract investors following an IPO, and those new owners may be willing to interfere with two of the most important corporate governance mechanisms: board composition and TMT structure as they will be looking for agents to look after their interests given agency theory concerns regarding managerial abuse (Jensen & Meckling, 1976). The question at that point becomes: “what happens to the operating performance of these firms?” The answer to this question represents the final part of a series of relationships this dissertation proposes to investigate.

As mentioned previously, firms go through radical changes in their corporate governance mechanisms following the IPO process (Mikkelsen, Partch, & Shah, 1997; Bruton, Fried, & Hisrich, 2000; Certo, Daily, & Dalton, 2001). While some researchers may associate changes like more outside representation on the board with positive operating performance based on vigilance requirements of agency theory (Booth & Deli, 1996), recent research demonstrates that such changes may not be appropriate for young entrepreneurial firms' subsequent firm performance after all (Kroll et al., 2007; Walters, Kroll & Wright, 2010). There is empirical evidence showing that radical post-IPO corporate governance changes have negative effects on firm performance (Daily & Dalton, 1995; Bergh, 2001). If changes in ownership structure following a successful IPO yields changes in board composition and TMT structure, then these changes may actually lead to lower subsequent operating performance. Once the original structure of the young firm is changed, the entrepreneurial efficacy of the company may decline and the firm may start to perform relatively worse as it is still in need of the knowledge-base provided by the original TMT and board members to deal with the vulnerabilities of the liability of newness (Stinchcombe, 1965). The original decision makers, who carried the firm towards the IPO stage, may be likely to act more in line with the propositions of stewardship theory (Donaldson & Davis, 1991). Firms at this critical stage of their life-cycle are still in need of the knowledge base provided by the original TMT members and directors (Kroll et al., 2007), a point which may also be supported by the contentions of Resource Based View (Barney, 1991). This dissertation aims to investigate if this is really the case. If this proposition is verified, the implications of such a finding may be

important for corporate governance research, young entrepreneurial firms and potential investors in such firms.

In addition to the above mentioned relationships between changes in corporate governance mechanisms and firm performance, moderating effects of environmental factors are also proposed. Dess and Beard (1984) talk about three dimensions of environment. First, dynamism is the extent to which the firm's environment is turbulent. Complexity refers to the number of factors in the environment that have the capacity to influence how the firm operates. Munificence on the other hand is the extent to which the environment can support sustained growth (Starbuck, 1976). Recent work in the environment literature contends that firms have to use internal mechanisms to deal with the external complexities of the environments they operate in (Brown & Eisenhardt, 1997; Walters & Buhian, 2004). According to the model in this study, once such internal mechanisms, like the presence of original TMT members of young entrepreneurial firms with working knowledge of how to deal with the external environment, are deactivated firm performance suffers. In that regard, if the environment is complex, dynamic or less munificent, the relationship between changes in corporate governance mechanisms and lower firm performance may become stronger. The environment is known to have an impact on structure (Burns & Stalker, 1961) and strategy (Miller, 1988). The environment's impact on executive decision making, strategy formulation and its outcomes is substantiated by previous research (Miller & Friesen, 1983; Grag, Walters, & Priem, 2003). For this reason, environmental factors are considered to moderate the relationship between TMT structure and board composition variables and firm operating performance of young entrepreneurial firms.

The Need for Future Research

As Cohen and Dean (2005) observe, an IPO can be characterized as involving significant information asymmetry between the potential investors and current owners. Current insiders of the firm, such as the original executives and board members, possess considerable amounts of knowledge about the company while the potential investors have to act on the limited information they can access (Leland & Pyle, 1977). In that regard, potential investors, either during the pre- or post-IPO stages, have to act upon the signals to which they are exposed (Certo, 2003). As previously mentioned, while the finance literature is primarily concerned with stock price fluctuations (Beatty & Ritter, 1986; Aggarwal, 2000; Cornelli & Goldreich, 2001), the impact of post IPO changes in the corporate governance structures of recently completed IPOs still remains an area that needs attention (Certo et al., 2009). Thus, research from a strategy perspective may contribute to the literature. In order to understand this stage more clearly, it is logical to start with the reasons that trigger these changes. For that reason, the change in ownership structure following an IPO, particularly for a young entrepreneurial firm, can be considered as the initial trigger. Based on signaling theory (Certo, 2003), underpriced IPOs which can be considered potentially promising investing opportunities, are likely to encourage investors to acquire shares in a young entrepreneurial company that just recently completed the IPO process. The real importance of these changes in ownership structure is related with how these new owners act after acquiring shares in the company. Will they be more likely to stay inactive and rely on the decisions of the original executives and directors who successfully brought the firm this far, or will they be more inclined to appoint their own agents such as new executives and directors based on

agency theory (Jensen & Meckling, 1976; Booth & Deli, 1996)? The answer to these questions obviously falls within the boundaries of corporate governance research.

Furthermore, with regard to the new investors that choose to be active and appoint their own agents, what happens to the performance of the firm that is probably still in need of the entrepreneurial efficacy provided by the original insiders based on the resource based view (Barney, 1991)? Recent research demonstrated that, classical explanations like agency theory (Jensen & Meckling, 1976) may not be appropriate for young entrepreneurial firms because of this need (Kroll et al., 2007). So, this area obviously needs attention. Besides, as most of the firms that go public are small entrepreneurial firms rather than large, well-established ones (Certo et al., 2001), focusing on the evolution of governance in these types of firms should have both theoretical and practical implications. The literature is not very rich with regard to the potential impact of corporate governance changes on operating performance of these young firms, future research is definitely warranted. Finally, although seminal literature in the field highlights the importance of environment in decision making (Burns & Stalker, 1961; Dess & Beard, 1984), its potential moderating effect on the relationship between changes in corporate governance mechanisms and firm operating performance, particularly for young entrepreneurial firms, certainly needs attention (Walters et al., 2010). What happens to the operating performance of such a firm that takes on new TMT members when it operates in a turbulent environment? Does the firm need even more of the entrepreneurial efficacy provided by the original TMT members? The answers to these questions will shed some light on the too many unknowns of the relationship between the environment and corporate governance research.

In short, using the model depicted in Figure 1.1, this study aims to demonstrate the detrimental effects of interfering with original entrepreneurial efficacy of young firms that just completed the IPO stage. As the proposed relationships are explored with an extensive literature review and through empirical analysis, the findings may enlighten the readers about whether to intervene in corporate governance mechanisms of young entrepreneurial firms.

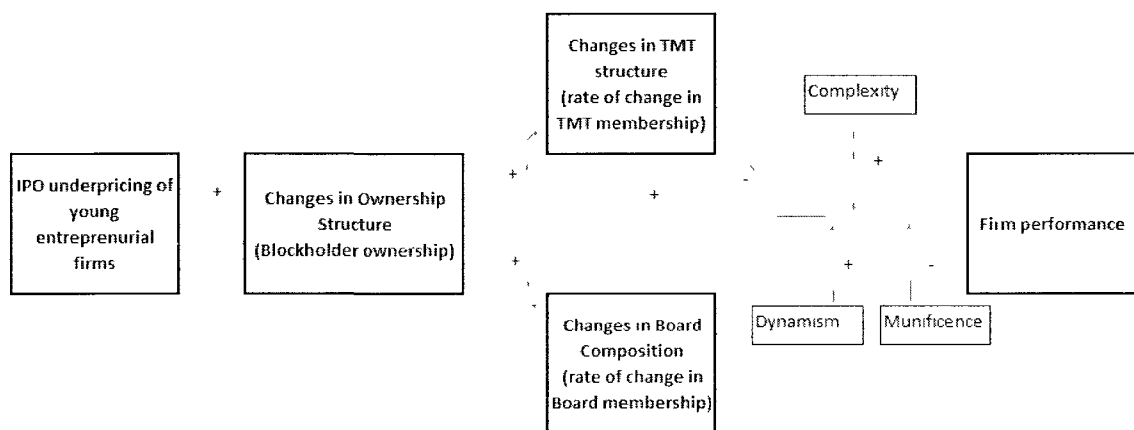


Figure 1.1 Model of the Series of Relationships Reflecting the Changes in Post IPO Corporate Governance Mechanisms and Corresponding Firm Performance.

Statement of Problem and Objectives of the Study

In this dissertation, the purpose is to address the gaps mentioned in the previous section. In particular, the primary purpose is to investigate the series of relationships and the subsequent environmental moderating variables depicted in Figure 1.1. The specific objectives of this dissertation can be summarized as follows:

- 1- To examine whether IPOs of young entrepreneurial firms attract potential investors to acquire blockholder ownership during the post-IPO period.

- 2- To examine whether potential investors that acquire controlling shares in the focal firm request changes in TMT structure and board composition.
- 3- To examine whether the appointment of new executives and directors impacts the entrepreneurial efficacy that brought the firm to the IPO stage.
- 4- To examine whether the changes in TMT composition have detrimental effects on subsequent firm operating performance.
- 5- To examine whether the changes in board structure have detrimental effects on subsequent firm operating performance.
- 6- To examine whether environmental factors like dynamism, turbulence and munificence have a moderating impact on the relationship between changes in TMT composition and subsequent firm operating performance.
- 7- To examine whether environmental factors like dynamism, turbulence and munificence have a moderating impact on the relationship between changes in board structure and subsequent firm operating performance.
- 8- To examine whether or not young entrepreneurial firms' corporate governance mechanisms should be interfered with.
- 9- To contribute to the explanation of post-IPO performance.
- 10- To contribute to the literature on the relationship between pre- and post-IPO corporate governance mechanisms and firm performance.

Contributions of the Study

Through the examination of the proposed series of relationships and related environmental variables as moderators, this dissertation promises a number of contributions and implications, from both theoretical and practitioner perspectives. First, it will provide some answers to the long-term debated about whether signaling model holds for young entrepreneurial firms. Also, it is likely to provide an answer to the question: “Should the new owners interfere with the corporate governance mechanisms of young entrepreneurial firms?” An answer to this question will shed light on the debate about the classical contentions of agency theory. Second, based on the resource based view, should young entrepreneurial firms hang on to their original executives and directors who were successful in bringing the firm to the IPO stage? The answer to this question will enlighten the practitioners about whom to appoint and whom not to appoint. This answer also extends the work of Kroll et al. (2007) by bringing in the direct and indirect impact of changes in ownership structure on subsequent changes in corporate governance mechanisms and their effect on post-IPO operating performance. There is a debate present in the literature about the impact of boards of directors from a strategic decision making perspective. If the results show that the changes in board structures of young entrepreneurial firms result in lower performance, then a significant contribution to this debate can also be made. Third, although environment is a popular variable to consider in executive decision making in corporate governance literature, not a lot has been done within the context of young entrepreneurial firms and particularly the ones that just completed the IPO process. While Walters et al. (2010) investigated whether a moderating effect exists between TMT board membership and firm performance, in this

dissertation, the rate of change in TMT and board membership sourcing from changes in ownership structure after the IPO is taken into account, and an operating performance perspective over five-year period rather than a stock market based performance is considered (Walters and his colleagues used holding period returns over two years as their dependent variable). Finally, this dissertation is also likely to contribute to the entrepreneurship literature as researchers call for more empirical research in the area. While the finance literature has primarily concentrated on pre- and post-IPO stock price movements, the insights provided in this dissertation are likely to shed light on some of the many unknowns of the corporate governance literature.

CHAPTER 2

LITERATURE REVIEW

Why Firms Go Public

Companies need financial resources to facilitate their growth and expansion. Some companies may only rely on the cash offered by their owners while others choose to gather this important resource from the external environment. Still others may have venture capitalists or angel investors financing their growth. Those that decide to go to external sources may either approach bankers for a credit line or may choose to sell shares to the public. An Initial Public Offering (IPO) enables a company to sell its equity to outside investors (Certo et al., 2009). As Daily, Certo and Dalton (2005:94) observe, “An IPO is one of the more critical junctures in the development of a firm.” It is at this stage that new stakeholders, such as the post-IPO owners, governing bodies such as Securities and Exchange Commission (SEC), and other potential investors are introduced to the routines of the company.

What motivates companies to go public? As the decision to go public is complex, it cannot be explained by a single literature stream (Pagano, Panetta & Zingales, 1998). Brau and Fawcett (2006) provide an excellent review of the different perspectives about the factors that motivate companies to go public. One group of scholars considers the cost of capital as the main reason behind the decision to go public. According to this view,

instead of using internal equity and debt financing, selling equity to external parties may lower the overall cost of capital, which in turn results in value maximization of the firm (Modigliani & Miller, 1963; Mysers & Majluf, 1984; Mysers, 1984). Another group argues that an IPO is the point at which the insiders cash out their long-term efforts of bringing the company successfully to this critical stage (Mello & Parsons, 2000; Ang & Brau, 2003). Thus, if the IPO turns out to be a successful, which obviously is the intention of the insiders, the founders experience significant personal gain. The third literature stream is concerned with the subsequent acquisition of the firm following an IPO. The researchers in this stream consider an IPO as the first step in establishing a true valuation of the firm, which in turn may lead to the acquisition of the firm in the ensuing years following an IPO (Brau, Francis & Kohers, 2003). Finally, the fourth group considers an IPO as a strategic move. Following an IPO, the ownership structure of the firm gets dispersed (Chemmanur & Fulghieri, 1999), the publicity and reputation of the firm will be enhanced (Maksimovic & Pichler, 2001) and the activities of the firm will receive more attention (Bradley, Jordan & Ritter, 2003).

Arguably, the two most influential scholars in the area, Jain and Kini (1999:1281) also review the related literature concerning the reasons why firms go public: “Conventional wisdom suggests that the public offering represents a stage in the growth phase of a corporation and, therefore, all private firms with growth prospects eventually go public to finance investments.” One explanation Jain and Kani discuss is financing expansion. According to this view, companies have to go public when the owners do not have enough money to support expansion and need external financing to keep moving forward (Jain & Kini, 1994; Mikkelsen, Partch & Shah, 1997). One other explanation

discussed is rebalancing of the accounts after a period of high investment to facilitate growth (Pagano et al., 1998). As mentioned above in referring to Brau et al.'s (2003) work, the third reason is about the future sale of the company. Through the IPO process, the market determines the value of the company so that the original owners can sell the company as a whole in the future based on this market price (Zingales, 1995). Finally, the motive that refutes the basic contentions of the above three says that companies decide to go public when the entrepreneurs recognize that there is a possibility of failure, and it is time to divest through the sale of stock to the public (Jain & Kini, 1999).

In summary, scholars report somewhat different views about the motivations for going public (Jain & Kini, 1994; Pagano et al., 1998; Brau & Fawcett, 2006). The intention of this dissertation is not to take a position about any of these competing views but to assess what happens after a firm goes public. These competing theories may be helpful in explaining how and why the company comes to the IPO stage. However, the focus of this study is on the happenings of post-IPO period. The following section will provide an overview of the literature regarding the main areas of IPO research. The section following that reviews the literature about the different measures of IPO performance. Also reported are the various theories concerning a specific IPO performance measure called underpricing. Further, included is background information about the uniqueness of young entrepreneurial firms, which constitute a major focus of this study. Finally, a potential moderating variable, environment, will be introduced before moving on to hypotheses development.

Main Areas of IPO Research

In a recently published article, Certo and colleagues (2009) review the different perspectives concerning IPO research from a macro management perspective. Certo and his colleagues mention that, out of 103 articles, they managed to identify as IPO research studies published in the last 20 years, 65 percent were conducted on topics related to either corporate governance or upper echelons. This study builds on their review, and also reports the related literature about corporate governance and upper echelons within the IPO context.

Perhaps one of the most widely cited studies that reports on performance and corporate governance within the IPO context is Ibbotson and Ritter (1995). These authors talk about three different agency issues present in IPO situations. The first is information asymmetry. An agency conflict arises between the parties involved in the IPO process due to different levels of access to valuable information. Those with possibly better knowledge about the company, such as the current owners and the underwriter, naturally have a better idea about the firm's value versus those with less knowledge, such as the outside investors. Thus, "high levels of information asymmetry characterize the IPO process" (Certo et al., 2009:1343). The second agency issue is adverse selection (Stiglitz, 1985). Due to the presence of information asymmetry between the parties, the ones with more information tend to take actions, such as the valuation and timing of the IPO, to protect their own interests. Outside investors who have less information about the current condition of the firm face adverse selection, which makes them question the appropriateness of their investment decisions in the focal firm (Grinblat and Hwang, 1989). The final agency issue is moral hazard (Ibbotson and Ritter 1995 study). In

addition to adverse selection, parties with more knowledge, such as the insiders or the investment bankers who arrange the issuance of the stock, tend to take hidden actions, such as pre-IPO manipulations, yielding what researchers refer to as a moral hazard. These agency issues must be considered in any explanation of the behavior of decision makers in an organization, such as the executives and the board of directors.

IPOs and Executives

Hambrick and Mason (1984), in their highly influential article, discuss the importance of the dominant coalition on a firm's strategic decision making. The IPO process happens to be one of the most important stages in a firm's life cycle (Jain & Kini, 1999) so the importance of the dominant coalition during the IPO stage, or in Hambrick and Mason's (1984) term, *upper echelons*, becomes obvious. For that reason, a similar amount of attention is paid to upper echelons, relative to that paid to corporate governance in IPO research (Certo et al., 2009). One group of researchers has focused on the impact of TMT compensation and ownership structure on pre- or post-IPO performance (Marino, Castaldi & Dollinger, 2003; Certo, Daily, Cannella & Dalton, 2003; Nikbakht, Shahrokhi & Martin; 2007). Marion et al. (1989) highlight the need for including executive compensation in IPO research. Certo et al. (2003) analyze the potential signaling impact of executive stock options on firm IPO performance. They observe that executives with more stock options are considered to have more trust in their company's performance, and they will be more willing to take the required risks in the future to facilitate the growth of the company. Nikbakht et al. (2007) also found that CEO compensation structure can be seen as a signaling device at the pre-IPO valuation stage as the researchers and the public considers CEO future (post-IPO) behavior being directly

tied to the type of the compensation schema offered to him or her (e.g. cash, bonus, stocks, and stock option grants). Habib and Ljungqvist (2001) propose that, if the executives have greater bargaining power due to their compensation schemas, the firm may experience a more successful IPO stage, although Lowry and Murphy (2007) proposed that no such relationship exists between compensation schemas and IPO success.

Another group of researchers is more interested in the ownership and founder effect of the executives (Leland & Pyle, 1977; Ritter, 1991; Certo, Convin, Daily & Dalton, 2001; Fisher & Pollock, 2004). Leland and Pyle (1977) consider management-retained ownership as the main signaling device for IPO valuation. Fisher and Pollock (2004), using U.S. IPOs in 1992, found that founder CEOs with a significant percentage of shares following the IPO lower the chance of post-IPO firm failure. Certo et al. (2001) investigate whether the presence of founder CEOs and the wealth they retain prior to IPO have a positive impact on IPO underpricing. According to this study, the more equity the founder CEOs retain in the firm right before the firm becomes publicly traded, (as opposed to leaving money on the table as Ritter (1991) suggests) the more appreciation he or she will experience based on the first day stock price appreciation. Certo and his colleagues empirically show that firms with founder CEOs are more severely underpriced, as the investment banker values the company less generously in order to account for the inexperience of the management in running a publicly traded company (Wat, 1983). Using data from the insurance industry, Napompech, Kroll and Shelor (2002) report reduced ownership retention by the managers following an IPO increases agency costs. Some researchers say that the presence of founder entrepreneur ownership

can limit IPO underpricing (Brennan & Franks, 1997; Filatotchev & Bishop, 2002). In a Taiwanese setting, Yang and Sheu (2006) found that an equity stake owned by management, and, specifically the top management, enhances the chance of survival just as proposed by agency theory (Jensen & Meckling, 1976). Balatbat, Taylor and Walter (2004), in an Australian setting, show that the amount of ownership executives retain during the IPO stage does not affect subsequent firm performance during the first three years of the post-IPO stage. However, they also mention that there seems to be some impact on performance at the fourth and fifth years following the IPO. Using empirical data from Canada, Li and McConomy (2004) are able to demonstrate how more management ownership at the IPO is a primary determinant of IPO valuation. In support of Hughes (1986) signaling model, Li and McConomy (2004) empirically showed that management retained ownership increases firm value at the IPO. Bruton, Chahine and Filatotchev (2009) report a curvilinear relationship between a founder's retained equity and underpricing, which means, to a certain extent, a founder's ownership may eliminate adverse selection, but in the meantime it may also encourage moral hazard.

One other group of researchers is more concerned about the experiences and demographics of the executives during the IPO. According to Chemmanur and Paeglis (2005), firms with higher quality managers are more likely to attract higher quality underwriters and investors. Kor and Mahoney (2005) consider significant industry experience as a determining factor for R&D investment, which in turn has a positive effect on subsequent firm performance. In parallel, Amason, Shrader and Thompson (2006) discuss the importance of TMT heterogeneity. This construct has also been influential in studies that investigate the impact of complex environments on strategic

decision making (Carpenter, 2002; Siegel & Hambrick, 2005) which also happens to be a moderating factor in the relationships that are explained in detail later in this chapter. Higgins and Gulati (2003) found that prominent downstream affiliations of upper echelons attract prestigious underwriters to take roles in the IPO process.

In summary, as the main actors in the strategic decision making process, upper echelons (Hambrick and Mason, 1984) have received significant attention from finance and macro management researchers. While upper echelons are the major focus of this dissertation, more generalizable contentions about their impact are needed. One of the contributions of this study will be to formulate a model based on the empirical results. In order to create this new model, the literature addressing the relationship between a board of directors and pre- and post- IPO performance must also be reviewed.

IPO and Board of Directors

The literature on the relationship between boards of directors and IPO performance is not as in depth as that addressing upper echelons (Certo, Holmes & Holcomb, 2007). Different time frames have been considered by researchers with regard to the impact of the board of directors on IPO performance. In the short-term, Finkle (1998) shows a positive relationship between the presence of directors appointed by underwriters and the size of the IPO. Certo et al. (2001) also found that firms with prestigious boards are less likely to be underpriced. Li and Naughton (2007), using Chinese IPOs, consider the number of directors to be a factor in short-term post-IPO performance while, in the long-term, abandoning duality seems to have a positive impact on performance. Chahine and Filatotchev (2008) find that the proportion of outside directors lessens the likelihood of underpricing using an entrepreneurial firm sample and

suggest that the independence of the board is surely a signaling mechanism that lowers underpricing. Contrary to that, Boulton, Smart and Zutter (2010) contend that underpricing is more likely to happen in countries where outsider dominance on the board is considered to be more important. Howton, Howton and Olson (2001) found that IPO pricing anomalies are directly related with board structure and strong board of directors can be a way to undermine the importance of information asymmetry and moral hazard. Considering the internationalization of entrepreneurial firms following an IPO, young IPOs are more likely to go international if the directors possess international experience (Carpenter, Pollock & Leary, 2003). Chen and Dempere (2009) investigate the impact of director composition on IPO bank acquisitions and show that equity based compensation plans for directors reduce the likelihood of acquisitions after the IPO.

In summary, as the organizational leaders (Certo et al., 2007) who derive their power from the owners (Fama & Jensen, 1983), the board of directors has received relatively less attention from IPO researchers. However, there is enough information available to underline their importance during the pre-IPO and post-IPO stages. This study will shed light on the impact of the board of directors on post-IPO operating performance. Further discussion about directors and their effect on the performance of young entrepreneurial firms that recently completed IPO will be provided in this chapter under the hypotheses development section.

Underwriting Process

The focus of this study is on young entrepreneurial firms that just underwent an IPO so it may be useful to review briefly the underwriting process firms go through. The original legal background of IPOs goes back to the Securities Act of 1933. Based on this

act, companies that decide to go public start with selecting an investment bank to walk the company through the IPO process. This investment bank, or the so-called underwriter, can be an individual company or a leader of a consortium composed of several investment banks. There are several factors an IPO company takes into account when selecting an underwriter. For instance, prior relationship with the investment bank through the board members (i.e. board members may have been involved in IPOs of other companies, particularly the venture capitalists), prior reputation of the underwriter or the expertise and experience of the underwriter with the issuer's industry (Ellis, Michaely & O'Hara, 1999). The underwriting starts with preparing an outline of the underwriter agreement called "letter of intent." In this document, parties agree on the fees and commissions associated with the IPO process. For instance, the underwriter specifies what percentage of the gross spread (the difference between the price of the stocks that are bought from the issuer by the underwriter and the price of the stocks when they become publicly traded) it is going to charge. Following the due diligence period, once both parties agree on all the financial and administrative issues, they sign a document called "underwriting agreement." By signing this agreement, the underwriter commits to buy the securities at a specific price.

The interaction with SEC starts after the parties sign the underwriting agreement. Due to Securities Act of 1933, the issuer and the underwriter prepare the registration statement. There are primarily two parts of a registration statement. First one, named as "prospectus," contains information that the IPO company has to provide to the public, such as the prior performance of the company or the background information about the board of directors and top management team (Welbourne & Cyr, 1999). The company

and the underwriter are responsible for the contents in the prospectus (Beatty & Zajac, 1994). The second part of the registration statement, which is called “Part II,” contains information that SEC inspects on behalf of the public. After the registration statement is filed the SEC it becomes a “preliminary prospectus” and SEC will respond to it within 20 days with the amendments it requires to be enacted.

Once the SEC approval is received, the period that researchers call as “road show” begins. This is the period where underwriter contacts institutional investors on behalf of the company. After a period of various presentations by the company and the underwriter to institutional investors (they do not have to institutional investors but underwriters tend to prefer them to individual investors), based on the interest on the company stocks, the underwriter comes up with an offer price. It should be noted that, none of the sales to institutional investors are official until the effective date. The underwriter aims to get two to three times oversubscription to create a “good IPO” (Ellis et al., 1999). This can only happen if the institutional investors believe that the company is likely to be successful both at the IPO and after the IPO. In fact, that is why underpricing of an IPO is said to be associated with positive signals about a company (Ritter, 1991). The final prospectus statement with the price amendment and the number of shares going to sold is published on the morning of the effective date. On the morning of the effective date, company stocks open for trading and the institutional investors officially acquire shares based on the previously agreed price. If the closing price at the end of that day is higher than the offer price, the company is said to have “left money on the table” (Ritter, 1991; Ritter & Welch, 2002) or in other words underpriced (Arthurs et al., 2008).

Although details of signaling theory is provided in other sections of this study, it may be useful to mention why underpricing is an important signaling mechanism based on signaling theory assumptions. According to the seminal studies of signaling models (Allen & Faulhaber, 1989; Grinblatt & Hwang, 1989; Welch, 1989), by underpricing their stocks, IPO firms signal future firm quality. Although the original owners had just left money on the table (Ritter, 1991), the only way they can make up for their initial loss is through future profit of the company from the operations financed by the money raised at the IPO and subsequent sales of stocks. In other words, signaling model does not only consider pre-IPO signals that investors take into account for valuation of the firm but also the underpricing which happens at the end of the first trading day. In fact that is why, some scholars recently aimed to investigate the direct relationship between IPO underpricing and post-IPO operating performance (i.e. Jain, 1996; Zheng & Stangeland, 2007). Once the firm is underpriced some institutional investors may choose to sell their stocks right away to experience profit while others may choose to hold on to these stocks if they adopt a long-term investment strategy. Still others may gather shares in the secondary market to accumulate a controlling stake in the company (five percent or more). The underlying theme of this study is not about short-term institutional investors but it is about the long-term ones which are likely to be listed as blockholders in the first annual statement following the IPO.

Before closing this section, the last concept that needs to mentioned is the “lock-up” period. SEC requires that the pre-IPO owners of a company cannot sell their shares for a certain time period (usually for 180 days). This period is called the “lock-up” period (Espenlaub & Tonks, 1998). In other words, the owners of shares mentioned in the

prospectus statement are restricted from selling shares for a certain time period once the company becomes publicly traded. The implication of this requirement within the context of this study is; the ownership structure changes following the IPO and subsequent changes in corporate governance mechanisms and firm performance can easily be tested through the comparison of prospectus statement and subsequent annual statements.

Theories of Underpricing

Several theoretical explanations have been offered by scholars to explain the many unknowns about the underpricing of IPO shares. This section provides some background information about these theories so that the upcoming hypotheses section may make more intuitive sense.

Certo et al. (2001), abstracted from Tinic (1988) and Ritter (1998), provides different theories explaining underpricing. As they summarize, there are several theories to be considered in explaining the so-called underpricing phenomena. The *risk-averse underwriter hypothesis* focuses on the investment bankers. This theory suggests that investment bankers set IPO offer prices lower on purpose to account for the risks associated with new publicly traded firms (Reilly, 1973). The *monopsony power hypothesis* is more concerned about the reputation of the underwriters. According to this hypothesis, highly reputable investment bankers set the prices lower so that the customers they sell the IPO stocks to get compensated through stock price appreciation on the very first day (Baron & Holmstrom, 1980). The *speculative bubble hypothesis* proposes that, due to speculation on the first day by investors who were unable to access shares during the pre-IPO stage, the first day closing price reflects such investors bidding up the stock. The *implicit insurance hypothesis* concentrates on the legal side of the IPO pricing. This

hypothesis contends that if the offer price is low, the chances of subsequent legal action taken against the underwriter by initial investors is reduced, so, once again, the underwriter sets the offer price lower than what it is supposed to be (Nakatani, 1984). The *market feedback hypothesis* posits that, during the pre-IPO stage, the investment banker uses the feedback from the preferred investors to calculate the offer price (Jegadeesh, Weinstein & Welch, 1993). Rationally, these preferred investors set the value of the firm lower than what it really is so they get to experience appreciation in their investments once the first day closing price is lower than the offer price (underpricing). According to the *ownership dispersion hypothesis*, the focal firm will prefer an underpriced stock so that due to high demand, no one investor can gather a controlling interest (Booth & Chua, 1996). The *asymmetric information hypothesis*, one of the most popular hypotheses, proposes that the natural reason for underpricing is the presence of information asymmetry between investors, underwriters and the issuing firm (Brennan & Kraus, 1987). The *winners curse hypothesis*, is also related to information asymmetry. According to this hypothesis, informed investors may not have the sufficient wealth to buy out the IPO shares, so issuers underprice their IPO shares to attract uninformed investors (Rock, 1986). Last, but certainly not least, is the popular *signaling hypothesis*. This hypothesis is the major theoretical foundation I rely upon to explain the series of relationships proposed in my model. According to the signaling hypothesis, or the so-called *signaling model* (Leland & Pyle, 1977), underpricing acts as a signaling mechanism about the firm's future as it may lead to subsequent sales of stocks for higher prices after the IPO (Welch, 1989; Allen & Faulhaber, 1989). One last theory that also must be mentioned is *screening theory*. As Sanders and Boivie (2004) summarize,

screening theory is very similar to the signaling model. The main difference is that the signaling model historically concentrated on an informed buyer acting first, while screening theory assumes that the buyer of the stock is acting with some filtering routines. Based on screening theory, higher quality issuers underprice their IPO price on purpose, thus leaving some money on the table, and the way they make up for this sacrifice is to get involved in additional issuing activity in the future at a higher price, which is a mirror image of the basic contentions of signaling model as specified by Sanders and Boivie (2004:169). As theoretical explanations, both the signaling model and screening theory make intuitive sense. Based on a combination of these two explanations of post-IPO investor behavior, this dissertation proposes that once the firm, particularly a young entrepreneurial one, is underpriced, the underpricing acts as a signaling mechanism for active investors to acquire shares and ask for subsequent changes in the corporate governance structure of the firm once they become new owners. The result is lower operating performance due to interventions with the firm's entrepreneurial efficacy. Further discussion of the signaling model and its application in this model will be provided in the hypotheses development section.

Before moving to the section that covers the measures of IPO performance, I believe a brief literature review about the consequences of IPO underpricing may clarify potential ambiguities about the underlying theme of my study. Particularly, the changes in ownership structure following the IPO is of interest as the focus of this study on the consequences of ownership structures following an IPO. Two studies stand out among others regarding the changes in ownership following underpriced IPOs. Stoughton and Zechner (1998) report that following an underpriced IPO, a more concentrated block

ownership structure is likely to emerge. Their reasoning is that only large stockholders can acquire stocks of underpriced IPOs and their intentions will be to monitor management after acquisition of these shares. Brennan and Franks (1997) approach the situation from a different perspective. According to their reduced monitoring hypothesis, underpriced IPOs will be related to more dispersed ownership. These authors contend that instead of concentrated ownership, several smaller owners may acquire shares after the IPO which may lower their power to monitor managerial actions. Although the results are mixed about both studies' views (Hill, 2006; Arugaslan, Cook & Kieschnick, 2004), there is a need to shed some light on the ongoing debate about post-IPO ownership structure changes due to underpricing. One of the contributions of this study will be do that within the context of young entrepreneurial firms.

Measures of IPO Performance

In their IPO research summary article, Certo et al. (2009) discuss two different time frames to assess IPO performance. The first one is short-term performance. Most of the finance literature is concerned with what happens to stock prices on the opening day of trading (Ritter, 1991; Fisher & Pollock, 2004; Heeley, Matusik & Jain, 2007). The primary measures of IPO short-term performance deal with first day closing price. If the difference between the first day opening price and closing price is different from zero that means the company is either overpriced or underpriced (Aurthurs et al., 2008). If the closing price is higher than the opening price, the underwriter has valued the company for less than what it really is worth (Heeley et al., 2007). In other words, the pre-IPO owners did not get what they could have gotten from the IPO. Thus, as some authors say, they just "left money on the table" (Ritter, 1991). Underpricing is probably the most often

used variable in IPO research due to its importance in both the finance literature (Ritter and Welch, 2002) and the management literature (Certo, Dalton & Daily, 2001). According to some authors, this is the primary measure to assess litigation risk of an IPO firm (Tinic, 1988) and the amount of information asymmetry (Ritter & Welch, 2002; Loughran & Ritter, 2004), while for others it is one of the most important signaling mechanisms about a firm's future (Anderson, Beard & Born, 1995). In this dissertation, this is the primary variable that will be used to measure to what extent underpricing acts as a signaling mechanism about the firm's future.

Underpricing is not the only variable used by researchers to measure short-term IPO performance. One of the other most popular measures of short-term IPO performance is the amount of proceeds raised. *IPO proceeds* reflect the capital gathered from the first-time offering (Ibbotson & Ritter, 1995). According to some authors (Pagano et al., 1998), the amount of proceeds raised during the IPO process determines how successful the management was in convincing the public about the real value of the company. Other short-term IPO performance measures that Certo et al. (2009) mention are: *IPO price premium*, representing the extent the initial price exceeds the book value of the assets (Fama & French, 1992), which is similar to Tobin's Q as a market-based measure of firm performance (Chung & Pruitt, 1994) and *market valuation*, which is measured by the total market capitalization of the firm right after the IPO, particularly at the end of the first day (Sanders & Boivie, 2004).

Surprisingly, IPO researchers are not that interested with the long-term IPO performance. The measures of long-term post-IPO performance are not that different from classical performance measures of companies used in non-IPO based studies.

Primarily, researchers utilize either accounting-based or market-based measures to assess long-term IPO firm performance (Certo et al., 2010). Sales growth, return on assets, return on sales, return on equity, cash flow from operations, operating margin, and net profit are the primary accounting-based measures used (Amason, Shrader & Tompson, 2006; Certo et al., 2009). Regarding market based measures which represent stock performance over the long run, holding period returns (Kroll et al., 2007) and cumulative abnormal returns (Kroll, Walters & Wright, 2008), are two of the most popular financial market measures used in the literature.

Obviously, both short-term and long-term measures of IPO performance can only be used for assessing the performance of the firms that managed to go public and survive after the IPO for a certain period. Some scholars consider this survival as another measure of IPO success (Fisher & Pollock, 2004) particularly for young entrepreneurial firms (Jain & Kini, 2000) since a significant portion of IPO firms declare bankruptcy during the first few years following their IPO (Welbourne & Andrews, 1996; Certo et al., 2010). In summary, different measures of IPO performance are present in the literature. As mentioned previously, the focus of this dissertation will be on underpricing as a signaling mechanism that triggers subsequent changes in firm ownership and corporate governance mechanisms. The next section discusses the literature regarding the uniqueness of young entrepreneurial firms in an IPO setting.

Uniqueness of Young Entrepreneurial Firms

Classical contentions of agency theory (Jensen & Meckling, 1976) involve corporate governance issues like the use of board independence and performance based compensation in order to align the interests of agents (executives) and principals

(owners). Pioneering studies in the field, like Booth and Deli (1996), Dalton, Daily, Ellstrom and Johanson (2003), used large and well-established firms to test the propositions of agency theory. As Finkelstein and Hambrick (1996) recognized that traditional governance mechanisms may result in unexpected consequences for young entrepreneurial firms, there is obviously a need to look at them from a different perspective as Kroll et al. (2007) suggest.

Young firms, particularly the ones which recently completed IPOs, are at a vulnerable point in their evolution. They have to facilitate the transition from private ownership to public ownership while trying to keep up with the regulatory requirements of the governing bodies (Kroll et al., 2007). These types of firms, founded on entrepreneurial efficacy, face several uncertainties stemming from their inexperience with market mechanisms. Stinchcombe (1965) names this situation the “liability of newness.” Although they seem to be simple business entities because of their size and age, due to this liability of newness, they may constitute more promising study units for management research (Kroll et al., 2007). Executives of young firms have access to limited resources and thus have limited strategic options (Zahra & Filatotchev, 2004). Under these conditions, the creativity of the executives and their risk assessment abilities become more important. Thus, more interesting managerial implications may come from studies conducted on young entrepreneurial firms.

The strength of an economy does not only depend on giant, well-established corporations. If that were the case, the recent bankruptcies of GM and Lehman Brothers would have diminished the hopes for the future of the U.S. economy. The reality is small to medium size enterprises are the main drivers of economies, both in the U.S. and

abroad. Considering this fact, studying young entrepreneurial firms also has more practical implications. If corporate governance research aims to provide the stakeholders of corporations with better insight into how to be successful, then corporate governance research focused on young entrepreneurial firms should provide valuable guidance concerning governance practices. The outcome of such practices may be vital to the whole economy. Kroll et al. (2007) found that classical contentions of agency theory do not apply to young entrepreneurial firms. These firms are likely to perform better, at least during the initial years, if the majority of their boards are composed of original TMT members. Zahra and Filatotchev (2004) point out that founders and managers of entrepreneurial companies are in greater need of sharing their tacit knowledge through strong personal and stable relationships. In other words, as these companies are more people dependent, the implications of studies conducted on them will not only be of interest for macro management researchers but for micromanagement researchers as well.

Before the hypotheses are developed, the last topic that should be addressed is environment. As suggested in Figure 1.1, environmental factors are proposed to play an important role. The next section is a brief introduction to two competing literature streams about external environment.

Impact of Environment

Several competing theories have been advanced suggesting environmental uncertainty as a key determinant of the appropriateness of the rational strategic decision processes (Priem, Rasheed & Kotulic, 1995). Fredrickson (1984) says that an organization's strategy determines the extent of the match or alignment between its external environment and its internal structure and process. Fredrickson (1984)

differentiates between synoptic and incremental models of strategy formulation. Synoptic is based on a rational model of decision making while incremental is more concerned with providing a more accurate description of how organizations actually make strategic decisions. The most fundamental issue in synoptic strategy is the concept of comprehensiveness. This concept can be defined as the extent to which an organization attempts to be exhaustive and inclusive in making and integrating decisions. Comprehensiveness involves the careful collection of information to evaluate various strategic alternatives, the analysis of the available information and the making of detailed long-term plans based on that information. Fredrickson (1984) and Fredrickson and Mitchell (1984) report that rational strategic decision processes are associated with superior performance in stable environments and inferior performance in unstable environments. Priem et al. (1995) define an unstable environment as an uncertain environment; that is one in which it is difficult to identify, measure and predict variables and causal relationships.

If a dynamic environment can be considered as an uncertain one, then Fredrickson and colleagues propose that since there is not enough data and information, comprehensiveness in terms of analysis, which involves different decision makers coming together around a well-developed strategy, may not be applicable. In these types of environments, as there is too much uncertainty, a fast decision making process is needed and, with the limited amount of information, comprehensiveness under the umbrella of strategic rationality may not be possible.

Contrary to the contentions of Fredrickson and his colleagues, Mintzberg (1973) proposes that some formal comprehensive planning may yield superior performance.

Eisenhardt (1989) and Miller and Friesen (1983) suggest that decision makers in dynamic environments, instead of departing from analytical requirements of comprehensive decision making, actually accelerate their cognitive processing. Under dynamic conditions, decision makers use more information and consider more alternatives. Besides being analytically comprehensive, they also turn out to be integratively comprehensive. In dynamic environments there should be quick and intelligent responses. Thus, according to this stream of research, comprehensive decision making may lead to better performance in dynamic environments.

The other two dimensions of environment, as discussed by Dess and Beard (1984), should also be mentioned at this point. For instance, environmental complexity, determined by the presence of heterogeneity in the environmental variables, is known to have a significant impact on strategic decision making (Aldrich, 1979; Boyd, 1995) and subsequent firm performance (McArthur & Nystrom, 1991). In addition, munificence, which is about whether critical resources are available or abundant in the environment, is another known determinant of firm performance (Goll & Rasheed, 1997).

In summary, all of these research streams consider environment as an important factor to consider for firm performance. This study considers it to have a moderating effect on the relationship between firm performance and TMT composition and board structure. Further details about this proposition will be provided in the hypotheses development section.

Hypotheses Development

Underpricing is present if the stock issue price is lower than the first day closing price (Ritter, 1991). This means that if underpricing is present, those who gather shares from the underwriting process experience gains in their investment at the end of the first day. From a financial perspective, this is definitely what the initial investors want as long as they end up selling the shares for a profit. From the original management's perspective (i.e. leaving money on the table or appreciation of retained ownership) has already been discussed. However, the impact of this situation on subsequent movements in the firm's ownership structure needs further discussion. The first hypothesis is related to this question: what happens to the ownership structure of the firms that experience significant underpricing when they undergo an IPO?

Allen and Faulhaber (1989) discuss the importance of underpricing as a signaling mechanism that can be used by investors to distinguish between good firms and bad firms: "Underpricing the firm's initial offering (which is an immediate loss to the initial owners) is a credible signal that the firm is good to investors, because only good firms can be expected to recoup this loss after the [firm's superior] performance is realized" (Allen & Faulhaber, 1989:304). What exactly does the term "good firm" mean? Obviously, if a firm is a good one, it is more likely to perform better in the future, and the investors in such firms are more likely to experience higher stock price appreciations and possibly steady income in the form of dividends (Welch, 1989). A logical investor would obviously like to invest in IPO firms that are considered to be "good" (Grinblatt & Hwang, 1989) as these IPO firms may offset the initial loss, due to underpricing, by future earnings.

Young entrepreneurial firms need to provide the public with more signals of quality than do well-established, large institutions. Considering the association of extensive information asymmetry with IPOs (Rock, 1986), underwriters definitely need to do more in the case of young firms to “leave a good taste in investors’ mouths” (Ibbotson, 1975: 264) by valuing the firm less than what it is really worth. In other words, it is safe to say that younger and smaller firms are more likely to experience underpricing (Jain, 1994). Though the question remains: “once a young entrepreneurial firm IPO is underpriced, does that trigger post-IPO investors to step in and gather shares?” The answer to this question forms the basis of the first hypothesis.

A recent study suggests that “IPO firms are characterized by different large-block holders of retained equity after listing” (Bruton, Filatotchev, Chahine & Wright, 2010: 492). There is empirical evidence suggesting that investors are more likely to purchase blocks of stocks in publicly traded companies when they perceive expected benefits to exceed expected costs (Demsetz & Lehn, 1985; Bethel, Liebeskind & Opler, 1998). Considering signaling theory (Leland & Pyle, 1977), firms with significant underpricing signal quality and higher expected returns in the future (Allen & Faulhaber, 1989). This means that, with their limited knowledge, if investors perceive that the cost associated with buying blocks of shares in an underpriced IPO of a young entrepreneurial firm will be lower than the potential benefits likely to be experienced in the future, they would be likely to step in to gather share blocks in the company. It should be noted that share blocks are defined by the Securities and Exchange Commission’s (SEC) to mean direct ownership of five percent or more of a firm’s outstanding shares. This research proposes that, once the firm is underpriced, new potential blockholders are likely to emerge within

a reasonable time period. Some researchers contend that the managers underprice shares during the IPO in order to spread out ownership by making the firm attractive to small shareholders (Brennan & Franks, 1997). Their reasoning behind such action is to avoid active monitoring by future blockholders. However, others contend the opposite actually happens. For instance, Stoughton and Zechner (1998) suggest that, through underpricing, managers, perhaps unintentionally, create an incentive for potential large shareholders to buy the shares at a relatively low price right after the IPO. “The incentive is necessary because monitoring is costly to blockholders” (Howton, 2006:420). Because of their collective level of ownership, blockholders possess the power to influence organizational decisions (Sanders & Boivie, 2004).

Relative to well-established firms, there is empirical evidence to recommend the adoption of different agency perspectives for young entrepreneurial firms (Kroll et al., 2007). Being a well-established firm is already a signal of quality (Dunbar, 2000; Valero, Lee & Cai, 2009) while it is harder for younger firms to use different mechanisms as signals of their quality (Allen & Faulhaber, 1989). With this great information asymmetry present in the IPO process for entrepreneurial firms, underpricing should serve as the primary determinant of firm quality. Bruton, Filatotochev, Chahine and Wright (2010) mention that corporate governance research has already informed us about the presence of blockholders in relatively larger mature firms, but little has been done related to entrepreneurial firms that undergo an IPO. Merton (1987) suggests that being listed on a major stock exchange may help the firm to be more recognizable by the public. Large, well-established firms already receive enough attention from the public, which may not be the case for private and smaller firms. Once they get listed, the public may be more

interested in what happens in these types of firms. As the sample in this study consists of young entrepreneurial firms that have just completed an IPO, looking at the changes in their ownership structures following an IPO should definitely be of interest for researchers. Using the signaling model (Leland & Pyle, 1977) adopted in this study, the proposal is that if an entrepreneurial firm is underpriced during the IPO, blockholders with different objectives (Hoskisson, Hitt, Johnson & Grossman, 2002) will take that as a signal about the firm's promising future and will rush to accumulate block holdings in the company. Based on this contention, the first hypothesis is as follows:

H₁: *Young entrepreneurial firms experiencing significant underpricing will attract potential investors who acquire blockholder ownership positions in the focal firms.*

Once the ownership structure of the firm changes, one might expect subsequent changes in corporate governance mechanisms. According to Denis, Denis and Sarin (1997), ownership structure has a direct impact on executive turnover. In this study, the authors show that the presence of a new outside blockholder increases the likelihood of executive turnover; however, this is not surprising. Well-known contentions of agency theory are quite specific about interest alignment between the owners and the executives (Daily, Dalton, & Rajagopalan, 2003; Jensen & Meckling, 1976). From an agency perspective, an outside blockholder will be willing to bear monitoring costs and have someone watching out for his/her interests. A rational active investor probably would like to appoint at least some of his/her agents either as executives or directors or both. Finance literature is also very clear about the propensity of owners to monitor what is

going on in the company through their own agents (Admati, Pfleiderer & Zechner, 1994; Kahn & Winton, 1998).

At this point, a brief review about blockholder ownership may be useful. In their seminal article, Shleifer and Vishny (1986) mathematically demonstrate why owning only five percent in a company can give that owner the right to be involved in the strategic decision making process. Parallel to that study, Bethel and Liebeskind (1993) empirically verified that blockholder ownership is associated with corporate restructuring and this is because the blockholders are able to put pressure on executives because of the five percent share they hold in the company. In a more recent article, Sanders and Boivie (2004) showed that blockholder ownership is strongly associated with firm valuation of publicly traded firms. Probably due for that reason, the SEC requires publicly traded companies to report all the owners with five percent or more shares in their annual reports. In addition, anyone who acquires beneficial ownership of five percent or has to file Schedule 13D within 10 days of that acquisition. Also at this point, a brief overview of Schedule 13D may be useful to understand how large shareholders are able to influence firm practices, including the ones with corporate governance policies. Item 4 of Schedule 13D is related with the intentions of the new large shareholder. Although the details of this item is beyond the scope of this study, in summary the new beneficial owner notifies the SEC and the public about its intentions with regard to new security issuance, mergers, acquisitions, sale or transfer of assets, any changes about current capitalization policies and similar issues. Particularly, Cronqvist and Fahlenbrach (2008:3973) report that “section d” of Schedule 13D Item 4 is as follows:

“any change in the present board of directors or management of the issuer, including any plans or proposals to change the number or term of directors or to fill any existing vacancies on the board.”

Thus, new blockholders are able to initiate changes in the corporate governance mechanisms of the firms in which they acquired controlling shares in. They can choose to do this either directly by electing directors and voting on changes in the corporate structure of the company or through informal negotiations and discussions (Crongvist & Fahlenbrach, 2008). Either way, their presence is likely to be associated with changes in corporate governance practices. In other words, both theoretically and legally, only five percent ownership is sufficient to gain influence over the current firm governance systems.

In contrast to privately owned companies, where the original founders act with complete freedom, publicly traded companies have to seek approval of their boards of directors for major strategic decisions (Burton, Helliard & Power, 2004). Bethel and Liebeskind (1993) report that blockholder ownership is associated with corporate restructuring, which, in the authors' terms, is an indication of pressure imposed on management by the new blockholders. Bouresli, Davidson and Abdulsalam (2002) empirically demonstrate that active investors in publicly traded companies will take active roles in reconfiguring the corporate governance mechanisms of the firms they have controlling shares in. Thus, it is more than likely that the new blockholders who acquired shares after the IPO due to the signaling effect of the severe underpricing will ask for changes in TMT and board structure. Corporate governance rules of the NYSE (New York Stock Exchange) and NASDAQ (National Association of Security Dealers

Automated Quotations) require companies to have independent outsiders in their boards (Kaufman & Englander, 2005; Kroll et al., 2007) although the empirical results regarding the benefits of such outsider dominance are mixed (Dalton, Daily, Ellstrand & Johnson, 1998). Particularly in the case of young entrepreneurial firms, there is strong empirical evidence of problems associated with such mandates. Kroll et al. (2007) for example, showed that outside-dominated boards designed to mitigate agency problems (Booth & Deli, 1996) are not effective for younger firms. However, active blockholders may not acknowledge that fact. For the purpose of watching out for their interests, they will be looking to have their own people in key positions. Obviously, the first key position that comes to mind is being a member of the TMT. This research proposes that, following the changes in ownership structure, new blockholders will ask some of the original TMT members to step down and will replace them with new ones. This will automatically create a higher rate of change in TMT structure in the years following the IPO. Obviously, as new executives come in and the old ones leave, one should be able to observe considerable differences between the TMT structures over the years following the IPO. Like other studies, this study considers a five-year time period to assess whether such a relationship exists (Hillier, Linn & Colgan, 2005). Throughout the five years following the IPOs of the young entrepreneurial firms, it is proposed that the rate of change in TMT turnover should be higher once the new blockholders emerge in the firm's ownership structure. This discussion leads to the following hypotheses:

H₂: *Blockholder ownership structure changes following the IPO process of young entrepreneurial firms will lead to a higher rate of change in TMT membership over the subsequent five-year period.*

Beyond the higher rate of change in TMT membership, the same logic may also apply to board membership. As Fama and Jensen (1983) specify, boards derive their power from the owners so their structures will be based on the actions of the owners. In the case of young entrepreneurial firms, the chance of owners asking for changes in board structure is equal to the chances of them asking for changes in TMT structure, if not more so. Kaufman and Englander (2005) discuss the need for IPO firms to include outside directors on the board for the purpose of satisfying external constituents. Deutsch and Ross (2003), in parallel, highlight the importance of the presence of outside directors in IPO firms to attract external resources. IPO firms, at this vulnerable point of their evolution, are in need of external resources (Kroll et al., 2007). If new owners, with fresh interest in the company, increase the chances of access to external resource as Deutsch and Ross (2003) suggest, then their requests for changes in the status quo within the company will be taken more seriously. Considering the blockholders' legitimate power on top of that, it is logical to expect new directors to be appointed by them to the board.

Beatty and Zajac (1994) propose several mechanisms associated with monitoring and related incentives. The first mechanism is the classic outside dominance of the board as mandated by agency theory researchers (Fama, 1980; Fama & Jensen, 1983). The second involves tying the incentives of the directors to those of the owners in order to create more vigilant monitoring (Morck, Shleifer & Vishny, 1988). The third mechanism involves separating the CEO and chairman positions (Lorsch & MacIver, 1989). The fourth and fifth mechanisms Beatty and Zajac (1994) discuss are directly related to this study. First of all, they mention the possible effects of a large equity holder. They contend, blockholders will be keen for monitoring practices so they are more likely to be

active in appointment decisions. Also, in the case of IPOs, venture capitalists, who are likely to acquire shares well before the IPO, are prone to be active monitors. An active shareholder, either as a regular blockholder or as a venture capitalist, will be playing a role in board structuring. Therefore, blockholders who acquire shares after the IPO will be likely to appoint their own directors to the board. As a previous study suggests, the “greater the proportion of affiliated board members, the easier it is for an entrenched controlling shareholder to pursue its objectives” (Yeh, Shu & Guo, 2008:147). Considering a blockholder as an owner of five percent or more controlling shares in a firm (Kroll et al., 1997), their presence should be associated with a higher rate of change in board structure. The above discussion leads to the following hypothesis:

***H₃:** Blockholder ownership structure changes following the IPO process of young entrepreneurial firms will lead to a higher rate of change in board membership over the subsequent five-year period.*

In addition to the direct relationships between blockholder ownership structure changes and higher rates of change in TMT and board membership, an indirect relationship between blockholder ownership and TMT change may also exist. If a board is a reflection of the owners and is expected to serve the owner’s interests (Fama & Jensen, 1983), then one may expect new directors, appointed by the new owners, to request changes in TMT composition. In other words, the higher rate of change in TMT composition associated with ownership structure change may be the result of changes in the board.

Finkelstein and Hambrick (1996) document the connection between the power of the board and its potential impact on corporate governance issues. Boards are legally

empowered to act on behalf of the owners (Finkelstein, 1992). Directors have the power to hire, fire, and promote executives (Mace, 1971). Shivdasani and Yermack (1999:1829) observe: “Directors are voted into office by stockholders and have a fiduciary responsibility to protect stockholders' interests. Along with their legal duties of reviewing the corporation's major plans and actions, directors are charged with selecting, compensating, evaluating, and, when appropriate, dismissing top managers.” This means that, not only will the new directors look after the interests of the blockholder owners, but they will also perform the hiring and firing of new executives based on the new owners' expectations. In the case of IPOs, I discussed earlier about the new blockholders and their association with higher rates of change in TMT composition and board structure. Beyond that, new blockholders', instead of directly dealing with the appointment of executives, may also ask the newly appointed directors to initiate change for them. It may be reasonable to expect changes in TMT composition following the changes in board structure. Based on this discussion, the following hypothesis is formed as complementary to Hypotheses 2:

H₄: *Higher rates of change in board composition of young entrepreneurial firms will be associated with a higher rate of change in TMT membership over the subsequent five-year period.*

To this point, nothing has been mentioned regarding what happens to performance following the changes in corporate governance mechanisms. The next set of hypotheses deals with this issue. Obviously, management researchers, in general, aim to address the question “what is the outcome” of the strategic management process. In the case of for-profit organizations, the ultimate goal of a firm is to enhance the value of its

shareholders' investment. For entrepreneurial firms which just recently underwent an IPO the goal is no different. However the uniqueness, as already discussed, is important. The applicability of popular theories like agency theory (Jensen & Meckling, 1976) and resource-based view (Barney, 1991) in the young entrepreneurial context must next be reviewed.

Over the years, researchers in different fields have focused on the stock market performance of the IPO companies (Brennan & Franks, 1997; Mikkelsen et al., 1997, Pham, Kalev & Steen, 2003). This is probably due to the popular belief that most IPO firms fail within the first few years following the IPO (Ritter, 1991; Loughran & Ritter, 1995). Instead of paying attention to the long run operating performance of young IPO firms, researchers tend to concentrate more on the short run stock performance (Ritter & Welch, 2002). Recently, some researchers considered two-year holding period returns as a measure of post-IPO performance (Kroll et al., 2007, Walters et al., 2010). Other researchers highlight the need for considering longer periods to assess post-IPO performance (Fisher & Pollock, 2004). So far, it has been proposed that, due to certain signaling mechanisms during the IPO stage, new owners will be attracted to the young entrepreneurial firms. Once they acquire controlling shares, directly or indirectly, they are likely to request changes in corporate governance systems (e.g. changes in TMT compositions and board structures). What happens afterwards is the focus of next set of hypothesis.

First of all, what happens when the original TMT is changed? Recalling the resource-based view may be helpful in answering this question. As Barney (1991) observes, firms need valuable, rare, inimitable, and non-substitutable resources to gain a

sustainable competitive advantage. One type of resource is obviously the firm's executives (Berman, Down & Hill, 2002). Particularly in the case of young entrepreneurial firms, executives with extensive knowledge of, and experience with the firm are definitely a potential source of competitive advantage (Kor, 2003). In fact, these executives are the ones who brought the firm to the IPO stage. In smaller firms, companies rely heavily on the knowledge base available within the boundaries of the organization. Once a new owner asks for changes in the TMT composition, some of these knowledgeable executives will probably be asked to step down while others, who are appointed by the new blockholders, either directly or indirectly, will take their places. This dissertation proposes that, by doing so, firms lose a significant source of competitive advantage. This should result in lower operating performance in the five-year period following the IPO. Fisher and Pollock (2004) argue that post-IPO success is enhanced with more cohesive management teams. Kroll et al. (2007) found strong evidence of enhanced post-IPO performance with original executives in place. According to that study, the contentions of agency theory (Jensen & Meckling, 1976) may not be the answer for young entrepreneurial firms. Jain and Kini (1994) report that post-IPO performance will suffer less if the portion of control retained by the original executives is greater. Original TMT members, with their long-term tenure with the company and their contribution to the entrepreneurial efficacy of it, possess valuable tacit knowledge and a commonly shared vision (Eisenhardt & Schoonhoven, 1990, Kor, 2003). Therefore, the performance of these firms should suffer once the TMT membership rate of change accelerates. Based on this discussion, the following hypothesis is formed:

H₅: *Higher rates of change in TMT membership of young entrepreneurial firms will be associated with lower operating performance over the subsequent five-year period.*

Obviously, not only may changes in TMT composition have a detrimental effect on post-IPO performance, but other organizational leadership, such as the directors (Certo et al., 2007), should also be considered. Referring to the resource based view (Barney, 1991) once again, directors, just like executives, constitute an important resource for a company (Lynall, Golden, & Hillman, 2003). The benefits may be in different forms for different types of directors. According to Hillman, Cannella and Paetzold (2000), outside directors can be classified as *business experts*, who are ex-senior executives and directors of other firms, *support specialists*, who unlike business experts lack general management experience but possess expertise in an important area such as law, and *community influentials*, who happen to have connections to the outside world (e.g., politicians). Although the differences among these three types of directors are beyond the scope of the study, it is proposed that any of them who are appointed by the new blockholders will be likely to have an impact on the firm's performance.

Beatty and Zajac (1994) observed that, the traditional board independence recommendation of agency theory (Jensen & Meckling, 1976) is not as important in the IPO context. The importance of keeping the original executives in place for younger firms has already been discussed. The same logic also applies to directors. In fact, if the tacit knowledge and shared vision of the executives is a source of competitive advantage (Kor, 2003), then the board that historically facilitated this connection through appropriate monitoring and involvement in the strategic decision making process, is just

as important a source of competitive advantage. Researchers already consider directors to be a reflection of the owners (Fama and Jensen, 1983). The same researchers also suggest that, in smaller firms, for better performance, strategic decision making needs to be retained by the same individuals (Fama & Jensen, 1983, Walters et al., 2010). The dominant coalition in a firm, which is composed of the strategic leaders (Certo et al. 2007), is likely to take the firm further with a shared vision (Nelson, 2003). In the context of young entrepreneurial firms that just underwent an IPO, the new owners, who are inexperienced with the focal firm and who acquired shares because of the positive signals they perceived following the IPO, can see less clearly what needs to be done. Kroll et al. (2007) not only recommend that the original executives stay in place, but also prescribe a board that is primarily composed of them. As agency problems are less acute in younger and smaller firms (Walters et al., 2010), a more cohesive TMT and Board of Directors may be needed for better performance. In that regard, a similar relationship is likely to be observed between board composition and firm performance as observed between TMT membership and firm performance within the five years following the IPO. This leads to the following hypothesis:

H₆: *Higher rates of change in board membership of young entrepreneurial firms will be associated with lower operating performance over the subsequent five-year period.*

One of the fundamental contributions of the study of strategic management is an emphasis on the need to adapt to the environment. As Duncan (1972) defines it, the environment is the totality of physical and social factors that are taken directly into consideration in the decision making behavior of the individuals in organizations. Duncan

(1972) also makes a distinction between the internal environment, which is composed of physical and social factors within the boundaries of an organization, and the external environment, which is composed of social and physical factors outside the boundaries of an organization. As the external environment is outside the boundaries of the organization, it is almost impossible for a firm to control it but to deal with it by creating some internal mechanisms (Brown & Eisenhardt, 1997). In the case of a young entrepreneurial firm that just underwent an IPO, those internal mechanisms may be the entrepreneurial efficacy of the original TMTs and directors.

Dess and Beard (1984) specify three dimensions of the environment that are important for its assessment. These are *munificence*, which is the capacity of the market to support sustained growth, *dynamism*, which is the stability-instability of the market, and *complexity*, which is the heterogeneity of the environmental variables the market players have to cope with. Over the years, researchers have investigated the environment's impact on structure (Burns & Stalker, 1961; Norburn & Birley, 1988; Karaevli, 2007), strategy (Miller, 1988; Gilley & Rasheed, 2000) and decision-making processes (Frederickson & Mitchell, 1984; Priem et al., 1995; Baum & Wally, 2003; Grag et al., 2003). The environment is one of the most important contingency variables with which a firm has to contend (Tosi & Slocum, 1984, Goll & Rasheed, 2004). This part of my study, explains why the different dimensions of environment as mentioned by Dess and Beard (1984) are likely to moderate the relationships between a higher rate of change in TMT composition and board structure and subsequent firm performance.

Dynamism refers to the stability of the environment the firm operates in. If changes are taking place rapidly in the environment, strategic decision making is harder

due to increased uncertainty (Dess & Beard, 1984). In turbulent environments, executives are required to deal with constant change (Galbraith, 1973; Wholey & Brittain, 1989). Once things become uncertain, it is harder for decision makers to effectively plan (Aldrich, 1979). Managers operating in such environments are expected to implement broader ranges of strategic options (Carpenter & Westphal, 2001; Karaevli, 2007). Akgun, Keskin and Byrne (2007) show that emotional capability in innovative firms, which may be a proxy for entrepreneurial efficacy in younger firms, is positively related to firm performance and dynamism moderates this relationship such that the relationship gets stronger under dynamic conditions. In parallel, the entrepreneurship literature shows the moderating effect of dynamic environments on the relationship between entrepreneurial orientation and firm performance (Wiklund & Shepherd, 2005). As previously mentioned, executives of younger firms have limited resources and, as a natural result of that, they have limited strategic options (Zahra & Filatotchev, 2004). So, if the environment is dynamic, given the limited resources, it becomes even harder for executives to perform their strategic decision making duties. Not surprisingly, researchers have empirically demonstrated a negative relationship between firm performance and dynamism (Bantel, 1998). In a more recent study, Ahmad, Ramayah, Wilson and Kummerov (2010) investigate whether environmental stability moderates the positive relationship between entrepreneurial competency and firm performance of small to medium enterprises (SMEs). Entrepreneurial competency is defined as “underlying characteristics such as generic specific knowledge, motives, traits, self-images, social roles, and skills which result in venture birth, survival, and/or growth” (Bird, 1995:51). Ahmad and his colleagues found that entrepreneurial competencies are positively related

with firm performances of SMEs located in Malaysia, and under dynamic environmental conditions, entrepreneurs minimize the negative effects of this dynamism so the relationship between entrepreneurial competencies, which is similar to entrepreneurial efficacy in young entrepreneurial firms, and firm performance gets even stronger. In the case of younger firms, which face the vulnerabilities of liability of newness (Stinchcombe, 1965), unstable environments may require the presence entrepreneurial efficacy inherent with the original owners. If researchers have already considered the importance of TMT routines with regard to performance and environment relationships (Bourgeois, 1980, March, 1991; Wiersema & Bantel, 1993), then it is logical to expect a moderating impact of environmental dynamism on the relationship between the TMT structure and firm performance. Within the context of this study, it is proposed that dynamism will determine how detrimental the changes in the TMT structure will be on firm performance. Therefore, the following hypothesis is constructed:

***H₇:** The relationship between the rate of change in TMT membership and operating performance will be exacerbated by environmental dynamism, such that the more dynamic the environment, the more detrimental the effects of a higher rate of change in TMT membership are on operating performance.*

The same logic also applies to the complexity dimension of the environment. First of all, complexity refers to the presence of heterogeneity in the environmental variables (Child, 1972, Duncan, 1972). According to Dess and Beard (1984), once the environment becomes more complex, it becomes harder for executives to perform their environmental scanning duties and to acquire resources from beyond the borders of the organization. Under complex conditions, firms have to cope with more inputs and outputs available in

the environment (Dess & Beard, 1984; Wiersema & Bantel, 1993) which also increases the need for well-structured strategies (Aldrich, 1979). For instance, Boyd (1995) recommends the practice of CEO duality in highly complex environments, although a long-term debate is ongoing among academicians about how effective duality is under normal conditions (Desai, Kroll & Wright, 2003). Covin and Slevin (1989) argue that, under hostile environmental conditions, which is the case in complex environments, firm performance is positively related with strategic postures. “Strategic posture can be broadly defined as a firm’s overall competitive orientation. A firm’s entrepreneurial-conservation orientation is indicative of its strategic posture” (Covin & Slevin, 1989:77). As discussed previously, a young small firm that just completed the IPO process is in need of greater inputs from the original founder entrepreneurs. Just like the pre-IPO success of the firm, the post-IPO success of the firm relies on how well they maintain their entrepreneurial efficacy. Thus, just like dynamism, environmental complexity should also behave as an interaction term on the relationship between the rate of change in TMT structure and firm performance. In fact, there is empirical evidence suggesting that environmental complexity moderates the relationship between strategy and firm performance (McArthur & Nystrom, 1991). Assuming that the level of complexity inherent in the environment remained constant from the pre- to post-IPO period, if the previous strategies of the smaller firm, enacted by original TMTs taking environmental complexity into consideration, were not working, it probably would not have been able to make it to the IPO stage. Once it completes the IPO, the small firm still needs the tacit knowledge provided by the original executives. For that reason, the following hypothesis is proposed:

H₈: *The relationship between the rate of change in TMT membership and operating performance will be exacerbated by environmental complexity, such that the more complex the environment, the more detrimental the effects of higher rates of change in the TMT membership on operating performance.*

The final dimension Dess and Beard (1984) mention is munificence. Environmental munificence refers to the environment's ability to support sustained growth (Aldrich, 1979; Dess & Beard, 1984; Goll & Rasheed, 1997). "Munificent environments support growth of resources within firms, providing a reserve against competitive and environmental threats" (Baum & Wally, 2003:1110). Casrogiovanni (1991:542) describes the lack or presence of munificence as "the scarceness or abundance of critical resources needed by (one or more) firms operating within an environment." Researchers acknowledge the fact that younger firms suffer from a lack of critical resources (Zahra & Filatotchev, 1994). Operating under less munificent conditions makes it even harder for such firms to function. In that case, the knowledge base provided by the original executives becomes more critical to deal with external conditions. Once the original structure is altered by the new owners, it is likely that the new executives will diminish the firm's capacity to deal with the lack of munificence. That means performance is likely to suffer. Goll and Rasheed (1997) find that rational decision making is associated more strongly with performance under highly munificent environments. Covin and Slevin (1989) associate munificence with benign environments and propose that a conservative strategic posture (in contrast with an entrepreneurial strategic posture) is needed for better performance under these conditions.

In addition to their findings about complexity, McArthur and Nystrom (1991) also demonstrate environmental munificence's moderating effect on the relationship between strategy and firm performance. In munificent environments, executives can use more discretion (Hambrick & Finkelstein, 1987, Walters et al., 2010). In the case of young entrepreneurial firms, more discretion is needed because the importance of making the "right choice" is heightened (Slevin & Covin, 1997) due to the limited availability of resources (Baum & Wally, 2003). Furthermore, it has been empirically found that munificence has a direct effect on firm performance (Bantel, 1998). Based on this discussion, environmental munificence may be expected to have a moderating effect on the relationship between rate of change in TMT membership and firm performance. The following hypothesis is constructed based on this expectation:

H₉: *The relationship between the rate of change in TMT membership and operating performance will be exacerbated by environmental munificence, such that the less munificent the environment, the more detrimental the effects of a higher rate of change in the TMT membership will be on operating performance.*

Referring to the initial model regarding the series of relationships, as depicted in Figure 1.1, the environment will not only have a moderating effect on the TMT structure and firm performance relationship, but one may also expect it to influence the relationship between board composition and firm performance. Environmental uncertainty is known to moderate the relationship between board composition and firm performance (Zahra & Pearce, 1989). It may not be necessary to repeat the theoretical background regarding the board composition and firm performance relationship. As a snapshot, researchers acknowledge the fact that the board of directors is one of the

primary determinants of a firm's performance (Daily & Dalton, 1992). It has also been proposed that directors are reflections of the owners (Fama & Jensen, 1983). Boards can provide the executives with new business concepts (Zahra & Pearce, 1989) and expertise (Carpenter & Westphal, 2001). Furthermore, some researchers also propose that, in smaller firms, it is better to retain the strategic decision making in the same individuals as the dominant coalition, which is composed of not only executives but also the directors (Certo et al., 2007), is more likely to positively affect firm performance if there is a shared vision (Nelson, 2003; Walters et al., 2010). In summary, firms operating in dynamic, complex and less munificent environments will need more input from their directors. The question is, do the new directors appointed by the new owners help to mitigate the agency problems as proposed by agency theory (Jensen & Meckling, 1976) or does reconfiguring the original board yield lower performance in the case of young entrepreneurial firms (Kroll et al., 2007)? Based on the underlying theme of this study, the following hypotheses are tested to answer this question:

H₁₀: *The relationship between the rate of change in board membership and operating performance will be exacerbated by environmental dynamism, such that the more dynamic the environment, the more detrimental the effects of higher rates of change in board composition on operating performance.*

H₁₁: *The relationship between the rate of change in board membership and operating performance will be exacerbated by environmental complexity, such that the more complex the environment, the more detrimental the effects of higher rates of change in board composition on operating performance.*

H₁₂: *The relationship between the rate of change in board membership and operating performance will be exacerbated by environmental munificence, such that the less munificent the environment, the more detrimental the effects of higher rates of change in board composition on operating performance.*

The next section summarizes the plan for addressing issues with regard to methodology such as data sources and data collection, potential variables, statistical methods and sample.

CHAPTER 3

SAMPLE AND METHODS

Sample

The sample that was used in this study was constructed using the SDC Database. This database is used to construct samples in IPO studies (Ljungqvist & Wilhelm, 2003; Kim, Pukthuanthong-Le, & Walker, 2008). IPO firms that went public between 2001 and 2005 were included in the study. The subsequent governance and accounting data was collected for each company which means that years 2002 to 2010 were included in the study (2002-2006 for companies that went public in 2001, 2003-2007 for companies that went public in 2002, 2004-2008 for companies that went public in 2003, 2005-2009 for companies that went public in 2004, 2006-2010 for companies that went public in 2005). The reason to choose 2001 as the initial year for this study was to avoid the potential impact of stock market fluctuations during 2000 (Walters et al., 2010). Also, focusing on multiple years is likely to reduce the effects of macroeconomic conditions of a specific year within the realm of my study (Nelson, 2003; Walters et al., 2010). Founding year of the company was also taken into account. As previously mentioned, the focus in this study was on young entrepreneurial firms. Based on the literature, a firm is considered young if it is founded within the previous ten-year period (Kroll et al., 2007). In that regard, IPO firms that were founded in year 1991 and forward were included in this study. By using this restriction, it is assumed that all the firms included in this study were

still in their young entrepreneurial phases (Eisenhardt & Schoonhoven, 1990; Carpenter et al., 2003). Financial sector companies, real estate funds and energy companies were eliminated as the legal requirements for such firms are different than other types of firms (Schnatterly, 2003).

The search on SDC database revealed that between Jan 1st 2001 and Dec 31st 2005, there were 320 IPO firms that were founded within the previous ten-year period. From that list, commercial banks, mutual funds, investment funds, credit agencies, real estate funds and energy companies were eliminated. Companies that were part of parent organizations, which were founded more than 10 years ago were also eliminated from the sample. The final sample consisted of 185 young entrepreneurial firms.

Prospectus information that contained governance and performance data were gathered from the SEC's Edgar database which is a popular source in IPO studies (Kroll et al., 2007). The other data source that was used to determine IPO and subsequent stock prices was the CRSP database. Accounting data was gathered from Research Insight and Disclosers databases. These databases were also used to collect the environmental data. In case there were any missing data, company websites were used as secondary data sources. Corporate governance information was accessed through annual reports published in the SEC Edgar Database and company websites.

Analytical Analysis

Variables

Dependent Variable

Firm Performance: A key dependent variable in this study was firm performance as the main theme of this dissertation was to assess the impact of corporate governance

changes following the IPO on firm performance. There are several performance variables used in the literature. One group of researchers adopt stock-market-based performance view (Zhang & Wiersema, 2009) and use variables tied to the stock performances of companies, like holding period returns or stock price growth, while others decide to use accounting-based measures (Morgan, Vorhies & Mason, 2009) such as return on assets (ROA), return on equity (ROE) or return on sales (ROS). In this study, both types of measures were used to measure firm performance. First, Tobin's Q was adopted as a market-based performance measure following other corporate governance-performance relationship based studies (Yermack, 1996; Wright et al., 2005; Orlando, Murthi & Kiran, 2007; King & Santor, 2008; Iyengar & Zampelli, 2009). Data for estimating Tobin's Q was collected from Compustat Research Insight Database. The calculation method adopted in this study is consistent with the method developed by Chung and Pruitt (1994). The formula is as follows:

$$\text{Tobin's } Q = (MV + PS + Debt) / TA.$$

MV refers to the total market value and is calculated by the product of a firm's share price and the number of shares outstanding. PS (if applicable) is the value of the preferred stock outstanding. Debt is the value of the firm's long-term debt and current liabilities minus the current assets. Finally, TA is the book value of the total assets. This estimation of Tobin's Q has been used in previous studies (Yermack, 1996; Wright et al., 1996; Wright et al., 2005).

The accounting-based performance measure adopted in this study was return on assets (ROA). ROA was calculated as net income divided by total assets. Rate of change in blockholder ownership, rate of change in board membership and new executive

appointees were also be used as dependent variables. Further information about them will be provided in the next section.

Independent Variables

Underpricing: Several variables have been used in finance literature to predict IPO performance. This study chose to employ underpricing as the primary determinant variable.

Underpricing is defined as the difference between a firm's IPO issue price and its first day closing price (Arthurs et al., 2008). The first day return, which was reported in CRSP database, was used as a proxy for underpricing. If this variable's value is positive then the IPO is successful from the company's standpoint in that investors initially paid more money than the company is worth. If the situation is reversed it means the first day closing price is higher than the initial offer price, so the company's shares were offered at a price less than the market's imputed value of the firm, and the management has left money on the table. When this happens, based on the arguments offered earlier, subsequent changes are expected in ownership structure and corporate governance mechanisms.

Rate of change in blockholder ownership: Blockholders are shareholders with five percent or more of the firm's outstanding shares (Kroll et al., 1997). The way the rate of change in blockholder ownership is operationalized is somewhat unique, but I believe is consistent with the main theme of this study. First the number of blockholders at period t is determined. Then, the number of blockholders at period $t+1$ is determined. In the next step, the number of new blockholders emerged at period $t+1$ is identified. Finally, the number of blockholders at $t+1$ is deducted from the summation of the number of

blockholders at t and the number of new blockholders at $t+1$ and then this value is divided by the number of blockholders at t . The mathematical representation is as follows:

$$\text{Rate of change in blockholders}_{t+1} = (\text{number of blockholders}_t + \text{number of new blockholders}_{t+1} - \text{number of blockholders}_{t+1}) / \text{number of blockholders}_t$$

By adopting this operationalization method, I considered replacement of original owners with new ones to be detrimental for the firms rather than the new owners securing controlling shares while the original owners are still in place.

TMT Membership: TMT membership is determined by looking at the prospectus and proxy statements. If a person is listed in the top executive's list on the corresponding document than he or she is considered a member of the top management team (Cohen & Dean, 2005). These data was collected for the IPO date and the five years following the IPO date. The rate of change methodology mentioned above could not be used to calculate the rate of change in TMT since the data about executives reported in annual proxy statements is not as reliable as it is for the members of the boards of directors. In the next chapter, this is situation is demonstrated through an example. Instead of the rate of change variable, I used the number of new executive appointees as a proxy for changes in TMT.

Rate of change in board membership: Board membership is determined by looking at the prospectus and proxy statements as well. If the person is listed as a director then he or she is considered a member of the board. As with TMT membership, these data was collected for the IPO date and the five years following the IPO date. The way the rate of change variable is operationalized is very similar to the methodology adopted

for calculating the rate of change in ownership structure. This time, number of directors at period $t+1$ is determined. In the second step, the number of new directors at period $t+2$ and the number of directors at $t+2$ are identified. The number of directors at $t+2$ is deducted from the summation of the number of directors at $t+1$ and the new number of directors at $t+1$. The result is divided into number of directors at $t+1$ to calculate the rate of change. The mathematical representation is as follows:

$$\text{Rate of change in directors}_{t+2} = (\text{number of directors}_{t+1} + \text{number of new directors}_{t+2} - \text{number of directors}_{t+2}) / \text{number of directors}_{t+1}$$

It should be noted, once the original directors are replaced by new directors, I believe the entrepreneurial efficacy is diminished. The above method of calculating rate of change accounts for that situation and is also consistent with the general theme of this study.

Moderating Variables

Various dimensions of the external environment are moderating variables in this study, as in earlier related studies (Walters et al., 2010). As mentioned before, according to Dess and Beard (1984) there are three dimensions of environment. These are *munificence*, *dynamism* and *complexity*. Several methods have been used in the literature to calculate these three variables (Walters et al., 2010). In this study, I chose to adopt the methods used by Palmer and Wiesman (1999) to calculate the *environmental complexity* variable. It is calculated by dividing the aggregate sales of the four largest firms in each corresponding industry by the total sales of that industry where the industry is identified by the three-digit SIC code. Industry concentration was used to account for *environmental dynamism*. This variable was calculated by dividing the aggregate of the

sales figures reported for the four largest companies in an industry divided by the aggregate sales of the industry from the prior two year period where industry is determined by the four-digit SIC codes (Carpenter & Westphal, 2001). Finally, *environmental munificence* was calculated by the average industry sales growth rate during the five-year period where industry was once again determined by the four-digit SIC codes (Wiersman & Bantel, 1993; Carpenter & Westphal, 2001). All of the sales values were gathered from the Compustat database.

Control Variables

Several control variables were included in this study. As investors may perceive less risk associated with IPOs underwritten by prestigious underwriters (Carter, Frederick & Singh, 1998) underwriter reputation is likely to affect IPO returns (Beatty & Ritter, 1986; Bruton et al., 2010). Carter et al. (1998) analyzed several measures of underwriter reputation and concluded that all of them are correlated with IPO performance. Two primary measures Carter and his colleagues specify are: the CM measure developed by Carter and Manaster (1990), and the MW measure developed by Megginson and Weiss (1991). This study adopted the CM measure, which uses the relative position of an underwriter with the highest rating of nine. This data was readily available online at Professor Jay Ritter's web-site (bear.warrington.ufl.edu/ritter/ipodata.htm).

Demographic variables are known to impact firm performance (Cohen & Dean, 2005; Higgins & Gulati, 2006). For instance, researchers showed that demographic variables like TMT and director age can determine the risk propensity of those individuals (Hambrick & Mason, 1984). In addition, education is shown to be positively related with innovation capabilities of a firm (Bantel & Jackson, 1989), and industry

experience is found to be positively related with organizational growth (Eisenhardt & Schoonhoven, 1990). All these variables were used as control variables in the below mentioned models. The size of a firm is also likely to be a determinant factor of firm performance and corporate governance practices (Dorata & Petra, 2008). Thus, firm size, measured by the natural log of sales, was used as a control variable as it has been included in previous studies (Miller, 1991; Carpenter, 2002). In order to account for prior firm performance on IPO performance (Walters et al., 2010), return to shareholders and return on assets were used as proxy variables (McDonald, Khanna & Westphal, 2008). Venture capitalist presence is known to lower initial returns of an IPO and subsequent firm performance (Meggison & Weiss, 1991) and also likely to serve as a signaling mechanism for publicly traded companies (Sanders & Boivie, 2004) so a dummy variable was used to account for venture capitalist presence at the time of the IPO. Number of executives and directors were used to account for possible effects for TMT and board size on firm performance (Liu, Atinc & Kroll, 2011). Findings about duality are inconsistent and the debate is going on for some time (Desai et al., 2003). Some scholars found duality to be beneficial for firm performance (Davis, Shurman & Donaldson, 1997; Braun & Sharma, 2007) while others recommend the separation of chairman and chief executive positions (Rechner & Dalton, 1991). In this study, duality is controlled for and operationalized with a dummy variable. Although my sample is composed of primarily American-based firms, there are also some foreign-based IPOs. In order to account for possible effects of firm nationality (Bruner, Chaplinsky & Ramchand, 2004), a dummy variable is used as a control variable. Finally, founder effects on IPO performance and subsequent firm performance have been shown to be

positive in previous studies (Brennan & Franks, 1997; Filatotchev & Bishop, 2002). In this study, presence of founder as a blockholder at the time of the IPO and as either as a chairman or as a CEO during the post-IPO stage are used as control variables in various models mentioned below.

Methods

The statistical methods to be used in this study are hierarchical linear regression and ANOVA. Several different regression models were developed to test the previously mentioned hypotheses. Below are these models:

Rate of change blockholder ownership_(t+1) = $\beta_0 + \beta_1$ Underpricing_(t) + β_2 Firm Size + β_3 Firm Nationality + β_4 Venture capitalists presence + β_5 Founder Presence + β_6 Underwriter prestige
(Expected sign of β_1 is + with statistical significance),

Number of new executive appointees_(t+2) = $\beta_0 + \beta_1$ Rate of change in blockholder ownership_(t+1) + β_2 Firm Size + β_3 Firm Nationality + β_4 Duality + β_5 Firm performance + β_6 TMT size (Expected sign of β_1 is + with statistical significance),

Rate of change in board membership_(t+2) = $\beta_0 + \beta_1$ Rate of change in blockholder ownership_(t+1) + β_2 Firm Size + β_3 Firm Nationality + β_4 Duality + β_5 Firm performance + β_6 Board size
(Expected sign of β_1 is + with statistical significance),

Number of new executive appointees_(t+3) = $\beta_0 + \beta_1$ Rate of change in board of directors_(t+2) + β_2 Firm Size + β_3 Firm Nationality + β_4 Duality + β_5 Firm performance
(Expected sign of β_1 is + with statistical significance),

Tobin's Q_(t+3) = $\beta_0 + \beta_1$ Number of new executive appointees_(t+2) + β_2 Number of new executive appointees_(t+2) X dynamism_(t+2) + β_3 Number of new executive appointees_(t+2) X complexity_(t+2) + β_4 Number of new executive appointees_(t+2) X Munificence_(t+2) + β_5 Firm Size + β_6 Firm Nationality + β_7 Duality + β_8 Firm performance + β_9 Percentage of executives with prior industry experience + β_{10} Average age of executives + β_{11} Executives with advanced graduate degrees + β_{12} Founder as the CEO
(Expected signs of β_1 , β_2 and β_3 are + and β_4 is - with statistical significance),

$ROA_{(t+3)} = \beta_0 + \beta_1 \text{Number of new executive appointees}_{(t+2)} + \beta_2 \text{Number of new executive appointees}_{(t+2)} \times \text{dynamism}_{(t+2)} + \beta_3 \text{Number of new executive appointees}_{(t+2)} \times \text{complexity}_{(t+2)} + \beta_4 \text{Number of new executive appointees}_{(t+2)} \times \text{Munificence}_{(t+2)} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Nationality} + \beta_7 \text{Duality} + \beta_8 \text{Firm performance} + \beta_9 \text{Percentage of executives with prior industry experience} + \beta_{10} \text{Average age of executives} + \beta_{11} \text{Executives with advanced graduate degrees} + \beta_{12} \text{Founder as the CEO}$
 (Expected signs of β_1 , β_2 and β_3 are + and β_4 is - with statistical significance),

$\text{Tobin's } Q_{(t+3)} = \beta_0 + \beta_1 \text{Rate of change in board of directors}_{(t+2)} + \beta_2 \text{Rate of change in board of directors}_{(t+2)} \times \text{dynamism}_{(t+2)} + \beta_3 \text{Rate of change in board of directors}_{(t+2)} \times \text{complexity}_{(t+2)} + \beta_4 \text{Rate of change in board of directors}_{(t+2)} \times \text{Munificence}_{(t+2)} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Nationality} + \beta_7 \text{Duality} + \beta_8 \text{Firm performance} + \beta_9 \text{Percentage of directors with prior industry experience} + \beta_{10} \text{Average age of directors} + \beta_{11} \text{Directors with advanced graduate degrees} + \beta_{12} \text{Founder as the chairman}$
 (Expected signs of β_1 , β_2 and β_3 are + and β_4 is - with statistical significance),

$ROA_{(t+3)} = \beta_0 + \beta_1 \text{Rate of change in board of directors}_{(t+2)} + \beta_2 \text{Rate of change in board of directors}_{(t+2)} \times \text{dynamism}_{(t+2)} + \beta_3 \text{Rate of change in board of directors}_{(t+2)} \times \text{complexity}_{(t+2)} + \beta_4 \text{Rate of change in board of directors}_{(t+2)} \times \text{Munificence}_{(t+2)} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Nationality} + \beta_7 \text{Duality} + \beta_8 \text{Firm performance} + \beta_9 \text{Percentage of directors with prior industry experience} + \beta_{10} \text{Average age of directors} + \beta_{11} \text{Directors with advanced graduate degrees} + \beta_{12} \text{Founder as the chairman}$
 (Expected signs of β_1 , β_2 and β_3 are + and β_4 is - with statistical significance),

$\text{Tobin's } Q_{(t+4)} = \beta_0 + \beta_1 \text{Number of new executive appointees}_{(t+3)} + \beta_2 \text{Number of new executive appointees}_{(t+3)} \times \text{dynamism}_{(t+3)} + \beta_3 \text{Number of new executive appointees}_{(t+3)} \times \text{complexity}_{(t+3)} + \beta_4 \text{Number of new executive appointees}_{(t+3)} \times \text{Munificence}_{(t+3)} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Nationality} + \beta_7 \text{Duality} + \beta_8 \text{Firm performance} + \beta_9 \text{Percentage of executives with prior industry experience} + \beta_{10} \text{Average age of executives} + \beta_{11} \text{Executives with advanced graduate degrees} + \beta_{12} \text{Founder as the CEO},$

$ROA_{(t+4)} = \beta_0 + \beta_1 \text{Number of new executive appointees}_{(t+3)} + \beta_2 \text{Number of new executive appointees}_{(t+3)} \times \text{dynamism}_{(t+3)} + \beta_3 \text{Number of new executive appointees}_{(t+3)} \times \text{complexity}_{(t+3)} + \beta_4 \text{Number of new executive appointees}_{(t+3)} \times \text{Munificence}_{(t+3)} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Nationality} + \beta_7 \text{Duality} + \beta_8 \text{Firm performance} + \beta_9 \text{Percentage of executives with prior industry experience} + \beta_{10} \text{Average age of executives} + \beta_{11} \text{Executives with advanced graduate degrees} + \beta_{12} \text{Founder as the CEO},$

$\text{Tobin's } Q_{(t+5)} = \beta_0 + \beta_1 \text{Number of new executive appointees}_{(t+4)} + \beta_2 \text{Number of new executive appointees}_{(t+4)} \times \text{dynamism}_{(t+4)} + \beta_3 \text{Number of new executive appointees}_{(t+4)} \times \text{complexity}_{(t+4)} + \beta_4 \text{Number of new executive appointees}_{(t+4)} \times \text{Munificence}_{(t+4)} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Nationality} + \beta_7 \text{Duality} + \beta_8 \text{Firm performance} + \beta_9 \text{Percentage of executives with prior industry experience} + \beta_{10} \text{Average age of executives} + \beta_{11} \text{Executives with advanced graduate degrees} + \beta_{12} \text{Founder as the CEO}$
 (Expected signs of β_1 , β_2 and β_3 are + and β_4 is - with statistical significance),

$ROA_{(t+5)} = \beta_0 + \beta_1 \text{Number of new executive appointees}_{(t+4)} + \beta_2 \text{Number of new executive appointees}_{(t+4)} \times \text{dynamism}_{(t+4)} + \beta_3 \text{Number of new executive appointees}_{(t+4)} \times \text{complexity}_{(t+4)} + \beta_4 \text{Number of new executive appointees}_{(t+4)} \times \text{Munificence}_{(t+4)} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Nationality} + \beta_7 \text{Duality} + \beta_8 \text{Firm performance} + \beta_9 \text{Percentage of executives with prior industry experience} + \beta_{10} \text{Average age of executives} + \beta_{11} \text{Executives with advanced graduate degrees} + \beta_{12} \text{Founder as the CEO}$
 (Expected signs of β_1 , β_2 and β_3 are + and β_4 is - with statistical significance),

Tobin's $Q_{(t+4)} = \beta_0 + \beta_1 \text{Rate of change in board of directors}_{(t+3)} + \beta_2 \text{Rate of change in board of directors}_{(t+3)} \times \text{dynamism}_{(t+3)} + \beta_3 \text{Rate of change in board of directors}_{(t+3)} \times \text{complexity}_{(t+3)} + \beta_4 \text{Rate of change in board of directors}_{(t+3)} \times \text{Munificence}_{(t+3)} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Nationality} + \beta_7 \text{Duality} + \beta_8 \text{Firm performance} + \beta_9 \text{Percentage of directors with prior industry experience} + \beta_{10} \text{Average age of directors} + \beta_{11} \text{Directors with advanced graduate degrees} + \beta_{12} \text{Founder as the chairman,}$

$ROA_{(t+4)} = \beta_0 + \beta_1 \text{Rate of change in board of directors}_{(t+3)} + \beta_2 \text{Rate of change in board of directors}_{(t+3)} \times \text{dynamism}_{(t+3)} + \beta_3 \text{Rate of change in board of directors}_{(t+3)} \times \text{complexity}_{(t+3)} + \beta_4 \text{Rate of change in board of directors}_{(t+3)} \times \text{Munificence}_{(t+3)} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Nationality} + \beta_7 \text{Duality} + \beta_8 \text{Firm performance} + \beta_9 \text{Percentage of directors with prior industry experience} + \beta_{10} \text{Average age of directors} + \beta_{11} \text{Directors with advanced graduate degrees} + \beta_{12} \text{Founder as the chairman,}$

Tobin's $Q_{(t+5)} = \beta_0 + \beta_1 \text{Rate of change in board of directors}_{(t+4)} + \beta_2 \text{Rate of change in board of directors}_{(t+4)} \times \text{dynamism}_{(t+4)} + \beta_3 \text{Rate of change in board of directors}_{(t+4)} \times \text{complexity}_{(t+4)} + \beta_4 \text{Rate of change in board of directors}_{(t+4)} \times \text{Munificence}_{(t+4)} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Nationality} + \beta_7 \text{Duality} + \beta_8 \text{Firm performance} + \beta_9 \text{Percentage of directors with prior industry experience} + \beta_{10} \text{Average age of directors} + \beta_{11} \text{Directors with advanced graduate degrees} + \beta_{12} \text{Founder as the chairman, and}$

$ROA_{(t+5)} = \beta_0 + \beta_1 \text{Rate of change in board of directors}_{(t+4)} + \beta_2 \text{Rate of change in board of directors}_{(t+4)} \times \text{dynamism}_{(t+4)} + \beta_3 \text{Rate of change in board of directors}_{(t+4)} \times \text{complexity}_{(t+4)} + \beta_4 \text{Rate of change in board of directors}_{(t+4)} \times \text{Munificence}_{(t+4)} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Nationality} + \beta_7 \text{Duality} + \beta_8 \text{Firm performance} + \beta_9 \text{Percentage of directors with prior industry experience} + \beta_{10} \text{Average age of directors} + \beta_{11} \text{Directors with advanced graduate degrees} + \beta_{12} \text{Founder as the chairman.}$

CHAPTER 4

PRESENTATION OF DATA ANALYSIS

This chapter reports the results of the empirical analysis. In the first section, the descriptive statistics and correlations are reported together with information about the sample. In the second part, results of several statistical procedures are presented for hypotheses testing.

Descriptive Statistics and Correlation

Before getting into the details of the descriptive statistics, it may be useful to provide some information about the sample. Table 4.1 is presented for this purpose. As mentioned in Chapter 3, using the SDC Database, firms that went public in 2001-2005 were identified. Among those firms, only the ones that were founded within the 10-year period prior to the IPO date were chosen as previous researchers had done (Kroll et al., 2007). Among the 320 companies that were identified, commercial banks, mutual funds, investment banks, investment funds, credit agencies, real estate funds, and energy companies are eliminated as they are faced with unusual legal requirements of going public owing to their operational and/or regulatory uniqueness (Schnatterly, 2003). The companies that were part of parent organizations, which were founded more than 10 years ago, were also eliminated.

Table 4.1 About the Sample

<i>Variable</i>		<i>Frequency</i>	<i>Percent</i>				
IPO Year	<i>2001</i>	23	12.4				
	<i>2002</i>	15	8.1				
	<i>2003</i>	17	9.2				
	<i>2004</i>	81	43.8				
	<i>2005</i>	49	26.5				
Nationality	<i>American</i>	185	83.8				
	<i>Foreign</i>	39	16.2				
Venture Capitalist Presence		126	70				
Founder Presence		76	41.1				
		<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>			
Percentage of outside directors		0.000	100.000	74.030			
	<i>IPO</i>	0.160	90.070	40.170			
	<i>First Year</i>	1.200	88.900	33.750			
Percentage of shares owned by executives and directors	<i>Second Year</i>	1.000	89.300	26.680			
	<i>Third Year</i>	1.000	87.900	21.420			
	<i>Fourth Year</i>	1.000	92.400	19.200			
	<i>Fifth Year</i>	1.000	92.600	16.130			
First day Return (underpricing)		-22.670	85.670	1.920			
Board Size IPO		2.000	14.000	7.220			
TMT Size IPO		2.000	17.000	6.160			
	<i>First Year</i>	<i>Second Year</i>	<i>Third Year</i>	<i>Fourth Year</i>	<i>Fifth Year</i>	<i>Total</i>	<i>Percentage</i>
Acquired	3	3	8	7	5	26	14.1
Merged	0	5	4	8	6	23	12.4
Delisted	0	1	2	8	3	14	7.6
Total	3	9	14	23	14	63	34.1

Table 4.1 (Continued)

SIC CODE	Frequency	Percent	SIC CODE	Frequency	Percent
2020	1	0.5	5031	1	0.5
2329	1	0.5	5047	1	0.5
2800	1	0.5	5065	1	0.5
2834	26	14.1	5140	1	0.5
2835	2	1.1	5511	1	0.5
2836	4	2.2	5712	1	0.5
2869	1	0.5	5812	2	1.1
3272	1	0.5	5944	2	1.1
3480	1	0.5	5947	1	0.5
3571	2	1.1	5961	1	0.5
3572	1	0.5	5984	1	0.5
3577	1	0.5	7011	1	0.5
3589	1	0.5	7200	1	0.5
3646	1	0.5	7311	1	0.5
3651	1	0.5	7319	1	0.5
3661	3	1.6	7320	1	0.5
3672	1	0.5	7361	1	0.5
3674	18	9.7	7370	1	0.5
3690	1	0.5	7371	5	2.7
3714	1	0.5	7372	15	8.1
3812	1	0.5	7373	5	2.7
3841	11	5.9	7374	4	2.2
3842	1	0.5	7375	1	0.5
3843	1	0.5	7379	2	1.1
3845	5	2.7	7380	1	0.5
3955	1	0.5	7381	1	0.5
3990	1	0.5	7389	11	5.9
4213	1	0.5	7812	1	0.5
4400	1	0.5	7990	1	0.5
4412	4	2.2	8011	1	0.5
4512	1	0.5	8062	1	0.5
4813	6	3.2	8082	2	1.1
4822	1	0.5	8200	1	0.5
4833	1	0.5	8731	3	1.6
4899	1	0.5	8734	1	0.5
5015	1	0.5	8742	2	1.1

The final sample consisted of 185 companies. 12.4 percent of the companies in my sample went public in 2001, while 8.1 percent in 2002, 9.2 percent in 2003, 43.8 percent in 2004 and 26.5 percent of the sample companies went public in 2005. Among those companies, 155 (84 percent) were American based and 30 (16 percent) were foreign based. Looking at industry representation, 72 different SIC codes are represented with none of the industries representing more than 14.1 percent of the sample (SIC 2834-Pharmaceutical Preparations represented 14.1 percent of the sample).

While the time span chosen for this study is 2001-2005, a significant number of the companies that went public were not active for the whole five-year period (34.1 percent). Out of the 185 companies, 26 of them were acquired (14.1 percent) by another company, 23 of them merged with another company (12.4) and 14 of them were delisted voluntarily or due to bankruptcy (7.6 percent). Out of these 63 companies, 3 companies (1.6 percent) in 2001, 9 companies (4.9 percent) in 2002, 14 companies (7.6 percent) in 2003, 23 companies (12.4 percent) in 2004 and 14 companies (7.6 percent) in 2005 got acquired or were involved in merger or got delisted. Three companies were acquired within the first year while none of the companies merged with another company or got delisted during the first year. Although identifying the reasons behind why the firms were acquired, merged or delisted is beyond the scope of this study, observing this many companies being lost from the sample is worthy of note and warrants attention by future researchers of this field.

Due to recent SEC regulations and the Sarbanes Oxley Act of 2002 and exchange listing requirements, publicly traded companies are now required to have at least 50 percent of their directors be independent outsiders (Peng, 2004). This explains why none

of the companies had less than 50 percent board vigilance. Surprisingly, the average percentage of outside directors on the board was 74 percent. Almost 70 percent of the companies had venture capitalist backing as shown in previous research (Bruton et al., 2010) and 41 percent of the companies reported their founder to be a member of the board of directors when the firm went public. The average percentage of shares owned by current executives and directors declined from 40 percent at the IPO to 16 percent by the fifth year following the IPO. This finding is similar to previous research (Certo, 2003) and supports my proposal concerning changes in the ownership structure of IPO firms following the IPO process. The average first day returns was 1.9 percent with a low of 22.7 percent loss and a maximum of 85 percent gain. The average board size was seven directors and the average TMT size was six executives which also coincides with previously conducted studies (Carpenter et al., 2003). I believe that all of the above information can be considered as support for the reliability of the data collection procedure. I now turn to a discussion of the descriptive statistics and correlations.

Table 4.2 reports the descriptive statistics and Pearson correlations among the variables included in this study. As seen from this table, there were 44 variables included as dependent, independent or control variables in different ANOVA or ordinary least square procedures. Starting with the first variable, return on first day trading, and the mean value is 1.9 percent. Looking at the bivariate correlations of this variable with the other variables, we observe that, change in ownership ($\rho=0.141, p<.10$), venture capitalist presence ($\rho=0.158, p<.05$), rate of change in blockholder ownership at $t+1$ ($\rho=0.170, p<.05$), rate of change in board of directors at $t+2$ ($\rho=0.133, p<.10$) are positively related with underpricing.

Table 4.2 Descriptive Statistics and Pearson Correlations

Variable Name	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Return on first day (underpricing)	0.01920	0.11786															
2 Change in ownership (dummy)	0.1111	0.3027	0.141†														
3 Firm Size	10.56796	2.17751	0.076	0.106													
4 Nationality of the firm (dummy)	0.8784	0.36960	0.010	0.036	-0.169												
5 VC presence (dummy)	0.7070	0.45954	0.158	0.255	-0.113	0.130†											
6 Founder presence	0.41081	0.49332	0.073	0.027	0.066	0.080	-0.086										
7 Underwriter prestige	7.23340	3.41448	0.092	0.102	0.061	0.254	0.324	0.047									
8 RC in blockholder ownership (t+1)	0.20643	0.25719	0.170	0.778	0.193	-0.108	0.155	0.004	-0.058								
9 Rate of change in directors (t+2)	0.19480	0.24880	0.137†	0.175	0.097	0.114	0.179	0.113	0.082	0.187							
10 Duality	0.44809	0.49866	0.080	0.003	0.032	-0.106	0.028	0.176	-0.013	0.068	-0.063						
11 ROA t+1	-0.172340	0.30681	0.047	-0.015	0.506	-0.224	-0.100	0.085	0.062	0.088	-0.014	0.041					
12 Number of Directors t+1	7.35519	1.72556	0.025	0.015	0.219	0.023	0.121	0.249	0.202	0.029	0.125†	0.135†	0.032				
13 Number of new executive appointees (t+2)	1.12644	1.22408	0.020	0.070	0.163	0.007	0.138†	0.101	0.097	-0.118	0.047	0.044	0.096	0.062			
14 Number of Executives (IPO)	6.15847	2.32805	0.001	0.036	0.137†	-0.033	0.161	-0.033	0.138†	0.024	-0.047	-0.016	0.033	0.192	0.122		
15 Number of new executive appointees (t+3)	1.29375	1.3716	0.071	0.058	0.200	0.184	0.065	0.002	0.098	0.080	0.154†	0.085	0.079	0.130	0.201	0.159	
16 Rate of change in directors (t+1)	0.10526	0.16196	0.058	0.215	-0.083	0.086	0.037	0.027	0.082	0.247	0.185	0.022	0.139†	0.093	-0.204	0.115	0.064
17 Rate of change in directors (t+3)	0.1759	0.37577	0.012	0.008	0.057	0.048	0.164	-0.116	0.040	0.053	0.049	-0.012	-0.017	0.005	-0.007	-0.079	0.072
18 Rate of change in directors (t+4)	0.22716	0.32076	0.082	-0.130	-0.199	0.023	0.038	0.036	0.230	-0.065	0.019	0.115	0.283	0.021	0.029	0.090	-0.008
19 Rate of change in directors (t+5)	0.22014	0.33166	0.071†	0.107	-0.141	0.010	0.117	0.029	-0.006	0.108	0.052	-0.012	-0.094	0.157†	0.095	0.054	0.112
20 RC in blockholder ownership (t+2)	0.36344	0.31262	0.005	0.193	-0.035	-0.033	0.163	0.034	0.075	0.132†	0.186	-0.023	0.022	-0.200	0.042	0.138†	0.070
21 RC in blockholder ownership (t+3)	0.37834	0.34014	0.135†	0.125	0.095	0.083	0.138	0.022	-0.090	0.137†	0.009	0.068	-0.003	-0.075	0.053	0.018	-0.025
22 RC in blockholder ownership (t+4)	0.36469	0.32115	0.014	0.047	0.128	0.042	0.211	-0.035	0.019	0.032	0.110	-0.111	0.076	-0.113	0.133	0.241	0.055

Table 4 2 (Continued)

Variable Name	Mean	S D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
23 RC in blockholder ownership (t+5)	0.39042	0.33207	0.51	0.65	0.34	1.48	0.35	-0.06	0.07	0.29	0.05	-0.170†	-0.021	-0.045	0.11	0.09	-0.046
24 Number of new executive appointees (t+1)	0.72770	1.19387	0.31	1.21	0.45	0.85	0.01	0.25	-0.186	2.24	-0.008	0.28	-0.017	0.069	-0.085	4.58	1.41†
25 Number of new executive appointees (t+4)	1.93617	0.1343	-0.082	0.25	1.58†	-0.776	-0.111	1.08	0.98	0.15	1.44†	0.85	0.219	1.25	1.05	0.97	3.56
26 Number of new executive appointees (t+5)	0.98261	1.2093	-0.023	0.76	1.47	0.247	-0.004	0.40	0.30	0.21	1.36	1.03	1.02	0.84	0.24	0.60	2.94

N=125 185 1<10 *p<05 **p<01 Variables are presented in the order they appear in the analyses

Variable Name	Mean	S D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
27 Tobin's Q t	3.225	6.143	0.022	0.087	0.128	0.094	0.050	0.002	0.043	0.007	0.088	0.097	2.83**	-0.072	-0.154†	-0.086	0.160†
28 Tobin's Q t+4	2.467	1.84	0.070	0.057	2.29**	1.98*	0.041	0.149†	0.083	0.035	-0.109	0.001	0.109	-0.108	-0.155†	0.004	0.124
29 Tobin's Q t+5	1.935	1.564	-0.034	0.073	2.25	2.85**	0.025	0.079	0.150†	0.044	0.126	0.014	-0.153†	-0.013	-0.201*	0.171†	0.065
30 ROA t	21.906	1.6477	0.044	0.048	1.55*	0.094	0.051	0.076	0.014	0.022	0.121	0.075	3.44**	-0.002	0.107	0.100	0.109
31 ROA t+4	49.976	2.0138	0.044	0.066	2.52*	0.109	0.104	0.133	0.006	0.031	-0.006	0.044	3.68**	-0.040	0.136†	0.024	0.100
32 ROA t+5	37.421	1.36487	0.120	0.068	3.03**	0.140	0.053	0.102	0.021	-0.010	0.155†	0.075	6.47**	0.040	0.097	0.034	0.036
Total Shareholder Return 1 Year	2.737	6.6009	0.042	0.006	0.132	0.003	0.078	0.028	-0.015	-0.001	1.89*	0.096	1.63*	-0.009	-0.004	0.008	-0.036
34 Percentage of directors with prior industry experience	0.688	0.314	0.049	0.091	2.49*	0.090	0.026	-0.059	0.072	-0.056	0.022	-0.193**	0.131†	-0.048	-0.030	-0.056	-0.058
35 Average age of directors	49.867	5.014	-0.120	-0.020	-0.131†	2.26**	-0.103	1.56	-0.097	0.049	0.059	0.033	-0.176*	0.087	0.059	0.056	-0.136†
36 Education prestige (directors)	0.859	0.348	0.092	0.025	2.00**	0.094	0.088	0.116	0.023	0.049	0.097	-0.137	-0.061	0.029	0.083	-0.006	0.019
37 Founder Chairman (dummy)	0.30	0.471	1.68	-0.016	-0.059	-0.097	0.026	5.13**	-0.007	-0.005	-0.003	3.66**	0.049	-0.090	0.060	-0.073	-0.141†
38 Environmental Dynamism	0.055	0.053	0.002	0.072	0.033	0.066	0.058	0.046	0.001	-0.053	-0.052	0.087	0.017	0.115	0.108	-0.099	0.004
39 Environmental Complexity	0.478	0.190	0.002	0.026	1.99**	0.131†	-0.248**	0.065	0.036	0.00	0.120	0.024	0.091	-0.026	-0.004	-0.073	-0.014
40 Environmental munificence	0.042	0.047	0.028	0.114	-0.12**	-0.026	0.118	-0.069	0.046	-0.133†	-0.099	-0.078	-0.045	-0.103	-0.049	-0.042	-0.075
41 Percentage of executives with prior industry experience	0.799	0.28	-0.060	-0.013	-0.062	5.0*	0.029	-0.051	0.071	-0.004	-0.053	-0.195**	0.074	1.54*	-0.081	-0.035	-0.060

Table 4.2 (Continued)

Variable Name	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
42 Average age of executives	44.742	6.866	-.198**	-0.074	-0.098	.230**	-0.065	-.199**	-0.100	-0.060	-0.045	-0.008	-.253**	.169*	0.017	-0.047	-.254**
43 Education prestige (executives)	0.832	0.374	0.082	0.070	-.224**	-0.080	.183*	0.110	0.005	0.030	0.051	-.179*	0.045	0.042	0.135†	.150*	0.042
44 Founder CEO (dummy)	0.344	0.477	0.097	0.047	-.169*	-.178*	-0.066	.469**	-0.072	-0.020	-0.060	.320**	0.091	-.164*	-0.095	-0.028	-0.139†

N=125-185 †< .10, *p<.05, **p<.01 Variables are presented in the order they appear in the analyses

Variable Name	16	17	18	19	20	21	22	23	24	25	26	
45 Rate of change in directors (t+1)												
46 Rate of change in directors (t+3)		-0.078†										
47 Rate of change in directors (t+4)		0.133	0.031									
48 Rate of change in directors (t+5)		0.058	0.007	0.092								
49 RC in blockholder ownership (t+2)		0.120	-0.051	-0.048	0.060							
50 RC in blockholder ownership (t+3)		-0.007	0.116	.158*	0.140	0.147†						
51 RC in blockholder ownership (t+4)		-0.042	0.035	.182*	0.067	.171*	.201*					
52 RC in blockholder ownership (t+5)		0.069	-0.072	0.046	.408**	0.158†	0.159†	0.120				
53 Number of new executive appointees (t+1)		.340**	-0.081	-0.074	.195*	0.122	0.083	0.105	0.100			
54 Number of new executive appointees (t+4)		0.057	0.075	0.032	0.032	-0.096	-0.130	-0.007	-0.152†	0.040		
55 Number of new executive appointees (t+5)		0.013	0.064	0.032	.295**	.185*	0.007	0.063	0.056	0.079	.307**	
56 Tobin's Q t+3		0.001	-0.137†	-0.032	-0.109	0.060	-0.068	0.078	-0.145	-0.027	-0.126	-0.081
57 Tobin's Q t+4		0.056	-0.134	-0.088	-.183*	-0.040	0.073	0.002	-0.069	0.119	-0.122	0.024
58 Tobin's Q t+5		0.027	-0.088	-0.042	-0.095	-0.033	0.123	-0.056	-0.040	.212*	-0.122	0.054
59 ROA t+3		0.020	0.010	-0.022	0.031	-0.039	0.101	-0.060	0.098	0.033	0.107	0.093
60 ROA t+4		0.031	0.038	-.205*	0.034	0.054	0.103	-0.028	0.061	0.045	0.127	0.112
61 ROA t+5		0.005	0.040	-.353**	0.037	0.058	0.148	0.139	-0.089	0.053	0.106	0.048
62 Total Shareholder Return 1 Year		0.066	-0.090	-.238**	0.050	0.118	-0.070	-0.155†	0.085	-0.011	-0.084	0.057
63 Percentage of directors with prior industry experience		-0.073	-0.033	-0.098	-0.051	-0.048	0.051	-0.105	0.028	-0.104	-0.074	-0.118
64 Average of age directors		-.203**	-0.036	0.089	-0.022	-0.051	0.056	-0.061	0.134	-0.105	-.220**	-0.096
65 Education prestige (directors)		0.126†	0.000	0.034	0.151†	0.091	-0.025	-0.074	-0.012	0.108	0.106	0.091
66 Founder Chairman (dummy)		0.052	-0.131†	-0.073	0.046	-0.047	-0.009	-.180*	-.189*	-0.022	0.078	0.125
67 Environmental Dynamism		-0.074	0.072	0.008	-0.087	-0.089	-0.102	-0.043	-0.142	-0.017	0.041	.213*
68 Environmental Complexity		0.033	-0.144†	0.044	0.016	-0.035	-0.052	-0.029	0.069	-0.024	-0.157	0.140
69 Environmental munificence		-0.038	0.084	0.020	-.183*	-0.066	0.045	-0.058	-0.009	0.004	-0.040	-0.002
70 Percentage of executives with prior industry experience		-.149*	0.127†	0.047	-0.005	-0.004	0.060	0.068	-0.099	-.174*	-0.080	0.004
71 Average age of executives		-0.121	-0.049	.181*	0.022	-0.016	-0.010	-0.072	0.136	-0.086	-.234**	-0.091
72 Education prestige (executives)		0.064	0.102	-0.056	0.124	0.054	0.093	0.089	0.025	.182*	0.047	0.030
73 Founder CEO (dummy)		0.070	-0.114	-0.060	0.039	-0.017	0.009	-.210*	-0.133	0.024	0.151	0.005

N=125-185 †< .10, *p<.05, **p<.01 Variables are presented in the order they appear in the analyses

Table 4.2 (Continued)

Variable Name	27	28	29	30	31	32	33	34	35	36	37	38	39	40
74 Tobin's Q t+3														
75 Tobin's Q t+4	.226**													
76 Tobin's Q t+5	0.103	.635**												
77 ROA t+3	-.909**	0.002	0.033											
78 ROA t+4	-.669**	0.049	-0.017	.764**										
79 ROA t+5	0.003	0.018	-0.054	0.093	.373**									
80 Total Shareholder Return 1 Year	-0.112	0.059	-0.016	.189*	.172*	0.087								
81 Percentage of directors with prior industry experience	-0.040	-0.020	0.004	0.000	-0.047	-0.126	0.037							
82 Average of age directors	0.010	-0.059	0.116	-0.077	-0.138†	-.195*	-0.005	0.071						
83 Education prestige (directors)	-0.113	0.078	0.041	0.147†	0.106	-0.076	-0.099	0.129†	-.174*					
84 Founder Chairman (dummy)	-0.007	0.056	0.006	0.057	0.090	0.048	0.041	-0.059	-0.114	0.085				
85 Environmental Dynamism	0.041	0.019	-0.045	0.013	0.014	0.002	-0.012	-0.015	-0.026	-0.062	0.129†			
86 Environmental Complexity	0.076	0.107	0.087	-0.027	0.042	0.032	-0.007	-0.133†	-0.075	-0.099	-0.003	0.101		
87 Environmental munificence	-0.057	.175*	0.099	0.055	-0.043	-0.071	0.067	0.069	0.030	0.068	0.012	0.031	-0.121	
88 Percentage of executives with prior industry experience	-0.051	-.205*	-0.024	-0.017	-0.092	-0.096	-0.019	.297**	.151*	-0.005	-0.014	-0.002	-.217**	0.058
89 Average age of executives	-0.020	-0.160†	-0.038	-0.066	-0.104	-.253**	0.059	0.028	.481**	-0.083	-0.120	-0.014	-0.029	-0.063
90 Education prestige (executives)	-.172*	0.088	0.089	.163*	0.093	-0.025	0.045	0.119	-.205**	.568**	0.038	-.211**	-0.136†	0.116
91 Founder CEO (dummy)	-0.012	0.102	0.149†	0.047	0.046	0.064	0.040	-0.019	-0.112	0.112	.593**	0.079	-0.023	0.021

N=125-185 † < 0.10, *p < 0.05, **p < 0.01 Variables are presented in the order they appear in the analyses

Variable Name	41	42	43	44
92 Average age of executives	.186*			
93 Education prestige (executives)	-0.047	-0.137†		
94 Founder CEO (dummy)	-0.007	-.230**	0.095	

N=125-185 † < 0.10 *p < 0.05 **p < 0.01 Variables are presented in the order they appear in the analyses

Interestingly, we do not observe statistically significant bivariate correlations between this variable and firm size, board size, TMT size, rate of change in blockholder ownership in subsequent periods and firm performance. This means that the completion of the IPO process affects changes in firm governance mechanisms primarily in the first period following the IPO. Considering the series of interrelated relationships originally proposed, the lack of bivariate correlations between underpricing and the variables mentioned is not surprising and is in line with my original contentions. On the other hand, statistically significant relationships are observed between underpricing and the founder as the chairman dummy ($\rho=0.168, p<.05$) and the average age of executives ($\rho=-0.198, p<.01$). These findings are in parallel with the contentions of the signaling model (Leland and Pyle, 1977).

One other surprising finding, as far as the bivariate correlations are concerned, is the negative relationship between market based and accounting based measures. One would expect these two measures to be highly and positively related. That was not the case with the data collected for this study. This situation, once again, highlights the uniqueness of young entrepreneurial firms and the need to adopt different methods when analyzing them (Finkelstein and Hambrick, 1996; Kroll et al., 2007). I believe that, during the first few years, following the IPO, these companies are struggling to build healthy accounting systems while coping with the extensive attention paid to them by the market players. Some researchers refer to this situation as “liability of newness” (Stinchcombe, 1965) while I consider that to be a limited explanation. Another possible extension of this study is to investigate that process. In a recent study, Walters et al. (2010) used sales growth as a measure of firm performance along with return on assets.

Referring to previously conducted studies (Florin, Lubatkin, and Schulze, 2003), those authors propose that sales growth may be the most telling measure of performance during the initial years of a firm's existence. In this study, the firm size variable is measured by log of sales and the three dimensions of environment are determined by the variations in sales at the industry level. Thus, using sales growth as a performance measure could have inflated the explanatory power of the independent variables (firms size and the interaction effect would have explained most of the variance). Besides, as mentioned previously, a significant portion of the companies in my sample did not survive the entire five-year period, which means that for those companies sales growth figures either could not be calculated or only reflects the growth in one calendar year.

The relationship between education prestige and average age of directors and executives is also worthy of noting. The average age of directors has a negative bivariate relationship with the "directors with advanced graduate degrees" dummy ($\rho=-0.174$, $p<.05$). The same case is true for the relationship between the average age of executives and "executives with advanced graduate degrees" dummy ($\rho=-0.138$, $p<.10$). The importance of education in executive decision-making is documented in past (Vance, 1966) and recent (Roglio & Light, 2009) studies. It seems getting an advanced graduated degree, such as MBA, is getting more and more popular among the executives and directors. The potential impact of education in the case of young entrepreneurial firms should also be investigated in future extensions of this study.

Finally, the relationships between venture capitalist presence and other variables need further explanation. As can be seen from Table 4.2, the venture capitalist presence dummy is positively related with underwriter prestige ($\rho=0.324$, $p<.01$) and education

prestige of executives ($\rho=0.183, p<.05$). It also has a positive relationship between the rate of change in blockholder ownership ($\rho=0.155, p<.05$), the rate of change in directors ($\rho=0.179, p<.05$) and the number of new executive appointees ($\rho=0.137, p<.10$). It seems venture capitalists are likely to affect how the young entrepreneurial firms go through the IPO process, how they are governed and how they perform in the future as documented in previous studies (Dushnitsky and Shapira, 2010). The potential detrimental effects of that in the case of young entrepreneurial firms still needs further attention. For instance, should the contentions of this study prove true, the presence of venture capitalists may not be that beneficial after all. In other words, venture capitalists may be the type of owners that interfere with the corporate governance mechanisms of these firms. While the researchers report that most firms go through the IPO process with venture capitalists (Ritter, 1991), the performance of those that do not should be investigated in detail.

Hypotheses Testing

Several tables are constructed to report the results. Table 4.3 reports the results of an ANOVA procedure that assesses the differences in first day returns for companies that experience ownership change during the first year after the IPO. As can be seen, the difference between the mean values of the first day returns among the firms that experienced ownership change during the first year after the IPO and the firms that did not is marginally significant ($F=3.511, p<.10$). Looking at the details, it can be seen that the mean value of first day return for firms that experienced ownership change during the first year after the IPO is higher than that of the firms that did not experience ownership change (0.0314673 vs. -.0000421). This finding is parallel with previous findings (Stoughton and Zechner, 1998) and in line with Hypothesis 1.

Table 4.3 ANOVA Results

<u>Variable</u>		<u>N</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Source of Variation</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Return on first day (underpricing)	Ownership change	86	-0.0000421	0.09128285	Between Groups	0.044	1	0.044	3.511+
	No ownership change	90	0.0314673	0.12787505	Within groups	2.164	174	0.012	

Dependent variable is whether there is blockholder ownership change. N=176. $\tau < 10$. * $p < 0.05$, ** $p < 0.01$

To further investigate this finding, I created an ordinary least squares model where the dependent variable was the rate of change in blockholder ownership. It should be noted that the rate of change variable was not constructed to look solely at new owners coming in but to identify the situations when old owners are replaced by new ones.

The way the rate of change was operationalized is consistent with my initial proposal regarding interference with the entrepreneurial efficacies of young entrepreneurial firms. In other words, as long as the pre-IPO blockholders are in place, they continue to provide their input to the firm, but changes in ownership become detrimental when old owners are replaced with new ones, who have limited knowledge of the company, take controlling positions. With that in mind, the results of Model 1 are reported on Table 4.4. Hierarchical linear regression is used to see whether underpricing of the IPO is a determining factor in subsequent changes in blockholder ownership. First, the control variables are entered. Among the control variables (firm size, nationality of the firm, venture capitalist's presence, underwriter prestige and presence of founder at the IPO), firm size ($\beta=0.238, p<.01$) and venture capitalist presence ($\beta=0.229, p<.01$) proved to be significantly related to the rate of change in blockholder ownership at $t+1$ time period. In other words, the larger the firm and greater the presence of venture capitalists at the time of the IPO (t), the more likely are young entrepreneurial firms to observe new owners replacing the original owners. Although I will be explaining the implications of this finding in the discussion section, at this point I observe that, it makes both theoretic and intuitive sense to observe such relationships (i.e. venture capitalists are likely to sell their shares after the IPO). In the second part of this model, the first day return variable is added.

Table 4.4 Regression Results

	Step 1		Step 2		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		-0.833		-0.665	
Firm Size	0.238**	3.084	0.228**	2.995	1.071
Nationality of the firm	-0.052	-0.658	-0.052	-0.653	1.135
Venture capitalist presence	0.229**	2.855	0.209	2.587	1.176
Founder presence	0.032	0.424	0.021	0.784	1.037
Underwriter prestige	-0.119	0.150	-0.125	-1.521	1.212
<i>Return on first day (underpricing)</i>			<i>0.127†</i>	<i>1.671</i>	<i>1.041</i>
Model F-value	3.519**		3.430**		
R-Square	0.099		0.114		
Change in R-Square			0.015†		
D-W Statistic	2.082				

Dependent variable is "Rate of change in blockholder ownership Δ ," N=167. † < 10. * $p < .05$; ** $p < .01$

The relationship between the rate of change at $t+1$ and the first day return of young entrepreneurial firms in my sample (t) came out to be positive and significant ($\beta=0.127, p<.10$). These results tell us that, the greater the underpricing of an IPO, the greater the subsequent rate of change in ownership. Once again, this is in line with the signaling model and is consistent with Hypothesis 1. As I mentioned previously, the implications of these findings will be further discussed in the discussion section. After the initial IPO performance, which was shown to influence the subsequent ownership change, I proposed that changes in corporate governance mechanisms of firms are likely to be observed. Table 4.5 and Table 4.6 are constructed to show those results. Once again, hierarchical regression models were used to check whether rate of change in blockholder ownership ($t+1$) influenced the rate of change in directors ($t+2$) and the new number of TMT members. Several things should be noted here. First, the way the rate of change in blockholder ownership was operationalized was very similar to the way the rate of change in boards of directors is operationalized. This time, replacement of original directors with new ones, rather than solely adding more directors to the board was considered. Hence, if the original directors were still active on the board, they were still capable of providing their input as Hambrick and Mason (1984) suggest. On the other hand, several issues arose regarding TMT membership during the data collection. Unlike the information reported for individual board members, most companies do not report background information on all of the members of their TMTs (except for the IPO period). Even if they occasionally do, the data on number of TMT is not reliable. For instance, one company reported information for 11 executives in the prospectus but only reported information for five executives in the proxy statement of the next year.

Table 4.5 Regression Results

	Step 1		Step 2		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		0.625		0.675	
Firm Size	0.700	0.760	0.046	0.505	1.485
Nationality of the firm	-0.160*	-2.040	-0.152†	-1.948	1.073
Duality	-0.073	0.347	-0.082	-1.074	1.036
Firm Performance	-0.055	-0.608	-.0550	-0.618	1.417
Board Size	0.141†	1.762	0.128	1.614	1.117
<i>Rate of change in blockholder ownership_{t+1}</i>			0.155*	2.012	1.048
Model F-value	2.214†		2.554*		
R-Square	0.064		0.086		
Change in R-Square			0.023*		
D-W Statistic		2.158			

Dependent variable is "Rate of change in board of directors _{t+2}," N=169, †< 10, * $p < .05$; ** $p < .01$

Table 4.6 Regression Results

	Step 1		Step 2		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		0.866		-0.187	
Firm Size	0.132	1.450	0.161†	1.758	1.390
Nationality of the firm	0.017	0.206	0.009	0.114	1.062
Duality	0.051	0.645	0.059	0.451	1.012
Firm Performance	0.031	0.336	0.029	0.320	1.351
TMT Size	0.106	1.337	0.108	1.373	1.022
<i>Rate of change in blockholder ownership_{t+1}</i>			-0.158*	-1.996	1.042
Model F-value	1.299		1.767		
R-Square	0.040		0.064		
Change in R-Square			0.024*		
D-W Statistic		2.190			

Dependent variable is Number of new executives _{t+2} N=169 †< 10 *p< 05, **p< 01

Among these five executives, two were newly appointed. Once I checked the proxy statement of the third year, I observed that some of the original executives who were not reported in the previous proxy statement were still working for the company together with the newly appointed ones. Due to such complexities and lack of data, I chose to use the number of new executives as a proxy for change in TMT membership. Although the reliability of such a measure is questionable, I believe I am able to assess the impact of changes in ownership on one of the mechanisms of corporate governance (TMT membership) using this variable.

With this in mind, the results in Table 4.4 imply that there is a positive relationship between the rate of change in board membership at $t+2$ and the rate of change in blockholder ownership at $t+1$. In column one, two of the control variables (firm size, nationality of the firm, duality, firm performance and board size at $t+1$) came out to be significantly related with rate of change in board membership. The nationality dummy variable was negatively related to rate of change in board membership ($\beta=-0.160$, $p<.05$). Considering the difference in corporate governance traditions of American firms and international firms, this finding was expected. Board size was also positively related to the rate of change in boards of directors ($\beta=0.141$, $p<.10$). One thing to note is that prior performance (ROA at $t+1$) was not related to replacement of old directors with new directors ($\beta=-0.055$, $p>.10$). In the following pages, I will be reporting the results of subsequent firm performance reflecting changes in corporate governance mechanisms. Observing a non-significant relationship between prior firm performance and subsequent rate of change in board membership at this point tells us that, if I observe an impact on firm performance during the third year following the IPO, it is not because of how these

firms perform in prior periods (i.e. $t+1$) but it is due to intervention in the corporate governance mechanisms of young entrepreneurial firms during the second year following the IPO.

As can be seen in step 2, the rate of change in blockholder ownership at $t+1$ was positively and significantly related to rate of change in boards of directors at $t+2$ ($\beta=0.155, p<.05$). Hence, the replacement of original blockholders at $t+1$ due to IPO performance has a subsequent impact on replacement of original directors with new ones at $t+2$. This finding supports Hypothesis 3. Results show that, if new owners take controlling positions in these young entrepreneurial firms, they are likely to interfere with one of the corporate governance mechanisms (board of directors). The importance of this finding will be further discussed.

The second type of corporate governance mechanism I investigate in this study is the rate of change in TMT membership. As I mentioned above, the proxy variable I choose to adopt is the number of new executives appointed as part of the TMT. The methodology adopted for analyzing the relationship between rate of change in directors and ownership was also adopted for this process. First, the control variables were added. Once again, firm size, nationality of the firm, duality, number of blockholders and previous year firm performance were used as control variables. Unlike the model that employed the rate of change in board of directors at $t+2$ as the dependent variable, the overall model did not prove to be significant ($F=1.299, p>.10$). Looking at the individual coefficients, none of the control variables are significantly related with to dependent variable.

In the second step, the focal variable, rate of change in blockholder ownership at $t+1$ was added to the model. In contrast to my expectations, rate of change in blockholder ownership at $t+1$ had a negative impact on the number of new executives at $t+2$ ($\beta = -0.158, p < .05$). Although the overall model is still not significant ($F = 1.767, P > .10$) for the second year, controlling for firm size, nationality of the firm, presence of duality, number of blockholders ($t+1$) and firm performance ($t+1$), when original blockholders are replaced by new ones at $t+1$ period, the number of new executives appointees declines. Considering the positive relationship observed between the rate of change in boards of directors at $t+2$ and the rate of change in blockholders at $t+1$, this finding is worthy of note. It seems once the new owners take controlling positions in young entrepreneurial firms they are more likely to interfere with the structure of the board of directors rather than that of the TMT. Thus, Hypothesis 2 is not supported.

Before considering the impact on firm performance, I also needed to investigate whether the changes in TMT were due to changes in boards of directors. Referring back to the bivariate correlations on Table 4.2 between the rate of change in boards of directors at $t+2$ and the number of new executives at $t+3$ time period, there was a positive correlation between the two ($\rho = 0.154, p < .10$). Obviously, this correlation value does not indicate causality. However, it is an indication of some form of relationship between these two variables. To further explore this relationship, a regression model was estimated. As can be seen on Table 4.7, among the four control variables chosen for this model (firm size, nationality of the firm, duality and previous year firm performance) firm size and the firm nationality dummy were significantly related to the number of new executives at $t+3$.

Table 4.7 Regression Results

	Step 1		Step 2		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		1.122		1.025	
Firm Size	0.188*	2.055	0.176†	1.902	1.372
Nationality of the firm	-0.178*	-2.192	-0.164†	-1.977	1.106
Duality	-0.115	-1.455	-0.106	-1.326	1.026
Firm Performance	-0.045	-0.484	-0.037	0.69	1.375
<i>Rate of change in board of directors_{t+2}</i>			0.069	0.844	1.084
Model F-value	3.126*		2.638*		
R-Square	0.078		0.082		
Change in R-Square			0.004		
D-W Statistic		2.036			

Dependent variable is "Number of new executives_{t+1}." N=153, †< 10, *p<.05; **p<.01

The relationship between firm size and the dependent variable was positive ($\beta=0.188$, $p<.05$) which means that larger firms are more likely to experience new appointees to the TMT. Furthermore, there was a negative relationship between the nationality dummy and number of new executive appointees at $t+3$ ($\beta=-0.178$, $p<.05$). When the rate of change in boards of directors at $t+2$ was added to the model, contrary to my expectations, the relationship between that variable and the number of new executive appointees at $t+3$ was not statistically significant ($\beta=0.069$, $p>.10$). This result suggests new executive appointees in young entrepreneurial firms do not result from changes in boards of directors when firm size, firm performance, firm nationality and presence of duality are controlled. It is important to note that, while the number of international firms in my sample is limited, at least for the third year, American companies are less likely to experience new executive appointees relative to international firms. In order to investigate this issue, I conducted an ANOVA test with which I compare the number of new executive appointees at $t+1$, $t+2$, $t+3$, $t+4$ and $t+5$ for American vs. international companies. As Table 4.8 shows, the mean values of number of new executives during the third, fourth and fifth years were statistically different among American and international companies.

Since the same situation does not apply to the rate of change in boards of directors and blockholders for any of these periods, one wonders why this is the case. The answer, I believe, is the differences in firm size. As can be seen in Table 4.8, on average, among the firms in my sample, foreign firms are larger than American firms ($F=5.346$, $p<.05$).

Table 4.8 ANOVA Results

Variable		N	Mean	Standard Deviation	Source of Variation	Sum of Squares	df	Mean Square	F
New executive appointees (t+1)	American	153	0.69	1.171	Between Groups	1.881	1	0.044	1.322
	Foreign	30	0.97	1.299	Within groups	257.529	181	0.012	
New executive appointees (t+2)	American	146	1.13	1.133	Between Groups	0.012	1	0.044	0.008
	Foreign	28	1.11	1.244	Within groups	259.206	172	0.012	
New executive appointees (t+3)	American	133	1.18	1.302	Between Groups	10.117	1	0.044	5.530*
	Foreign	27	1.85	1.586	Within groups	289.077	158	0.012	
New executive appointees (t+4)	American	116	1.03	1.071	Between Groups	531.923	1	0.044	209.750**
	Foreign	25	6.12	3.032	Within groups	352.502	139	0.012	
New executive appointees (t+5)	American	98	0.84	1.164	Between Groups	10.746	1	0.044	7.805**
	Foreign	24	1.58	1.213	Within groups	165.221	120	0.012	
Firm Size	American	154	10.43	2.216	Between Groups	24.759	1	24.759	5.346*
	Foreign	29	11.43	1.758	Within groups	838.206	181	4.631	

Dependent variable is Nationality of the firm N=113-183 T<10 *p<05 **p<01

Thus, the statistical difference between American and foreign firms with regard to the number of new executive appointments at $t+3$ ($F=5.530$, $p<.20$), $t+4$ ($F=209.750$, $p<.01$) and $t+5$ ($F=7.805$, $p<.01$) can be attributed solely to firm size. This is in parallel to the statistically significant coefficient of firm size in the above mentioned regression model where number of new executives is the dependent variable.

Another regression model was employed to look at the effect of changes in corporate governance mechanisms on firm performance in order to assess the final part of the interrelated relationships initially proposed. Two sets of performance measures were used. First, Tobin's Q, a market based measure, was used. Hypotheses 5 and 6 propose that, changes in corporate governance mechanisms in young entrepreneurial firms will result in lower performance. To find support for that proposition, Model 5 (Table 4.9) was constructed. In this model, firm size, nationality of the firm (dummy variable), presence of duality (dummy variable), total shareholder returns for 1 year (as a proxy for prior performance), percentage of directors with industry experience, average age of directors, directors with advanced degrees (dummy variable) and founder as the chairman (dummy variable) were used as control variables, Tobin's Q at $t+3$ was the dependent variable and the rate of change in board of directors at $t+2$ was the independent variable. First, the control variables were added. None of the control variables were observed to be significantly related with Tobin's Q at $t+3$. The sign of the coefficient on the relationship between firm size and Tobin's Q being negative was questionable.

Table 4.9 Regression Results (Tobin's Q)

	Step 1		Step 2		Step 3		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		1.456		1.467		1.524	
Firm Size	-0.148	-1.615	-0.175†	-1.878	-0.213*	-2.234	1.350
Nationality of the firm	0.068	0.796	0.082	0.964	0.047	0.510	1.252
Duality	0.081	0.874	0.089	0.960	0.086	0.914	1.309
Firm Performance (total shareholder return)	-0.095	0.270	-0.071	-0.814	-0.043	-0.495	1.146
Percentage of directors with prior industry experience	-0.045	-0.510	-0.039	-0.443	-0.025	-0.280	1.157
Average age of directors	-0.039	-0.460	-0.040	-0.476	-0.030	-0.346	1.088
Presence of directors with advanced graduate degrees	-0.132	-1.483	-0.155†	-1.725	-0.151†	-1.688	1.185
Founder Chairman	-0.046	-0.505	-0.047	-0.519	-0.033	-0.364	1.205
<i>Rate of change in board of directors_{t+2}</i>			0.138	1.583	-0.067	-0.299	7.499
<i>Rate of change in board directors X Environmental dynamism (interaction term)</i>					0.023	0.982	1.679
<i>Rate of change in board directors X Environmental complexity (interaction term)</i>					0.371	1.620	7.796
<i>Rate of change in board directors X Environmental munificence (interaction term)</i>					-0.197†	-1.675	2.059
Model F-value	1.114		1.28		1.322		
R-Square	0.061		0.078		0.107		
Change in R-Square			0.017		0.029		
D-W Statistic				1.942			

Dependent variable is "Tobin's Q_{t+3}," N=146, †< 10, *p<.05; **p<.01

Referring back to the correlation table, the relationship between ROA at $t+2$ and firm size was positive as expected ($\rho=0.146, p<.10$) but the relationship between Tobin's Q at $t+2$ and firm size was surprisingly negative ($\rho=-0.189, p<.05$). Furthermore, another performance measure, total shareholder returns for one year was positively related to Tobin's Q ($\rho=0.457, p<.01$) and ROA ($\rho=0.196, p<.05$) for the second period. This tells us that for the first couple of years, the relationship between market based and accounting based measures of young entrepreneurial firms was unusual and worthy of further exploration. Although this situation is beyond the scope of this study, I suspect that the situation is due to liability of newness (Stinchcombe, 1969) of these young entrepreneurial firms as they struggle to build healthy financial structures. Furthermore, use of sales growth as a performance measure with different control and interaction variables in the future may shed some light on this irregularity.

Once the rate of change in directors at $t+2$ was added to the model, no significant relationship was observed between the independent and dependent variables ($\beta=0.138, p>.10$). Not surprisingly, neither of these models were statistically significant ($F=1.114, p>.10$ and $F=1.280, p>.10$). This means the hypothesis regarding the impact of changes in boards of directors as corporate governance mechanisms on firm performance is not supported once Tobin's Q in the third year following the IPO is used as the performance measure.

The analysis of firm performance does not end with just looking at market based measures. We also need to use accounting based measures to assess firm performance. Table 4.10 reports the results of such an assessment. Once again, control variables were added in the first step.

Table 4.10 Regression Results (ROA)

	Step 1		Step 2		Step 3		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		-1.285		-1.319		-1.346	
Firm Size	0.169*	2.018	0.199*	2.368	0.241**	2.851	1.260
Nationality of the firm	-0.054	-0.657	-0.069	-0.849	-0.033	-0.397	1.230
Duality	-0.066	-0.751	-0.077	-0.884	-0.081	-0.931	1.339
Firm Performance (total shareholder return)	0.174*	2.186	0.141†	1.754	0.114	1.423	1.136
Percentage of directors with prior industry experience	0.010	0.120	0.005	0.066	-0.016	-0.194	1.154
Average age of directors	0.003	0.034	0.004	0.047	-0.013	-0.164	1.161
Presence of directors with advanced graduate degrees	0.175*	2.096	0.202*	2.408	0.198*	2.398	1.202
Founder Chairman	0.075	0.859	0.075	0.872	0.057	0.665	1.282
<i>Rate of change in board of directors_{t+2}</i>			-0.165*	-2.044	-0.009	-0.044	7.556
<i>Rate of change in board directors X Environmental dynamism (interaction term)</i>					0.021	0.222	1.606
<i>Rate of change in board directors X Environmental complexity (interaction term)</i>					-0.374†	-1.757	7.956
<i>Rate of change in board directors X Environmental munificence (interaction term)</i>					0.255*	2.383	2.020
Model F-value	2.093*		2.364*		2.401**		
R-Square	0.100		0.124		0.164		
Change in R-Square			0.024*		0.040†		
D-W Statistic				2.090			

Dependent variable is "ROA_{t+3}," N=160, †< 10, *p<.05; **p<.01

Among the control variables used in this model (firm size, nationality of the firm, duality presence, founder chairman of the board, average age of directors, percentage of directors with prior industry experience, nationality of the firm, directors with advanced degrees and prior firm performance), as expected, firm size ($\beta=0.169, p<.05$), presence of directors with advanced degrees ($\beta=0.175, p<.05$) and prior firm performance using total shareholder returns as a proxy ($\beta=0.174, p<.05$) were related with the ROA of period $t+3$. Moving on to the second step, where rate of change in boards of directors at $t+2$ was introduced, the relationship between the focal independent variable (rate of change in board of directors at $t+2$) and the dependent variable (ROA at $t+3$) was negative and statistically significant ($\beta=-0.165, p<.05$). This means that the rate of change in boards of directors at $t+2$ negatively impacts firm performance at $t+3$ when ROA was used as the performance measure, unlike the non-significant relationship observed when Tobin's Q was considered. This finding is consistent with Hypothesis 6 and means that, based on my sample, changes in one of the corporate governance mechanisms, boards of directors, are likely to result in lower performance in the third period. Further investigation of this finding will be discussed in the next section.

To deepen the analysis of the relationship between firm performance measures and the rate of change in boards of directors, other periods were also considered. As can be seen in Tables 4.11 - 4.14, once the performance measures from the fourth period are regressed against the rate of change in board of directors at $t+3$, no statistically significant relationships were observed between the rate of change in boards of directors at $t+3$ and Tobin's Q at $t+4$ ($\beta=-0.123, p>.10$) and ROA at $t+4$ ($\beta=0.033, p>.10$). However, the findings were surprising when the fourth period and fifth periods are considered.

Table 4.11 Regression Results (Tobin's Q)

	Step 1		Step 2		Step 3		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		2.066		2.026		1.725	
Firm Size	-0.239*	-2.453	-0.234*	-2.412	-0.187†	-1.873	1.402
Nationality of the firm	0.121	1.357	0.126	1.410	0.135	1.481	1.169
Duality	0.027	0.286	0.037	0.385	0.076	0.777	1.337
Firm Performance (total shareholder return)	0.104	1.170	0.103	1.165	0.102	1.158	1.092
Percentage of directors with prior industry experience	-0.103	-1.130	-0.108	-1.183	-0.105	-1.144	1.187
Average age of directors	-0.086	-0.970	-0.075	-0.851	-0.066	-0.738	1.124
Presence of directors with advanced graduate degrees	0.055	0.610	0.054	0.651	0.086	0.935	1.200
Founder Chairman	-0.017	-0.180	-0.042	-0.438	-0.079	-0.810	1.319
<i>Rate of change in board of directors_{t+3}</i>			-0.123	-1.417	-0.555	-1.298	25.632
<i>Rate of change in board directors X Environmental dynamism (interaction term)</i>					-0.021	-0.150	2.751
<i>Rate of change in board directors X Environmental complexity (interaction term)</i>					0.095	0.279	16.355
<i>Rate of change in board directors X Environmental munificence (interaction term)</i>					0.398†	1.904	6.128
Model F-value	1.614		1.670		1.606†		
R-Square	0.094		0.108		0.137		
Change in R-Square			0.014		0.029		
D-W Statistic				2.118			

Dependent variable is "Tobin's Q_{t+4}," N=134, †<.10, *p<.05; **p<.01

Table 4.12 Regression Results (Tobin's Q)

	Step 1		Step 2		Step 3		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		0.623		0.734		0.701	
Firm Size	-0.182†	-1.842	-0.229*	-2.256	-0.231*	-2.235	1.338
Nationality of the firm	0.242*	2.628	0.254**	2.772	0.251	2.690	1.092
Duality	0.062	0.620	0.078	0.787	0.070	0.692	1.284
Firm Performance (total shareholder return)	0.015	0.165	-0.014	-0.146	-0.012	-0.127	1.126
Percentage of directors with prior industry experience	-0.052	-0.552	-0.082	-0.859	-0.083	-0.838	1.227
Average age of directors	0.053	0.567	0.067	0.727	0.072	0.760	1.127
Presence of directors with advanced graduate degrees	0.030	0.323	0.054	0.580	0.052	0.545	1.136
Founder Chairman	-0.022	-0.223	-0.023	-0.236	-0.023	-0.230	1.223
<i>Rate of change in board of directors_{t+4}</i>			-0.176†	-1.802	-0.325	-1.360	7.151
<i>Rate of change in board directors X Environmental dynamism (interaction term)</i>					0.050	0.329	2.905
<i>Rate of change in board directors X Environmental complexity (interaction term)</i>					0.099	0.430	6.623
<i>Rate of change in board directors X Environmental munificence (interaction term)</i>					0.041	0.372	1.547
Model F-value	1.833†		2.023*		1.527		
R-Square	0.117		0.142		0.146		
Change in R-Square			0.025†		0.004		
D-W Statistic				2.225			

Dependent variable is "Tobin's Q_{t+5}," N=120, †< 10, *p<.05; **p<.01

Table 4.13 Regression Results (ROA)

	Step 1		Step 2		Step 3		VIF
	Standardized coefficient	t-value	Standardized coefficients	t-value	Standardized coefficients	t-value	
Constant		-1.226		-1.249		-1.193	
Firm Size	0.265**	3.044	0.263**	2.013	0.246**	2.705	1.297
Nationality of the firm	-0.023	-0.275	-0.024	-0.282	-0.029	-0.323	1.220
Duality	0.084	-0.928	-0.088	-0.970	-0.100	-1.061	1.391
Firm Performance (total shareholder return)	0.137†	1.676	0.137†	1.674	0.142†	1.708	1.081
Percentage of directors with prior industry experience	0.003	0.035	0.004	0.050	0.006	-0.067	1.152
Average age of directors	-0.048	-0.562	-0.047	-0.548	-0.042	-0.471	1.216
Presence of directors with advanced graduate degrees	0.139	1.631	0.140	1.638	0.134	1.528	1.209
Founder Chairman	0.128	1.416	0.136	1.472	0.146	1.554	1.387
<i>Rate of change in board of directors_{t+3}</i>			0.038	-0.488	0.042	0.110	23.380
<i>Rate of change in board directors X Environmental dynamism (interaction term)</i>					0.028	0.211	2.684
<i>Rate of change in board directors X Environmental complexity (interaction term)</i>					0.064	0.200	15.812
<i>Rate of change in board directors X Environmental munificence (interaction term)</i>					-0.096	-0.532	5.085
Model F-value	2.605*		2.330*		1.768†		
R-Square	0.130		0.132		0.136		
Change in R-Square			0.002		0.004		
D-W Statistic				2.096			

Dependent variable is "ROA_{t+3}," N=148, †<.10; *p<.05; **p<.01

Table 4.14 Regression Results (ROA)

	Step 1		Step 2		Step 3		VIF
	Standardized coefficient	t-value	Standardized coefficients	t-value	Standardized coefficients	t-value	
Constant		0.256		0.563		0.370	
Firm Size	0.248**	2.703	0.186*	2.103	0.195*	2.201	1.220
Nationality of the firm	-0.052	-0.577	-0.045	-0.521	-0.048	-0.561	1.162
Duality	0.040	0.412	0.070	0.761	0.061	0.658	1.320
Firm Performance (total shareholder return)	0.074	0.840	0.021	0.253	0.025	0.295	1.105
Percentage of directors with prior industry experience	-0.046	-0.515	-0.103	-1.205	-0.077	-0.884	1.175
Average age of directors	-0.157†	-1.697	-0.139	-1.581	-0.126	-1.431	1.206
Presence of directors with advanced graduate degrees	-0.038	-0.415	0.008	0.095	0.016	0.185	1.177
Founder Chairman	0.002	0.015	-0.020	-0.212	-0.026	-0.283	1.340
<i>Rate of change in board of directors_{t+4}</i>			-0.326**	-3.772	-0.369	-1.601	8.248
<i>Rate of change in board directors X Environmental dynamism (interaction term)</i>					0.163	1.213	2.802
<i>Rate of change in board directors X Environmental complexity (interaction term)</i>					-0.018	-0.080	7.680
<i>Rate of change in board directors X Environmental munificence (interaction term)</i>					-0.138	-1.481	1.350
Model F-value	2.277*		3.826**		3.199**		
R-Square	0.131		0.223		0.247		
Change in R-Square			0.092**		0.024		
D-W Statistic				2.035			

Dependent variable is "ROA_{t+5}," N=130, † < 10, *p<.05; **p<.01

As mentioned on Table 4.12, once Tobin's Q from the fifth period is regressed against the same control variables and the rate of change in boards of directors from the fourth period, the relationship was negative and statistically significant ($\beta=-0.176, p<.10$). This relationship becomes even stronger when the dependent variable is ROA for the fifth period ($\beta=-0.326, p<.01$). An important point to note is, Tobin's Q and ROA values reveal similar results as the years pass, which I believe is an indication of these young entrepreneurial firms becoming more established in terms of both book and market values.

In short, looking at the different results, one can observe that the changes in boards of directors have a negative impact firm performance of young entrepreneurial firms included in this study. This finding is in line with Hypotheses 6 and will be explained further in the discussion section.

The second type of corporate governance mechanism, TMT members, is also investigated using similar but different control variables and the same performance measures. The results of this analysis are reported on Table 4.15. In this model, firm size, nationality of the firm (dummy variable), presence of duality (dummy variable), total shareholder returns (as a proxy for prior performance), percentage of executives with industry experience, average age of executives, executives with advanced degrees (dummy variable) and founder as the CEO (dummy variable) were used as control variables, Tobin's Q at $t+3$ as the dependent variable and the number of new executive appointees at $t+2$ as the independent variable. Neither the model with the control variables nor the model with number of new executive appointees added was significant.

Table 4.15 Regression Results (Tobin's Q)

	Step 1		Step 2		Step 3		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		2.191		2.074		2.021	
Firm Size	-0.161†	-1.740	-0.137	-1.459	-0.127	-1.281	1.406
Nationality of the firm	0.081	0.930	0.077	0.886	0.072	0.792	1.188
Duality	0.071	0.753	0.087	0.908	0.092	0.947	1.352
Firm Performance (total shareholder return)	-0.083	-0.959	-0.084	-0.973	-0.093	-1.047	1.120
Percentage of executives with prior industry experience	-0.052	-0.588	-0.060	-0.683	-0.070	-0.746	1.246
Average age of executives	-0.070	-0.789	-0.059	-0.661	-0.056	-0.625	1.156
Presence of executives with advanced graduate degrees	-0.210*	-2.387	-0.181*	-1.997	-0.185*	-2.003	1.213
Founder CEO	-0.048	-0.515	-0.064	-0.683	-0.062	-0.655	1.285
<i>Number of new executive appointees_{t+2}</i>			-0.112	-1.257	-0.105	-0.524	5.708
<i>Number of new executive appointees X Environmental dynamism (interaction term)</i>					0.046	0.430	1.623
<i>Number of new executive appointees X Environmental complexity (interaction term)</i>					-0.048	-0.426	1.804
<i>Number of new executive appointees X Environmental munificence (interaction term)</i>					0.000	0.002	5.574
Model F-value	1.610		1.613		1.217		
R-Square	0.089		0.100		0.102		
Change in R-Square			0.011		0.002		
D-W Statistic				2.014			

Dependent variable is "Tobin's Q_{t+3}," N=141, †< 10, *p<.05; **p<.01

The only two control variables that were found to be significantly related with Tobin's Q at $t+3$ was the dummy variable that accounts for the presence of executives with master's or higher degrees ($\beta=-0.210, p<.05$) and the firm size variable ($\beta=-0.161, p<.10$). This finding implies that companies with executives who do not have advanced degrees are more likely to experience new appointees to their boards. Once the number of new executive appointees was added to the model, the coefficient for the independent variable became statistically non-significant ($\beta=-0.112, p>.10$). Hence, at least for the third year after the IPO, there was no relationship present between the number of new executive appointees and firm performance when Tobin's Q was considered as the performance measure.

The findings were not different when ROA was used as the performance measure. According to Table 4.16, among the control variables, ROA at $t+3$ was positively related with prior firm performance ($\beta=0.152, p<.10$) and with the dummy variable that accounts for the presence of executives with advanced degrees ($\beta=0.185, p<.05$). Once the main effect was introduced in the model, there was no significant relationship observed between the dependent and the independent variables ($\beta=0.068, p>.10$). This means that, as far as the changes in one of the corporate governance mechanisms, TMT, was concerned, these changes do not result in lower market based nor accounting based performance during the third year following the IPO. When further analyses were conducted by regressing firm performance at $t+4$ and $t+5$ against the number of new executive appointments at $t+3$ and $t+4$, none of the performance measures proved to be significantly related (The details of these analyses can be found in Table 4.17, 4.18, 4.19 and 4.20). In short, Hypothesis 5 was not supported.

Table 4.16 Regression Results (ROA)

	Step 1		Step 2		Step 3		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		-1.595		-1.480		-1.450	
Firm Size	0.179*	2.092	0.165†	1.886	0.158†	1.722	1.349
Nationality of the firm	-0.053	-0.627	-0.055	-0.642	-0.050	-0.563	1.234
Duality	-0.067	-0.747	-0.077	-0.845	-0.081	-0.883	1.352
Firm Performance (total shareholder return)	0.152†	1.881	0.153†	1.894	0.159†	1.915	1.092
Percentage of executives with prior industry experience	-0.006	-0.073	-0.002	-0.021	0.001	0.015	1.225
Average age of executives	0.013	0.150	0.005	0.061	0.004	0.049	1.247
Presence of executives with advanced graduate degrees	0.185*	2.205	0.168†	1.929	0.173†	1.958	1.242
Founder CEO	0.070	0.776	0.079	0.864	0.077	0.832	1.362
<i>Number of new executive appointees_{t+2}</i>			0.068	0.814	0.053	0.278	5.807
<i>Number of new executive appointees X Environmental dynamism (interaction term)</i>					-0.024	-0.237	1.621
<i>Number of new executive appointees X Environmental complexity (interaction term)</i>					0.060	0.575	1.756
<i>Number of new executive appointees X Environmental munificence (interaction term)</i>					-0.012	-0.064	5.604
Model F-value	2.077*		1.916†		1.441		
R-Square	0.102		0.106		0.109		
Change in R-Square			0.004		0.003		
D-W Statistic				2.116			

Dependent variable is "ROA_{t+2}," N=155, †< 10. *p<.05; **p<.01

Table 4.17 Regression Results (Tobin's Q)

	Step 1		Step 2		Step 3		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		3.480		3.668		3.584	
Firm Size	-0.217*	-2.277	-0.199*	-2.064	-0.172†	-1.735	1.359
Nationality of the firm	0.158†	1.766	0.143	1.597	0.148	1.619	1.157
Duality	-0.015	-0.158	-0.019	-0.198	-0.006	-0.060	1.335
Firm Performance (total shareholder return)	0.076	0.864	0.071	0.810	0.072	0.809	1.087
Percentage of executives with prior industry experience	-0.198*	-2.215	-0.200*	-2.234	-0.202*	-2.239	1.134
Average age of executives	-0.165†	-1.856	-0.189	-2.079	-0.199*	-2.119	1.222
Presence of executives with advanced graduate degrees	0.014	0.159	0.017	0.186	0.008	0.094	1.120
Founder CEO	0.019	0.202	-0.001	-0.012	-0.015	-0.154	1.329
<i>Number of new executive appointees_{t+3}</i>			-0.113	-1.232	0.126	-0.641	5.371
<i>Number of new executive appointees X Environmental dynamism (interaction term)</i>					0.068	0.592	1.859
<i>Number of new executive appointees X Environmental complexity (interaction term)</i>					-0.082	-0.421	5.326
<i>Number of new executive appointees X Environmental munificence (interaction term)</i>					0.099	0.983	1.406
Model F-value	2.689**		2.569*		2.067*		
R-Square	0.154		0.165		0.179		
Change in R-Square			0.011		0.014		
D-W Statistic				2.091			

Dependent variable is "Tobin's Q_{t+4}." N=127, †< 10, *p<.05; **p<.01

Table 4.18 Regression Results (Tobin's Q)

	Step 1		Step 2		Step 3		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		1.505		0.760		0.335	
Firm Size	-0.125	-1.267	-0.137	-1.394	-0.099	-1.013	1.257
Nationality of the firm	0.308**	3.244	0.482**	3.393	0.532**	3.770	2.605
Duality	0.006	0.058	0.025	0.237	0.068	0.662	1.371
Firm Performance (total shareholder return)	-0.014	-0.150	0.005	0.048	0.023	0.247	1.115
Percentage of executives with prior industry experience	-0.024	-0.254	-0.022	-0.230	-0.012	-0.122	1.163
Average age of executives	-0.108	-1.137	-0.102	-1.080	-0.097	-1.027	1.162
Presence of executives with advanced graduate degrees	0.084	0.875	0.098	1.030	0.086	0.923	1.145
Founder CEO	0.163	1.597	0.135	1.323	0.107	1.063	1.322
<i>Number of new executive appointees_{t+4}</i>			0.235	1.636	-0.024	-0.100	7.505
<i>Number of new executive appointees X Environmental dynamism (interaction term)</i>					-0.046	-0.272	3.797
<i>Number of new executive appointees X Environmental complexity (interaction term)</i>					0.279	1.363	5.497
<i>Number of new executive appointees X Environmental munificence (interaction term)</i>					0.306*	2.608	1.797
Model F-value	2.485*		2.543*		2.749		
R-Square	0.163		0.185		0.252		
Change in R-Square			0.022		0.067*		
D-W Statistic				2.377			

Dependent variable is "Tobin's Q_{t+4}," N=111, † < 10, *p < .05; **p < .01

Table 4.19 Regression Results (ROA)

	Step 1		Step 2		Step 3		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		-1.441		-1.522		-1.487	
Firm Size	0.267**	2.999	0.259**	2.887	0.256**	2.273	1.296
Nationality of the firm	-0.021	-0.232	-0.015	-0.172	-0.017	-0.181	1.248
Duality	-0.085	-0.909	-0.084	-0.888	-0.085	-0.888	1.350
Firm Performance (total shareholder return)	0.120	1.441	0.122	1.457	0.123	1.444	1.063
Percentage of executives with prior industry experience	-0.077	-0.897	-0.078	-0.910	-0.077	-0.876	1.135
Average age of executives	-0.024	-0.268	-0.012	-0.134	-0.011	-0.112	1.355
Presence of executives with advanced graduate degrees	0.117	1.349	0.116	1.329	0.117	1.323	1.151
Founder CEO	0.099	1.035	0.107	1.107	0.108	1.096	1.420
<i>Number of new executive appointees_{t+3}</i>			0.049	0.564	0.037	0.193	5.447
<i>Number of new executive appointees X Environmental dynamism (interaction term)</i>					-0.000	-0.001	1.856
<i>Number of new executive appointees X Environmental complexity (interaction term)</i>					0.020	0.102	5.434
<i>Number of new executive appointees X Environmental munificence (interaction term)</i>					-0.011	-0.115	1.400
Model F-value	2.286*		2.057*		1.511		
R-Square	0.121		0.123		0.123		
Change in R-Square			0.002		0.000		
D-W Statistic				2.137			

Dependent variable is "ROA_{t+3}," N=142, † < 10, *p<.05; **p<.01

Table 4.20 Regression Results (ROA)

	Step 1		Step 2		Step 3		VIF
	<i>Standardized coefficient</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	<i>Standardized coefficients</i>	<i>t-value</i>	
Constant		0.383		0.322		0.255	
Firm Size	0.186†	1.949	0.185†	1.931	0.195†	1.952	1.225
Nationality of the firm	-0.039	-0.403	-0.026	-0.180	-0.011	-0.074	2.773
Duality	0.061	0.591	0.062	0.596	0.067	0.624	1.410
Firm Performance (total shareholder return)	0.052	0.562	0.053	0.571	0.055	0.580	1.103
Percentage of executives with prior industry experience	-0.031	-0.324	-0.031	-0.325	-0.027	-0.276	1.157
Average age of executives	-0.187†	-1.890	-0.187†	-1.881	-0.193†	-1.861	1.320
Presence of executives with advanced graduate degrees	-0.060	-0.626	-0.059	-0.610	-0.062	-0.630	1.175
Founder CEO	-0.016	-0.151	-0.018	-0.168	-0.024	-0.221	1.470
<i>Number of new executive appointees_{t+4}</i>			0.017	0.121	0.014	0.055	7.713
<i>Number of new executive appointees X Environmental dynamism (interaction term)</i>					0.008	0.048	3.125
<i>Number of new executive appointees X Environmental complexity (interaction term)</i>					-0.012	-0.055	5.851
<i>Number of new executive appointees X Environmental munificence (interaction term)</i>					0.046	0.383	1.774
Model F-value	1.542		1.360		1.014		
R-Square	0.098		0.098		0.100		
Change in R-Square			0.000		0.002		
D-W Statistic				2.010			

Dependent variable is "ROA_{t+5}" N=123, † < 10. *p<.05; **p<.01

The last set of hypotheses focused on the impact of environment on the relationship between changes in corporate governance mechanisms and firm performance. Hypotheses 7, 8, and 9 are about the moderating effects of environmental dimensions on the relationship between changes in TMT membership and operating performance, while hypotheses 10, 11, and 12 address the effect of environmental dimensions on the relationship between changes in board composition and operational performance. In order to test these hypotheses, the models constructed to test the main effects were extended to include possible interaction effects.

First, please recall that, as mentioned in the methods section, the three dimensions of environment chosen to be included in this study were environmental complexity, environmental dynamism and environmental munificence (Dess and Beard, 1984). The ways these three variables were operationalized are detailed in the method section. The third column of Table 4.15 contains the interaction terms added to the regression model where number of new executive appointees was the main effect. As can be seen, when TMT change main effect is included in the model, the overall F value of this model was not significant when Tobin's Q served as the dependent variable ($F=1.217, p>.10$). The dynamism interaction term ($\beta=0.046, p>.10$), complexity interaction term ($\beta=-0.048, p>.10$) and munificence interaction term ($\beta=-0.000, p<.10$) did not have statistically significant relationships with firm performance when Tobin's Q at $t+3$ was the dependent variable. The results do not change when ROA at $t+3$ is used as the dependent variable. Once again, the overall model is not significant ($F=1.441, p>.10$) and the results did not reveal any relationships between the interaction terms and firm performance ($\beta=-0.024, p>.10$ - $\beta=0.060, p>.10$ - $\beta=-0.012, p>.10$). These results tell us that, when number of

new executives appointed on the board is the main effect (controlling for firm size, nationality of the firm, presence of duality, prior firm performance, average age of executives, executives with advanced graduate degrees, presence of founder as the CEO), environmental complexity, dynamism and munificence do not exacerbate the relationship between the changes in corporate governance mechanisms and firm performance (at $t+3$).

Turning back to Table 4.9 which reports the results of the regression model which includes Tobin's Q ($t+3$) as the dependent variable, the rate of change in boards of directors as the main effect and dynamism, complexity and munificence as the interaction terms (firm size, nationality of the firm, presence of duality, founder chairman, directors with advanced graduate degrees, percentage of directors with prior industry experience and prior firm performance as the control variables), the model with the interaction term was not significant ($F=1.322, p>.10$). Among the individual beta coefficients, dynamism ($\beta=0.023, p>.10$) and complexity ($\beta=0.371, p>.10$) were not related to the dependent variable. However, the interaction term of munificence is negatively related with Tobin's Q ($\beta=-0.197, p<.10$). Since the overall model was not significant, that finding is not deterministic.

Table 4.10 contains the results of the regression model with ROA ($t+3$) and the rate of change in boards of directors ($t+2$), the interactions terms and the above mentioned control variables. The results of this model are more promising. First, there was no statistically significant relationship observed for the moderating effect of environmental dynamism on the relationship between rate of change in boards of directors and firm performance ($\beta=0.021, p>.10$). However, as hypothesized, the complexity interaction term was marginally and negatively significant ($\beta=-0.374, p<.10$)

and the munificence interaction term was positively ($\beta=0.255$, $p<.05$) related to ROA ($t+3$). According to these findings, the detrimental effect of interfering with one of the corporate governance mechanisms, boards of directors, on firm performance is exacerbated by environmental complexity such that, under environmentally complex situations, young entrepreneurial firms are in need of the original directors to cope up with the external complexities. In other words, based on my sample, once the new owners appoint their agents to the board of a young entrepreneurial firm, they should be aware that, if the firm is facing environmental complexity, the new directors may not be able to lead the firm in a positive direction.

The same logic also applies when the environment is munificent. Referring to the third column of Table 4.10, I found a positive relationship between the munificence interaction term and firm performance when ROA ($t+3$) was used as the performance measure ($\beta=0.255$, $p<.05$). Hence, the more munificent the environment, the less detrimental the effects of changes in corporate governance mechanisms on firm performance. From a different perspective, more detrimental is the impact of the main effect on the dependent variable when the environment is less munificent. In short, Hypotheses 7, 8, 9 and 10 were not supported but Hypotheses 11 and 12 were supported. The implications of all these findings will be discussed in the next chapter.

Table 4.21 summarizes the findings of this study. In short, several interesting findings shed light on many of the unknowns of IPO and corporate governance research. To recap, the results reveal that there is a positive relationship between the first day return (underpricing) and rate of change in blockholder ownership during the first year after the IPO.

Table 4.21 Summary of Results

Hypotheses	Result
H1: Young entrepreneurial firms experiencing significant underpricing will attract potential investors who acquire blockholder ownership positions in the focal firms.	<i>Supported</i>
H2: Blockholder ownership structure changes following the IPO process of young entrepreneurial firms will lead to a higher rate of change in TMT membership over the subsequent five-year period.	Not Supported
H3: Blockholder ownership structure changes following the IPO process of young entrepreneurial firms will lead to a higher rate of change in board membership over the subsequent five-year period.	<i>Supported</i>
H4: Higher rates of change in board composition of young entrepreneurial firms will be associated with a higher rate of change in TMT membership over the subsequent five-year period.	Not Supported
H5: Higher rates of change in TMT membership of young entrepreneurial firms will be associated with lower operating performance over the subsequent five-year period.	Not Supported
H6: Higher rates of change in board membership of young entrepreneurial firms will be associated with lower operating performance over the subsequent five-year period.	<i>Partially Supported</i>
H7: The relationship between the rate of change in TMT membership and operating performance will be exacerbated by environmental dynamism, such that the more dynamic the environment, the more detrimental the effects of a higher rate of change in TMT membership are on operating performance.	Not Supported
H8: The relationship between the rate of change in TMT membership and operating performance will be exacerbated by environmental complexity, such that the more complex the environment, the more detrimental the effects of higher rates of change in the TMT membership on operating performance.	Not Supported
H9: The relationship between the rate of change in TMT membership and operating performance will be exacerbated by environmental munificence, such that the less munificent the environment, the more detrimental the effects of a higher rate of change in the TMT membership will be on operating performance.	Not Supported
H10: The relationship between the rate of change in board membership and operating performance will be exacerbated by environmental dynamism, such that the more dynamic the environment, the more detrimental the effects of higher rates of change in board composition on operating performance.	Not Supported
H11: The relationship between the rate of change in board membership and operating performance will be exacerbated by environmental complexity, such that the more complex the environment, the more detrimental the effects of higher rates of change in board composition on operating performance.	<i>Supported</i>
H12: The relationship between the rate of change in board membership and operating performance will be exacerbated by environmental munificence, such that the less munificent the environment, the more detrimental the effects of higher rates of change in board composition on operating performance.	<i>Supported</i>

In addition, the rate of change in blockholder ownership results in a higher rate of change in boards of directors during the second year but does not affect the number of new executive appointees for the same period. More importantly, the results show that higher rates of change in boards of directors have a detrimental effect on firm performance when an accounting based measure is used as the performance indicator. I was not able to replicate those results when a market-based measure was used as the performance measure. The higher number of new executive appointees was not related to firm performance. Finally, environmental complexity and munificence were shown to moderate the relationship between the changes in boards of directors and firm performance but not on the relationship between changes in TMT and firm performance. In the next section, I will be discussing the implications of all of these findings.

CHAPTER 5

DISCUSSION, CONTRIBUTIONS, AND LIMITATIONS

Research Findings

My purpose in this study was to build several models for explaining the relationships between IPO underpricing, changes in ownership, changes in corporate governance mechanisms of young entrepreneurial firms and its impact on subsequent performance. I also investigated whether the external environment may impact such relationships. Based on the contentions of the signaling model (Leland & Pyle, 1977), Hypothesis 1 proposed that firms with higher returns on the first day, which means “the original owners have just left money on the table” (Ritter, 1991), were initially underpriced, and will experience changes in blockholder ownership after the IPO. Once some of the original blockholders are replaced with new ones, based on the general tendency of principals looking after their interests through appointment of their own agents (Daily et al., 2003), hypotheses 2 and 3 proposed that there will be subsequent changes observed in corporate governance mechanisms such as a higher rate of change in TMT membership (Hypothesis 2) and the board of directors (Hypothesis 3). In Hypothesis 4, I also proposed that the changes in TMT membership may also result from changes in the board of directors.

After these proposed changes in corporate governance mechanisms, based on the need for original directors and executives to continue with the previously successful entrepreneurial activities and not to diminish the entrepreneurial efficacy, hypotheses 5 and 6 proposed lower operating performance resulting from changes in corporate governance mechanisms. In the final sets of hypotheses (7-12) I also proposed that three dimensions of external environment, dynamism, complexity and munificence, as mentioned by Dess and Beard (1984) will exacerbate the negative relationship between the changes in corporate governance mechanism and operating performances of young entrepreneurial firms.

Looking at the results, I observed a positive relationship between first day returns and changes in blockholder ownership during the first year following the IPO. This finding was supported with not only regression analysis but also with an ANOVA that looked at the differences in underpricing for the firms that experience ownership change within the first year after the IPO time and for those that did not. These results show that subsequent blockholders assess the IPO performance of young entrepreneurial firms. The theoretical implications of these changes will be discussed in the following pages. In addition, the results also showed a positive association between rate of change in blockholder ownership and follow-up changes in board of directors. While the same situation did not apply to number of new executives, as I already mentioned, the way the variable is operationalized may be the reason behind that lack of significance. The significant relationship between the changes in board of directors and changes in blockholder ownership demonstrate that new owners are willing to appoint their own agents to look after their interests.

The next set of hypotheses was about the impact of changes in corporate governance mechanisms on firm performance. The results showed that when market based measures are used, the governance changes do not result in lower performance. However, when accounting based measures are used, I was able to show that the changes in boards of directors resulted in lower operating performance while the same was not the case for the relationship between the number of new executives and subsequent performance. This lack of significance is meaningful within the context of the general theme of this study as I originally proposed that these relationships are interrelated. In other words, since the changes in blockholder ownership did not result in a higher number of new executive appointments, the results did not reveal an impact of that variable on subsequent operating performance. On the other hand, blockholder ownership positively affected the rate of change in boards of directors, which resulted in subsequent negative impact on firm performance. This is in parallel to the general theme of this study. This finding shows that if the new owners of young entrepreneurial firms decide to interfere with the entrepreneurial efficacy of these firms by appointing new directors to the board, there is a negative impact on operating performance that is immediately observed after those changes. The managerial and theoretical implications of that will be discussed further in the following pages.

Finally, the results also demonstrated that the negative relationship between changes in the boards of directors and operating performance is exacerbated by environmental complexity and munificence. Under complex conditions, young entrepreneurial firms are still in need of the expertise and social capital provided by their original directors. In addition, if the environment is not munificent enough, these firms,

once again are in need of the experience, expertise and knowledge of their directors to cope with external conditions. The lack of significance of these potential moderator variables on the relationship between number of new executive appointments and operating performance once again makes intuitive sense. Since the results did not show any relationship between new executive appointments and firm performance, it is not surprising to observe a lack of relationship.

In short, these results show support for the general theme of this study and also for some of the individual hypotheses. I now turn to discuss the theoretical and managerial implications of these findings. This chapter will also explain the limitations and potential future extensions of this study and provide conclusions.

Theoretical Implications

Several theoretical implications of the findings of this study are worthy of mentioning. Recalling the propositions of signaling theory (Leland & Pyle, 1977; Welch, 1989; Allen & Faulhaber, 1989), underpricing is considered to be a signal about a firm's future. Research also suggests that investors are more likely to purchase blocks of stock in publicly traded companies when they perceive expected benefits to exceed expected costs (Demsetz & Lehn, 1985; Bethel et al., 1998). Based on the data I collected, I managed to demonstrate that young entrepreneurial firms with higher first day returns are likely to experience higher rates of change in blockholder ownership. This is in line with the basic contentions of the above-mentioned researchers. Recall from Chapter 3 that the rate of change variable is calculated based on the original owners being replaced by the new owners rather than the new owners gathering shares in the company while the original owners are still in place. This way of operationalizing the variable is unique and

makes theoretical sense. I proposed that young entrepreneurial firms, due their unique nature, are in need of inputs, knowledge, expertise and experience provided by their original owners that brought the company to the IPO stage. If they are still in place, they will continue to provide these resources. If new blockholders replace them, this process becomes more difficult. I believe finding a relationship between rates of change in blockholder ownership and underpricing is meaningful from that perspective.

The findings become even more meaningful when I turn to the relationship between rate of change in blockholder ownership and the rate of change in board membership. As mentioned in the previous chapter, there seems to be a positive relationship between the two. Beaty and Zajac (1994) contend that large equity holders will be keen for monitoring practices so they are more likely to be active in appointment decisions. Thus, new blockholders that replace the original ones, also decide to replace some of the original directors with their own appointees. In other words, once the new blockholders possess controlling power in young entrepreneurial firms, they are prone to interfere with the structure of the board of directors. I believe that such a finding is important for not only the IPO literature but also for the shareholder activism concept of corporate governance research. More importantly, these results demonstrate that in young entrepreneurial firms new blockholders are more interested in board composition than the top management team. For that reason, I was unable to demonstrate a significant *relationship between new executive appointees and changes in ownership structure*. As I mentioned before, while the lack of a statistically significant relationship may be due to the way the change in TMT variable was operationalized, new owners appear less interested in TMT composition than board composition. This means that, as members of

the dominant coalition, boards of directors receive more attention from active shareholders. New executive appointees do not seem to be a result of new directors either. This situation, once again, supports my explanation of more interest being paid to boards of directors rather than executives.

One of the motivators of this study was to demonstrate the detrimental effects of the transformations in young entrepreneurial firms during the post IPO period on operating performance. Kroll et al. (2007) recommended that the original executives of young entrepreneurial firms are needed for better post-IPO performance. In a previous study, Kor (2003) proposed that both sets of members of the dominant coalition are needed for success in IPO firms as the expertise and experience provided by the original members of the TMT and board of directors are sources of competitive advantage for such unique business entities. The results of this study show that, when accounting based measures are considered, interfering with the board of directors of the firms included in the analyses results in lower operating performance. I was not able to demonstrate that to be the case for executives though. This is not surprising as the replacement of these executives was not a result of new owners. I expected to observe a relationship between IPO performance and the rate of change in blockholder ownership during the first year following the IPO and then higher rates of changes in boards of directors and TMTs. Since the owners did not interfere with the TMTs of the firms included in this study, the changes in TMT did not result in lower operating performance. On the other hand, the extensive amount of attention paid to boards of directors and interference with the boards through replacement of original directors with new ones resulted in lower accounting-based operating performance. Although agency theorists (Jensen & Meckling, 1976) are

interested in presence of board vigilance for better firm performance, this may not be that crucial in the case of young entrepreneurial firms. Walters et al. (2010) mentioned that the agency problems are less acute in younger and smaller firms. Fama and Jensen (1983) recommended that in smaller firms, for better performance, strategic decision-making should be retained by the same individuals. The findings of this study support the propositions of those authors.

The difference in results between the market-based and accounting-based performance measures should also be discussed. My expectation was that different performance measures would reveal similar results and be positively related with each other. That was not the case with my data. King and Santor (2008) offer a good explanation for this contradiction. In their study, the authors observed that the organizational performances of the companies in their sample looked much better when ROA values are considered versus when Tobin's Q values are used as performance measures. A majority of the companies in their sample were family-owned businesses. Considering my sample was composed of young entrepreneurial firms, their explanation of this inconsistency in performance measures is applicable to the present study. "Family owned firms have higher profitability, but that future expected cash-flows are discounted more heavily by investors due to threat of expropriation by controlling shareholders" (King and Santor, 2008:2429). This is probably why I observed a strong negative correlation between accounting-based and market-based measures. Furthermore, this is also probably why as these young entrepreneurial firms become more established and the market players get to know them, their accounting-based and market-based performance measures start to reveal similar results. Ibbotson (1975) mention that underwriters should

“leave a good taste in investor’s mouth” as the risk associated with them is more extensive. In fact, that is why younger firms experience more underpricing (Jain, 1994). It turns out that for the first couple of years following an IPO, young entrepreneurial firms are still considered to be risky by investors which are reflected in lower-market based measures. While some of these companies do really well, it takes some time for investors to gain confidence in them. The uniqueness of young entrepreneurial firms (Kroll et al., 2007) and the need for adopting different mechanisms in their governance (Finkelstein and Hambrick, 1996) were previously mentioned. The difference between the performance measures also means that researchers should be cautious about the way they measure the performances of these types of firms. In addition to the major findings of this study, I believe the inconsistency observed between performance measures is also important and needs further attention in future studies.

The results also showed the moderating effects of some of the environmental variables. Recalling the work of Fredrickson (1984) concerning the need for companies to match their internal structure and processes with external environments, and the work of other researchers (McArthur & Nystrom; Boyd, 1995; Goll & Rasheed, 1997) that highlighted the need to account for environment when making strategic decisions, I believe it is not surprising to observe two of the dimensions of environment exacerbate the relationship between changes in corporate governance mechanisms and firm performance. In the case of young entrepreneurial firms, the results revealed that the need for original directors to provide their tacit knowledge (Kor, 2003) becomes even more critical given greater environmental complexity and less munificence. Young entrepreneurial firms are in need of internal mechanisms to deal with the external

environment (Brown & Eisenhardt, 1997; Walters & Buhian, 2004). Furthermore, the reason for not observing a moderating effect for environmental dynamism may be explained by the famous “liability of newness” contention of Stinchcombe (1965). Based on these results, I suspect that these younger firms are already operating in dynamic conditions due this liability of newness thus the lack of impact by environmental dynamism is understandable. On the other hand, environmental complexity and munificence dimensions of Dess and Beard (1984) do play a role and should be taken into account for the strategic decision making process.

Implications for Management Practice

Several implications for management practice emerge from this study. First, post-IPO shareholders of young entrepreneurial firms should be aware of the fact that if they interfere with the corporate governance mechanisms of these firms, their performance tends to suffer. Second, the impact on performance flows through the board of directors rather than the TMT. Thus, executives of these firms should expect to see new appointments on board of directors right after new owners secure controlling shares. Third, the results show that boards are more important than they used to be. In today’s economy, board members are more active and should be given greater scrutiny as they are now strategic decision makers rather than simple monitors of executive actions. Fourth, strategic decision makers of young entrepreneurial firms should understand that at this stage the market pays for growth rather than operating efficiency. In other words, no matter how successful they are based on accounting measures, it takes some time for the market to recognize that success. They are also seen as highly risky and because of that risk, they should expect to leave some money on the table during the IPO process.

Furthermore, young entrepreneurial firms are in need of the tacit knowledge provided by their original members of the dominant coalition if they want to maintain the entrepreneurial efficacy that brought them this far. Finally, the results show that young entrepreneurial firms, due to their size and liability of newness, are more volatile against the external environment. These firms should be aware that the need for retaining the original directors is even stronger when the external environment is dynamic and less munificent.

Future Research, Limitations, Conclusion

There are several possible future extensions of this study. For instance, the IPO stage of these firms should be investigated more thoroughly. While I managed to demonstrate the indirect effect of IPO performance on subsequent operating performance through changes in ownership and corporate governance mechanisms, I believe the story does not end there. What else triggers changes in ownership structure other than underpricing? What else triggers changes in corporate governance mechanisms other than the changes in ownership structure? Furthermore, researchers may adopt different ways of operationalizing certain variables. For example, rather than using new executive appointments as I did in this study, future researchers may prefer a different variable. Also, several other performance variables such as market return and return on equity can be introduced in future models. If possible, use of survey data from the strategic decision makers of young entrepreneurial firms may be insightful in understanding the decision-making routines in these companies.

Recalling the descriptive statistics mentioned in Chapter 4, the future researchers should also be looking into the potential importance of three variables in IPO literature.

These variables are: education structures of executives and directors, the presence of mergers and acquisitions among IPO firms, and the importance of venture capitalists on ownership structure. Among these variables, venture capitalists are probably the one that received the highest amount of attention. Previous studies demonstrated that venture capitalist presence is associated with lower IPO returns (Meggison & Weiss, 1991) and serve as a signaling mechanism for publicly traded firms (Sanders & Boivie, 2004). However, to my knowledge, their impact on subsequent changes in ownership structure was not thoroughly investigated. Such an investigation will not only serve the IPO literature but also the corporate governance literature. In addition, previous researchers were interested in the impact of education in firm governance (Bantel & Jackson, 1989). These authors were able to demonstrate that education is a determinant factor in firm innovation capabilities. Yet, to my knowledge, the importance of education in the case of young entrepreneurial firms is not clear. In future extensions of this study, that may be another variable to consider. Finally, as mentioned in the results section, a significant portion of the companies in my sample were acquired by or merged with other companies. Some of them were also delisted either voluntary or involuntarily due to bankruptcy. These happenings are certainly of interest to the researchers of entrepreneurship and corporate governance literatures. The answers to questions such as “what type of young entrepreneurial firms involve in acquisitions or mergers” and “why some young IPO firms go bankrupt so quickly?” will shed light to some of the unknowns of both streams of research.

Like any other study, this study has limitations. I tried to construct a large database, but the sample size in my study is limited. I used a five-year period for my

study although the sample size would have been much higher if a ten-year period was considered. Rather than using the 2001-2005 period, the sample size could have been larger if I had used 1996-2005 period. In future extensions of this study, my plan is to collect data for extended periods. Due to the sample size, my models did not have high statistical power. If I can manage to increase the sample size in the future extensions of this study this limitation will be eliminated. I did not include financial sector or energy sector companies in this study. Future researchers may choose to investigate the behavior of these specific industries apart from the industries included in my study.

In this study, my purpose was to contribute to the corporate governance, strategic management and entrepreneurship literatures and provide some insights for practitioners about young entrepreneurial firms. The results showed that the traditional approach adopted by shareholders to appoint their agents is not applicable in the case of these types of firms. It is natural for market players to gather controlling shares in promising firms. Yet, new shareholders should have confidence in the original strategic decision makers rather than having previously known parties to look after their interests. Investing in young and smaller firms is by itself risky, these investors should not make the situation more complicated by interfering with the corporate governance mechanisms of these firms. After all, my results showed that this interference is detrimental for firm performance, which is probably the last thing they would want to happen.

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