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Human and financial capital as determinants of biopharmaceutical IPO de-listings☆

David R. Williams *

Health Care Management Program, Department of Nutrition and Health Care Management, College of Health Sciences, Appalachian State University, Boone, NC 28608, United States

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ABSTRACT

The present study combines human capital theory with work on IPOs related to sources of financial capital of recent, publicly traded biopharmaceutical firms and relates this to the de-listing of these firms. The study follows the generally accepted view that more or better quality human capital is a positive factor in individual and firm performance to develop the hypotheses, positing a negative relationship between these factors and IPO de-listing. The results show that to a limited extent firms having CEOs with more or better human capital and strategic alliance partners are associated with biopharmaceutical IPOs' de-listing. The study further finds that de-listing in this industry is due primarily to acquisitions (and not financial distress) and that the findings differ based upon whether examining financial distress or acquisition de-listings. The study draws upon the IPO motivation literature to help explain the results.

1. Introduction

The management and financing of nascent firms are two of the most fundamental issues in enterprise research. For biopharmaceutical firms, the financing issue increasingly has been addressed by way of an initial public offering (IPO). The IPO represents an "extraordinary, transitory event" in the lives of many firms (Mak & Roush, 2000: 157). Research on IPOs has focused primarily on their financial and operational performance both before and after the IPO (Kooli & Meknassi, 2007). Few studies have analyzed the de-listing of IPOs after the offering (Fischer & Pollock, 2004), with most examining financial and market conditions' effect on firm de-listing (e.g. Baker & Kennedy, 2002; Sanger & Peterson, 1990).

Combining a human capital perspective with the IPO literature, the present study examines pre-IPO human and financial capitals' effect on firm de-listing after the IPO. Specifically, the study's interest is in knowing if chief executive officer (CEO) attributes and sources of capital are associated with recent biopharmaceutical IPOs' de-listing from the public markets. The study examines biopharmaceutical firms as they rely heavily on the talents of their managers (Baum & Silverman, 2004), are hyper-competitive (Oliver & Lieeskind, 1997), have considerable capital requirements (DiMasi & Grabowski, 2007; Xu, 2009), few financial resources of their own (McCutchen & Swamidass, 1996), long gestation periods for their marketable products (Williams & Pouder, 2010), and are strategically committed to one single industry (Liebeskind, Oliver, Zucker, & Brewer, 1996). The study chooses CEOs to examine as they are widely considered to occupy a position of unique and powerful influence on the firm (Daily & Johnson, 1997).

Human capital theory (HCT) suggests that firms with individuals with more or superior quality human capital achieve higher performance in accomplishing pertinent tasks (Wincent, Anokhin, & Örtqvist, 2010), which in turn should lead to a positive outcome for the firm. The study accepts this central tenet of HCT. The study examines the outcome of the IPOs' de-listing or non-de-listing status after three years of going public, as this is an understudied area, and is well beyond the typical lock-up period for pre-IPO investors to divest their investment in the firm.

De-listings are a frequent event on all stock exchanges (Fama & French, 2004). Firms de-list for two major reasons—financial distress and takeovers (Baker & Kennedy, 2002). Fama and French (2004) find de-listings between 1980 and 2001 to be primarily attributable to poor financial performance. Researchers (e.g. Bach & Smith, 2007; Welbourne & Andrews, 1996) typically associate de-listing with firm non-survival. This is because a negative financial performance de-listing typically signals the firm's inevitable financial collapse (Peristiani, 2003). The limited existing literature on IPO acquisitions suggests that targets of acquisitions are typically weak underperformers (Jain & Kini, 1999), with few acquired IPOs spun-off and re-listed in their original form. This study takes an overall view of a firm's de-listing as a negative outcome (but does not go as far to call it non-survival or failure) as it represents the end of a firm's stock being publicly traded by itself.

The study examines general, industry-specific, and firm-specific human capital factors associated with the IPO's CEO and relate them to firm de-listing. It also integrates the IPO literature related to sources of capital and their effect on IPO de-listing. In addition, the study tests to see if there are differences related to the variables in

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* Tel.: +1 828 262 7335.
E-mail address: willimsdr@appstate.edu.

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firms that do not de-list, and firms that de-list due to financial reasons or takeovers.

2. Theoretical framework and research hypotheses

2.1. Human capital theory

Inherent in the history of management scholarship is the view that top executives matter. Human capital theory (e.g. Becker, 1964; Hambrick & Mason, 1984; Schultz, 1961), specifically, suggests that a firm's outcomes can be partially predicted by managerial characteristics. Human capital theory primarily has been linked with three schools of thought: the behavioral school of decision making, social capital theory, and the resource based view of the firm. Hambrick and Mason (1984) joined HCT with the behavioral school of decision making (e.g. Cyert & March, 1963). Hambrick and Mason (1984) noted that managerial characteristics could act as indicators of the broad tendencies or behaviors that a manager brought to an administrative position. These behaviors are the product of the individual's experiences, training, and background also known as their cognitive base. HCT posits that increases in knowledge or skills enhance an individual's cognitive base or ability, typically leading to better outcomes for the firm (Davidsson & Honig, 2003).

One particular aspect of an individual's knowledge or cognitive base that HCT scholars note relates to the supporting relationships between professionals and other economic actors, otherwise known as social or relational capital (e.g. Fischer & Pollock, 2004; Pennings, Lee, & Witteloostuijn, 1996). Social capital can occur at both the individual or firm-specific level, but is mainly attributable to individual actors who provide critical resources (Davidsson & Honig, 2003). Typically, social capital is associated positively with firm performance.

Scholars also tie HCT to the resource based view (RBV) of the firm (e.g. Arthurs, Besenitz, Hoskisson, & Johnson, 2009; Dimov & Shepherd, 2005). This linkage maintains that the knowledge and capabilities of the CEO and other top team members act as resources that lead to competitive advantage as long as they are rare, valuable, inimitable, and non-substitutable (Barney, 1991). Furthermore, a CEO's experiences, characteristics, and knowledge may act as dynamic resources, leading to competitive advantage for the firm. This competitive advantage also may lead to the positive outcome of remaining publicly traded. Firms usually hire employees, including CEOs, based on their perceived human capital for this very reason, i.e. the CEO's human capital has transferable economic value for the firm (Becker, 1962; Lepak & Snell, 2002). Thus, the behavioral school of decision making, social capital theory, and RBV are used to reinforce and expand the central tenets of human capital theory—that is, people matter, and to a certain extent different people affect the firm and its performance differently based upon the level or characteristics of their cognitive bases.

Individuals can possess general, industry-specific, and firm-specific knowledge and skills (Becker, 1962). General human capital relates to an individual's education or life experiences that may enhance their overall decision-making ability (Cooper, Gimeno-Gascon, & Woo, 1994). Industry-specific human capital relates to the knowledge and capabilities that cannot be completely transferred to other industries. Whereas, firm-specific human capital represents a unique set of processes, procedures, and insights that have limited value outside of the originating firm (Gimeno, Folta, Cooper, & Woo, 1997).

2.1.1. General human capital

Becker (1964) notes that younger persons typically change jobs more frequently than older persons do. Hambrick and Mason (1984) propose that the age of managers was inversely related to their willingness to take risks, with younger managers being more inclined to take risk. Hambrick and Mason (1984) base their proposal on previous research that argues that older executives were less risk-tolerant due to their: (1) ability to grasp new ideas or integrate these ideas into the firm, (2) greater commitment to the firm and the status quo, and (3) desire to seek financial security rather than pursue new disruptive strategies that might lead to firm failure. Hambrick and Mason (1984) also associate younger managers with greater growth and variability in profits. Wiersema and Bantel (1992) found that firms in the process of strategic change are often managed by teams whose managers are younger.

The IPO process itself is a transformational change for the organization with new reporting and operational requirements (Peristiani & Hong, 2004). The pursuit of too much growth or change on the part of the firm, however, can lead to financial distress (Miller, 1977). Robbins-Roth (2000) notes that many of the private firms in the initial wave of biotechnology pursued too aggressive a growth strategy and suffered financial distress, with venture capital partners having to discipline them. In addition, younger managers may be more inclined to merger or acquisition than older CEOs believing that there may be additional opportunities in the established or acquiring firm. Younger CEOs also may believe that they have time once again to become a CEO elsewhere. Thus, the hypothesis:

Hypothesis 1a. In the biopharmaceutical industry, older IPO CEOs will be negatively associated with de-listing.

Education represents explicit knowledge that can be articulated, codified, and transferred between individuals and firms (Dimov & Shepherd, 2005). Higher levels of education of an individual can reflect greater cognitive knowledge and capability (Wiersema & Bantel, 1992). Thus, higher levels of education typically are associated with higher task performance by HCT scholars. Education also can reflect commitment, motivation, and discipline (Cooper et al., 1994), which are essential HCT qualities necessary to running a new venture.

The Master of Business Administration (MBA) degree is considered the main general professional degree for those wishing to manage firms. Erikson (2002: 283) notes that most graduating MBAs have “inherent business potential,” and that venture capitalists tend to invest in start-ups that have MBAs as part of their managerial talent. Hambrick and Mason (1984) suggest that those with a MBA are not as risk-prone as self-made executives are, with an MBA's didactic training more geared toward moderating tendencies for big losses or mistakes.

Thus, the hypothesis:

Hypothesis 1b. In the biopharmaceutical industry, IPO CEOs with a MBA will be negatively associated with de-listing.

Prior business experience also can play a significant role in performance. Experience aids in the assimilation of new knowledge and new situations (Davidsson & Honig, 2003). Senior management experience, specifically, may act to cultivate skills for interacting with diverse stakeholders and supervising disparate functions (Cooper et al., 1994). Few (if any) management jobs require greater breadth of experience than that of a CEO. Additionally, CEOs are the primary employees responsible for firm performance and the human capital that they bring from their prior CEO experience may lead to the firm's continued listing on a stock exchange. Thus, the hypothesis:

Hypothesis 1c. In the biopharmaceutical industry, IPO CEOs with previous CEO experience will be negatively associated with de-listing.

2.1.2. Industry-specific human capital

Cooper et al. (1994) note that industry-specific human capital can affect the performance of a firm by providing the tacit knowledge of the key success factors of an industry. Tacit knowledge relates to “know-how,” which is often non-codified knowledge (Davidsson &