

©Copyright 2012
Brandon E Fleming

Venture Capital Directors, Earnings Manipulation, & Firm Performance

Brandon E Fleming

A dissertation
submitted in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy

University of Washington
2012

Reading Committee:

Warren Boeker, Chair

H Kevin Steensma

Shivaram Rajgopal

Program Authorized to Offer Degree:

Foster School of Business

University of Washington

Abstract

Venture Capital Directors, Earnings Manipulation, & Firm Performance

Brandon E Fleming

Chair of the Supervisory Committee:
Professor Warren Boeker
Foster School of Business

The accounting system allows for flexibility in how earnings are presented, and this flexibility is susceptible to the incentives for managers and controlling stakeholders. Venture Capital (VC) firms have competing incentives when it comes to bringing portfolio firms public at an initial public offering (IPO), and the power that VC directors exert over the firm allows them to control policies set by the firm, including the disclosure of earnings. VC firm investors typically do not liquidate their holdings in portfolio firms until more than a year after the IPO, which means VC directors have an incentive to bring only high quality portfolio firms public. However, VC directors also have an incentive to bring portfolio firms to market faster, i.e., to “grandstand.” This dissertation looks to social networks of VC directors to explain earnings manipulation and, in turn, firm performance more than a year after IPO. My purpose is to demonstrate how social networks determine the dominating incentives and how social networks influence the relationship between earnings manipulation at IPO and firm performance more than a year afterward. The main premise of my dissertation is that embeddedness, or the degree to which individuals and organizations are connected, influences malfeasance.

Table of Contents

Part I Conceptual Overview

- Chapter I Introduction**
- Chapter II Literature Review**
- Chapter III Theory & Hypotheses**

Part II Evidence & Conclusion

- Chapter IV Data, Methods, & Measures**
- Chapter V Empirical Results**
- Chapter VI Conclusion**

Work Cited

Part I

Conceptual Overview

Chapter I

Introduction

1.1 Introduction

The catastrophic losses suffered by investors and employees from managerial malfeasance in companies such as Enron and WorldCom have resulted in broad changes in the institutional environment for public enterprises. At the heart of these changes is the broad interest in knowing how different governance structures lead to better performing firms. Weak governance structures can provide managers irresistible opportunities to abscond with the firm's resources. One of the crucial governance structures in public firms is the board of directors, which represents one of the most powerful tools by which investors monitor and control firms. How do the social networks of powerful investor directors lead to different levels of earnings manipulation?

While malfeasance can come in many forms, the most egregious occurs **when managers appropriate the firm's resources**. Malfeasance in public firms can be loosely defined as any activity that leads to a destruction of shareholder wealth while creating benefits for insiders. Shareholders, regulators, as well as other stakeholders are concerned about malfeasance, which has spawned research into both cause and prevalence. Prior research has focused mainly on the structural characteristics that affect malfeasance, such as board membership, audit committee composition, and board independence (Klein, 2002). Prior research has also focused on how incentives, such as manager compensation and turnover, will determine the amount of malfeasance. Thus the emphasis has been on how structures limit the incentives for malfeasance. However, this research has yet to demonstrate the relationship between the network position of directors and their choice to manipulate earnings.

The research on incentives and structure has ignored important relational aspects that influence the choices of actors (Granovetter, 1985). Research in economic sociology seeks to further our understanding of how actors' choices are affected by small-group dynamics and networks (Gibbons, 2005). A primary focus of economic sociology is the importance of network dynamics for explaining market outcomes; individuals are embedded, or interconnected, in social groups that exert pressure on decisions that impact the market (Granovetter, 1985). I extend this research by looking at the relationship between powerful investor directors, in this case venture capitalists (VCs),¹ and firm behaviors.

My study explores how the social networks of directors exert influence on VC firms, which then affect the amount of malfeasance that occurs either through direct intervention or control over top management in firms going IPO. In many cases VC directors of public firms can wield almost complete control, either through consolidation of shares or exclusive investment contracts.

Powerful directors occur in numerous situations. The most notorious instance took place in the late nineteenth century and resulted in the Clayton Antitrust Act of 1914, which prevents, in particular, the joint directorship of competing companies. Through joint directorships, powerful directors have tried to link firms into networks in order to pursue their own interests. One scenario in which powerful directors can be clearly identified is during the investment and pre-IPO phase, and the most extreme case is that of VC firm investment. VCs are easily identifiable through the IPO prospectus, and, as directors, VCs exert enormous influence over nearly all of the firm's material decisions.

While previous authors have focused on economic arguments for the incidence of malfeasance (Darrough & Rangan, 2005; Hochberg, 2008; Teoh, Wong, & Rao, 1998c), I examine when and to what extent the networks of powerful directors influence the magnitude of

¹ Here onward I will distinguish between the VC firm, the organizational entity, and the VC director, the individual tied to the organizational entity.

malfeasance. To examine the impact of networks on decisions I rely on findings from the literature on embeddedness to test the relationship between an actor's social networks and malfeasance. I address limitations of previous research by focusing on identifiable powerful directors—early-stage investors—who exert control over firms. Firms that rely on early stage investors for capital in the years prior to going public provide an excellent opportunity for studying the effects of powerful directors. Early stage investors acquire abnormal control rights, both contractually and via directorships, and are easily identifiable. Furthermore, early stage investors have a fairly consistent set of incentives during the initial public offering (IPO), a critical period of the firm's life. Lastly, the degree of oversight and monitoring of these firms by early stage investors establishes strict accounting conservatism in the years prior to IPO, which addresses concerns about private-versus going-public accounting in the years leading up to IPO (Ball & Shivakumar, 2008). I control for the degree of board independence, top management team power, firm characteristics, and industry dynamics. I use multiple measures of malfeasance and control for selection to assess the robustness of my results. The setting for my study is the board and top management team network of the 1,778 IPOs from 1997 to 2006, which brackets the market boom-bust-recovery period. I focus on the accounting manipulation in the 194 VC-backed IPOs from 2002 to 2006.

1.2 Research Strategy

My research examines the relationship between board member characteristics and accounting manipulation. Accounting manipulation describes managers' use of the flexibility in the Generally Accepted Accounting Principles (GAAP) to affect the overall picture of the firm. For instance, premature recognition of income and delayed recognition of expenses can mask problems in operating performance. Additionally, the timing of recognition of income and expenses can improperly frame strategic decisions. There are also forms of strategic decisions that may be made

for the purpose of affecting accounting variables, such as the choice to reduce research and development (R&D) spending, which could impact the firm's future performance.

The literature in accounting and finance has explored many forms of accounting manipulation. Researchers have demonstrated that managers sacrifice future profitability for current stability when they manipulate accounting information to meet the expectations of analysts and shareholders (Degeorge, Patel, & Zeckhauser, 1999). Additionally, managers are willing to sacrifice long-term profitability in order to meet short-term goals, such as analyst forecasts of earnings (Graham, Harvey, & Rajgopal, 2005). In order to report positive results in the short term, it is necessary for managers to borrow from the future, effectively paying for today's increased earnings with future under-performance. Empirical evidence indicates that firms that manipulate accounting information for short-term gain systematically under-perform those that don't (Degeorge et al., 1999; Teoh, Welch, & Wong, 1998a; Teoh et al., 1998c). Additional evidence on real earnings manipulation through, for instance, reducing R&D spending, selling fixed assets, or cutting prices results in an economically significant adverse affect on long-term performance (Gunny, 2010). Thus, managers who might have short-term incentives to manipulate accounting information do so to the detriment of shareholders and stakeholders who have an interest in the long-term performance of the firm. The popular press has also documented the adverse affects of accounting manipulation that led to the adoption of The Sarbanes-Oxley Act of 2002. My research addresses this concern by testing the performance of firms with greater accounting manipulation and by identifying clear outcomes for the actors involved.

Within each section I develop theoretical relationships between oversight, malfeasance, and performance of firms, and I describe possible alternative explanations for these relationships. I answer the following research question: which board member characteristics influence malfeasance during IPO?

New ventures with early stage investment represent a setting in which distinct short-term and long-term incentives potentially clash. The institutions that govern early stage investment place barriers on the immediate liquidation of portfolio shares upon IPO completion. These institutions determine how early stage investors raise funds, receive compensation, and earn their returns (Gompers & Lerner, 2001; Gorman & Sahlman, 1989; Sahlman, 1990). Early stage investors hold on to equity in IPO firms long after the IPO date (Barry, Muscarella, Peavy, & Vetsuypens, 1990; Sahlman, 1990), and in many cases investment banks require that the early stage investor retain equity positions for at least six months after the IPO (Gompers & Lerner, 2001). In particular, the long-term holding of IPO equity shares by early stage investors and their continued board membership after the IPO creates a unique set of circumstances that overcome the limitations of prior research on powerful directors. Across a broad class of firms at a critical event (IPO) I am able to examine the effects of social networks (board of director network) on powerful directors (directors who are also early stage investors) who have competing incentives to influence malfeasance (accounting manipulation).

1.3 Organization Of The Paper

This paper is organized as follows: In the next chapter I discuss the phenomenon of earnings manipulation and how board member characteristics relate to earnings manipulation at IPO. I also describe the literature on the role of incentives and monitoring to limit earnings manipulation. In chapter three, I then set forth the hypothesized relationships between board characteristics and earnings manipulation. Additionally, I look at the relationship between earnings manipulation and long-term performance. In chapter four I describe the data, methods, and measures I use in my research. In chapter five I discuss my empirical results testing the primary research question that motivates my research: how does the embeddedness of powerful directors

influence earnings manipulation? I also provide empirical results of the statistical test of the direct effects of earnings manipulation and embeddedness on firm performance. Chapter six concludes by extrapolating the larger consequence of my findings and explores directions for future research.

Chapter II

Literature Review

“Truth is the most valuable thing we have. Let us economize it.”
- Mark Twain in *Following the Equator*

2.1 Introduction

Truth in accounting is a relative concept. In theory, the discretion within the accounting system provides a mechanism through which an accurate representation of the firm can be disclosed to investors. In practice, many managers have abused their discretion to present a view of their firm that is consistent with their needs. For instance, on September 22, 2004, Fannie Mae, a mortgage-finance market leader, announced that a regulator had discovered that it had adjusted accounting figures to “dress-up” reported earnings to meet bonus compensation thresholds (Henry, 2004). Other recent examples of accounting malfeasance include WorldCom (underreporting of costs and inflating revenue), Adelphia Communications (use of false accounts to cover outright theft), and Enron (use of special purpose entities to hide debt and losses). These scandals underscore the importance of paying attention to how companies manipulate accounting figures. If manipulating accounting figures is malfeasance,² then how do we determine when managers will manipulate?

In this chapter I examine a specific form of accounting manipulation: earnings manipulation. I explore the literature around earnings manipulation that relates to my hypotheses, and I describe both how earnings are manipulated using the flexibility in the accounting system and the effects earnings manipulation can have on performance. Then I discuss the incentives for earnings manipulation and the evidence from the literature on the motivations for earnings manipulation. While motivation or incentives are important, I argue that the embeddedness of actors determines earnings manipulation behavior. Thus, I explore the research on embeddedness and social

² Here I am defining malfeasance as dishonest conduct by a person who holds a position of trust.

networks, which will lead into the main premise of my dissertation—that embeddedness influences malfeasance.

2.2 What is Earnings Manipulation?

Accrual accounting allows for the recognition of income in the quarter or year in which it was earned and not when it was actually received, and, similarly, it allows for the recognition of expenses when sales were made and not necessarily when the expenses were paid. For example, Halliburton Co. reported earnings of \$339 million in 2003, while it had spent \$775 million more than it actually took in from customers. Halliburton Co. had enormous expenses related to U.S. Army contracts for work in Iraq in 2003, which were expected to be paid later. However, Halliburton Co. recorded part of the revenues from the Army contracts in 2003 because they related to work done that year. According to GAAP the manner in which Halliburton Co. constructed its earnings was legitimate, but it does not necessarily mean that investors were clear on Halliburton's financial position. In this section I describe the phenomenon of earnings manipulation.

For the purposes of this paper, I adopt the following definition of earnings manipulation:

Earnings [manipulation] occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers (Healy & Wahlen, 1999: 368).

Thus, accounting choices can be perceived as credible signals of the firm's financial performance or, if stakeholders do not undo the effects of discretionary behavior, as misleading. This definition focuses on the aspects of earnings manipulation that relate to incentives, but it does not necessarily explain when earnings manipulation will occur. Ultimately, earnings manipulation is the adjustment of accounts to serve the interests of managers. Within the accounting system there is discretion for managers to disclose beliefs about the firm's economic environment. For example,

managers have the discretion to make allowances for uncollectable debt, but by adjusting the amount of expected uncollectable debt the firm's earnings can change significantly. Managers have the motivation to manipulate accounts in order to have the firm present higher earnings. Shareholders and stakeholders (i.e., employees) with an interest in the long-term performance of the firm are interested in the accurate representation of the firm's performance. In what follows I discuss how earnings manipulation occurs, and how it generally affects performance.

2.3 How Do Companies Manipulate Earnings and How Does It Affect performance?

Accrual accounting exists to match revenues and expenses as accurately as possible. Managers use their discretion to determine when these revenue and expenses will be recognized, and there are a number of ways that can be used to adjust earnings. The Halliburton example cited earlier illustrates how managers can use discretion to allocate revenues over time. A change in revenue estimates will directly affect the amount of earnings a firm reports, and managers can choose to recognize future sales early or late in an effort to smooth earnings. In good times managers may delay the recognition of sales for later periods when sales might be sluggish. Some industries have special types of sales allowances, such as the hospital industry's allowances for insurers and charity patients. Hospitals can make dramatic changes to their reported earnings by adjusting the allowances for insurers and charity patients, which receive a discount of as much as two thirds for services (Henry, 2004). Coupled to sales estimates are allowances for uncollectible debt, which enable managers to account for the percentage of receivables they predict will ultimately go into default.

Sales estimates and uncollectible debt allowances provide just two examples of earnings manipulation opportunities. Managers can make adjustments to inventory, cash, and accounting procedures for unusual transactions such as mergers and acquisitions. Using accounting discretion,

managers can change the amount of inventory that they write down by making a simple adjustment to the percentage expected to expire. Additionally, many firms use last-in first-out inventory accounting where older product is sold at current prices, which can dramatically increase earnings when making a change from first-in first-out inventor accounting. Cash accounts can also be manipulated due to the increasing practice of selling receivables to collection companies. For instance, large companies such as Boeing and Ford count as cash from operations the income from the sale of planes and cars that customers purchased using money borrowed from wholly owned finance companies (Henry, 2004). In these cases, cash from operations is higher even though the companies did not receive more cash. In addition, companies can buy securities when there is plenty of cash on hand and then sell them to have the cash ready for periods when cash is short, in effect smoothing cash flows. Lastly, there are numerous one-time or infrequent transactions that can be used to adjust accounting figures. Mergers and acquisitions can be used to explain high receivables and in some cases to provide a means for hiding poor performance. By strategically timing transactions, hiding transactions within other transactions, and adjusting estimates used in transactions, managers can effectively control or manipulate earnings.

The effects these manipulations have on firm performance can often be dramatic. Investors lost billions as the result of extreme earnings manipulation (i.e., fraud) at Enron, WorldCom, Adelphia Communications, and other companies. Many of the manipulations, such as changes to allowances for uncollectible debts, are reversed when those figures are not realized, which in turn creates a drag on future earnings. Companies with the most extreme evidence of manipulated earnings underperform by 10 percentage points a year when their stocks are compared to those of similar-sized companies. This manipulation costs investors an estimated \$100 billion or more in market returns (Henry, 2004).

Accounting and finance research has documented numerous instances where earnings manipulation is a harbinger of poor performance, and I reserve the discussion of this literature for later in this chapter. Beyond the material effects on misallocated investments due to earnings manipulation, firms get caught in a vicious cycle of escalating commitment each new fiscal year. This cycle causes further problems related to the effects of misallocating resources in order to realize the adjusted figures or in the attempt to cover up misstated earnings. The adverse effects of earnings manipulation are felt in the short-term by investors and stakeholders and have long-term effects on firm performance. Here I have sought to describe the ways earnings manipulation is achieved; in the next section I discuss why earnings are manipulated.

2.4 Why Does Earnings Manipulation Occur?

Though discretion exists, earnings manipulation requires both the opportunity and the incentive for it to occur. There are a number of stakeholder groups that have an interest in earnings manipulation behavior, and each has reasons to be for or against earnings manipulation. A brief summary of their motivations is captured in Table 1 below.

Table 1: Earnings Manipulation & Stakeholders

| Stakeholder | Motivation for Earnings Manipulation | | Overall Bias |
|-------------------------------|---|---|----------------|
| | In Favor | Against | |
| Standard Setters (SEC & FASB) | Discretion reduces the amount of documentation and thus the amount of oversight needed to monitor public firms. | Abuse of discretion leads to threats of government intrusion, thereby reducing the autonomy of public firms and standard setters alike. | Against |

| | | | |
|--|---|--|----------------|
| Debt Holders | Earnings manipulation might help the firm overcome short-term challenges. | Earnings manipulation leads to inefficient risk allocation, which affects appropriate interest rates for debentures. This inefficiency transfers risk from the firm to the bondholder. | Against |
| Shareholders: Long-Term | Earnings manipulation might lead to better access to debt and equity markets, and may help the firm overcome short-term challenges. | Earnings manipulation leads to less accounting slack (flexibility), which leaves the firm vulnerable to economic shocks. The lack of slack may also prevent the firm from taking advantage of strategic options, which may lead to deterioration in the firm's competitive position. Earnings manipulation leads to inefficient portfolio allocation due to inaccurate risk profiling. | Against |
| Shareholders: Short-term | Earnings manipulation might lead to better short-term stock performance. | Disclosure or discovery of earnings manipulation leads to a collapse in stock price. | Favor |
| Top Management Team (i.e., CEO, CFO, CIO, & COO) | Earnings manipulation leads to meeting performance expectations, which are rewarded with continued employment, higher salaries, and bonuses. It may also lead to better valuation of options granted under compensation agreements. | Disclosure or discovery of earnings manipulation may lead to a collapse in stock price, termination of employment, reputation destruction, lawsuits, and possible incarceration. | Favor |
| Employees (mid-level managers, blue-collar workers, support staff, & others) | Artificially inflated earnings may slow lay-offs and buttress retirement portfolios. | Disclosure or discovery of earnings manipulation leads to collapse in stock price, accelerated lay-offs, the destruction of retirement portfolios, and reduced job options via affiliation to manipulator firms. | Against |

| | | | |
|--|--|--|----------------|
| Service Providers (investment banks, accounting firms, law firms, & others) | | Disclosure or discovery of earnings manipulation by affiliated firms may lead to negative consequences for service providers' reputations and brands. | Against |
| Board of Directors | | Disclosure or discovery of firm's earnings manipulation leads to reputation erosion and loss of opportunities to serve on future boards, increased threat of lawsuits, and possible incarceration. | Against |

As the table above depicts, most groups have a bias against earnings manipulation. Short-term investors and top management are the only two groups potentially supporting the practice of earnings manipulation to overcome short-term challenges and to meet key earnings thresholds. Despite the potential support of the top management team, earnings manipulation has numerous negative consequences for managers, including damage to reputation, reduced chances of future employment, and legal liability for the harmful effects of earnings manipulation (Healy & Wahlen, 1999). In what follows I discuss the theory concerning the incentives for different stakeholders related to earnings manipulation, which informs the controls for my question of interest.

2.4.1 Agency Theory Explanations For Earnings Manipulation

Past research on earnings manipulation has relied almost exclusively on agency theory, focusing on incentives and monitoring to explain earnings manipulation. Agency costs are associated with the agency relationship, in which one party (the principal) engages another party (the agent) to perform a task (Eisenhardt, 1989; Jensen & Meckling, 1976). An agency problem arises when the goals of the principal and agent are in conflict and when it is costly or difficult to monitor the agent. In the case of the relationship between managers and owners, frequent conflicts occur, and it is usually quite costly for the shareholders to monitor the manager. Next, I discuss agency

theory explanations for earnings manipulation and the mechanisms that affect managerial opportunism: managerial incentives (e.g., compensation), ownership concentration, board oversight, regulatory effects, and incentive events (e.g., IPOs).

Managerial Incentives

Numerous mechanisms exist to align the interests of managers with shareholders in order to reduce agency problems. An important incentive factor influencing earnings manipulation is compensation. The way that managers are compensated can have a direct effect on the prevalence of earnings manipulation, and prior research demonstrates that stock option grants are the most economically important part of CEO wealth (Jensen & Murphy, 1990). Stock option grants, and the vesting period for such grants, will influence earnings manipulation by making managers vulnerable to the adverse long-term wealth effects of earnings manipulation. Stock options represent one corporate governance mechanism used to align the interests of the CEO and shareholders, because options are vested over a sufficiently long horizon of time to increase the CEO's share of risk in changes to the long-term performance of the firm. In contrast, if compensation incentives focus CEO attention on increasing short-term share price and earnings, then CEOs are motivated to manipulate earnings by presenting the firm in a misleadingly positive manner (Burns & Kedia, 2006; Cheng & Warfield, 2005). If stock options focus CEOs on long-term share price and earnings, then stock options will decrease the incentives managers have to manipulate earnings for short-term gains.

Managers with a longer tenure or who are founders may have more long-term incentives, which will also likely reduce the occurrence of earnings manipulation. Lastly, the proportion of the equity that the managers retain after equity offerings will also be negatively related to earnings manipulation given its ties to the performance of the firm.

Concentrated Ownership

According to the agency perspective, the structure of the ownership of the firm will act as a source of managerial constraint. Active ownership oversight of management has been tied to the concentration of ownership in the firm (Davis, 1991). If there is fragmented ownership, then the owners will be less likely to act in concert to constrain management (Berle & Means, 1932). This is the “Tragedy of the Commons” where dispersed ownership leads to sub-optimal oversight of management: no single investor has the incentive to commit resources toward monitoring management to the benefit of all. Concentrated ownership leads to increased control over the decisions and actions of management as voting blocks can be formed to force changes in the board of directors and top management (Shleifer & Vishny, 1997). Furthermore, other researchers have found that concentrated ownership will occur when management performance is difficult to ascertain (Demsetz & Lehn, 1985). Lastly, researchers have found evidence that concentrated ownership has a negative effect on the likelihood that anti-takeover provisions were adopted (Davis, 1991). In a similar manner, concentrated ownership should reduce earnings management.

Board Oversight

The board of directors, as fiduciary representatives of shareholders, acts as an oversight mechanism to monitor management and represent shareholder interests (Fama & Jensen, 1983). The board of directors provides a pivotal role in corporate governance by monitoring and disciplining management on behalf of shareholders (Fama & Jensen, 1983). Among the most important roles that directors perform is to scrutinize the performance of the firm, to exercise oversight of the firm on behalf of shareholders, and to terminate the chief executive when earnings

performance is poor (Fama, 1980). Among the measures of board oversight effectiveness, board independence is the most often cited.

Agency scholars have postulated that independent boards offer a powerful counter to CEO power, and that board outsiders are not beholden to the CEO and should thus provide objective perspective on managerial decisions (Fama & Jensen, 1983). Several studies have confirmed the important role that board composition can have on constraining the actions of self-interested CEOs. An early study found that firms with higher proportions of board outsiders paid less “greenmail”—the premium paid to outside firms attempting to acquire the firm—to fend off takeover attempts and preserve the CEO’s job (Kosnik, 1987). Other research has found that poor firm performance was more likely to lead to executive turnover in firms with higher proportions of board outsiders (Weisbach, 1988). Furthermore, other research demonstrates that CEOs facing increases in board independence, as measured by the proportion of outsiders, were more likely to use ingratiation and persuasion in relations with board members (Westphal, 1998). Lastly, researchers have explored the importance of board independence in the formation of joint ventures, finding that firms with a higher proportion of outside board members were less likely to form alliances given a lower level of trust between the board and management (Gulati & Westphal, 1999). Board oversight is therefore greatest in firms with more independent boards, and consequently increasing board independence reduces agency problems and earnings manipulation.

Regulatory Effects

The effects of changes in regulation and enforcement of accounting in public firms can change the incentives for earnings manipulation. After the financial crises of 2000, new rules and regulations were implemented to restrict earnings manipulation. The Sarbanes-Oxley Act of 2002 was implemented to reduce earnings manipulation through mandatory regulation and increased

penalties imposed on boards and managers that allow earnings manipulation. Any study of earnings manipulation over time needs to take into account operating environment changes, such as the Sarbanes-Oxley Act of 2002, in order to distinguish the separate factors influencing earnings manipulation. The effects of operating environment changes may be greater for existing public firms than for IPO firms. Existing firms must adopt a new set of standards whereas IPO firms will be adopting the new standard as part of the IPO process. However, earnings manipulation should be lower after fall 2003 when the Sarbanes-Oxley Act came into effect, but most firms anticipated the new regulation and implementation occurred as early as 2002.

Incentive Events

Prior research has looked at the agency incentives around key financing events such as seasoned equity and initial public offerings (SEOs and IPOs). The shareholders who sell equity at SEO and IPO have an incentive to support earnings manipulation. Earnings manipulation can be used to increase the likelihood and amount of the SEO or IPO, which benefits shareholders who sell equity at the SEO or IPO. However, the sale of stock by inside shareholders would send a negative signal to the market and would have a drastic and negative impact on share price (Gompers & Lerner, 2001). For this reason investment banks take steps to prevent inside shareholders from selling equity to realize short-term gains; inside investors are typically restricted from the sale of stock until at least six months after the offering (Brav & Gompers, 2003).

For shareholders who do not sell equity at the offering, there is an incentive to prevent earnings manipulation. The manipulation of accounting variables can have an adverse affect on the firm's performance after the offering, as the accruals that are not realized will either be reversed in next year's accounts or will set up the firm for outright fraud, as was the case for Enron. Earnings manipulation will lead to a lower post-offering stock price, thus eroding the value of the equity

retained by shareholders. This applies to the first-day investors who purchase the offering firm's stock and who do not want to see earnings manipulation at offering. These shareholders are in a worse position, as they will have purchased overvalued stock that may depreciate rapidly in the face of unraveling earnings manipulation. Lastly, the investment bank responsible for the equity offering will have competing incentives. On the one hand, in a firm-commitment offering the investment bank purchases all of the equity up front and will want to liquidate its holdings, which may be facilitated by earnings manipulation. On the other hand, the reputation of the investment bank may be reduced by an equity offering with aggressive earnings manipulation. The competing interests of the offering firm's stakeholders are directly related to the various factors associated with earnings manipulation.

2.4.2 Research Using Agency Theory Explanations For Earnings Manipulation

In this section I present the extensive research in finance and accounting that has considered agency theory explanations of the relationship between the incentives outlined above and earnings manipulation behavior. Table 2 identifies researchers, measures of earnings manipulation, and key findings.

Table 2: Earnings Manipulation Literature Overview

| Author(s), Date | Research on Earnings Manipulation | | |
|---|-----------------------------------|-------------------------|--|
| | Dependent Variable | Independent Variable | Finding |
| (Healy, 1985; Holthausen, Larcker, & Sloan, 1995) | Income Deferring Accruals | Management Compensation | Bonus caps reached increase the use of income deferring accruals |
| (DeAngelo, 1988) | Change in Accruals | Management Buyout | No effect |
| (Jones, 1991) | Unexpected Accruals | Import Relief | Income deferring accruals in year of import relief application |
| (Cahan, 1992) | Unexpected Accruals | Anti-trust Violations | Income decreasing accruals in investigation year |

| | | | |
|---|----------------------------|--|---|
| (Aharony, Lin, & Loeb, 1993) | Total Accruals | Initial Public Offerings | Income increasing accruals affected by firm size and leverage but unrelated to auditors and underwriters |
| (Friedlan, 1994) | Total Accruals | Initial Public Offerings | General evidence of income increasing accruals in the period leading up to the IPO |
| (Perry & Williams, 1994) | Unexpected Accruals | Management Buyout, Change in Revenues, and Change in Depreciable Capital | Effect of management buyouts on earnings decreasing accruals |
| (Key, 1997) | Unexpected Accruals | Industry Deregulation | Income deferring accruals in year of political scrutiny |
| (Burgstahler & Dichev, 1997; Degeorge et al., 1999) | Earnings | Distribution about 0 earnings | Higher-than-expected frequency of firms with slightly positive earnings |
| (Teoh, Welch, & Wong, 1998b) | Unexpected Accruals | Seasoned Equity Offerings | Effect on income increasing accruals |
| (Teoh et al., 1998a; Teoh et al., 1998c) | Unexpected Accruals | Initial Public Offerings | Effect on income increasing accruals |
| (Erickson & Wang, 1999) | Unexpected Accruals | Stock Financed Acquisitions | Effect on income increasing accruals |
| (Bushee, 1998) | Change in R&D Expenditures | Institutional Ownership | The percentage and type of institutional investor affects earnings manipulation to avoid losses |
| (Burgstahler & Eames, 2003) | Unexpected Accruals | Analyst Forecasts | Effect on income increasing accruals to meet expectations |
| (Demski & Frimor, 1999) | Accruals | | Managers smooth earnings using accruals in an attempt to maximize future payoffs from the relation between compensation and performance |
| (Kasznik, 1999) | Unexpected Accruals | Management Forecasts | Effect on income increasing accruals to meet management earnings forecasts |
| (Klein, 2002) | Unexpected Accruals | Board Independence | Income increasing accruals effected by board membership, audit committee composition, and board independence |
| (Abarbanell & Lehavy, 2003) | Unexpected Accruals | Analyst Recommendations | Effect on income increasing/decreasing accruals contingent upon buy/sell recommendations |

| | | | |
|--|--|---|---|
| (Dechow, Richardson, & Tuna, 2003) | Earnings | Distribution about zero earnings | Firms with both small positive/negative earnings have significant abnormal accruals |
| (Darrough & Rangan, 2005) | Unexpected Accruals and R&D Changes | Initial Public Offerings, VCs, and Insider Share Selling | Insider selling negatively related to changes in R&D at IPO. Inconsistent results for VCs |
| (Morsfield & Tan, 2006) | Unexpected Accruals | Initial Public Offerings and VCs | Income increasing accruals lower for VC-backed IPOs after controlling for lock-up provisions and partial cashing out |
| (Harris & Bromiley, 2007) | Financial Misrepresentation | Management Compensation and Relative Firm Performance | Increasing probability of restatement for increasing option compensation and for lower performance compared to industry |
| (Bowen, Rajgopal, & Venkatachalam, 2008) | Accounting Discretion (composite of unexpected accruals, accrual smoothing, & negative surprise avoidance) | Corporate Governance Quality (short-run managerial compensation, CEO duality, board independence) | Poor governance quality is associated with greater accounting discretion |
| (Hochberg, 2008) | Unexpected Accruals | Initial Public Offerings, VCs, and Corporate Governance | VC-backed IPOs have lower abnormal accruals and more independent boards |
| (Boulton, Smart, & Zutter, 2011) | Country-Level Earnings Quality | Earnings Quality, Underwriter Reputation, and IPO Underpricing | Countries with low earnings quality are associated with more underpricing. Underwriter reputation is negatively related to underpricing |
| (Lee & Masulis, 2011) | Unexpected Accruals | Initial Public Offerings, Investment Bank and VC Reputation. | Prestigious VC and Investment Banks are associated with less earnings manipulation |

Research on earnings manipulation has largely considered the level of accounting accruals as a proxy for managers adjusting accounting variables to meet earnings targets. The literature in the table above has assumed an agency theory perspective, but the support varies substantially. The evidence in Table 2 demonstrates that board independence is associated with less earnings manipulation, but the evidence of the effect of incentive alignment (e.g., managerial compensation) on earnings manipulation is mixed (Dechow, Ge, & Schrand, 2010). Though past research has sought to support the relationship between the incentives to manipulate earnings (i.e., bonus plans,

political pressure, earnings changes, and performance evaluation) and the prevalence of earnings manipulation, it has largely been unsuccessful. The reason may be that the embeddedness of the actors involved has not been examined.

With respect to IPOs, there is substantial evidence that the incentive to influence equity valuations leads to earnings manipulation through accounting choices (Aharony et al., 1993; Friedlan, 1994; Morsfield & Tan, 2006; Teoh et al., 1998a). Furthermore, the effects of earnings manipulation on long-term performance are influenced by the presence of powerful intermediaries such as VCs, underwriters, and large institutional investors (Darrough & Rangan, 2005; Field & Lowry, 2009; Lee & Masulis, 2011). However, these studies have focused exclusively on the incentives of the various parties to the IPO, basing their evidence on the balance between incentives to protect reputation versus those to extract profit. What is not considered is the embeddedness of organizations and individuals within social structures, and how it limits freedom to manipulate earnings.

2.5 Conclusion

This chapter summarized the literature on earnings manipulation as it relates to my phenomena of interest—Initial Public Offerings. In the following chapter I explore the major focus of my research: the embeddedness of powerful directors and its relationship to earnings manipulation. The current chapter has demonstrated that the body of work in the accounting and finance fields has validated the importance of accounting manipulation to organizations and stakeholders. This body of work allows me to devote my analysis to discerning the differences among organizations and stakeholders in influencing the choice of whether to manipulate earnings in the year prior to IPO.

Chapter III

Theory & Hypotheses

3.1 Introduction

My research addresses the lack of consistency in past findings on the effects of firm characteristics on earnings manipulation prior to IPO, as well as the lack of theory for explaining which firms will manipulate earnings prior to IPO. The period prior to IPO is a unique context to study the effects of VC and board characteristics on earnings manipulation, as public investors and analysts are not yet involved in reviewing the financial decisions of the firm. The factors that I will exploit in order to explain when firms are likely to manipulate earnings prior to IPO begin with the characteristics of the VC firms responsible for taking these firms public. Then I will discuss the importance of the IPO firm's board, and the incentives of the lead VC director; both play key roles in decisions about reporting earnings as the firm goes public. Lastly, I will discuss the impact these characteristics have on the effects of earnings manipulation and long-term performance.

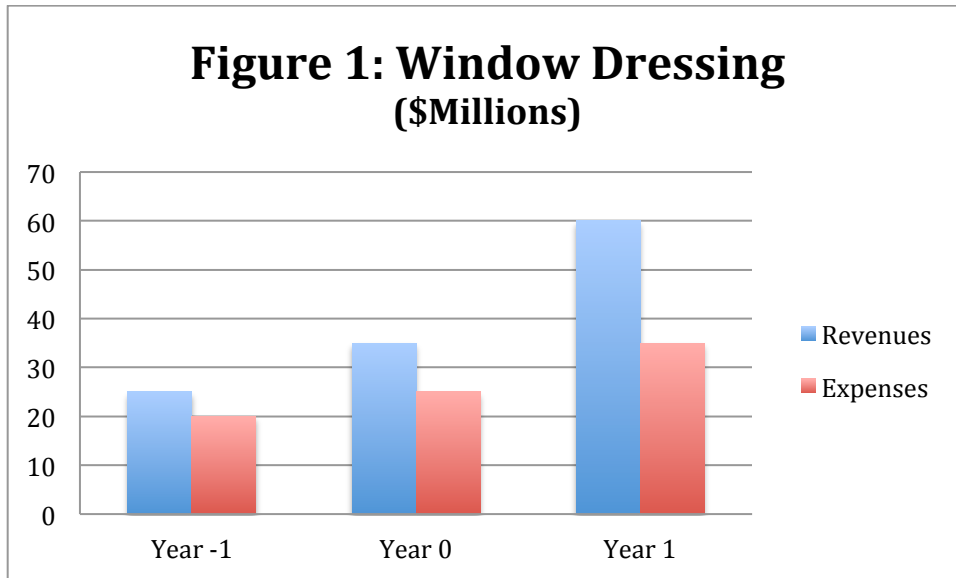
3.2 VC And Boards Of Director Effects On Earnings Manipulation

Venture capital firms must demonstrate competence early in their existence in order to raise money for future investment (Gompers & Lerner, 2001). Taking new ventures public is the most important indicator of competence for the VC firm (Gompers, 1996). The need to demonstrate competence creates the motivation to take firms to IPO as early as possible, in some cases earlier than is prudent, and it has been argued that younger VC firms may rush new ventures to IPO (i.e., they may "Grandstand") in order to demonstrate competence and make a name for themselves (Gompers, 1996). Gompers (1996) finds that companies backed by young VC firms fail earlier and are more underpriced than companies backed by older VC firms. Furthermore, it may be risky to

bring new ventures to market prematurely, and the full disclosure of the accounting performance of the new venture makes it difficult to hide from the market the fact that the firm may not be ready for going public.

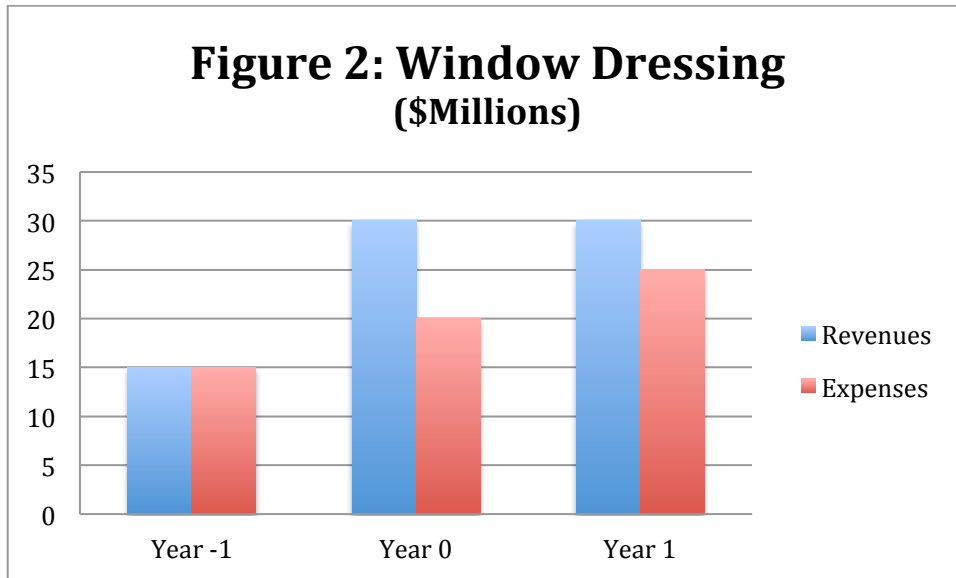
One consequence of bringing firms to IPO prematurely is that the objective performance of the new venture may be weaker than one would expect in a firm preparing to go public. If this is the case, the VC firm may be motivated to “window dress” the new venture. Window dressing refers to the use of short-term accounting transactions to temporarily mask poor sales or higher expenses and so to make the firm’s numbers better and represent a more productive or successful investment (Hughes, 2010). Here I refer to a specific type of window dressing of new ventures going IPO, which is to manipulate accounting earnings in the fiscal year prior to IPO. Using the ambiguity and discretion in GAAP for the way earnings and expenses are recorded, younger VC firms mask the prematurity of the new venture. Through accounting discretion the earnings of new ventures are artificially increased to help ensure a successful close to the IPO. For example, the chart in Figure 1 illustrates a typical pattern of revenue and expenses for a new venture around IPO³ (fiscal year prior to IPO is Year 0).

³ I use the median VC-backed IPO from 2002-2006 to generate this example.



In Year -1 revenue received for the start-up is only slightly greater than expenses, which results in a small profit. Then in Year 0 the situation is improving: revenues are growing and profits show a small increase. Finally in Year 1, immediately following the IPO, the firm is growing and profits are significantly higher. For new ventures this is the typical pattern, but for firms going public prematurely the earnings picture may be retarded by a year or more of lower profits.

What happens if the VC brings the firm public a year early? In Figure 2 we see a potential earnings scenario of a new venture, which is created by moving the IPO up by a year but adjusting earnings using accounting discretion.



Here the firm has barely achieved break-even in Year -1. In order to compensate for weak earnings in the year prior to IPO, the firm moves \$5 million in future revenues into Year 0. Thus, revenues from Year 1 are moved into Year 0 to increase reported earnings in Year 0, facilitating a successful IPO. Using accounting discretion the new venture will be presented in a better light and make the VC firm's job of creating a successful IPO easier.

There is ample evidence that such window dressing has subsequent negative consequences. As the example in Figure 2 illustrates, borrowing from future earnings results in reduced future performance. This is consistent with past research demonstrating that manipulating earnings upward will lead to poorer performance in subsequent years (Degeorge et al., 1999; Gunny, 2010; Teoh et al., 1998a; Teoh et al., 1998c). The fact that VC firms retain equity for at least a year after the IPO sets up a tradeoff between incentives (Barry et al., 1990; Sahlman, 1990). Short-term incentives to make the IPO successful lead to earnings manipulation upward, but long-term incentives tied to retaining equity long after IPO create incentives to restrict earnings manipulation that will hurt future performance. However, this formulation ignores the effect of reputation on decisions regarding these tradeoffs.

VC Firm Social Capital

VC firms build social capital to establish a good reputation with other organizations that they need to successfully launch a new venture, including investment banks, law firms, scientists, other VC firms, and entrepreneurs (Gompers & Lerner, 2001). Social capital in this case refers to the network of established relationships that an organization can leverage to help a firm succeed (Coleman, 1988; Nahapiet & Ghoshal, 1998). Investors observe the affiliations of high status organizations with new ventures (Certo, 2003; Hochberg, Ljungqvist, & Lu, 2007; Megginson & Weiss, 1991). These organizational endorsements influence investors, which leads to a greater willingness to invest and provide resources (Meyer & Rowan, 1977). In this way, VC firms' social capital is directly related to the ability of the IPO firm to secure investment from public markets.

The influence of VC firm reputation on external opinion also affects decision-making—in particular the extent to which VC firms are willing to engage in behavior that investors might view negatively. Organizational reputation influences choices to deviate from accepted business norms (Cowen & Marcel, 2011), and the reputation of an organization will influence the choice to engage in deviant behavior (Phillips & Zuckerman, 2001). One measure of reputation is prestige, which captures the level of competence and success of an actor (Jensen, 2008; Podolny, 1994; Stuart, Hoang, & Hybels, 1999). Prestigious VC firms are associated with greater success in bringing new ventures public and with better performance after the IPO (Hochberg et al., 2007; Stuart et al., 1999). Additionally, VC firms with more prestigious affiliations to investment banks are connected to lower earnings manipulation (Lee & Masulis, 2011). Thus more prestigious VC firms will have more to lose from earnings manipulation at IPO, because prestigious VC firms will have more social capital at risk from poor performance after the IPO.

H1: VC firm prestige has a negative relationship to earnings manipulation prior to IPO.

IPO Interorganizational Networks

VC firms create and tap into networks of inter-firm relationships to support new ventures. Through VC firms, new ventures are connected to law firms, universities, scientists, professional managers, clients, suppliers, and eventually investment banks. Thus VC-backed new ventures that go IPO become embedded in a set of social networks created by their VC firms. Embeddedness refers to the degree to which individuals are tied or connected to others (Uzzi, 1996). A significant amount of economic behavior is shaped by networks where trust and predictability are frequently favored over opportunism (Granovetter, 1985). The embedded relationships of organizations lead to networks of relations that store information about the reliability and competence of partners (Gulati, 1995; Powell, Koput, & Smith-Doerr, 1996). Past work on embeddedness has demonstrated that the structure of relationships between firms limits opportunism. Firms embedded in a network of relationships rely on trust to create patterns of exchange—firms rely on embedded relations to facilitate the transfer of resources and sensitive information (Uzzi, 1997) and to identify potential partners (Gulati & Gargiulo, 1999). Thus, actors within a network of interorganizational relationships will rely on the network to transfer information about the reliability of potential partners, and the level of the partner's embeddedness will help to predict the performance of the partnership (Gulati & Sytch, 2007). VC firms actively pursue partnerships with multiple organizations, and these repeated interactions lead to the development of a network of relations.

In what follows, I focus on the relationships between VC-backed IPO firms within the network of all IPO firms. The structure and nature of the ties between IPO firms limit freedom and

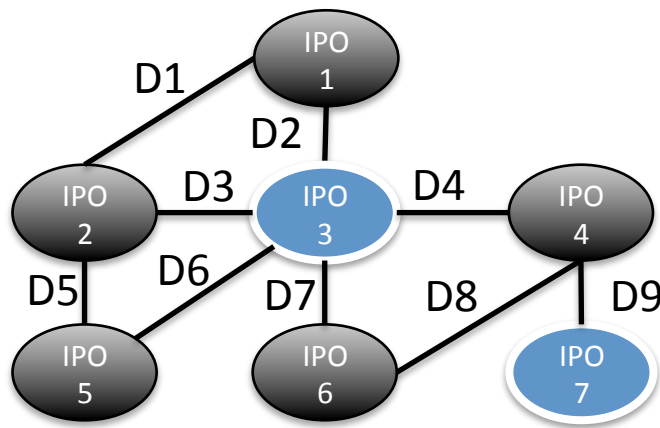
choice (Granovetter, 1985; Zukin & DiMaggio, 1990), as information about past behavior will be transmitted through the network, thus influencing the probability that VC firms will partner with future IPOs. This will be most acute for VC-backed new ventures going IPO where network ties facilitate the flow of information (Uzzi, 1996), which will in turn restrict behavior such as window dressing earnings prior to IPO.

The specific network ties I focus on relate to board interlocks between IPO firms. Network theory is founded on the premise that actions and behaviors are a function of actors' positions within social structures (Simmel, 1955[1908,1922]). Simmel (1955[1908/1922]) identifies the core idea of social networks, which is that the structure of relationships creates opportunity and reward for its members. Network research has explored multiple levels of analysis in order to gain insights into how networks shape the behaviors of actors. There are three main analytical levels of networks: 1) the ego network, which consists of the actor's direct contacts, 2) the overall network, which consists of all of the actors and relationships within a particular domain, and 3) network position, which identifies an actor's coordinates within the overall network (Burt, 1980; Kilduff & Tsai, 2003). Networks are often overlapping, which means that relationships cross many levels, and a careful understanding of any given level of analysis is important when studying interorganizational networks.

There are numerous measures used to define aspects of networks (e.g., distance, clustering, structural holes, and equivalence), but I focus on centrality as it describes how information may flow through a network (Scott & Davis, 2007). Centrality describes the relative importance of an actor within a system and is the most common measure of network position (Scott & Davis, 2007). Figure 3 depicts a hypothetical board interlock network between IPO firms connected by their directors (D1 through D8) who are VC investors. IPO 3 is directly connected to IPO 1 through

shared VC director D2. IPO 3 is also connected to IPO 2, IPO 4, IPO 5, and IPO 6 via a number of shared VC directors. Lastly, IPO 3 is indirectly connected to IPO 7 via its direct connection to IPO 4. This network shows that IPO 3 is highly connected and thus more central to the IPO network. Contrast this to IPO 7, which is only connected to IPO 4 through VC director D9. By all measures of centrality IPO 3 is more central than IPO 7 to the IPO board interlock network.

Figure 3: IPO Board Interlock Network



The board interlock network between IPOs is important given the complex circumstance of sharing directors. New venture board member behavior is embedded in networks of interorganizational relations, and economic action or strategic choices are results of information transfers across the board interlock network (Mizruchi, 1996). Networks are useful mechanisms for transporting information, inferences, and beliefs between actors; indeed, “the presence (or absence) of a tie between two market actors is an informational cue on which others rely to make inferences about the underlying quality of one or both of the market actors” (Podolny, 2001). Therefore a tie between actors can serve as a “pipe” that conveys information or as a “prism” that refracts the quality of the actors based on their connections. Focusing on the IPO board interlock network as a conduit transferring information across members of the network (Burt, 1995; Podolny, 2001; Uzzi, 1996), I argue that information about window dressing may spread through the IPO board interlock

network. This is most acute for VC-backed IPOs, as the reputations of VC directors who create the interlocks will be most sensitive to the ill effects of poor firm performance. VC-backed IPOs that are distant from the center of the IPO board network, and are thus less subject to information diffusion, have the least to lose from window dressing IPO firms. Therefore the more central the VC-backed IPO is to the IPO board network, the greater its embeddedness and thus the greater the constraints on window dressing prior to IPO.

H2: VC-backed IPO centrality has a negative relationship to earnings manipulation prior to IPO.

As a corollary to the argument that embedded ties lead to less negative behavior, I argue that firms in a position to control information flow have greater freedom to engage in self-serving behavior. The occurrence of window dressing earnings prior to IPO will be more frequent when the structure of network ties allows the firm to restrict the flow of information (Uzzi, 1996). The most extreme control over information is made possible when a firm acts as a bridge, or a structural hole, between other organizations. Firms acting as structural holes have better access to and control over information and can thus benefit from that control (Burt, 1995). VC-backed IPOs that form the bridge between other firms in the IPO board network control information diffusion and have the least to lose from window dressing IPO firms. The existence of structural holes between firms has most often been examined as “betweenness,” which represents the number of times that an actor is on the shortest path between any two other actors in the network. Therefore the more often the VC-backed IPO provides a bridge between other firms in the IPO board network, the greater its power over information diffusion and thus the less constraint that the network exercises on window dressing the firm prior to IPO.

H3: VC-backed IPO firm network power has a positive relationship to earnings manipulation prior to IPO.

Lead VC Director Prestige

VC firms are composed of individuals dedicated to the process of identifying new ventures for investment potential. These individuals often take important governance roles in new ventures; they often become board members of the venture in order to monitor and oversee the operation of the firm as well as to provide advice and counsel. VC directors create and maintain relationships with the top management team as well as with other VC directors (Gorman & Sahlman, 1989; Sahlman, 1990). Thus VC directors are embedded in a network of social relationships, which significantly impact their freedom of choice.

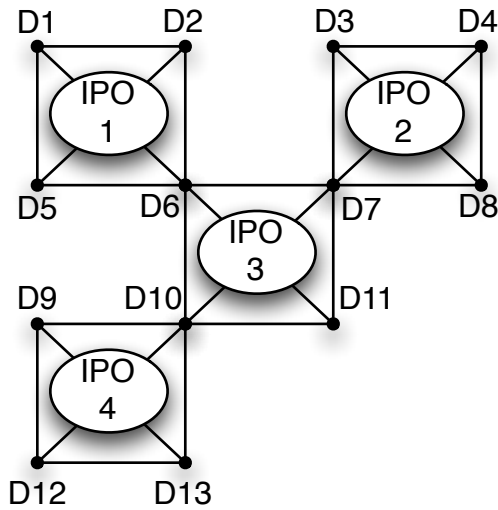
An important mechanism through which VC directors develop direct network ties is investment syndication between VC firms. The VC firm investment syndicate refers to the network of joint investments in new ventures by VC firms. The proclivity of VC firms to invest through syndicates is rooted in concerns about risk and uncertainty. The VC investment syndication network serves to transfer resources through the connections in that network, which include access to investment opportunities, risk sharing, and access to knowledge (Bygrave, 1988). The number of VC firms investing in a new venture lowers the uncertainty surrounding the investment and highlights the knowledge-sharing role that VC firm syndication networks can provide (Bygrave, 1988). Additionally, the reach of potential investments appears to increase with network centralization. VC firms that build centralized positions in the syndication network increase their access to information pertaining to spatially distant new venture targets (Sorenson & Stuart, 2001). Past research has demonstrated that VC firm syndication networks serve as conduits or, transferring information about the VC firm's quality—that is, its ability to make superior investment decisions in

the highly uncertain new venture context (Podolny, 2005). Nowhere is the connection in the VC firm syndication network stronger than in the direct contact between VC directors on the new venture's board of directors.

The most important director on a new venture's board is the lead VC director. The lead VC director represents the interests of the lead VC firm investing in the new venture. The lead VC firm is typically the largest or most important VC investor in the firm, and, in this role, it oversees most of the formal work of the investment (e.g., due diligence and legal contracting). The lead VC also introduces the new venture to other VC firms to create a syndicate. The most active individual on behalf of the VC firm will take a board seat, becoming the lead VC director overseeing the investment. The responsibilities of the lead VC director are to determine the continued fitness of the new venture for further rounds of cash infusions and to time the IPO so as to make the VC firm's exit most profitable. Additionally, the lead VC director will determine which other VC firms should be allowed to invest in the new venture (Kaplan & Strömberg, 2003). Therefore the lead VC director is responsible for selecting which VC firms will be part of the new venture's future fundraising rounds. Naturally, as other VC firms are brought in to provide syndicated investment in the new venture, the board composition will change. Though the board composition will change as new VC directors are elected by the VC firm investors, the lead VC director will remain on the board and will have the greatest board seniority at IPO.

The syndication among VC firms for investment in the new venture leads to direct contact between VC directors via joint directorship and board interlocks with other IPO firms. Below is a simplified example of the director network for IPO firms (Figure 4).

Figure 4: IPO Director Network



Each cluster of directors represents a set of directors on the same IPO firm (e.g., directors D1, D2, D5, and D6 are co-directors for IPO 1). Director D6 is a board member of two IPO firms, which represents direct connections between the two sets of directors. Director D6 is indirectly connected to directors D3, D4, D8, D9, D12, and D13 via direct connections with directors D7 and D10. Director D6 is a central director to this network graph of IPO directors. In contrast, director D13 is indirectly connected to directors D6, D7, and D11 via a direct connection with director D10. By all measures of centrality director D6 is more central than D13 to the IPO director network, and if each is a lead VC director, then the network constraints on window dressing will be higher for director D6 than for D13.

Directors of multiple boards serve as information conduits and transfer organizational practices across firms whose boards they serve on (Davis, 1991; Haunschild & Beckman, 1998). Normative information consisting of general or specific techniques of innovations can be passed from director to director (Haunschild & Beckman, 1998). The quality and structure of the ties between directors will limit their freedom and choice (Granovetter, 1985; Zukin & DiMaggio, 1990). Director reputation and exchange will be a function of their position in the network (Uzzi &

Lancaster, 2003, 2004). Therefore the connections between directors on IPO boards will represent a “prism” that refracts the quality of the director based on his or her connections to other directors (Podolny, 2001). Better connected directors within the network of IPO firms will have greater prestige, which will serve to constrain their ability to window dress new ventures.

Highly connected directors will be more prestigious than directors with few connections. Prestigious directors will have more to lose from the long-term effects of window dressing on post-IPO performance. Through repeated interaction between IPO directors, participants learn about each other and about the market for new ventures (Uzzi & Lancaster, 2003). As a broker of relationships the lead VC director will use their prestige to solicit high-quality directors and investors. The ability to broker relationships is a function of the lead VC director’s prestige, and the adverse consequences of window dressing will jeopardize their ability to broker future investments in new ventures. In contrast, less prestigious lead VC directors will have little to lose from the deleterious long-term effects of window dressing on performance.

H4: Lead VC director prestige has a negative relationship to earnings manipulation prior to IPO.

Lead VC Director Experience

VC directors are under enormous pressure to demonstrate competence as the VC firm raises money, invests in new ventures, and returns profits to investors. For an emerging VC director, establishing a track record of strong performance is crucial to raising funds for investment in new ventures. VC directors early in their career have less to lose; the lure of lifetime wealth may induce them to take more risk (Aggarwal & Jorion, 2009). However, as the VC director gains more experience and becomes established, investments in new ventures will generate more steady income that the VC director may not want to put at risk. At later stages of the VC director’s career it will be

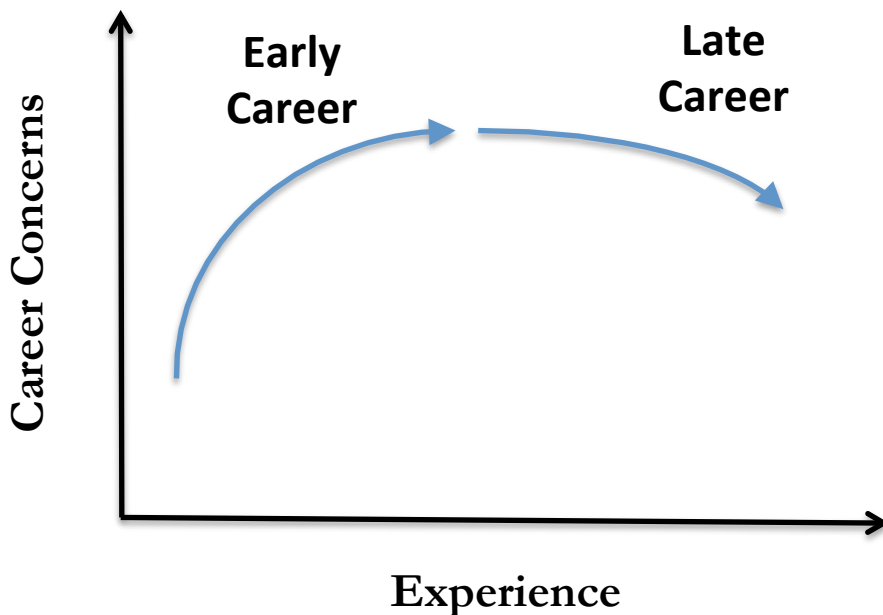
more important to preserve acquired wealth and reputation. Thus industry experience, which I define as the amount of time an individual from a VC firm has spent in the VC industry, will directly impact VC directors' evolution of risk taking.

Risk-taking behavior as a function of life-cycle considerations has been well documented. In perhaps the most influential work on this subject, Prendergast and Stole (1996) developed a model of individual decision making when their choices disclose his or her job performance ability. In this model managers will exaggerate their own abilities and engage in riskier behavior, but this effect diminishes over time and the manager becomes increasingly conservative (Prendergast & Stole, 1996). This model has found validation in research on CEOs (Gibbons & Murphy, 1992), stock analysts (Hong, Kubik, & Solomon, 2000), hedge fund managers (Aggarwal & Jorion, 2009), residential loan officers (Hertzberg, Liberti, & Paravisini, 2010), and VC firms (Gompers, 1996). The literature on the life-cycle concerns of career professionals demonstrates that early career choices are marked by more risky behavior than later career decisions.

An important characteristic of the VC industry is that career concerns are most acute at the midpoint of the life of the VC fund. VC funds typically have a five to seven year life, and toward the end of the VC fund's life VC directors are under pressure to demonstrate that the money in the fund has been successfully invested. Not unlike tenure in academia, the first couple years of the VC director's career are not as critical in determining success. However, after the first years of a VC director's career, which is paced much like that of a new faculty member, the pressure becomes acute to demonstrate that investments will pay off. Therefore the pressure to manipulate earnings to achieve a successful exit from an investment begins to build and peak in the remaining years of a VC fund's life. After this peak the VC director either exits the industry or successfully demonstrates ability, in which case the pressure decreases.

This research suggests that risky behavior manifests in activities like window dressing and taking firms to IPO too soon. Figure 5 below graphs the relationship between the VC director's career concerns and the choice to window dress earnings in new ventures going IPO. Early in the VC director's career the pressure to demonstrate competence and the lure of future wealth leads to more window dressing of new ventures prior to IPO. However, as the VC director develops more experience, increases personal wealth from a stream of investments, and establishes a reputation, he or she will have more to lose—thus reducing the tendency to window dress new ventures prior to IPO.

Figure 5: VC Director Career Concerns & IPO Window Dressing



Industry experience will have an important effect on VC director behavior. VC firms are private partnerships subject to lighter regulatory requirements than public funds. VC director compensation is based on a fixed management fee for the VC firm funds, as well as a performance

fee structured as an option on the VC firm's profits. The VC director must be able to demonstrate good performance in the form of IPOs in order to raise money for future investments in new ventures. For early-career, lead VC directors, the value of the option on the VC firm's profits is increasing in the volatility of the investment, a feature that results in early-career, lead VC directors taking greater risks. However, as the lead VC director gains more experience, this effect is greatly reduced, perhaps through the lead VC director's investment of a large fraction of his or her wealth into the fund itself. Therefore lead VC director industry experience will have a strong positive relationship with window dressing IPO firm earnings at the start of their career, but this relationship will peak and reverse itself as the costs to reputation and personal wealth begin to outweigh the perceived benefits.

H5: Lead VC director experience has an inverted U-shaped relationship with earnings manipulation prior to IPO.

3.3 How Does Earnings Manipulation Affect Long-Term Firm Stock Performance?

As mentioned earlier, prior literature has demonstrated that earnings manipulation is bad for the firm. Manipulating earnings upward has a negative impact on short-term performance after seasoned equity offerings (Teoh et al., 1998b) and IPOs (Teoh et al., 1998a; Teoh & Wong, 2002; Teoh et al., 1998c). Additional evidence demonstrates that investors penalize firms accused of manipulating or found to have manipulated earnings (Beneish, 1997; Dechow, Sloan, & Sweeney, 1996; Foster, 1977). Manipulating earnings upward for short-term gain results in short-term earnings increases at the expense of long-term earnings stability (Degeorge et al., 1999). This suggests that earnings manipulation can affect share prices, and that investors do not necessarily see through earnings manipulation.

While investors are concerned with earnings manipulation, they still view earnings as a better indicator than other accounting measures of firm performance. This is confirmed by research that current earnings are still the best indicator of future cash flows (Dechow, 1994). Stock markets fail to use insider self-dealing events, such as stock option exercise, to proxy for greater earnings manipulation probability. This is consistent with research that demonstrates that the exercise of executive stock options predicts negative abnormal stock performance (Bartov & Mohanram, 2004). The authors also demonstrate that disappointing earnings in the post-exercise period represent a reversal of inflated earnings in the pre-exercise period. Additionally, firms with more earnings manipulation have less persistent earnings (i.e., earnings growth), and investors fail to pick up on this problem (Richardson, Sloan, Soliman, & Tuna, 2005). While earnings may be the best indicator of future cash flows, the cognitive limitations of investors may limit their ability to detect all forms of earnings manipulation. This is confirmed by research which demonstrates that investors do not identify earnings manipulation (Hirst & Hopkins, 1998). Given that markets will have trouble identifying both earnings manipulation and the managerial incentives to do so, it is important to ask how earnings manipulation to window dress performance pre-IPO will impact post-IPO stock performance.

In order to report positive results in the short term it is necessary for managers to borrow from the future, effectively paying for today's increased earnings with future under-performance. The choice of manipulating earnings upward prior to IPO reflects the pressure the firm is under to misrepresent its financial position and to demonstrate to the market that it will do well if it goes public. Aggressive accounting in the year prior to IPO can be masked by the short-term influx of cash from public investors as a result of the IPO. However, the firm is starting off behind in the long-run game of competition. Therefore firms with earnings manipulated upward should, in the future, underperform those that have not.

H6: Earnings manipulation prior to IPO has a negative relationship with long-term performance.

Effects of VC firm prestige, IPO firm embeddedness, & lead VC director prestige on long-term stock performance

VC firm prestige, IPO firm embeddedness, as well as lead VC director prestige are different facets of the overall social capital available to the new venture. Social capital is the value of the relationships that is shared mutually between individuals through relationships (Portes, 1998). Organizations are dependent on human labor in order to produce products and services, and this dependence creates benefits and costs to social capital (McPherson, 1983). The value of social capital to the individual (Adler & Kwon, 2002; Portes, 1998; Portes & Sensenbrenner, 1993) will lead to organizational advantage or disadvantage for as long as these relationships exist. Researchers argue that social capital in the form of structural holes creates value in the form of returns to networking, information, or power (Burt, 1995). Ultimately the social capital of the individuals tied to IPO firms will continue to influence performance for as long as the individuals are tied to the organization.

Prior literature has noted that VC firms typically maintain equity stakes for at least a year after IPO (Barry et al., 1990), and thus the performance of the IPO firm in the years after the IPO are important to the VC firm. Additionally, the relationships that the IPO firms developed prior to the IPO should continue to provide needed resources and support in the years following the IPO. Prior evidence also demonstrates that lead VC directors typically remain on the board for at least a year after IPO (Barry et al., 1990); therefore the performance of the firm after IPO will be important to the lead VC director. Prior literature has demonstrated that VC investment has a positive relationship with long-term performance (Higgins & Gulati, 2003; Hochberg et al., 2007; Jensen, 2008; Megginson & Weiss, 1991; Sorenson & Stuart, 2001; Stuart et al., 1999). IPO firms with more

social capital will have more resources and therefore should perform better than those that have less social capital.

H7a: VC firm prestige prior to IPO has a positive relationship with long-term performance.

H7b: VC-backed IPO firm embeddedness prior to IPO has a positive relationship with long-term performance.

H7c: Lead VC director prestige prior to IPO has a positive relationship with long-term performance.

3.4 Conclusion

This chapter explored explanations for why, how, and when earnings manipulation occurs. I briefly described the phenomenon of earnings manipulation and provided some examples of how earnings are manipulated. I reviewed theory and empirical research that has direct bearing on my research question, and I identified literature that may have relevance but is not as directly related. In my literature review I discussed the theory at a general level. In the latter half of the chapter I discussed my extensions of the existing theory in order to extend our understanding of how interorganizational networks relate to earnings manipulation. The role of lead VC directors was discussed, in particular their relative power and influence and the networks connecting these directors. In the final part of this chapter I discussed the importance of earnings manipulation on firm performance. The next chapter reviews the data and methods for testing my hypotheses.

Part II

Evidence & Conclusion

Chapter IV

Data, Methods, & Measures

4.1 Introduction

In this chapter I discuss the data, methods, and measures I use to test the validity of my propositions. I rely primarily on archival data accessed through a range of public and private sources. Ultimately the tests I use rely on hand-collected data and methods developed in both the accounting and finance literature. The methods used to generate statistical artifacts of IPO-board and VC-partner networks come from the literature in sociology on social networks. Using these measures I then go on to test specific hypotheses in the subsequent chapter. The purpose of this chapter is to build familiarity with data and methods for my later empirical tests.

4.2 Data

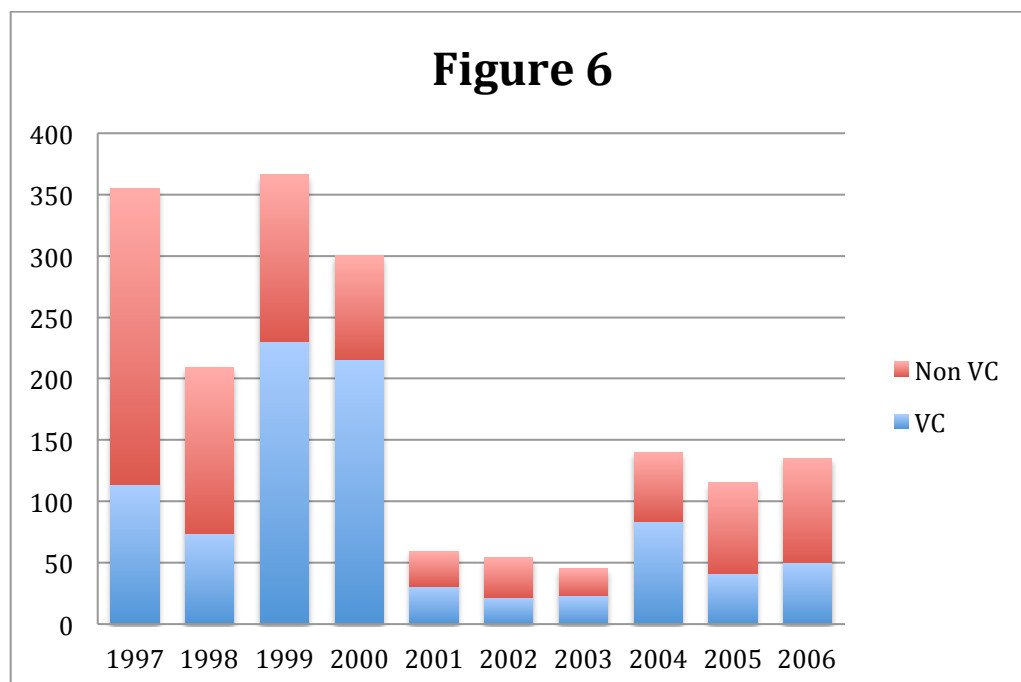
The data for testing the hypotheses in later sections of this paper come from four primary sources: SDC, Kenney & Patton's IPO database (Kenney & Patton, 2010), SEC filings, and the CRSP/ COMPUSTAT merged database. I use the SDC database to identify all IPO firms for my sample period. The SDC database allows me to select only those firms backed by VCs. However, I needed to make changes to reflect data-coding errors per Jay Ritter's website and those explained on Alexander Ljungqvist's (Ljungqvist, 2001; Ritter, 2011). Board director and top management team information for approximately 90% of the IPOs came from Kenney & Patton's IPO database (Kenney & Patton, 2010). The remaining board and top management team information were hand collected from proxy filings in the SEC EDGAR online database of filings. I first downloaded all available S-1 filings for the sample period of interest and then all available Proxy statements. Proxy statements are initial filings that disclose the nature of the proposed IPO, firm-level data meeting the auditing requirements for listing, and the amount of the offering. S-1 filings add more detailed

accounting information as well as information on the offer date and size. I identify VC-backed IPOs based on a reading of the “principal shareholders” and “recent transactions” sections contained in the IPO prospectuses. Using these two documents for each IPO firm I gather information on the top management team and the board of directors for the approximately 10% remaining IPO observations. Lastly, I use the CRSP/COMPUSTAT merged database to provide the accounting variables used for calculating abnormal accruals and to calculate the different measures of long-term performance. COMPUSTAT accounting data for the two years prior to IPO were incomplete, and it was necessary to hand collect this data from IPO proxies.

4.3 Sample Design

The data sample is selected to take advantage of the data availability in the form of electronic SEC filings. Electronic filings are made available for the period 1993 to the present through the SEC EDGAR website (SEC, 2011). However, the database of filings does not become exhaustive until late 1996, which means that some filings for the period 1993 to 1996 would have to be collected from the SEC directly by written request for paper copies. Therefore I use the sample period 1997 to 2006 to take advantage of the electronically available SEC filings and minimize the number of paper filing requests.⁴ There are 1,778 IPOs (885 of which were VC-backed) for the period 1997-2006 after excluding non-standard reporting firms (e.g., REITs) and foreign-based filers. Figure 6 shows the distribution of IPOs over the time period.

⁴ Excluded are special purpose IPOs, such as those for Real Estate Investment Trusts (REITS), Closed (Open)-End Funds, Banks, and other Special Entities for which IPOs are generated. These firms are under different disclosure rules and regulations, and they have non-standard structures. Many of these firms also lack operating accounting information.



Additionally, I need at least one-year post-IPO data and two-years pre-IPO, which means that the accrual analysis will be conducted only on firms that exist one year after and two years before the IPO. The sample period surrounds abnormal periods for public firms with extreme positive systematic performance (the dot-com bubble of 1999) and extreme negative systematic performance (dot-com collapse and the financial crisis of 2001). However, the sample of firms I will study via accrual analysis will be VC-backed IPOs in the years 2002 to 2006. Table 3 below provides a breakdown for the sample and summary statistics.

Table 3: Sample Description

| US Publicly Traded Firms | | |
|---|-------|-------|
| Panel A: U.S. Initial Public Offerings Population Construction* | | |
| IPOs from SDC, 1997-2006 | | 2,941 |
| Exclusions: | | |
| Financial & Regulated Firms | (969) | |
| American Depository Receipts | (98) | |
| Non-US Headquarters | (96) | |
| Final Population | | 1,778 |
| Panel B: U.S. VC-Backed Initial Public Offerings Sample Construction | | |

| | | |
|--|---------|-------|
| Restricted IPO Population 1997- 2006 | | 1,788 |
| Exclusions: | | |
| 1997-2001 Offerings | (1,230) | |
| Non-VC-Backed | (337) | |
| Zero Sales | (20) | |
| Acquired Year After IPO | (3) | |
| Missing Data | (4) | |
| Final Sample | | 194 |

Panel C: Number of Observations in Accrual and R&D samples, by year

| Event Year | IPOs | |
|------------|------|-----------|
| | All | VC-Backed |
| 1997 | 355 | 114 |
| 1998 | 209 | 74 |
| 1999 | 366 | 230 |
| 2000 | 300 | 216 |
| 2001 | 59 | 31 |
| 2002 | 54 | 22 |
| 2003 | 45 | 23 |
| 2004 | 140 | 84 |
| 2005 | 115 | 41 |
| 2006 | 135 | 50 |
| Total | 1778 | 885 |

Panel D: Summary Statistics

| | All IPOs | | VC-Backed IPOs | |
|--|----------|--------|----------------|--------|
| | Mean | Median | Mean | Median |
| Total assets (t-1) (\$mil) (N=1,742, N=833) | 295 | 29 | 60 | 22 |
| Sales(t-1) (\$mil) (N=1,709, N=827) | 302 | 27 | 56 | 13 |
| Share Price, (\$) fiscal year end (N=1,664, N=798) | 21.45 | 14.88 | 24.61 | 14.63 |

U.S. firms are defined as having the USA as the country of legal incorporation according to COMPUSTAT (FIC), which excludes ADRs and foreign filers. Only IPOs for NYSE, NASDAQ, or AMEX are considered. Firms going public on OTC, Pink Sheet, Small Cap, and other exchanges are omitted. Summary statistics apply to pre-IPO values except share price.

Panel A of Table 3 describes the process of arriving at the final IPO population. Financial and regulated firms are under different reporting requirements and have different governance structures and were therefore excluded. Non-US firms are under different reporting requirements and are subject to non-US regulatory agencies and were therefore excluded. Panel B of Table 3 describes the process for selecting the final sample for analysis. In order to have at least 5 years of data for constructing the network measures of interest, the sample period was reduced to 2002-2006. I also excluded non-VC-backed IPOs to focus on the incentives around VC-backed IPOs. There were initially 221 VC-backed IPOs in this time period, but 20 were dropped because these firms had zero sales,⁵ three were dropped that were acquired in the year after IPO, and four were dropped for lack of operating accounting information in the two-year period prior to IPO.⁶ The final sample for analysis is, then, 194 IPOs. Panel D of Table 3 provides summary statistics for all versus just-VC-backed IPOs. Due to limitations in the COMPUSTAT data summary statistics are provided for most but not all of the 1,778 IPOs. The summary statistics demonstrate that VC-backed IPOs tend to have fewer assets and sales in the year before IPO, but have a higher share price at the end of the fiscal year of the IPO. This perhaps demonstrates the greater expected growth of VC-backed IPOs.

4.4 Measurement Of VC Firm Prestige

Prior researchers have constructed measures of prestige of VC firms to predict performance and accounting choices using syndication networks (Hochberg et al., 2007; Stuart et al., 1999) and using counts of successful IPOs (Lee & Masulis, 2011). To determine whether or not the VC firm is in the list of top 35 VC firms I will use the simple measure of the amount the firm raised in 2007. Hence Table 4 lists the top 35 VC firms according to amount raised in 2007.

⁵ Firms with zero sales do not have relevant accruals for the analysis of earnings manipulation. Nor do they report earnings, but only simple losses.

⁶ Two firms were small-business filers, which have reduced reporting requirements. Two firms did not exist two years prior to the IPO.

Table 4: Top VC Firms As of 2007

| Venture Capital Firm | Inception | Investors | Directors |
|--|-----------|-----------|-----------|
| Bessemer Venture Partners | 1911 | Yes | Yes |
| Norwest Venture Partners | 1961 | Yes | Yes |
| Greylock Partners | 1965 | Yes | Yes |
| Morgenthaler Ventures | 1968 | Yes | Yes |
| Mayfield Fund | 1969 | Yes | Yes |
| Sprout Group/New Leaf Venture Partners | 1969 | Yes | Yes |
| Charles River Ventures | 1970 | Yes | Yes |
| Fidelity Ventures | 1970 | Yes | Yes |
| Sequoia Capital | 1972 | Yes | Yes |
| Kleiner Perkins Caufield & Byers | 1972 | Yes | Yes |
| Menlo Ventures | 1976 | Yes | Yes |
| Oak Investment Partners | 1978 | Yes | Yes |
| New Enterprise Associates | 1978 | Yes | Yes |
| Atlas Venture | 1980 | Yes | Yes |
| Rho Ventures | 1981 | Yes | Yes |
| US Venture Partners | 1981 | Yes | Yes |
| Sevin Rosen Funds | 1981 | Yes | Yes |
| Accel Partners | 1983 | Yes | Yes |
| Mohr Davidow Ventures | 1983 | Yes | Yes |
| Sigma Partners | 1984 | Yes | Yes |
| Draper Fisher Jurvetson | 1985 | Yes | Yes |
| Domain Associates | 1985 | Yes | Yes |
| Canaan Partners | 1987 | Yes | Yes |
| Highland Capital Partners | 1988 | Yes | Yes |
| Intel Capital | 1991 | Yes | No |
| Advantage Capital Partners | 1992 | Yes | Yes |
| IDG Ventures | 1995 | Yes | Yes |
| Insight Venture Partners | 1995 | Yes | Yes |
| Benchmark Capital | 1995 | Yes | Yes |
| VantagePoint Venture Partners | 1996 | Yes | Yes |
| Index Ventures | 1996 | Yes | Yes |
| Prism Venture Partners | 1996 | Yes | Yes |
| Meritech Capital Partners | 1999 | Yes | No |
| General Catalyst | 2000 | Yes | No |
| Elevation Partners | 2004 | No | No |

Of the 35 VC firms listed in Table 4, only 34 were identified as investors, and 31 had affiliated VC directors in the population of IPO firms from 1997-2006. One of the VC firms, Elevation Partners,

did not have any presence, and this may be the result of its 2004 founding date. If an IPO firm had a VC firm investor in Table 4, then it was coded as 1 for having a prestigious VC firm affiliation. The number of shares held and sold at IPO by the VC firm was also collected to control for the incentives of the VC firm investor.

4.5 Measurement Of IPO Board And VC Director Networks

At the core of my analysis on board member characteristics, and in particular the characteristics of VC partners, is my assertion that I have a closed network, i.e., a network that contains relevant actors and excludes irrelevant actors. The purpose of my analysis is to “search for *deep* structures—regular network patterns beneath the often complex surface” of the new venture investment social system (Wellman, 1983). In order to analyze the new venture social system I must address the boundary specification problem. The boundary separates the set of actors that describe and identify the population that the researcher is studying from those who don’t (Wasserman & Faust, 1994). There is a danger of extending the boundary beyond the relevant relational network, which creates a risk of capturing ties or connections that are unrelated with the theoretical relationship but are correlated with the variables of interest (e.g., endogeneity). There is also the danger of overly constraining the network boundary, which may bias the results by severing important ties that either support or refute hypothesized relationships between the positions of the actors and the variables of interest. Thus omission of relevant actors or the careless misrepresentation or inclusion of actors can lead to biased or unfounded results (Barnes, 1979).⁷ Error in the definition of network boundaries can lead to a fundamental misrepresentation of the process under study (Laumann, Marsden, & Prensky, 1989).

⁷ This is consistent with recent research on the reliability of measures of centrality and prominence when the network is denser (Zmijewski & Hagerman, 1981).

To address this concern I define the boundary of the closed population using the process identified by Laumann, Marsden, and Prensky (1989). The authors specify three approaches: a positional approach relying on the characteristics of actors or membership, an event-based approach relying on the participation of actors in mutual activities, and a relational approach relying on some form of social connectedness. I employ the first two approaches in concert to arrive at a network boundary. The first step is to identify an event that is mutually relevant for the VC social system, which I define as the IPO. My rationale is that IPOs are identified in the extant literature on VCs as the primary exit vehicle for VC returns on investment (Gompers & Lerner, 2001). The second step is to define specific attributes of the actors or formal membership criteria. In this case IPO firms must be members of industries of interest to VCs. This criterion excludes firms and industries that are outside of the VC investment scope.⁸ Thus the VC social network consists of the board of directors of IPO firms where VC activity is relevant.

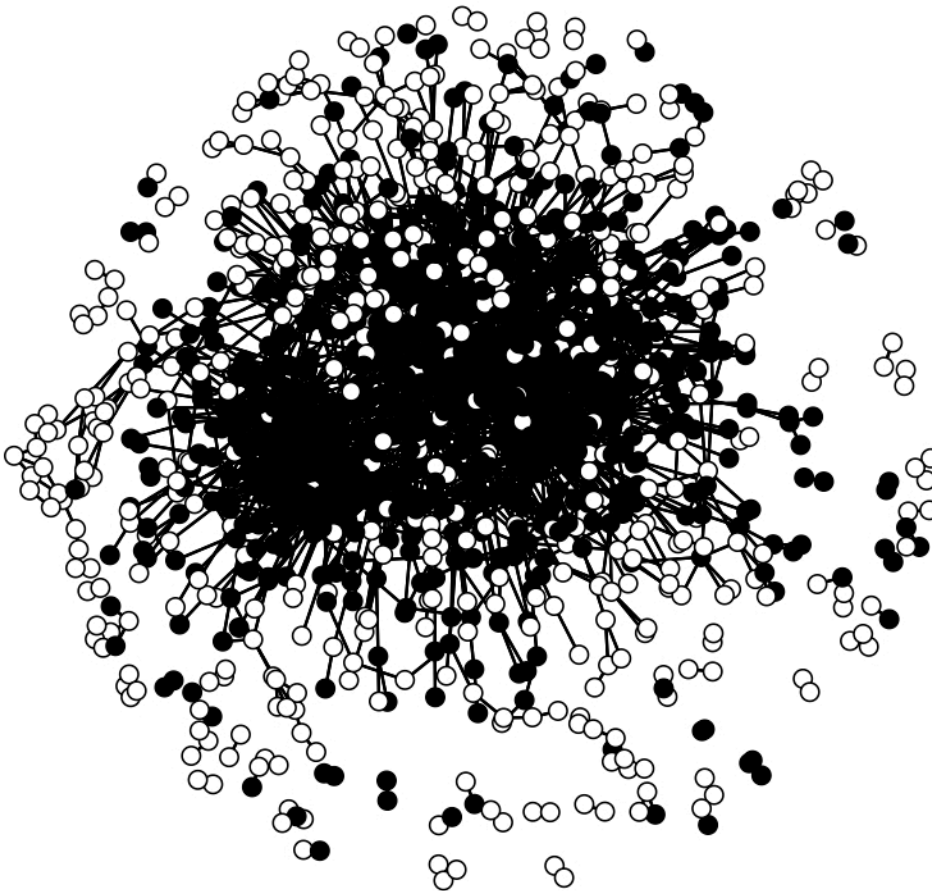
To measure board member characteristics for firms in the defined network boundary I first generate a matrix of relationships in the form of board memberships for VC partners. Lead VC directors are defined as directors that are also the chair of the board. In the event that none of the VC directors are chair, then I select the VC director with the most seniority, first in terms of board tenure and then in terms of years in the VC industry. Lastly, I collect individual VC partner details from the prospectuses, including age, education, and previous experience. The network measures will be calculated for the five-year period prior to IPO.⁹ Thus the analysis for the empirical tests will be conducted on IPOs in the years 2002 to 2006.

⁸ There are firms such as Real Estate Investment Trusts (REITs), Closed (Open)-End Funds, Banks, and other Special Entities for which IPOs are generated but that are outside the scope of VC investment. Indeed VC partners may be members of Boards of Directors in these firms, but any information about the performance of these special entity firms would not relate to VC investment performance. Furthermore many of these firms do not have a board structure, making them even less important for the purposes of this study. The inclusion of these firms inside the network boundary may bias my results without contributing to the scope of the research question.

⁹ I also tested the results using the period four years prior and one year after the IPO, which produced largely similar results. I did this because IPOs are planned at least a year in advance.

The first network of interest is the firm-to-firm network, which is constructed using the interlocks between firms created by directors. Figure 7 depicts the IPO inter-firm network for the period 1997 to 2006.

Figure 7: 1997-2006 IPO Board Interlock Network

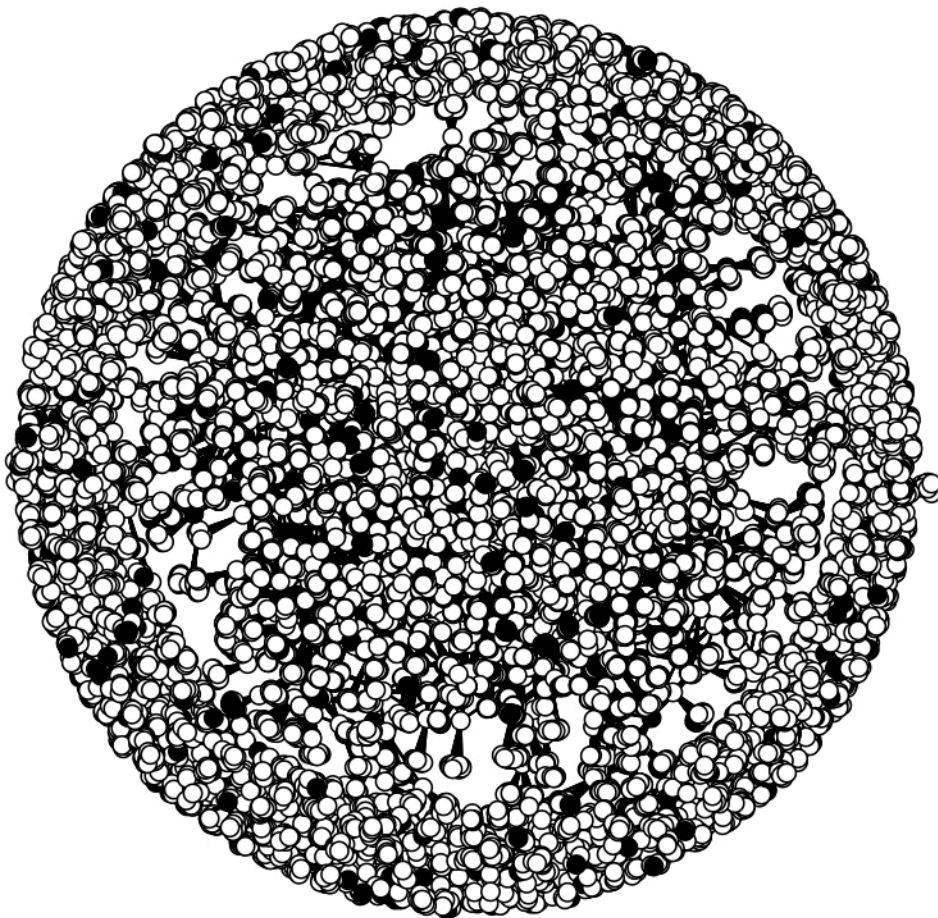


In Figure 7, black nodes are VC-backed IPO firms, which are creating the majority of linkages over the 1997 to 2006 time period. The network was constructed using the “statnet” package within the R statistical software (Handcock, Hunter, Butts, Goodreau, & Morris, 2008). To generate the principle measures of the IPO board network I developed a program in R to calculate centrality (eigenvector and degree) using the firms relevant within the time window (-5 years to the date of the

IPO) of the focal VC-backed IPO. The five-year time window is consistent with past research studying interorganizational network (Sorenson & Stuart, 2001).

The second network of interest is the person-to-person network, which is constructed using the interlocks between directors. Figure 8 depicts the IPO director network for the period 1997 to 2006.

Figure 8: 1997-2006 IPO Director Interlock Network



In Figure 8 black nodes are VC directors, which are creating the majority of linkages between firms over the 1997 to 2006 time period. The network was constructed using the “statnet” package within

the R statistical software (Handcock et al., 2008). To generate the principle measures of the IPO director network I developed a program in R to calculate centrality (eigenvector and degree) using the directors affiliated with IPO firms within the time window (-3 years to the date of the IPO) of the focal VC-backed IPO.

4.6 Measurement Of Earnings Manipulation

There are two primary forms of earnings manipulation that I use to test for earnings manipulation at IPO. The first of which is the abnormal accrual model tested and developed in the accounting literature. The second is the change in R&D in the year of the IPO. In the following I explore the literature related to both models.

I use a modified form of the Jones model where total accruals are assumed to be a source of earnings manipulation (Jones, 1991). I select a model that allows for sales growth and is not reliant on matching to another firm based on industry, size, or return on assets. Matching a pre-IPO firm to a currently public firm is problematic, because it assumes that the pre-IPO firm will have the same growth and sales expectations of a comparable publicly traded firm in its industry and with similar return on assets. Additionally, most models of accruals (including performance matching models) assume that sales follow a random walk and are mean reverting (Kothari, Leone, & Wasley, 2005), an assumption that is clearly violated in firms going IPO (Healy & Wahlen, 1999). Total accruals (TA) are divided into discretionary (DA) and non-discretionary (NDA) components. An important caveat to the models I lay out is the assumption concerning the composition of total accruals, which is that economic factors are not systematically affecting accruals. Several components of accruals, including revenues, could be changing due to economic circumstances, and thus non-discretionary accruals could be misclassified as discretionary (Kaplan, 1985). This is a potential flaw in all models of discretionary accruals (Dechow et al., 2003). Acknowledging this

criticism, I use a current revised form of the Jones model put forth by Dechow, Richardson, and Tuna (2003) that attempts to capture as many variables that at an intuitive level are expected to explain non-discretionary accruals. The initial model that all models are based on is the Jones model where scaled total accruals are regressed on variables expected to relate to the economic circumstances of the firm:

$$(1) \quad \frac{TA_{it}}{A_{it-1}} = \alpha_i \left[\frac{1}{A_{it-1}} \right] + \beta_{1i} \left[\frac{\Delta S_{it}}{A_{it-1}} \right] + \beta_{2i} \left[\frac{PPE_{it}}{A_{it-1}} \right] + \varepsilon_{it}$$

Where TA_{it} is total accruals in year t for firm i ¹⁰; ΔS_{it} is the change in sales in year $t-1$ for firm i (#12); PPE_{it} is gross property, plant, and equipment in year t for firm i (#7); and A_{it-1} is the average of total assets in year $t-1$ for firm i (#6). COMPUSTAT item numbers are in parentheses. In Jones's (1990) analysis the estimation period t varies by the amount of data available in COMPUSTAT, which was 14 to 32 years. Lagged assets (A_{it-1}) are used to account for heteroscedasticity, and the above equation is estimated using weighted least squares. Jones (1990) assumes that the relationship between the dependent and independent variables is stationary. Ultimately the original Jones (1990) model assumes that the entire change in revenues is free from managerial discretion. Coefficient estimates are used to calculate the fitted value for firm i in the event year, and discretionary accruals are the error left over from subtracting the fitted value from the actual value.

In the modified Jones model, as described in Dechow, Sloan, and Sweeney (1995), credit sales are backed out from revenues. Thus all changes in credit sales are assumed to be the result of earnings manipulation. This is an improvement on the cross-sectional model (Defond & Jiambalvo, 1994) and demonstrated to be better specified than the time series Jones model (Subramanyam, 1996). In Jones (1990) the estimation period was pre-1987 SFAS 95, which required a special

¹⁰ Total Accruals (TA_t) is computed as follows: $TA_t = [\Delta \text{Current Assets}_t \text{ (#4)} - \Delta \text{Cash}_t \text{ (#1)}] - [\Delta \text{Current Liabilities}_t \text{ (#5)} - \Delta \text{Current Maturities of Long-Term Debt}_t \text{ (#44)} - \Delta \text{Income Taxes Payable}_t \text{ (#71)}] - \text{Depreciation and Amortization Expense}_t \text{ (#14)}$. Change (Δ) is calculated using time t and time $t-1$. COMPUSTAT item numbers are in parentheses.

estimation of accruals. This later modified Jones model takes advantage of SFAS 95 where data from the statement of cash from operations is available, and the calculation of total accruals is much simpler (FASB, 1987). The following modified version of the Jones model is estimated for each two-digit SIC:

$$(2) \quad \frac{TA_{it}}{A_{it-1}} = \alpha_i \left[\frac{1}{A_{it-1}} \right] + \beta_{1i} \left[\frac{\Delta S_{it} - \Delta REC_{it}}{A_{it-1}} \right] + \beta_{2i} \left[\frac{PPE_{it}}{A_{it-1}} \right] + \varepsilon_{it}$$

Where TA_{it} is total accruals in year t for estimation portfolio firm i¹¹; ΔS_{it} is the change in sales in year t for estimation portfolio firm i (#12); ΔREC_{it} is the difference in accounts receivable from the start to the end of year t for estimation portfolio firm i (#302); PPE_{it} is gross property, plant, and equipment in year t for estimation portfolio firm i (#7); and A_{it-1} is the average assets in year t for firm i (#6).

One problem with the modified Jones model in Equation 2 is that it assumes that all credit sales in each period are discretionary, which induces a positive correlation between discretionary accruals and current sales growth (Dechow et al., 2003). I make an adjustment for the expected increase in credit sales as described in Dechow, Richardson, and Tuna (2003) and I estimate the following regression for each two-digit SIC-year grouping:

$$(4) \quad \Delta REC_{it} = \alpha_{it} + k_{it} \Delta S_{it} + \varepsilon_{it}$$

The slope coefficient (k) captures the expected change in accounts receivable for a given change in sales. The following cross-sectional modification to the modified Jones model includes only the unexpected portion of the change in accounts receivable in discretionary accruals:

$$(5) \quad \frac{TA_{it}}{A_{it}} = \alpha_i \left[\frac{1}{A_{it}} \right] + \beta_{1i} \left[\frac{(1+k_{it})\Delta S_{it} - \Delta REC_{it}}{A_{it}} \right] + \beta_{2i} \left[\frac{PPE_{it}}{A_{it}} \right] + \varepsilon_{it}$$

¹¹ Total Accruals (TA_t) is computed as follows: $TA_t = [\text{Operating Cash Flows}_t \text{ (#308)} - \text{Income Before Extraordinary Items}_t \text{ (#123)}]$. COMPUSTAT items numbers are in parentheses.

In this model the full amount of the change in accounts receivable is subtracted, and the expected change is added back, which is then k multiplied by the change in sales.

However, accruals will reverse through time and are less persistent than cash flows, and it has been suggested that the modified Jones model might be improved by including a control for times series reversals in accruals (Beneish, 1997; Guay, Kothari, & Watts, 1996). A revised model has been proposed that includes a portion of accruals that is predictable using the previous year's accruals (Chambers, 1999). In the following model, previous year total accruals are included to control for reversals of accruals:

$$(6) \quad \frac{TA_{it}}{A_{it}} = \alpha_i \left[\frac{1}{A_{it}} \right] + \beta_{1i} \left[\frac{(1+k_{it})\Delta S_{it} - \Delta REC_{it}}{A_{it}} \right] + \beta_{2i} \left[\frac{PPE_{it}}{A_{it}} \right] + \beta_{3i} \left[\frac{TA_{it-1}}{A_{it}} \right] + \varepsilon_{it}$$

A major criticism of these models is that they do not account for long-term earnings growth and thus that they are potentially misspecified due to a correlated omitted variable bias (McNichols, 2000). To account for this misspecification future sales growth is included in the regression model (Dechow et al., 2003). As accruals are designed to smooth financial reporting, managers may anticipate future sales growth and as a consequence increase inventory balances. The observed increase in inventories would not be due to managers intending to manipulate earnings by failing to write off obsolete inventory (Dechow, Richardson, & Tuna, 2003). The previous models would assume that this change is due to earnings manipulation, and I include a measure of future sales growth as suggested by Dechow, Richardson, and Tuna (2003) to identify this aspect of accruals. I estimate the following model:

$$(7) \quad \frac{TA_{it}}{A_{it-1}} = \alpha_i \left[\frac{1}{A_{it-1}} \right] + \beta_{1i} \left[\frac{(1+k_{it})\Delta S_{it} - \Delta REC_{it}}{A_{it-1}} \right] + \beta_{2i} \left[\frac{PPE_{it}}{A_{it-1}} \right] + \beta_{3i} \left[\frac{TA_{it-1}}{A_{it-1}} \right] + \beta_{4i} \left[\frac{\Delta S_{it+1}}{S_{it} * A_{it-1}} \right] + \varepsilon_{it}$$

Here a measure of the growth in sales is included, which is the change in sales from the current year to the next year scaled by current sales. Lastly, the model is estimated using Stata's Jackknife

command, which estimates the parameters of the equation on all observations except the focal firm observations to get coefficients for the focal firm. This provides for a conservative estimate of the firm-level coefficients and avoids concerns related to endogenously determined coefficients.

The R&D value I use to calculate earnings manipulation is that developed by Darroug and Rangan (2005). The dependent variable is the change in R&D, which I use in lieu of the level of R&D. Using the level of R&D in cross-sectional regression analysis may present greater problems of correlated omitted variable bias (Darroug & Rangan, 2005). I deflate R&D and other control variables by average total assets, as this avoids the small denominator problem. Additionally, as in prior research, I use control variables related to liquidity (operating and financial cash flows, cash and short-term securities, long-term debt), alternative strategic expenditures (capital and SG&A expenditures), and growth (change in sales) that have been validated in prior literature (Darroug & Rangan, 2005).

I use a simple measure of IPO firm performance in the years following the IPO event. The measure is a measure of a buy-and-hold strategy that attempts to simulate the position of limited liability partners. I use Carter, Dark, and Singh's (1998) market-adjusted long-run return to a buy and hold strategy as a measure of IPO long-term performance, which is the market-adjusted sixth day post offer date price minus the 765th day post offer date price. This is the long-run market return model of IPO firm performance. I estimate the following model of the IPO stock's percentage return over three years as follows:

$$(8) \quad R_{iT} = \left[\left(\prod_{t=offer\ date+6}^{\min[T, delist]} (1 + \gamma_{it}) \right) - \left(\prod_{t=offer\ date+6}^{\min[T, delist]} (1 + \gamma_{mt}) \right) \right] \times 100,$$

where γ_{it} = the return on IPO firm *i* stock on day *t*; *T* = offer date + 765 trading days; γ_{mt} = the return on the CRSP NYSE/AMEX/Nasdaq value-weighted index on day *t*; and R_{iT} = the return on the IPO stock through the earlier of the offer date + 765 or its delisting date.

4.7 Models And Estimation: Board Member Characteristics & Earnings Manipulation

The final regression for predictions related to abnormal accruals will contain the following variables, which represent factors that are related to discretionary accruals and my measures of interest:

$$(9) \quad DRT_{it} = \alpha_i \left[\frac{1}{\bar{A}_{it}} \right] + \delta_{ni} [E_{nit}] + \beta_{1i} \left[\frac{OCF_{it-1}}{\bar{A}_{it}} \right] + \beta_{2i} [EMP_{it}] + \beta_{3i} \left[\frac{LTD_{it}}{\bar{A}_{it}} \right] + \beta_{4i} [AGE_{it}] +$$

ε_{it}

$$(9a) \quad DRT_{it} = \text{Residuals from the estimation of equation (7).}$$

$$(9b) \quad E_{nit} = \text{Independent \& Related Control Variables}$$

$$(9c) \quad OCF_{it} = \text{Operating Cash Flows}$$

$$(9d) \quad EMP_{it} = \text{Ln(Employees)}$$

$$(9e) \quad LTD_{it} = \text{Leverage}$$

$$(9f) \quad AGE_{it} = \text{Firm Age}$$

$$(9g) \quad \bar{A}_{it} = [(A_{it}) - (A_{it-1})]/2$$

The control variables are operating cash flows (#308), change in financing cash flows (#313), natural log of the number of employees, change in beginning balance of cash and marketable securities (#1), change in beginning balance of long-term debt less current maturities (#9), firm age at time of IPO, and average total assets (#2).

The final regression for predictions related to R&D will contain the following variables, which represent factors that are demonstrated to predict changes in R&D expenditures (Darrrough & Rangan, 2005):

$$(10)$$

$$\frac{\Delta R\&D_{it}}{\bar{A}_{it}} =$$

$$\alpha_i \left[\frac{1}{\bar{A}_{it}} \right] + \delta_{ni} [E_{nit}] + \beta_{1i} \left[\frac{\Delta R\&D_{it-1}}{\bar{A}_{it}} \right] + \beta_{2i} \left[\frac{\Delta AOCF_i}{\bar{A}_{it}} \right] \dots +$$

$$\beta_{3i} \left[\frac{\Delta FCF_{it}}{\bar{A}_{it}} \right] + \beta_{4i} \left[\frac{\Delta CASH_{it}}{\bar{A}_{it}} \right] + \beta_{5i} \left[\frac{\Delta LTD_{it}}{\bar{A}_{it}} \right] + \beta_{6i} \left[\frac{\Delta CAPEX_{it}}{\bar{A}_{it}} \right] + \beta_{7i} \left[\frac{\Delta SG\&A_{it}}{\bar{A}_{it}} \right] \dots +$$

$$\beta_{8i} \left[\frac{\Delta SALES_{it-1}}{\bar{A}_{it}} \right] + \beta_{9i} \left[\frac{\Delta SALES_{it}}{\bar{A}_{it}} \right] + \beta_{10i} \left[\frac{\Delta SALES_{it}^2}{\bar{A}_{it}} \right] + \varepsilon_{it}$$

$$(10a) \quad \Delta R\&D_{it} = (R\&D_{it}) - (R\&D_{it-1})$$

$$(10b) \quad E_{nit} = \text{Independent Variables}$$

$$(10c) \quad \Delta AOCF_i = (OCF_{it} + R\&D_{it} + SG\&A_{it}) - (OCF_{it-1} + R\&D_{it-1} + SG\&A_{it-1})$$

$$(10d) \quad \Delta FCF_{it} = (FCF_{it}) - (FCF_{it-1})$$

$$(10e) \quad \Delta CASH_{it} = (CASH_{it}) - (CASH_{it-1})$$

$$(10f) \quad \Delta LTD_{it} = (LTD_{it}) - (LTD_{it-1})$$

$$(10g) \quad \Delta CAPEX_{it} = (CAPEX_{it}) - (CAPEX_{it-1})$$

$$(10h) \quad \Delta SG\&A_{it} = (SG\&A_{it}) - (SG\&A_{it-1})$$

$$(10h) \quad \Delta SALES_{it} = (SALES_{it}) - (SALES_{it-1})$$

$$(10i) \quad \bar{A}_{it} = [(A_{it}) - (A_{it-1})]/2$$

The control variables are change in R&D expense (#46), change in operating cash flows before R&D and selling, general and administrative expenses (#308 + #46 + #189), change in financing cash flows (#313), change in beginning balance of cash and marketable securities (#1), change in beginning balance of long-term debt less current maturities (#9), change in capital expenditures (#128), change in selling, general, and administrative expenses (#189), change in revenue (#12), and average total assets (#2).

The final regression for predictions related to long-run stock performance will contain the following variables, which represent factors that are demonstrated to predict changes in long-run operating performance (Carter, Dark, & Singh, 1998):

$$(11) \quad R_{iT} = \alpha_i + \delta_{ni}[E_{nit}] + \beta_{1i}[EMP_{it}] + \beta_{2i}[AGE_{it}] + \beta_{3i}[IPOVAL_{it}] + \beta_{3i}[AOCF_{it}] + \varepsilon_{it}$$

$$(11a) \quad R_{iT} = \text{From Equation 8.}$$

$$(11b) \quad E_{nit} = \text{Independent Variables}$$

$$(11c) \quad EMP_{it} = \text{Ln}(\text{Employees})$$

$$(11d) \quad AGE_{it} = \text{Firm Age}$$

$$(11e) \quad IPOVAL_{it} = \text{Amount Raised at IPO} / \bar{A}_{it}$$

$$(11f) \quad AOCF_i = (OCF_{it} + R\&D_{it} + SG\&A_{it}) / \bar{A}_{it}$$

To control for size I use the natural log of the number of employees (EMP) and firm age at time of IPO (AGE), and the amount raised at IPO (IPOVAL). Prior research suggests that the market prices cash flows, thus adjusted operating cash flow (AOCF), is a reasonable control (Armstrong, Foster, & Taylor, 2010).

4.8 Control Variables

To estimate the regression equations (9,10, &11), I must consider a number of control variables. Prior authors have documented that earnings manipulation is negatively correlated with operating cash flows (Dechow, 1994; Kasznik, 1999), and I control for lagged operating cash flows using previous year operating cash flows divided by average total assets. Managers are more likely to manipulate earnings as the firm approaches key debt covenant thresholds (Sweeney, 1994).

Therefore I control for the influence of debt on earnings manipulation using leverage—that is, using total long-term debt (less current portion) divided by average total assets. Managers are more likely

to manipulate earnings as the size of the firm increases, which is due to a desire to escape political costs (Zmijewski & Hagerman, 1981). To control for firm size I use the natural log of the number of employees and board size, the number of board members. To control for the maturity of the firm I use age at the time of the IPO. To control for the age of the lead VC director separate from professional experience in the venture capital industry I use the age of the lead VC director at the time of the IPO—Lead VC Age. To control for the effect of VC syndication I use the number of VC board members—number of VCs.

4.8 Conclusion

In this chapter I described the process by which I selected my sample of firms. Additionally, I defined my variables of interest, as well as my control variables. I also provided a brief literature overview of the studies that developed my key measures for earnings manipulation and performance. Lastly, I developed the models I use to test my hypotheses as well as review the key control variables. In the next chapter I will provide summary statistics and results under my models of interest.

Chapter V

Empirical Results

5.1 Introduction

In this chapter I provide empirical evidence related to my research on earnings manipulation prior to IPO. I first present results related to the hypothesized effects on abnormal accruals in the year prior to IPO. Then I present results related to change in R&D expenses in the year prior to IPO. Lastly, I discuss evidence of the conditional effects of earnings manipulation on long-term performance.

5.2 Evidence Of VC Firm Prestige, IPO Firm Embeddedness, And Lead VC Director Effects On Abnormal Accruals

Table 5 shows group means, standard deviations, and correlations among the variables for the regressions related to abnormal accruals. In what follows I examine the effects of VC experience and IPO firm centrality on earnings manipulation. In only one case did the correlation exceed 0.50: firm age and the number of employees are significantly and positively correlated. Importantly, the mean level of the abnormal accruals measure of earnings manipulation was positive, which suggests that on average accruals are decreasing, resulting in lower reported earnings.

Table 5: Descriptive Statistics and Correlations^a

| Variable | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|-------|-------|---------|---------|--------|---------|---------|--------|--------|--------|
| 1. Discretionary Accruals | -0.32 | 1.66 | | | | | | | | |
| 2. Lagged Operating Cash-Flows ^b | -0.21 | 0.41 | 0.08 | | | | | | | |
| 3. Leverage ^b | 0.00 | 0.01 | 0.10 | -0.08 | | | | | | |
| 4. Employees ^c | 5.28 | 1.27 | 0.16* | 0.42** | -0.16 | | | | | |
| 5. Firm Age | 11.89 | 13.93 | 0.07 | 0.18* | -0.06 | 0.53** | | | | |
| 6. IPO Value ^b | 2.34 | 2.02 | -0.02 | -0.23** | 0.12 | -0.32** | -0.23** | | | |
| 7. Board Members | 7.30 | 1.54 | -0.06 | -0.10 | -0.09 | 0.05 | 0.06 | -0.16* | | |
| 8. Number of VC Directors | 3.07 | 1.44 | -0.05 | -0.19** | -0.17* | -0.12 | 0.00 | -0.09 | 0.47** | |
| 9. % Share Sales CEO | 0.01 | 0.03 | 0.06 | 0.19** | -0.07 | 0.13 | -0.07 | 0.09 | -0.06 | -0.10 |
| 10. % Share Sales VC Firm | 0.01 | 0.06 | 0.05 | 0.12 | 0.03 | 0.33** | 0.29** | -0.06 | -0.05 | -0.05 |
| 11. Prestigious VC Firm | 0.41 | 0.66 | 0.08 | -0.09 | -0.10 | 0.04 | 0.00 | -0.05 | 0.02 | 0.18* |
| 12. Firm Total Degree Centrality (-5 years) | 2.06 | 2.09 | -0.15* | -0.23** | -0.11 | -0.22** | -0.13 | -0.13 | 0.23** | 0.26** |
| 13. Firm Betweenness Centrality (-5 years) | 0.00 | 0.01 | 0.03 | -0.20** | 0.02 | -0.18* | -0.08 | -0.08 | 0.19** | 0.18* |
| 14. Lead VC Age | 51.29 | 9.36 | 0.07 | 0.05 | -0.06 | 0.11 | 0.22** | -0.08 | 0.00 | 0.01 |
| 15. Lead VC Board Tenure | 5.44 | 3.06 | -0.08 | -0.03 | -0.11 | -0.01 | 0.24** | 0.00 | 0.09 | 0.12 |
| 16. Lead VC Experience | 13.58 | 7.39 | 0.03 | 0.08 | -0.05 | 0.09 | 0.17* | -0.04 | -0.02 | -0.06 |
| 17. Lead VC Eigenvector Centrality (-3 years) | 0.00 | 0.00 | -0.47** | -0.08 | -0.04 | -0.02 | -0.03 | -0.05 | 0.08 | -0.01 |
| 18. Lead VC Betweenness Centrality (-3 years) | 0.00 | 0.01 | -0.13 | -0.12 | -0.01 | -0.18* | -0.06 | -0.08 | 0.04 | 0.14 |

| Variable | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|--------|--------|--------|--------|--------|--------|--------|-------|------|----|
| 10. % Share Sales VC Firm | -0.05 | | | | | | | | | |
| 11. Prestigious VC Firm | -0.10 | 0.22** | | | | | | | | |
| 12. Firm Total Degree Centrality (-5 years) | -0.17* | -0.12 | 0.20** | | | | | | | |
| 13. Firm Betweenness Centrality (-5 years) | -0.09 | -0.08 | 0.16* | 0.44** | | | | | | |
| 14. Lead VC Age | -0.04 | -0.03 | 0.07 | -0.02 | 0.02 | | | | | |
| 15. Lead VC Board Tenure | -0.12 | -0.04 | 0.04 | 0.06 | 0.06 | 0.32** | | | | |
| 16. Lead VC Experience | -0.08 | 0.03 | 0.09 | 0.01 | -0.03 | 0.38** | 0.22** | | | |
| 17. Lead VC Eigenvector Centrality (-3 years) | -0.03 | -0.02 | -0.06 | 0.00 | -0.04 | -0.06 | 0.04 | -0.01 | | |
| 18. Lead VC Betweenness Centrality (-3 years) | -0.09 | -0.06 | 0.08 | 0.28** | 0.24** | 0.03 | -0.01 | -0.04 | 0.00 | |

^a N=194. ^b Divided by Average Total Assets. ^c Transformed using the natural log function (Employees Mean=764.92, S.D.=4413.78).
*P<.05; **P<.01

Table 6 presents the results of the yearly Fixed-Effects with clustered (2-digit Industry) regressions. I used a yearly Fixed-Effects because a test of the joint significance of yearly dummies was statistically significant.¹² I used clustered (2-digit Industry) errors, because a test of the Modified Wald statistic for group-wise (2-digit Industry) heteroskedasticity was significant (Greene, 2008). The results under Model 1 in Table 6 report the baseline control variables. In the baseline model

¹² I also tested for 2-digit industry Fixed-Effects, but a test of the joint significance of industry dummies was not statistically significant. I also tested for the presence of Random-Effects versus Fixed-Effects using a Hausman test, and Fixed-Effects was the preferred model (Green, 2008).

only percentage of shares sold by the CEO at IPO is significantly related to discretionary accruals.

Model 2 of Table 6 indicates the main effects of the variables in hypotheses 1-3.

| Table 6: Results of Fixed Effects (Year) Regression Analysis using Clustered (Industry) Estimators on Discretionary Accruals ^a | | |
|---|--------------------|----------------------|
| Independent Variables | Model 1 | Model 2 |
| Lagged Operating Cash-Flows ^b | -0.024 (0.194) | 0.063 (0.258) |
| Leverage ^b | 14.619 (14.882) | 13.379 (14.177) |
| Employees ^c | -0.018 (0.035) | -0.055 (0.051) |
| Firm Age | 0.002 (0.003) | 0.004 (0.004) |
| IPO Value ^b | -0.080 (0.070) | -0.080 (0.061) |
| Board Members | -0.031 (0.035) | -0.025 (0.039) |
| Number of VC Directors | 0.090 (0.066) | 0.078 (0.057) |
| % Share Sales-CEO | 2.120** (0.981) | 1.932** (0.851) |
| % Share Sales-VC Firm | 0.216 (0.765) | -0.568 (0.993) |
| Prestigious VC Firm | | 0.323* (0.228) |
| Firm Total Degree Centrality (-5 years) | | -0.110** (0.065) |
| Firm Betweenness Centrality (-5 years) | | 46.710*** (6.267) |
| Intercept | -0.206 (0.254) | -0.042 (0.082) |
| R-Squared | 0.02 | 0.08 |

^a N=194. Fixed Effects (year) estimates using clustered (industry) sandwich estimators.
^b Divided by Average Total Assets. ^c Transformed using the natural log function.
 •p<.10; **p<.05; ***p<.01; t-tests are one-tailed for hypothesized effects, two-tailed for controll variables.
 Standard errors in parentheses.

Hypothesis 1 predicted that the presence of a prestigious VC firm investor would have a negative relationship with earnings manipulation. This hypothesis was not supported ($p < .05$), and the effect was in the opposite direction than that hypothesized. Hypothesis 2 predicted that VC-

backed firms more central to the IPO network would have lower levels of earnings manipulation prior to IPO. Total degree centrality (Freeman degree centrality), which captures the connectedness of the IPO firm, is predicted to have a negative relationship with earnings manipulation prior to IPO, which is supported (Model 2). This result supports the hypothesis that VC-backed IPO firms that are more central to the IPO network manipulate earnings downward, while VC-backed IPO firms that are distant from the IPO network manipulate earnings upward. Hypothesis 3 predicted that IPO firms with more power over the flow of information in the IPO network would manipulate earnings upward, which is supported (Model 2). As the number of times that an IPO firm is on the shortest path between any two other IPO firms in the IPO network increases, earnings manipulation upward prior to IPO increases. Results under Model 2 demonstrate that VC-backed IPO firms that act as information brokers manipulate earnings upward in the year prior to IPO.

Table 7 presents the results of the yearly Fixed-Effects with clustered (2-digit Industry) regressions. I used a yearly Fixed-Effects because a test of the joint significance of yearly dummies was statistically significant.¹³ I used clustered (2-digit Industry) errors, because a test of the Modified Wald statistic for group-wise (2-digit Industry) heteroskedasticity was significant (Greene, 2008). The results under Model 1 in Table 7 report the baseline control variables. In the baseline model only the age of the lead VC director is significantly related to discretionary accruals. Model 2 of Table 7 indicates the main effects of the variables in hypotheses 4 and 5.

¹³ I also tested for 2-digit industry Fixed-Effects, but a test of the joint significance of industry dummies was not statistically significant. I also tested for the presence of Random-Effects versus Fixed-Effects using a Hausman test, and Fixed-Effects was the preferred model (Green, 2008).

Table 7: Results of Fixed Effects (Year) Regression Analysis using Clustered (Industry) Estimators on Discretionary Accruals^a

| Independent Variables | Model 1 | Model 2 |
|---|---------------------|------------------------|
| Lagged Operating Cash-Flows ^b | 0.049 (0.225) | -0.310** (0.141) |
| Leverage ^b | 14.287 (12.900) | 6.419 (10.143) |
| Employees ^c | -0.068 (0.058) | 0.034 (0.050) |
| Firm Age | 0.011 (0.008) | 0.003 (0.004) |
| IPO Value ^b | -0.061 (0.062) | -0.126 (0.081) |
| Board Members | -0.010 (0.052) | 0.007 (0.028) |
| Number of VC Directors | 0.071 (0.051) | 0.046 (0.070) |
| % Share Sales-CEO | 2.240• (1.127) | 3.138** (1.301) |
| % Share Sales-VC Firm | -0.688 (1.133) | 0.002 (1.048) |
| Prestigious VC Firm | 0.350 (0.234) | 0.219 (0.209) |
| Lead VC Age | 0.010*** (0.002) | -0.000 (0.009) |
| Lead VC Board Tenure | -0.065• (0.036) | -0.042 (0.036) |
| Lead VC Eigenvector Centrality (-3 years) | | -239.665• (154.533) |
| Lead VC Betweenness Centrality (-3 years) | | -19.513** (9.567) |
| Lead VC Experience | | 0.043 (0.046) |
| Lead VC Experience-Squared | | -0.001 (0.001) |
| Intercept | -0.464 (0.570) | -0.567• (0.300) |
| R-Squared | 0.05 | 0.30 |

^a N=192. Fixed Effects (year) estimates using clustered (industry) sandwich estimators.

^b Divided by Average Total Assets. ^c Transformed using the natural log function.

•p<.10; **p<.05; ***p<.01; t-tests are one-tailed for hypothesized effects, two-tailed for control variables. Standard errors in parentheses.

Hypothesis 4 predicted a negative relationship between the prestige of the lead VC director and earnings manipulation in the year prior to IPO. In model 2 this hypothesis was only partially

supported using eigenvector centrality, but it was supported using betweenness centrality. The eigenvector centrality of the lead VC director captures the prestige of the lead VC director as represented by the connectedness of the lead VC director's affiliates. The effect of the lead VC director's eigenvector centrality is negatively related but marginally significant ($p < .10$). However, betweenness centrality captures the structural power of the lead VC director in the IPO affiliation network, and it also captures the prestige of the lead VC director. Results under Model 2 provide support for the negative effect of the betweenness of the VC director and earnings manipulation at IPO ($p < .05$). Hypothesis 5 predicted a curvilinear relationship between lead VC director experience and earnings manipulation prior to IPO, and this hypothesis was not supported.

5.3 Evidence Of VC Firm Prestige, IPO Firm Embeddedness, And Lead VC Director Effects On The Change In R&D Expenses

Table 8 shows group means, standard deviations, and correlations among the variables for the regressions related to changes in R&D, and firm age is highly and positively correlated with the number of employees. My sample drops from 194 to 160 as a result of removing firms with 0 R&D expenses. In what follows I examine the effects of VC experience and IPO firm centrality on earnings manipulation. In only a few cases did the correlation exceed 0.50: sales growth is highly and positively correlated with operating cash flows, growth in cash and short-term securities is highly and positively correlated with the growth in financial cash flows, and growth in sales is highly and positively correlated with growth in selling and general administrative expense. Importantly, the mean level of the change in R&D expenses measure of earnings manipulation was positive, which suggests that on average R&D expenses are increasing, resulting in lower reported earnings.

Table 8: Descriptive Statistics and Correlations^a

| Variable | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--|-------|-------|--------|--------|--------|--------|---------|-------|---------|--------|
| 1. Δ R&D ^b | 0.06 | 0.16 | | | | | | | | |
| 2. Lag Δ R&D ^b | 0.14 | 1.08 | -0.10 | | | | | | | |
| 3. Δ Adjusted Operating Cash-Flows ^b | 0.28 | 0.42 | 0.34** | -0.16* | | | | | | |
| 4. Δ Financial Cash-Flows ^b | -0.03 | 0.64 | 0.08 | 0.31** | -0.19* | | | | | |
| 5. Δ Cash ^b | 0.11 | 0.42 | 0.22** | 0.30** | 0.09 | 0.74** | | | | |
| 6. Δ Longterm Debt ^b | 0.00 | 0.15 | 0.01 | -0.01 | -0.05 | 0.19* | 0.01 | | | |
| 7. Δ Capital Expenditures ^b | 0.01 | 0.05 | 0.14 | 0.16* | 0.23** | 0.13 | 0.24** | 0.05 | | |
| 8. Δ SG&A ^b | 0.13 | 0.25 | 0.38** | 0.04 | 0.48** | 0.11 | 0.12 | 0.09 | 0.23** | |
| 9. Δ Sales ^b | 0.39 | 0.48 | 0.21** | -0.04 | 0.64** | -0.13 | 0.04 | -0.11 | 0.32** | 0.51** |
| 10. Employees ^c | 5.08 | 1.15 | -0.04 | -0.16* | 0.08 | -0.11 | -0.11 | -0.03 | 0.14 | 0.09 |
| 11. Firm Age | 11.61 | 14.39 | -0.13 | -0.07 | -0.13 | -0.01 | -0.08 | -0.02 | -0.01 | -0.13 |
| 12. IPO Value ^b | 2.40 | 1.91 | -0.05 | 0.06 | 0.21** | 0.03 | 0.09 | -0.10 | 0.17* | 0.16* |
| 13. Board Members | 7.36 | 1.54 | 0.10 | -0.03 | 0.00 | 0.05 | 0.05 | -0.01 | 0.12 | -0.05 |
| 14. Number of VC Directors | 3.19 | 1.45 | 0.11 | -0.09 | -0.02 | -0.01 | 0.01 | -0.01 | -0.02 | 0.01 |
| 15. % Share Sales CEO | 0.01 | 0.03 | 0.04 | -0.03 | 0.19* | 0.00 | 0.07 | 0.02 | 0.23** | 0.21** |
| 16. % Share Sales VC Firm | 0.01 | 0.04 | -0.03 | -0.03 | -0.02 | 0.04 | 0.03 | 0.01 | -0.11 | -0.08 |
| 17. Prestigious VC Firm | 0.43 | 0.69 | 0.11 | -0.06 | -0.01 | -0.04 | -0.10 | 0.01 | -0.04 | -0.02 |
| 18. Firm Total Degree Centrality (-5 years) | 2.32 | 2.11 | 0.08 | -0.03 | 0.11 | 0.02 | 0.01 | 0.06 | -0.04 | -0.04 |
| 19. Firm Betweenness Centrality (-5 years) | 0.00 | 0.01 | -0.04 | -0.03 | -0.07 | 0.00 | -0.12 | -0.02 | -0.21** | -0.08 |
| 20. Lead VC Age | 51.63 | 9.00 | -0.05 | 0.01 | -0.08 | 0.02 | -0.14 | 0.04 | 0.00 | 0.06 |
| 21. Lead VC Board Tenure | 5.78 | 3.05 | -0.12 | -0.16* | -0.01 | -0.17* | -0.17* | -0.03 | -0.08 | -0.10 |
| 22. Lead VC Experience | 13.49 | 7.32 | -0.03 | -0.18* | -0.06 | -0.10 | -0.26** | 0.09 | -0.06 | 0.01 |
| 23. Lead VC Eigenvector Centrality (-3 years) | 0.00 | 0.00 | 0.17* | 0.00 | 0.27** | -0.05 | 0.05 | -0.01 | 0.06 | -0.03 |
| 24. Lead VC Betweenness Centrality (-3 years) | 0.00 | 0.01 | 0.16* | 0.03 | -0.09 | 0.10 | 0.06 | -0.05 | -0.14 | -0.08 |

| Variable | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|--------|---------|---------|--------|--------|--------|-------|-------|-------|--------|
| 10. Employees ^c | 0.14 | | | | | | | | | |
| 11. Firm Age | -0.15 | 0.57** | | | | | | | | |
| 12. IPO Value ^b | 0.24** | -0.26** | -0.22** | | | | | | | |
| 13. Board Members | -0.08 | 0.08 | 0.10 | -0.18* | | | | | | |
| 14. Number of VC Directors | -0.11 | -0.11 | 0.03 | -0.11 | 0.47** | | | | | |
| 15. % Share Sales CEO | 0.24** | 0.13 | -0.05 | 0.15 | -0.05 | -0.10 | | | | |
| 16. % Share Sales VC Firm | -0.09 | 0.44** | 0.41** | -0.07 | -0.01 | 0.07 | -0.03 | | | |
| 17. Prestigious VC Firm | -0.07* | 0.08 | -0.01 | -0.07 | 0.05 | 0.19* | -0.06 | 0.19* | | |
| 18. Firm Total Degree Centrality (-5 years) | -0.04 | -0.12 | -0.13 | -0.17* | 0.22** | 0.23** | -0.14 | -0.12 | 0.17* | |
| 19. Firm Betweenness Centrality (-5 years) | -0.17 | -0.15 | -0.08 | -0.11 | 0.19* | 0.16* | -0.08 | -0.09 | 0.15 | 0.43** |
| 20. Lead VC Age | -0.12 | 0.18* | 0.24** | -0.11 | 0.00 | -0.04 | -0.12 | 0.11 | 0.16* | 0.00 |
| 21. Lead VC Board Tenure | -0.07 | -0.03 | 0.23** | 0.02 | 0.06 | 0.08 | -0.11 | -0.02 | 0.06 | 0.07 |
| 22. Lead VC Experience | -0.05 | 0.11 | 0.14 | -0.10 | -0.06 | -0.10 | -0.15 | 0.07 | 0.15 | 0.05 |
| 23. Lead VC Eigenvector Centrality (-3 years) | 0.00 | 0.00 | -0.02 | -0.06 | 0.08 | -0.01 | -0.03 | -0.02 | -0.07 | -0.01 |
| 24. Lead VC Betweenness Centrality (-3 years) | -0.15 | -0.16 | -0.05 | -0.11 | 0.03 | 0.13 | -0.09 | -0.05 | 0.08 | 0.27** |

| Variable | 19 | 20 | 21 | 22 | 23 |
|---|-------|--------|-------|-------|------|
| 20. Lead VC Age | 0.02 | | | | |
| 21. Lead VC Board Tenure | 0.06 | 0.30** | | | |
| 22. Lead VC Experience | -0.02 | 0.35** | 0.19* | | |
| 23. Lead VC Eigenvector Centrality (-3 years) | -0.05 | -0.07 | 0.03 | -0.01 | |
| 24. Lead VC Betweenness Centrality (-3 years) | 0.23* | 0.02 | -0.02 | -0.04 | 0.00 |

^a N=160. ^b Divided by Average Total Assets. ^c Transformed using the natural log function (Employees Mean=703.89, S.D.=4827.82).

*P<.05; **P<.01

Table 9 presents the results of the OLS regressions with double clustered (year & industry) standard errors.¹⁴ I used double clustered (2-digit Industry and Year) errors, because a test of the Modified Wald statistic for group-wise (2-digit Industry and Year) heteroskedasticity was significant (Greene, 2008). The results under Model 1 report the baseline control variables. In the baseline model lagged change in R&D expenses, the change in sales and general administrative expenses, and the number of board members are significantly related to changes in R&D expenses. Model 2 of Table 9 indicates the main effects of the variables in hypotheses 1-3. One important note is that negative changes in R&D expenses are associated with manipulating earnings upward. Thus the coefficients are interpreted in the opposite direction compared to the abnormal accrual regressions.

¹⁴ I tested for 2-digit industry and year Fixed-Effects, but a test of the joint significance of industry or year dummies was not statistically significant. I also tested for the presence of Random-Effects versus simple OLS using a Breusch-Pagan Lagrange multiplier test, and simple OLS was the preferred model (Green, 2008).

Table 9: Results of OLS Regression Analysis using Clustered (Year & Industry) Estimators on Δ R&D Expenses^a

| Independent Variables | Model 1 | Model 2 |
|---|----------------------|----------------------|
| Lag Δ R&D ^b | -0.024*** (0.003) | -0.024*** (0.003) |
| Δ Adjusted Operating Cash-Flows ^b | 0.067* (0.034) | 0.066 (0.042) |
| Δ Financial Cash-Flows ^b | -0.024 (.) | -0.025 (.) |
| Δ Cash ^b | 0.099 (.) | 0.103 (.) |
| Δ Longterm Debt ^b | -0.039 (0.045) | -0.041 (0.046) |
| Δ Capital Expenditures ^b | 0.235 (.) | 0.200 (.) |
| Δ SG&A ^b | 0.228*** (0.073) | 0.228*** (0.071) |
| Δ Sales ^b | -0.023 (0.057) | -0.021 (0.057) |
| Employees ^c | -0.019 (.) | -0.022 (.) |
| Firm Age | -0.001 (0.001) | -0.000 (0.001) |
| IPO Value ^b | -0.015 (0.011) | -0.015 (0.014) |
| Board Members | 0.007** (0.003) | 0.009*** (0.000) |
| Number of VC Directors | 0.001 (0.006) | -0.001 (0.005) |
| % Share Sales-CEO | -0.324 (0.232) | -0.282* (0.153) |
| % Share Sales-VC Firm | 0.315* (0.180) | 0.192 (0.166) |
| Prestigious VC Firm | | 0.028*** (0.009) |
| Firm Total Degree Centrality (-5 years) | | 0.000 (0.011) |
| Firm Betweenness Centrality (-5 years) | | -0.947* (0.773) |
| Intercept | 0.091 (.) | 0.089* (0.049) |
| R-Squared | 0.29 | 0.30 |

^a N=160. OLS estimates using clustered (year & industry) sandwich estimators.

^b Divided by Average Total Assets. ^c Transformed using the natural log function.

*p<.10; **p<.05; ***p<.01; t-tests are one-tailed for hypothesized effects, two-tailed for control variables. Standard errors in parentheses.

Hypothesis 1 predicted that the presence of a prestigious VC firm investor would have a negative relationship with earnings manipulation. This hypothesis was supported ($p < .01$), and the presence of a prestigious investor leads to an increase in R&D expenses leading to less earnings manipulation in the year prior to IPO. Hypothesis 2 predicted that VC backed firms more central to the IPO network would have lower levels of earnings manipulation prior to IPO, which is not supported (Model 2). Hypothesis 3 predicted that IPO firms with more power over the flow of information in the IPO network would manipulate earnings upward, which is not supported (Model 2).

Table 10 presents the results of the OLS regressions with double clustered (year & industry) standard errors.¹⁵ I used double clustered (2-digit Industry and Year) errors, because a test of the Modified Wald statistic for group-wise (2-digit Industry and Year) heteroskedasticity was significant (Greene, 2008). The results under Model 1 of Table 10 report the baseline control variables. In the baseline model lagged change in R&D expenses, the change in sales and general administrative expenses, the number of employees, the number of board members, and the presence of a prestigious VC firm are significantly related to changes in R&D expenses. Model 2 of Table 10 indicates the main effects of the variables in hypotheses 4 and 5.

Table 10: Results of OLS Regression Analysis using Clustered (Year & Industry) Estimators on the Δ R&D Expenses^a

| Independent Variables | Model 1 | Model 2 |
|---|----------------------|----------------------|
| Lag Δ R&D ^b | -0.026*** (0.005) | -0.027*** (0.007) |
| Δ Adjusted Operating Cash-Flows ^b | 0.065* (0.032) | 0.038 (0.033) |
| Δ Financial Cash-Flows ^b | -0.029 (.) | -0.036 (.) |
| Δ Cash ^b | 0.105 | 0.109 |

¹⁵ I tested for 2-digit industry and year Fixed-Effects, but a test of the joint significance of industry or year dummies was not statistically significant. I also tested for the presence of Random-Effects versus simple OLS using a Breusch-Pagan Lagrange multiplier test, and simple OLS was the preferred model (Green, 2008).

| | | |
|--|----------------------|---------------------|
| | (.) | (.) |
| Δ Longterm Debt ^b | -0.037 (0.035) | -0.022 (0.036) |
| Δ Capital Expenditures ^b | 0.220 | 0.236 |
| | (.) | (.) |
| Δ SG&A ^b | 0.229*** (0.075) | 0.241*** (0.079) |
| Δ Sales ^b | -0.020 (0.059) | -0.005 (0.060) |
| Employees ^c | -0.024*** (0.004) | -0.022 (0.005)** |
| Firm Age | 0.000 (0.000) | 0.000 (0.000) |
| IPO Value ^b | -0.014 (0.012) | -0.011 (0.011) |
| Board Members | 0.009** (0.003) | 0.009** (0.004) |
| Number of VC Directors | -0.002 (0.003) | -0.002 (0.005) |
| % Share Sales-CEO | -0.338 (0.191) | -0.271 (0.184) |
| % Share Sales-VC Firm | 0.163 (0.123) | 0.221 (.) |
| Prestigious VC Firm | 0.029*** (0.004) | 0.029*** (0.002) |
| Lead VC Age | 0.000 (.) | -0.000 (.) |
| Lead VC Board Tenure | -0.005* (0.002) | -0.005** (0.002) |
| Lead VC Eigenvector Centrality (-3 years) | | 4.845 (3.926) |
| Lead VC Betweenness Centrality (-3 years) | | 3.523*** (0.357) |
| Lead VC Experience | | 0.001 (0.003) |
| Lead VC Experience-Squared | | -0.000 (0.000) |
| Intercept | 0.116 (.) | 0.094 (0.056) |
| R-Squared | 0.30 | 0.34 |

^a N=160 .OLS estimates using clustered (year & industry) sandwich estimators.

^b Divided by Average Total Assets. ^c Transformed using the natural log function.

•p<.10; **p<.05; ***p<.01; t-tests are one-tailed for hypothesized effects, two-tailed for control variables.
Standard errors in parentheses.

Hypothesis 4 predicted a negative relationship between the prestige of the lead VC director and earnings manipulation in the year prior to IPO. In model 2 this hypothesis was not supported using eigenvector centrality, but it was supported using betweenness centrality. Betweenness centrality captures the structural power of the lead VC director in the IPO affiliation network, and it also captures the prestige of the lead VC director. Results under Model 2 provide support for the negative effect of the betweenness of the VC director and earnings manipulation at IPO ($p < .05$). Hypothesis 5 predicted a curvilinear relationship between lead VC director experience and earnings manipulation prior to IPO, and this hypothesis was not supported.

5.4 Evidence Of Earnings Manipulation, VC Firm Prestige, IPO Firm Embeddedness, And Lead VC Director Effects On The Change In Long-Term Performance

Table 11 shows group means, standard deviations, and correlations among the variables for the regressions related to market-adjusted long-run stock performance. In what follows I examine the effects of abnormal accruals, prestigious VC firm investor, IPO firm embeddedness, and lead VC director incentives on long-run stock performance. In only one case did the correlation exceed 0.50: firm age and the number of employees are significantly and positively correlated with long-run stock performance.

Table 11: Descriptive Statistics and Correlations^a

| Variable | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|-------|-------|--------|---------|---------|-------|--------|--------|---------|--------|
| 1. Cumulative Abnormal Returns | -0.11 | 0.93 | | | | | | | | |
| 2. Employees ^c | 5.28 | 1.26 | 0.16* | | | | | | | |
| 3. Firm Age | 11.89 | 13.97 | 0.18* | 0.53** | | | | | | |
| 4. IPO Value ^b | 2.35 | 2.03 | -0.16* | -0.32** | -0.23** | | | | | |
| 5. % Share Sales CEO | 0.01 | 0.03 | 0.01 | 0.13 | -0.07 | 0.09 | | | | |
| 6. % Share Sales VC Firm | 0.01 | 0.06 | 0.03 | 0.33** | 0.29** | -0.06 | -0.06 | | | |
| 7. Discretionary Accruals | -0.32 | 1.67 | 0.10 | 0.16* | 0.07 | -0.02 | 0.06 | 0.05 | | |
| 8. Prestigious VC Firm | 0.41 | 0.66 | 0.09 | 0.04 | 0.00 | -0.06 | -0.10 | 0.22** | 0.08 | |
| 9. Firm Total Degree Centrality (-5 years) | 2.08 | 2.09 | 0.01 | -0.23** | -0.13 | -0.13 | -0.17* | -0.12 | -0.15* | 0.19** |
| 10. Firm Betweenness Centrality (-5 years) | 0.00 | 0.01 | 0.03 | -0.19* | -0.08 | -0.08 | -0.09 | -0.09 | 0.03 | 0.15* |
| 11. Lead VC Eigenvector Centrality (-3 years) | 0.00 | 0.00 | -0.10 | -0.02 | -0.03 | -0.05 | -0.03 | -0.02 | -0.47** | -0.06 |
| 12. Lead VC Betweenness Centrality (-3 years) | 0.00 | 0.01 | -0.14* | -0.18* | -0.06 | -0.08 | -0.09 | -0.06 | -0.13 | 0.08 |

| Variable | 9 | 10 | 11 |
|---|--------|--------|------|
| 10. Firm Betweenness Centrality (-5 years) | 0.44** | | |
| 11. Lead VC Eigenvector Centrality (-3 years) | 0.00 | -0.04 | |
| 12. Lead VC Betweenness Centrality (-3 years) | 0.28** | 0.24** | 0.00 |

^a N=192. ^b Divided by Average Total Assets. ^c Transformed using the natural log function (Employees Mean=768.46, S.D.=4436.50).
*P<.05; **P<.01

Table 12 presents the results of the OLS regressions with clustered (industry) standard errors.¹⁶ I used clustered (2-digit Industry) errors, because a test of the Modified Wald statistic for group-wise (2-digit Industry) heteroskedasticity was significant (Greene, 2008). The results under Model 1 report the baseline control variables. In the baseline model only one variable is statistically significant; the size of the IPO in millions of dollars is negatively related to market-adjusted long-run stock performance. Model 2 of Table 12 indicates the direct effects of the variables in hypotheses 6 and 7a-c.

¹⁶ I tested for 2-digit industry and year Fixed-Effects, but a test of the joint significance of industry or year dummies was not statistically significant. I also tested for the presence of Random-Effects versus simple OLS using a Breusch-Pagan Lagrange multiplier test, and simple OLS was the preferred model (Green, 2008). I also tested the Modified Wald statistic for group-wise (year) heteroskedasticity but it was not significant (Greene, 2008).

Table 12: Results of OLS Regression Analysis using Clustered (Industry) Estimators on Long-Term Stock Returns^a

| Independent Variables | Model 1 | Model 2 |
|---|---------------------|-----------------------|
| Employees ^c | 0.064 (0.074) | 0.035 (0.088) |
| Firm Age | 0.008 (0.007) | 0.009 (0.007) |
| IPO Value ^b | -0.052** (0.025) | -0.055• (0.030) |
| % Share Sales-CEO | 0.447 (2.093) | 0.742 (2.493) |
| % Share Sales-VC Firm | -0.701 (1.303) | -0.913 (1.345) |
| Abnormal Accruals | | 0.012 (0.014) |
| Prestigious VC Firm | | 0.128 (0.105) |
| Firm Total Degree Centrality (-5 years) | | 0.014 (0.069) |
| Firm Betweenness Centrality (-5 years) | | 4.970 (3.100) |
| Lead VC Eigenvector Centrality (-3 years) | | -21.459** (8.028) |
| Lead VC Betweenness Centrality (-3 years) | | -23.441*** (5.523) |
| Intercept | -0.405 (0.389) | -0.302 (0.607) |
| R-Squared | 0.05 | 0.09 |

^a N=192. OLS estimates using clustered (industry) sandwich estimators.

^b Divided by Average Total Assets. ^c Transformed using the natural log function.

•p<.10; **p<.05; ***p<.01; t-tests are one-tailed for hypothesized effects, two-tailed for control variables. Standard errors in parentheses.

Hypothesis 6 predicted a negative relationship between earnings manipulation prior to IPO and long-term stock performance, but this hypothesis was not supported (Model 2). Hypothesis 7a predicted that the presence of a prestigious VC firm investor would have a positive relationship with long-term stock performance, which was not supported (Model 2). Hypothesis 7b predicted a positive relationship between IPO firm embeddedness and long-term stock performance, which was not supported (Model 2). Lastly, Hypothesis 7c predicted a positive relationship between lead VC director embeddedness and long-term stock performance, which was not supported (Model 2).

However, there is statistical evidence for a negative relationship between lead VC director embeddedness and long-term stock performance ($p < .01$). In unreported results I find nearly identical results when using the effects of a change in R&D on long-term stock performance.

5.5 Conclusion

This chapter reviews the data and methods for testing my hypotheses. I provided analysis related to my hypothesized relationships and interpreted the statistical evidence. In the next and final chapter I synthesize the results and discuss the implications for relevant literature, as well as provide discussion for future lines of research.

Chapter VI

Conclusion

6.1 Key Findings

This paper contributes several findings to the literature on the effects of interorganizational networks on strategic decisions. Building on the insight that organizations are embedded in relationships and that these ties constrain behavior (Granovetter, 1985; Uzzi, 1996), past literature has explored network evolution of established organizations (Gulati & Gargiulo, 1999; Podolny, 1994; Sorenson & Stuart, 2001) as well as of new ventures (Hallen, 2008). Additionally, prior literature has shown that the nature of competition between organizations embedded in common networks results in an increased reliance on trust to speed products to market (Uzzi, 1997). In this vein VC firms bringing new ventures to market leverage networks of embedded relationships, and prior literature demonstrates that these networks impact future performance (Hochberg et al., 2007). However, the effects of network position on malfeasance in new ventures have remained unclear. This paper addresses this gap and contributes the insight that VC firms and VC directors may follow one of two paths in bringing a new venture IPO—one path involving rushing new ventures to market prematurely using window dressing, and the other path allowing the ripening of new ventures and avoiding window dressing.

Along the first of these paths VC firms and VC directors with less prestige either are trying to further develop their prestige (Gompers, 1996), or they are unrestrained due to weak ties to other organizations (Granovetter, 1985; Uzzi, 1996). Therefore VC-backed IPOs with less prestigious VC firms and less prestigious lead VC directors manipulate earnings in the year prior to IPO to window dress the new venture. Furthermore, lacking the prestige or depth of embedded resources, the long-term consequences of earnings manipulation in the year prior to IPO will be worse for less

prestigious VC firms and less prestigious lead VC directors. Overall, along this first path, affiliated organizations lack the social and human capital of their networks to either avoid earnings manipulation or to overcome its adverse affects.

Along the second path VC firms and VC directors with more prestige either are trying to protect their prestige from negative information (Burt, 1995; Podolny, 2001; Uzzi & Lancaster, 2003, 2004), or they are restrained due to strong ties to other organizations (Granovetter, 1985; Uzzi, 1996). Therefore VC-backed IPOs with more prestigious VC firms and VC directors with more ties will avoid manipulating earnings in the year prior to IPO. Furthermore, benefiting from the prestige or depth of embedded resources, the long-term consequences of earnings manipulation in the year prior to IPO will be less for more prestigious VC firms and more prestigious lead VC directors. Prestigious VC firms and prestigious lead VC directors have the resources and network depth to overcome window dressing effects in new ventures. Overall, along this second path, affiliated organizations have the social and human capital of their networks to either avoid earnings manipulation or to overcome its adverse affects.

6.2 Implications

This paper contributes significantly to the literature on the value of high-status affiliations to the entrepreneur (Hsu, 2004; Podolny, 1993). This study demonstrates that the benefits to the entrepreneur of high-status affiliations depend on the affiliate's life-cycle, with the value of high-status affiliations diminishing as the new venture matures (Hallen, 2008). The results of this study extend existing theory on status concerns to the decision of when and with whom a new venture should seek affiliation. In particular, new ventures seeking funding from less prestigious VC firms or directors are subjected to exit considerations irrespective of readiness. That affiliating with

younger VC directors will also lead to lower long-term performance suggests that these affiliations destroy value. Therefore prestige not only provides a signal to markets of certification, but it also provides a degree of shelter from the damaging affects of career and status concerns.

Implications for Accounting Literature

This paper adds to previous evidence regarding the unresolved issues in the literature on earnings manipulation around IPOs (Armstrong et al., 2010). First, the literature has been unable to resolve the issue created by conflicting empirical evidence: first, of systematic evidence of earnings manipulation around IPOs, and second, of evidence that firms report more conservatively around IPOs. I reconcile these conflicting results by showing that 1) earnings manipulation in the year prior to IPO occurs only in VC-backed IPOs with fewer network constraints, and 2) that conservative reporting of earnings is the result of greater embeddedness of VC firms and lead VC directors.

Second, this paper addresses the gap in the literature on earnings manipulation around IPOs with respect to the incentives of insiders. Much of the prior literature assumes that managers have systematic incentives to manipulate earnings upward prior to IPO, and there is little research that focuses on documenting the competing incentives of insiders in IPO firms. I address this gap by testing for evidence of competing incentives within IPO firms and analyzing how this impacts earnings manipulation. In particular I examine the relation between earnings manipulation and the embeddedness of insiders using the network structures of VC directors and the board of directors. Controlling for a variety of alternate measures of insider incentives (e.g., CEO and VC firm share sales), I find evidence that insiders with few social connections have incentives to inflate accruals in IPO firms.

Implications for Finance Literature

Underwriters use accounting earnings in the pricing of IPO shares by underwriters (Dechow, Hutton, & Sloan, 2000; Dechow, Kothari, & Watts, 1998; Liu, Nissim, & Thomas, 2002; Roosenboom, 2007), and financial analysts base their investment recommendations on earnings reports of newly public firms (Lee & Masulis, 2011). Therefore issuers reporting favorable accounting information increase both the likelihood of an IPO and the value of the proceeds at IPO. Thus firms short on capital have strong incentives to manipulate earnings upward in order to go public and raise more capital. I investigate incentives of one class of financial institution that is an important participant in the IPO process. Prior literature has focused exclusively on the certifying role by VC firms in determining an IPO firm's financial health. Prior evidence seems to suggest that underwriters play a more important role than VC firms in certifying the financial health of IPO firms (Lee & Masulis, 2011). I provide evidence to explain why the reputation of the VC firm is less important for certification, which is because the lead VC director's incentives at the time of IPO are more prescient. Thus, in contrast to prior research, VC participation does not lead to a systematic negative effect on earnings manipulation in the year prior to IPO, but rather the incentives of the lead VC director will dominate earnings manipulation decisions. While highly reputable VC firms have the incentives, monitoring abilities, and the necessary influence and control rights to substantially reduce earnings manipulation by IPO firms, it is the lead VC director that performs this function. This study addresses the gap in the literature concerning the actions of people in their role as representatives of powerful financial institutions.

Implications for Entrepreneurs

The findings of my paper have clear implications for entrepreneurs seeking investments from investors. First, although low-status investors may offer to invest at a higher valuation (Hsu, 2004), the cost of the investor's career and prestige concerns are debilitating. Accordingly, entrepreneurs wishing to remain active in the firm long after IPO may find that prior affiliations with less prestigious VC firms or directors have severely compromised the firm's performance, and thus high prestige VC firms with lower valuations will be preferred. Secondly, entrepreneurs should also be concerned with the experience of the VC director, as early-career VC directors will be under enormous pressure to generate high returns. My findings suggest that entrepreneurs with less human capital may benefit from foregoing outside investors when more senior or prestigious investors are scarce. Lastly, my findings suggest that entrepreneurs derive benefits from high-status and senior affiliations far beyond certification, which make the lower valuations more reasonable upon reflection.

6.3 Limitations & Future Research

This study looks at earnings manipulation in new ventures backed by VCs. The sample is unique in that the VC industry is clearly defined and well documented. The incentives of the VCs involved are well understood. For non-VC-backed new ventures going IPO the set of incentives will differ by industry, by time, and by the composition of the firm's board and management team. The founder or founders dominate decisions around the IPO, and the idiosyncratic nature of founders makes comparisons to VC-backed firms challenging. Furthermore the IPO is a unique event and typically occurs only once in the life of a firm, but it is a relatively frequent occurrence for VCs. This disparity of experience between the founders of new ventures and VCs is unique, which makes generalizability challenging. However, public firms often come under sway of large and

influential investors whose interests may be very different from those of the founding or existing management team.

I offer no evidence suggesting that earnings manipulation is widespread in a broad sample of IPO firms, but my evidence does speak to whether earnings management occurs in more specific contexts. Similarly, although I conclude that insiders of VC-backed IPOs have incentives to inflate earnings in IPO firms, I cannot rule out other incentives such as post-IPO share sales or the influence of other stakeholders in explaining earnings manipulation prior to IPO. It is therefore incumbent on future research to specify either alternative insider or stakeholder incentives that give rise to earnings manipulation prior to IPO. Additionally, more research needs to corroborate my evidence that in a powerful setting, like that of VC-backed IPOs, there are particularly strong incentives to manipulate earnings.

One concern with analyzing VC-backed IPOs is the potential endogeneity bias associated with the prior selection by IPO firms of VC investors and IPO underwriters. Without accounting for the endogenous nature of the VC and underwriter selection processes the results of my analysis will be biased. VC investment is the result of the endogenous choice between VCs and entrepreneurs. These choices are reflected in the systematic selection along IPO characteristics in VC-backed and non-VC-backed IPOs. For instance VC backing may be clustered by industry, by certain geographical locations, or by years (Lee & Msulis, 2011). Earnings manipulation choices will be affected if any of these factors influence the IPO firm's incentives to manipulate accounting earnings. First, this study only analyzes the incentives of VC firms and VC directors; it does not draw comparisons between VC and non-VC-backed firms. I do find statistical evidence of clustering in terms of industry and/or year, which I control for using robust (clustered) error estimation. Secondly, I attempt to model the endogenous incentives within the VC population using characteristics of the VC firm and the lead VC director. To the extent to which my measures of the

incentives of VC firms and lead VC directors do not overlap with the prior selection by IPO firms of VC investors and underwriters, my results may be compromised. However, my model of the accrual process and the subsequent measure of earnings manipulation attempts to predict the expected accruals for the focal firm based on its relative performance in comparison to industry peers. Therefore the model will incorporate the expected growth in sales and other performance characteristics of the firm in predicting the expected amount of accruals. As my measure of earnings manipulation I use the deviation from the expected level of accruals, given the quality of the firm. Thus, to the extent to which the model of accruals captures the quality of the firm, my measure will account for relative firm performance, which should be highly correlated with the selection process.

Future Research

One unexpected finding is that more prestigious and more senior VC directors appear to manipulate earnings downward. The cause of this effect is unclear, but perhaps it relates to a disinclination to leave money on the table—new stockholders benefit from the first week run-up in stock price, not the issuing firm. In this scenario more prestigious and more senior VC directors may seek to have a smaller IPO and artificially lower earnings expectations. Then the newly public firm is free to have a seasoned equity offering within the next year when the firm's earnings expectations are revised upward. In this scenario the firm will benefit from the higher stock price and less money is left on the table. This or an alternative explanation for manipulating earnings downward is left for future research.

Furthermore, in discussions with industry experts prior to going IPO, many firms make radical changes to their management structure. The purpose of the management changes relates to the differential needs of private versus public firms. Private new ventures require managers adept at

acquiring capital and overcoming the unique challenges of start-ups, while public firms are under very different pressures related to reporting to public investors and analysts. The changing nature of the firm's environment then necessitates acquiring managers with the experience required to address the needs of a large and diverse public investor market. Therefore looking at the changes in the management team immediately prior to the IPO may provide additional insight into the accounting choices of the firm as well as into future performance.

6.4 Conclusion

The findings of past literature have focused almost exclusively on the benefits to affiliating with prestigious alternates. Adding to the prior literature on the benefits of a greater selection of investor affiliates (Hallen, 2008; Ozcan & Eisenhardt, 2009), my research demonstrates the costs to the new venture of affiliating with less prestigious investors and investors early in their careers. Accordingly actors should select on attributes that limit the status development and career concerns of affiliates. Actors are often focused on reducing the costs of acquiring affiliates, but this appears to be myopic. Focusing on the broader impact of an affiliate's incentives will put the costs of acquiring more prestigious and senior affiliates in perspective.

Work Cited

- Abarbanell, J., & Lehavy, R. 2003. Can stock recommendations predict earnings management and analysts' earnings forecast errors? *Journal of Accounting Research*, 41(1): 1-31.
- Adler, P. S., & Kwon, S. W. 2002. Social capital: Prospects for a new concept. *Academy of Management Review*, 27(1): 17-40.
- Aggarwal, R. K., & Jorion, P. 2009. The risk of emerging hedge fund managers. *The Journal of Investing*, 18(1): 100-107.
- Aharony, J., Lin, C. J., & Loeb, M. P. 1993. Initial Public Offerings, Accounting Choices, and Earnings Management. *Contemporary Accounting Research*, 10(1): 61-81.
- Armstrong, C., Foster, G., & Taylor, D. 2010. Earnings management around initial public offerings: A re-examination. *Working Paper. University of Pennsylvania and Stanford University*.
- Ball, R., & Shivakumar, L. 2008. Earnings quality at initial public offerings. *Journal of Accounting & Economics*, 45(2-3): 324-349.
- Barnes, J. A. 1979. Network analysis: Orienting notion, rigorous technique, or substantive field of study. *Perspectives on Social Network Analysis. Ed. Holland, P.W., and Leinhardt, S., pp. 403-423. New York: Academic Press.*
- Barry, C. B., Muscarella, C. J., Peavy, J. W., & Vetsuypens, M. R. 1990. The role of venture capital in the creation of public companies: Evidence from the going-public process. *Journal of Financial Economics*, 27(2): 447-471.
- Bartov, E., & Mohanram, P. 2004. Private information, earnings manipulations, and executive stock-option exercises. *Accounting Review*, 79(4): 889-920.
- Beneish, M. D. 1997. Detecting GAAP violation: Implications for assessing earnings management among firms with extreme financial performance. *Journal of Accounting and Public Policy*, 16(3): 271-309.
- Berle, A. A., & Means, G. C. 1932. *The modern corporation and private property*. New York: Macmillan.
- Boulton, T. J., Smart, S. B., & Zutter, C. J. 2011. Earnings quality and international IPO underpricing. *Accounting Review*, 86(2): 483-505.
- Bowen, R. M., Rajgopal, S., & Venkatachalam, M. 2008. Accounting discretion, corporate governance, and firm performance. *Contemporary Accounting Research*, 25(2): 351-405.
- Bray, A., & Gompers, P. A. 2003. The role of lockups in initial public offerings. *Review of Financial Studies*, 16(1): 1-29.
- Burgstahler, D., & Dichev, I. 1997. Earnings management to avoid earnings decreases and losses. *Journal of Accounting & Economics*, 24(1): 99-126.
- Burgstahler, D. C., & Eames, M. J. 2003. Earnings management to avoid losses and earnings decreases: Are analysts fooled? *Contemporary Accounting Research*, 20(2): 253-294.
- Burns, N., & Kedia, S. 2006. The impact of performance-based compensation on misreporting. *Journal of Financial Economics*, 79(1): 35-67.
- Burt, R. S. 1980. Models of network structure. *Annual Review of Sociology*, 6: 79-141.
- Burt, R. S. 1995. *Structural holes: The social structure of competition*. Cambridge, Mass.: Harvard University Press.
- Bushee, B. J. 1998. The influence of institutional investors on myopic R&D investment behavior. *Accounting Review*, 73(3): 305-333.
- Bygrave, W. D. 1988. The structure of the investment networks of venture capital firms. *Journal of Business Venturing*, 3(2): 137-157.

- Cahan, S. F. 1992. The effect of antitrust investigations on discretionary accruals: A refined test of the political-cost hypothesis. *Accounting Review*, 67(1): 77-95.
- Carter, R. B., Dark, F. H., & Singh, A. K. 1998. Underwriter reputation, initial returns, and the long-run performance of IPO stocks. *Journal of Finance*, 53(1): 285-311.
- Certo, S. T. 2003. Influencing initial public offering investors with prestige: Signaling with board structures. *Academy of Management Review*, 28(3): 432-446.
- Chambers, D. 1999. Earnings management and capital market misallocation. *Working Paper, Kennesaw State University*.
- Cheng, Q., & Warfield, T. A. 2005. Equity incentives and earnings management. *Accounting Review*, 80(2): 441-476.
- Coleman, J. S. 1988. Social capital in the creation of human-capital. *American Journal of Sociology*, 94: S95-S120.
- Cowen, A. P., & Marcel, J. J. 2011. Damaged goods: Board decisions to dismiss reputationally compromised directors. *The Academy of Management Journal (AMJ)*, 54(3): 509-527.
- Darrough, M., & Rangan, S. 2005. Do insiders manipulate earnings when they sell their shares in an initial public offering? *Journal of Accounting Research*, 43(1): 1-33.
- Davis, G. F. 1991. Agents without principles? The spread of the poison pill through the intercorporate network. *Administrative Science Quarterly*, 36(4): 583-613.
- DeAngelo, L. E. 1988. Managerial competition, information costs, and corporate governance: The use of accounting performance measures in proxy contests. *Journal of Accounting & Economics*, 10(1): 3-36.
- Dechow, P., Ge, W. L., & Schrand, C. 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting & Economics*, 50(2-3): 344-401.
- Dechow, P. M. 1994. Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *Journal of Accounting & Economics*, 18(1): 3-42.
- Dechow, P. M., Hutton, A. P., & Sloan, R. G. 2000. The relation between analysts' forecasts of long-term earnings growth and stock price performance following equity offerings. *Contemporary Accounting Research*, 17(1): 1-32.
- Dechow, P. M., Kothari, S. P., & Watts, R. L. 1998. The relation between earnings and cash flows. *Journal of Accounting & Economics*, 25(2): 133-168.
- Dechow, P. M., Richardson, S. A., & Tuna, I. 2003. Why are earnings kinky? An examination of the earnings management explanation. *Review of Accounting Studies*, 8(2-3): 355-384.
- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. 1996. Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research*, 13(1): 1-36.
- Defond, M. L., & Jiambalvo, J. 1994. Debt covenant violation and manipulation of accruals. *Journal of Accounting & Economics*, 17(1-2): 145-176.
- DeGeorge, F., Patel, J., & Zeckhauser, R. 1999. Earnings management to exceed thresholds. *Journal of Business*, 72(1): 1-33.
- Demsetz, H., & Lehn, K. 1985. The structure of corporate ownership: Causes and consequences. *Journal of Political Economy*, 93(6): 1155-1177.
- Demski, J. S., & Frimor, H. 1999. Performance measure garbling under renegotiation in multiperiod agencies. *Journal of Accounting Research*, 37: 187-214.
- Eisenhardt, K. M. 1989. Agency theory: An assessment and review. *Academy of Management Review*, 14(1): 57-74.
- Erickson, M., & Wang, S. W. 1999. Earnings management by acquiring firms in stock for stock mergers. *Journal of Accounting & Economics*, 27(2): 149-176.

- Fama, E. F. 1980. Agency problems and the theory of the firm. *Journal of Political Economy*, 88(2): 288-307.
- Fama, E. F., & Jensen, M. C. 1983. Separation of ownership and control. *Journal of Law & Economics*, 26(2): 301-325.
- FASB. 1987. Statement of cash flows. In F. A. S. Board (Ed.), *Statement No. 95*. Stamford, Conn.
- Field, L. C., & Lowry, M. 2009. Institutional versus individual investment in IPOs: The importance of firm fundamentals. *Journal of Financial and Quantitative Analysis*, 44(3): 489-516.
- Foster, G. 1977. Quarterly accounting data: Time-series properties and predictive ability results. *Accounting Review*, 52(1): 1-21.
- Friedlan, J. M. 1994. Accounting choices of issuers of initial public offerings. *Contemporary Accounting Research*, 11(1): 1-31.
- Gibbons, R. 2005. What is economic sociology and should any economists care? *Journal of Economic Perspectives*, 19(1): 3-7.
- Gibbons, R., & Murphy, K. J. 1992. Optimal incentive contracts in the presence of career concerns: Theory and evidence. *Journal of Political Economy*, 100(3): 468-505.
- Gompers, P., & Lerner, J. 2001. The venture capital revolution. *Journal of Economic Perspectives*, 15(2): 145-168.
- Gompers, P. A. 1996. Grandstanding in the venture capital industry. *Journal of Financial Economics*, 42(1): 133-156.
- Gorman, M., & Sahlman, W. A. 1989. What do venture capitalists do? *Journal of Business Venturing*, 4(4): 231-248.
- Graham, J. R., Harvey, C. R., & Rajgopal, S. 2005. The economic implications of corporate financial reporting. *Journal of Accounting & Economics*, 40(1-3): 3-73.
- Granovetter, M. 1985. Economic-action and social-structure: The problem of embeddedness. *American Journal of Sociology*, 91(3): 481-510.
- Greene, W. H. 2008. *Econometric analysis* (5th ed.). Upper Saddle River, N.J.: Prentice Hall.
- Guay, W. R., Kothari, S. P., & Watts, R. L. 1996. A market-based evaluation of discretionary accrual models. *Journal of Accounting Research*, 34: 83-105.
- Gulati, R. 1995. Social structure and alliance formation patterns: A longitudinal analysis. *Administrative Science Quarterly*, 40(4): 619-652.
- Gulati, R., & Gargiulo, M. 1999. Where do interorganizational networks come from? *American Journal of Sociology*, 104(5): 1439-1493.
- Gulati, R., & Sytch, M. 2007. Dependence asymmetry and joint dependence in interorganizational relationships: Effects of embeddedness on a manufacturer's performance in procurement relationships. *Administrative Science Quarterly*, 52(1): 32-69.
- Gulati, R., & Westphal, J. D. 1999. Cooperative or controlling? The effects of CEO-board relations and the content of interlocks on the formation of joint ventures. *Administrative Science Quarterly*, 44(3): 473-506.
- Gunny, K. A. 2010. The relation between earnings ,anagement using real activities manipulation and future performance: Evidence from meeting earnings benchmarks. *Contemporary Accounting Research*, 27(3): 855-888.
- Hallen, B. L. 2008. The causes and consequences of the initial network positions of new organizations: From whom do entrepreneurs receive investments? *Administrative Science Quarterly*, 53(4): 685-718.
- Handcock, M. S., Hunter, D. R., Butts, C. T., Goodreau, S. M., & Morris, M. 2008. Statnet: Software tools for the representation, visualization, analysis and simulation of network data. *Journal of Statistical Software*, 24(1): 1548.

- Harris, J., & Bromiley, P. 2007. Incentives to cheat: The influence of executive compensation and firm performance on financial misrepresentation. *Organization Science*, 18(3): 350-367.
- Haunschild, P. R., & Beckman, C. M. 1998. When do interlocks matter? Alternate sources of information and interlock influence. *Administrative Science Quarterly*, 43(4): 815-844.
- Healy, P. M. 1985. The effect of bonus schemes on accounting decisions. *Journal of Accounting & Economics*, 7(1-3): 85-107.
- Healy, P. M., & Wahlen, J. M. 1999. A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13(4): 365-383.
- Henry, D. 2004. Fuzzy Numbers; despite the reforms, corporate profits can be as distorted and confusing as ever. Here's how the game is played, *Business Week*.
- Hertzberg, A., Liberti, J., & Paravisini, D. 2010. Information and incentives inside the firm: Evidence from loan officer rotation. *The Journal of Finance*, 65(3): 795-828.
- Higgins, M. C., & Gulati, R. 2003. Getting off to a good start: The effects of upper echelon affiliations on underwriter prestige. *Organization Science*, 14(3): 244-263.
- Hirst, D. E., & Hopkins, P. E. 1998. Comprehensive income reporting and analysts' valuation judgments. *Journal of Accounting Research*, 36(Supplement): 47-75.
- Hochberg, Y. V. 2008. Venture capital and corporate governance in the newly public firm. *Working Paper, Northwestern University*.
- Hochberg, Y. V., Ljungqvist, A., & Lu, Y. 2007. Whom you know matters: Venture capital networks and investment performance. *Journal of Finance*, 62(1): 251-301.
- Holthausen, R. W., Larcker, D. F., & Sloan, R. G. 1995. Annual bonus schemes and the manipulation of earnings. *Journal of Accounting & Economics*, 19(1): 29-74.
- Hong, H., Kubik, J. D., & Solomon, A. 2000. Security analysts' career concerns and herding of earnings forecasts. *The Rand Journal of Economics*, 31(1): 121-144.
- Hsu, D. H. 2004. What do entrepreneurs pay for venture capital affiliation? *The Journal of Finance*, 59(4): 1805-1844.
- Hughes, J. 2010. Accounting rules get tough on 'window dressing', *Financial Times*.
- Jensen, M. 2008. The use of relational discrimination to manage market entry: When do social status and structural holes work against you? *The Academy of Management Journal*, 51(4): 723-743.
- Jensen, M. C., & Meckling, W. H. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4): 305-360.
- Jensen, M. C., & Murphy, K. J. 1990. Performance pay and top-management incentives. *Journal of Political Economy*, 98(2): 225-264.
- Jones, J. J. 1991. Earnings management during import relief investigations. *Journal of Accounting Research*, 29(2): 193-228.
- Kaplan, R. S. 1985. Evidence on the effect of bonus schemes on accounting procedure and accrual decisions. *Journal of Accounting and Economics*, 7(1-3): 109-113.
- Kaplan, S. N., & Strömberg, P. 2003. Financial contracting theory meets the real world: An empirical analysis of venture capital contracts. *Review of Economic Studies*, 70(2): 281-315.
- Kaszniak, R. 1999. On the association between voluntary disclosure and earnings management. *Journal of Accounting Research*, 37(1): 57-81.
- Kenney, M., & Patton, D. 2010. Firm database of initial public offerings (IPOs) from June 1996 through 2006 (Version B).
- Key, K. G. 1997. Political cost incentives for earnings management in the cable television industry. *Journal of Accounting & Economics*, 23(3): 309-337.
- Kilduff, M., & Tsai, W. 2003. *Social networks and organizations*. London: Sage Publications.

- Klein, A. 2002. Economic determinants of audit committee independence. *Accounting Review*, 77(2): 435-452.
- Kosnik, R. D. 1987. Greenmail: A study of board performance in corporate governance. *Administrative Science Quarterly*, 32(2): 163-185.
- Kothari, S. P., Leone, A. J., & Wasley, C. E. 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39(1): 163-197.
- Laumann, E. O., Marsden, P. V., & Prensky, D. 1989. The boundary specification problem in network analysis. In L. C. Freeman, White, D.R., and Romney, A.K. (Ed.), *Research methods in social network analysis*: 61-87. Fairfax, Va.: George Mason University Press.
- Lee, G., & Masulis, R. W. 2011. Do more reputable financial institutions reduce earnings management by IPO issuers? *Journal of Corporate Finance*, 17(4): 982-1000.
- Liu, J., Nissim, D., & Thomas, J. 2002. Equity valuation using multiples. *Journal of Accounting Research*, 40(1): 135-172.
- Ljungqvist, A. 2001. Data quality issues in SDC, Vol. 2011.
- McNichols, M. F. 2000. Research design issues in earnings management studies. *Journal of Accounting and Public Policy*, 19(4-5): 313-345.
- McPherson, M. 1983. An ecology of affiliation. *American Sociological Review*, 48(4): 519-532.
- Meggison, W. L., & Weiss, K. A. 1991. Venture capitalist certification in initial public offerings. *Journal of Finance*, 46(3): 879-903.
- Meyer, J. W., & Rowan, B. 1977. Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2): 340-363.
- Mizruchi, M. S. 1996. What do interlocks do? An analysis, critique, and assessment of research on interlocking directorates. *Annual Review of Sociology*, 22: 271-298.
- Morsfield, S. G., & Tan, C. E. L. 2006. Do venture capitalists influence the decision to manage earnings in initial public offerings? *Accounting Review*, 81(5): 1119-1150.
- Nahapiet, J., & Ghoshal, S. 1998. Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2): 242-266.
- Ozcan, P., & Eisenhardt, K. M. 2009. Origin of alliance portfolios: Entrepreneurs, network strategies, and firm performance. *The Academy of Management Journal*, 52(2): 246-279.
- Perry, S. E., & Williams, T. H. 1994. Earnings management preceding management buyout offers. *Journal of Accounting & Economics*, 18(2): 157-179.
- Phillips, D. J., & Zuckerman, E. W. 2001. Middle-status conformity: Theoretical restatement and empirical demonstration in two markets. *American Journal of Sociology*, 107(2): 379-429.
- Podolny, J. M. 1993. A status-based model of market competition. *American Journal of Sociology*, 98(4): 829-872.
- Podolny, J. M. 1994. Market uncertainty and the social character of economic exchange. *Administrative Science Quarterly*, 39(3): 458-483.
- Podolny, J. M. 2001. Networks as the pipes and prisms of the market. *American Journal of Sociology*, 107(1): 33-60.
- Podolny, J. M. 2005. *Status signals: A sociological study of market competition*. Princeton, NJ.: Princeton University Press.
- Portes, A. 1998. Social Capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24: 1-24.
- Portes, A., & Sensenbrenner, J. 1993. Embeddedness and immigration: Notes on the social determinants of economic action. *American Journal of Sociology*, 98(6): 1320-1350.
- Powell, W. W., Koput, K. W., & Smith-Doerr, L. 1996. Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 41(1): 116-145.

- Prendergast, C., & Stole, L. 1996. Impetuous youngsters and jaded old-timers: Acquiring a reputation for learning. *Journal of Political Economy*, 104(6): 1105-1134.
- Richardson, S. A., Sloan, R. G., Soliman, M. T., & Tuna, I. 2005. Accrual reliability, earnings persistence and stock prices. *Journal of Accounting & Economics*, 39(3): 437-485.
- Ritter, J. 2011. IPO data, Vol. 2011.
- Roosenboom, P. 2007. How do underwriters value initial public offerings? An empirical analysis of the french IPO market. *Contemporary Accounting Research*, 24(4): 1217-1243.
- Sahlman, W. A. 1990. The structure and governance of venture-capital organizations. *Journal of Financial Economics*, 27(2): 473-521.
- Scott, W. R., & Davis, G. F. 2007. *Organizations and organizing: rational, natural, and open systems perspectives*. Upper Saddle River, NJ.: Pearson Prentice Hall.
- SEC. 2011. EDGAR: Education department general administrative regulations, Vol. 2011.
- Shleifer, A., & Vishny, R. W. 1997. A survey of corporate governance. *Journal of Finance*, 52(2): 737-783.
- Simmel, G. 1955[1908,1922]. *Conflict and the web of group affiliations* (K. H. Wolff, & R. Bendix, Trans.). Glencoe, IL.: Free Press.
- Sorenson, O., & Stuart, T. E. 2001. Syndication networks and the spatial distribution of venture capital investments. *American Journal of Sociology*, 106(6): 1546-1588.
- Stuart, T. E., Hoang, H., & Hybels, R. C. 1999. Interorganizational endorsements and the performance of entrepreneurial ventures. *Administrative Science Quarterly*, 44(2): 315-349.
- Subramanyam, K. R. 1996. The pricing of discretionary accruals. *Journal of Accounting & Economics*, 22(1-3): 249-281.
- Sweeney, A. P. 1994. Debt-covenant violations and managers accounting responses. *Journal of Accounting & Economics*, 17(3): 281-308.
- Teoh, S. H., Welch, I., & Wong, T. J. 1998a. Earnings management and the long-run market performance of initial public offerings. *Journal of Finance*, 53(6): 1935-1974.
- Teoh, S. H., Welch, I., & Wong, T. J. 1998b. Earnings management and the underperformance of seasoned equity offerings. *Journal of Financial Economics*, 50(1): 63-99.
- Teoh, S. H., & Wong, T. J. 2002. Why new issues and high-accrual firms underperform: The role of analysts' credulity. *Review of Financial Studies*, 15(3): 869-900.
- Teoh, S. H., Wong, T. J., & Rao, G. R. 1998c. Are accruals during initial public offerings opportunistic? *Review of Accounting Studies*, 3(1): 175-208.
- Uzzi, B. 1996. The sources and consequences of embeddedness for the economic performance of organizations: The network effect. *American Sociological Review*, 61(4): 674-698.
- Uzzi, B. 1997. Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42(1): 35-67.
- Uzzi, B., & Lancaster, R. 2003. Relational embeddedness and learning: The case of bank loan managers and their clients. *Management Science*, 49(4): 383-399.
- Uzzi, B., & Lancaster, R. 2004. Embeddedness and price formation in the corporate law market. *American Sociological Review*, 69(3): 319-344.
- Wasserman, S., & Faust, K. 1994. *Social network analysis: Methods and applications*. New York, NY.: Cambridge University Press.
- Weisbach, M. S. 1988. Outside directors and CEO turnover. *Journal of Financial Economics*, 20: 431-460.
- Wellman, B. 1983. Network analysis: Some basic principles. *Sociological theory*, 1(1): 155-200.
- Westphal, J. D. 1998. Board games: How CEOs adapt to increases in structural board independence from management. *Administrative Science Quarterly*, 43(3): 511-537.

- Zmijewski, M. E., & Hagerman, R. L. 1981. An income strategy approach to the positive theory of accounting standard setting/choice. *Journal of Accounting and Economics*, 3(2): 129-149.
- Zukin, S., & DiMaggio, P. 1990. *Structures of capital: The social organization of the economy*. Cambridge, England: Cambridge University Press.