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## 7. The effects of private equity investors on the governance of companies

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### INTRODUCTION

Companies that receive external equity typically experience a separation of ownership and control, where owners who are not involved in the company (principals) have to rely on the management team (agents) for achieving expected goals and target levels. Theoretical literature argues that when ownership and control are separated, principals develop governance structures to reduce agency costs and align agents' incentives (Berle and Means, 1932; Jensen and Meckling, 1976; Grossman and Hart, 1986; Zingales, 1995). Likewise, optimal financial structure design by financial intermediaries can effectively help to mitigate agency problems by identifying self-enforcing equilibria (Diamond, 1984; Fama and Jensen, 1985; Stiglitz, 1985; Bhattacharya and Thakor, 1993; Barry, 1994).

In general terms, governance and financial devices can be thought of as either internal control mechanisms (such as the board) or external control mechanisms (such as the market for corporate control). An increasingly important external control mechanism affecting the governance of young and fast-growing companies worldwide is the emergence of institutional and private equity investors, as equity owners. Institutional investors have the potential to influence management's activities directly through their ownership, and indirectly by trading their shares (Gillan and Starks, 2003). In this respect private equity investors are differentiated from institutional ones in the longer-term view and in the significantly more hands-on approach that they pursue when investing in a portfolio company. As a result, companies backed by private equity investors represent a fruitful environment to investigate the use and efficiency of a multitude of control mechanisms.

The surge over the last 30 years in investment activity by private equity investors at large has given rise to an increased specialization of this class of investors conditional on the risk return profiles associated with different investment and firm life cycle stages. For instance, business angels supporting the archetypical 'paper company' start-up face a risk exposure

that in terms of both magnitude and characteristics is significantly different from that incurred by a private equity investor acquiring control of a mature company. Yet, investors in this market share common traits such as a value maximization approach, risk–return informed decisions, and a deep knowledge of governance mechanisms. As such their influence on portfolio company governance mechanisms is largely similar in terms of depth and breadth. In this chapter we aim at presenting an up-to-date review of the main theoretical contributions and empirical results in this active and growing field of research.

## PRIVATE EQUITY INVESTORS: STAGE FOCUS AND INVOLVEMENT IN CORPORATE GOVERNANCE

A broad definition of private equity is the provision of capital by financial investors to high-growth, private companies (see the National Venture Capital Association, NVCA, and European Venture Capital Association, EVCA, guidelines). A more accurate definition identifies investors as either venture capital or, strictly speaking, private equity investors according to the stage of development of the target firm. In particular, formal venture capital (VC) is the provision of capital to young ventures in need of resources to start up, develop or expand a business by a professional investor. Formal venture capital, as part of the larger private equity model, is characterized by the separation of fund provisioning (largely restricted to the so-called ‘limited partners’) and the management of capital, normally mandated to a group of professional investors organized as a management company. However, as Bygrave et al. (2003) show, the overwhelming majority of capital provided by non-family members to young, high-growth companies is provided by so-called ‘informal venture capital’ sources, mainly through investors known as ‘business angels’. Crucially, business angels provide funding out of their own endowments rather than through external fundraising. A question still hotly debated in the literature is whether business angels (BAs) and venture capitalists are to be looked at as complements or substitutes. The general consensus seem to point at business angels, both as individuals and as organized groups of individuals (known as business angels groups), as precursors of proper venture capital investors, in that they target essentially only newborn firms in the seed phase of development and they adopt very similar valuation models, monitoring structures and exit strategies. However a few recent contributions (most notably Hellmann et al., 2015) provide preliminary evidence of increased competition between these two classes of early-stage investors,

making them ‘dynamic complements’. We reckon that this is an area of fruitful research that, through the availability of more granular data on the financing sequencing of start-ups, will help to answer this pressing question.

Differently from formal or informal VC, strictly defined private equity is referred to as a later-stage type of organized investment that usually provides capital to support the buyout, further expansion or turnaround of an established company (EVCA, 2006). As such, PE investors target fast-growing companies that have unexploited potential that investors can unleash through the so-called ‘operational re-engineering’ and/or appropriate financial structuring.

A crucial characteristic of all these three forms of professional investors is the finite life of their holding periods: the main purpose of the investment is in fact to maximize the return on capital and sell the company to a later-stage investor or a private entity, or to the market through the listing of shares. This feature generates an endogenous incentive to exert strict control on the portfolio company through a variety of mechanisms, among which corporate governance control mechanisms are of the utmost importance. In fact, while sound governance may not necessarily lead to strong performance, there is an implicit understanding among the vast majority of investors that poorly governed companies are more prone to failure. Hence, there is a strong element of self-interest for private equity managers to ensure that their funds are invested only in well-governed companies or in companies that are willing and able to improve their governance, and to avoid investing in poorly governed companies that demonstrate no inclination to improve their governance.

Despite these common objectives, the different stages of development of the target firms and the different risk–return profiles of the investment generate significantly different approaches in the implementation of control and monitoring procedures and, ultimately, in shaping the corporate governance of portfolio companies. In the following we present evidence on the impact of business angels, venture capitalists and later-stage private equity investors on the governance of portfolio companies.

## INFORMAL VENTURE CAPITAL AND CORPORATE GOVERNANCE

The market for informal venture capital includes various typologies of investors, among which the most important are business angels, who are private investors providing finance to small and newly established companies with their own private savings by underwriting equity capital

(Sørheim and Landström, 2001). Differently from formal venture capitalist, it is often noted (e.g. Shane, 2008) that BAs' objective function is two-sided: on one hand they share with formal VC a value-maximization goal. On the other, though, there seems to be a significant component driving BA investment decisions provided by non-monetary benefits associated with prestige, visibility and involvement in successful ventures. As several authors note (Haines et al., 2003; Morrisette, 2007; Ibrahim, 2008; Hsu et al., 2014), there seem to be a strong component of personal reward motivating business angels, such as playing an entrepreneurial role, mentoring highly talented and creative people, discovering new technologies, and interacting with other angels and players. In this respect, the contribution they provide to financed firms is at least as much related to knowledge, advice, mentoring and personal networks as to capital injection (Harrison and Mason, 1992; Landström, 1993; Politis, 2008).

From a research perspective BAs and venture capitalists have intuitive similarities and interesting differences. Crucially, both venture capitalists and BAs share a common approach to capital provision through direct equity underwriting which allows for the extension to BAs of much of the empirical evidence on the process and structure of venture capital investing. However, business angels differ deeply from formal venture capitalists in several respects. Firstly and probably most importantly, business angels invest their own capital and not funds committed by third parties through a closed-end fund vehicle (Freear et al., 1992; Coveney and Moore, 1998). This characteristic generates a higher risk exposure on the investor side and, arguably, a greater involvement in the investment selection and monitoring process. Secondly, business angels' available funds are generally rather limited when compared to the average size of assets under management by venture capital firms. This generates an almost mechanical focus on smaller and younger companies with a steep growth potential. This evidence largely holds true despite a trend observed in recent years among business angels of syndicating investment to finance larger and more 'developed' projects (Harrison and Mason, 2000; Sohl and Hill, 2007). Thirdly, they have no or limited diversification strategies, nor do they commit themselves simultaneously to multiple investments, having as a major risk management technique the small proportion of invested capital over their total personal assets, which by construction should limit the impact of a negative performance on their net worth (Freear et al., 1992; Harrison and Mason, 1996; Van Osnabrugge, 2000; Johnson and Sohl, 2012; Capizzi, 2015). These differences suggest the existence of a complementarity, rather than a competition, between BAs and venture capitalists. According to data compiled by the United States (US) Angel Capital Association and reported in Table 7.1, there is a

Table 7.1 *VC and BA investment activity*

	Angel Investors	Venture Capital
Invested capital	\$24.8 bn	\$29.6 bn
Number of investors	298 000	548
Total deals	71 000	4050
<i>Seed</i>	32 000	120
<i>Early stage</i>	29 000	1375
<i>Expansion</i>	9200	2550

*Note:* This table provides summary statistics on the investment activity in start-up companies. Figures are for the fiscal year 2013 obtained by the National Venture Capital Association and the Angel Capital Association.

*Source:* Table compiled by the authors on US ACA data

striking evidence of similar capital contributions by angels and formal VC investors. However, business angels invest in about 16 times more companies than are financed by formal VC, and disproportionately in the seed and early-stage phase.

Given this evidence, it is not surprising that since the 1990s informal venture capitalists have tried to increase the quality of their operations by gathering in semi-formal associations or groups of angels, usually on a territorial or industrial basis, sharing presentation pitches from potential entrepreneurs, due diligence over the potential investment opportunities, transaction costs and investment deals to be implemented by syndicates of group members (Mason, 2006; Sohl, 2007; Paul and Whittam, 2010; Kerr et al., 2014a). These associations, called business angel networks (BANs), angel investment organizations (AIOs) or angel groups, have grown to regional levels (for example, Tech Coast Angels in southern California or CommonAngels in Massachusetts), national levels (for example, ACA in the US, BBAA in the United Kingdom, IBAN in Italy) and super-national levels (for example, EBAN in Europe).

This evidence notwithstanding, research on business angels and their impact on portfolio companies is still limited by significant data availability issues and is therefore mainly qualitative and largely incomplete. Yet, preliminary results seem suggestive of a different set of objectives and techniques than those observed in VC contracts (Landström, 2007). Venture capitalists typically address the problem of opportunistic behavior of entrepreneurs – arising from uncertainty, information asymmetries and agency costs faced by the outside equity investors – by:

1. Pooling the risks coming from many investments through a portfolio diversification approach.
2. Sharing the risks with other investors through a syndication approach.
3. Designing investment contracts aimed at aligning inside and outside investors' incentives. Such an alignment is obtained through a deal-specific combination of five different mechanisms:
  - a. Staged financing, a funding mechanism conditioning the follow-on investments to some pre-specified performance milestones to be reached over a given time period.
  - b. Dual class shares, aimed at providing a priority status to outside equity investors in case of payout policies and in case of a company sale, bankruptcy or liquidation.
  - c. Board seats, allowing the VCs to exert control over the company.
  - d. Negative covenants (or veto rights), which are specific contractual clauses aimed at preventing the target companies from implementing predetermined actions, operations or investments which could increase the equity risk for already existing outside investors.
  - e. Exit rights, including, but not limited to, redemption rights, 'tag and drag along' rights, demand registration rights, conversion rights.

Whether any of these techniques is actually adopted by business angels remains an opaque issue. Wong et al. (2009), in their seminal study, provide evidence on business angels' contract design, looking at a sample of 215 angel investment rounds in 143 companies from across the United States during the period 1994–2001. Their results show that angels are not given the traditional control rights that venture capitalists typically use. Rather, one of the primary mechanisms to control agency costs is the alignment of the entrepreneur's interests with those of the firm through the large ownership positions. Additionally, angels make smaller investments and increase syndication when investing in the riskier ventures. Wong et al. (2009) provide a tentative answer to the puzzling question as to why angels provide capital in highly uncertain operations without much formal protection from expropriation. In particular, Wong et al. (2009) argue that a proximity effect plays a role: angels tend to invest in ventures located very closely to their home base. Therefore they can engage in direct monitoring and indirect network monitoring in a spirit similar to Sorenson and Stuart (2001). This effect is reinforced by business angels who generally invest in ventures operating in businesses which the investor is extremely familiar with due to prior or current experience.

BAs invest in the very first stages of the firm life where the issues of

uncertainty, information asymmetries and agency costs are the highest. Yet, Ibrahim's (2008) evidence provides additional support to Wong et al.'s (2009) results showing that their typical investment contracts very seldom show the adoption of the standard VC control and governance provisions. As Ibrahim puts it, '[BA contracts] are surprisingly non aggressive and striking in their informality', with a puzzling lack of contractual protection.

Ibrahim proposes three major arguments to explain these observed differences. First, angel investors anticipate that as the company grows and increases the unit size of its operating investments, it will become eligible for a follow-up financing round by a formal venture capital fund. In such a case, a formal VC investor, as illustrated above, would inevitably require appropriate control and governance tools that would make a prior contract design by a business angel either too binding (thereby potentially unraveling the deal) or simply of limited use and therefore a loss-making investment, as suggested also by Gompers and Lerner (2006) in the VC context. This implies that 'the start-up's need for further funding from venture capitalists sets de facto limits on the terms of the angel investment contract' (Ibrahim, 2008).

Second, Ibrahim (2008) suggests that some informal substitutes for contractual monitoring are available to business angels. In particular, aligned with Wong et al.'s (2009) networking conjecture, Ibrahim (2008) shows that angel investors tend to join start-ups either operating in industries they know because of their their past personal experience, or controlled by entrepreneurs they are familiar with. Finally, as previously noted by Wong et al. (2009), BAs invest in start-ups geographically close to the BA's location, thus building trust, and offering mentoring and leverage on the BA network.

Elaborating on the network argument, Ibrahim (2008) also introduces the evolving trend in angel financing toward structured or semi-structured angel investment organizations (AIOs). These networks provide angels with a valuable set of opportunities at reduced costs, including a constant stream of deal flow, joint valuation, due diligence and legal advisory services, training courses, interaction with other investors and the chance to participate to larger deals through the syndication mechanism. However, the more investors organize as semi-formal venture capital investment companies, the less AIO angels can leverage on informal substitutes for monitoring. As a consequence, the progressive institutionalization and formalization of angel investing may lead to an increase in the use of structured contractual mechanisms to minimize information asymmetries and agency costs.

In a recent contribution on this topic, Kerr et al. (2014a) investigate whether and how entrepreneurial financiers affect the success and growth of new ventures. Despite not providing specific evidence on the effects on governance practices of target companies, Kerr et al. (2014a) show that angel groups exhibit much more structured investment selection processes

and that the level of favorable review of the investment proposal, initial presentation and due diligence at the group rather than individual level is strongly predictive of investment success. Kerr et al. (2014a) additionally show that receiving financing from a group, as opposed to a single angel investor, is associated with improved likelihood of survival for four or more years, higher levels of employment and more visibility in the market. However, Kerr et al. (2014a) also show that with regard to the role of angel funding in facilitating access to future formal venture capital financing, the evidence is mixed: on one hand, strongly positive prospects are significantly more likely to receive follow-on financing rounds. On the other hand, however, the evidence quickly decreases for less positively evaluated projects that still received angel group financing.

Chua and Wu (2012) provide explicit, valuable evidence of the effects of post-investment involvement (PII) of BAs in invested companies. Their research design looks at both the characteristics of PII and the effects on performance. Chua and Wu's (2012) empirical analysis builds on a new survey-based dataset provided by the Kauffmann Foundation of 539 BAs, affiliated to 86 BANs in North America that recorded 1137 exits from their angel investments. The results show that PII has a significant positive effect on the returns (internal rate of return, IRR) earned by angels on their venture investments. However, such returns seem to be more significantly associated to mentoring and value-adding activities, rather than 'standard' monitoring activities such as serving on the board, designing the strategy and provide additional financing rounds (similarly to Kerr et al., 2014b). These results are aligned with those documented by Capizzi (2015) on one of the first panel data large samples of angel investments.

## VENTURE CAPITAL AND CORPORATE GOVERNANCE

Venture capital deals are primarily characterized by asymmetric information between entrepreneurs and financiers and almost exclusive capital infusion by outsiders. In such a context, Gorman and Sahlman (1989) and Sahlman (1990) first suggested that the value of VC lies not only in providing capital but also in superior selectivity by consistently picking high-growth firms, and most importantly in the provision of supplementary services such as entrepreneurial advice, hiring executives and shaping strategy, resulting in a valuable professionalization of portfolio companies. Following these seminal contributions, a large number of studies have investigated the mechanisms adopted by VCs to mitigate principal-agent conflicts, identifying three broad classes of control mechanisms:



intense pre-investment screening, the development of accurate financing contracts, and continuous post-investment monitoring and advice. Admati and Pfleiderer (1994), Lerner (1994) and Hochberg et al. (2004) shed light on pre-investment screening and syndication. Sahlman (1990), Berglof (1994), Gompers (1995) and Bergmann and Hege (1998) provide extensive evidence on the increasing level of complexity in the design of VC financing contracts through the introduction of staging, monitoring, governance and exit rules. Cumming (2005) supports this evidence by showing that agency problems can be explicitly addressed by appropriate security design and that the degree of contractual sophistication changes over time due to learning effects. A stream of research has given specific attention to the valuable activities performed by venture capitalists beyond their financing function. In particular, value-added tasks of venture capitalists include helping firms to shape strategies, and providing technical and commercial advice (Bygrave and Timmons, 1992; Hellmann, 1998; Hellmann and Puri, 2002; Baker and Gompers, 2003; Cornelli and Yosha, 2003). These contributions paved the way to answering a second set of questions, that is, the extent of VC influence on the governance of firms, the channels through which these effects are transmitted to portfolio companies, and the ultimate effects on corporate performance.

### **The Extent of VC Influence on the Governance of Firms**

Fama and Jensen (1983) and Williamson (1983), first conjectured that the composition of the board should be shaped by the need for oversight. Lerner (1995) tests this intuition in the VC industry by looking at board representation of portfolio companies. Assuming that venture capitalists are significant providers of managerial oversight, their representation on boards should be larger when there is a greater need for oversight. His findings show that venture capitalists are more likely to join or be added to the boards of private companies in periods when the chief executive officer (CEO) of the company changes. Baker and Gompers (1999) focus on board composition at initial public offerings (IPOs). They argue that the optimal choice for board structure is made at the time of the IPO, since existing shareholders bear the cost of suboptimal governance. Using data from 1116 IPO prospectuses, they describe board size and composition for a set of firms with a median age of less than six years and a median equity capitalization of \$42 million. According to their analysis, the number of insiders is 27 percent smaller in VC-backed firms, and the number of instrumental directors is 20 percent smaller. Kroszner and Strahan (2001), using banks' board representation, obtain similar results. Hellmann and Puri (2002) provide additional insights on a set of

governance actions in a hand-collected survey sample of 149 start-ups in Silicon Valley. The authors show that venture capitalists are influential not only at the top of the organization, in terms of replacing the original founders with an outside CEO as in Lerner (1995), but also in developments further down the organization. Differently from previous studies, Kaplan and Stromberg (2000, 2003, 2004) document direct evidence on venture capitalist actions and monitoring. Analyzing investment decisions on portfolio companies at the time of the initial investment, they find that while in 14 percent of the investments the venture capitalists play an active role in advising the management, they trade off this activity with the costs of devoting excessive attention to a single venture.

Hochberg (2004) compares governance in VC-backed and non-VC-backed IPO firms using a unique database assembled by supplementing data from four publicly available databases with additional information gathered from two hand-collected datasets. Results show that VC backing reduces the level of earnings management in the firm (as proxied for by discretionary accruals); furthermore, VC-backed firms are more likely to follow 'conservative' rather than 'aggressive'<sup>1</sup> accounting practices than non-VC-backed firms. Additionally, VC-backed firms experience higher abnormal returns than non-VC-backed firms upon the announcement of the adoption of a shareholder rights agreement, and have more independent board structures at the time of the IPO. In a similar set-up, Suchard (2009) explores the effect of VC backing on the size and composition of the board of directors of investees at the time of the IPO, showing that venture capitalists are influential in determining the number of board members and in appointing independent directors with substantial industry-related skills. Cumming (2008) addresses the issue of the governance of VC-backed companies conditional on the legal and economic framework. The results, although focused on a broad set of corporate variables relating to governance style by VC investors, offer a first hint at the existence of profound differences in the governance choices by VC investors conditional on their geographical origins.

### **The Transmission Channels of the VC Influence on the Governance of Firms**

These contributions confirm the intuition that venture capitalists do affect the governance of their portfolio companies by intense monitoring, providing advice, shaping strategies and accelerating companies growth. The existence of causal links calls for understanding the transmission channels through which venture capitalists exert their influence on the governance of their firms.

Several contributions have identified the investment size as a relevant factor in the selection and management process of VC-backed companies. Kanninen and Keuschnigg (2003, 2004) and Bernile et al. (2007) show that since the size of a VC management company cannot be easily scaled to the number of ventures in its portfolio, the screening, monitoring and advice activity of that management company is upper bounded. As a consequence, VC investors will optimize their available time and effort by carefully selecting the size of the portfolio (number of investments) to achieve optimal passive diversification, and the stake in each venture, in order to optimally allocate their monitoring (scarce) resources. The latter decision can be also interpreted as a diversification effect as venture capitalists will devote more resources to projects where they have larger interests, and accept more risks on projects where they have smaller stakes (Jääskeläinen et al., 2006). Bernile et al. (2007) test this empirical prediction on a survey-based sample of 42 VC-backed companies. Their results confirm the theoretical model, showing that VC investors jointly optimize the size of the portfolio and the relative weight of each investment. Cumming (2006) addresses the portfolio size issue, showing that additional factors such as industry, stage, syndication and geographical region contribute to the portfolio size selection.

Bonini et al. (2012) provide a specific set of tests on the correlation between the amount of VC funding in a company and the venture capitalist's influence on the governance practices. In particular, their main tests aim at identifying a causal relationship between the VC investment size and the effect on governance practices at the top of the company and across the whole organization. Looking at data from a novel hand-collected, questionnaire-based survey sample of 164 VC-backed companies in the US and Europe, they gather information on top-management and organization-wide variables that they then relate to investment size and a set of control variables. All variables are operationalized as Likert-type items with values ranging from 1 to 4, where 1 indicates no VC influence, and 4 indicates high VC influence, with the exception of *CEO-replaced* which is a dichotomous item. Variables are modeled as follows:

- Top-management items: *CEO-replaced*, *CEO hiring (CEO)*, *Executive compensation (EXE)*, *Board decisions (BODD)*, *Board appointments (BODA)*.
- Organization-wide variables: *HR practices (HR)*, *Employee incentives (INCENT)*, *Strategy direction (STR)*, *Investment planning (INV)*.

Table 7.2 reports results for a set of univariate and multivariate OLS regressions.

Table 7.2 Linear regressions of VC influence on governance practices

	CEO	CEO	HR	HR	EXE	EXE	INCENT	INCENT	BODD	BODD	STR	STR	BODA	BODA	INV	INV
Intercept	1.92*** (0.27)	1.73*** (0.49)	1.72*** (0.17)	1.90*** (0.36)	2.73*** (0.18)	2.59*** (0.28)	2.08*** (0.19)	2.05*** (0.33)	3.08*** (0.20)	3.03*** (0.32)	3.01*** (0.18)	2.36*** (0.29)	2.83*** (0.18)	2.72*** (0.30)	2.85*** (0.18)	2.89*** (0.34)
VC%	1.10** (0.36)	1.23** (0.39)	0.37 (0.23)	0.4 (0.23)	0.72** (0.23)	0.72** (0.23)	0.50* (0.25)	0.58* (0.27)	0.66** (0.25)	0.56* (0.23)	0.01 (0.24)	0.06 (0.23)	0.85*** (0.23)	0.77*** (0.22)	0.29 (0.25)	0.26 (0.26)
#ofVCs	-0.01 (0.04)	-0.01 (0.04)	0.04* (0.02)	0.04* (0.02)	0.02 (0.02)	0.02 (0.02)	0.01 (0.02)	0.01 (0.02)	0.03 (0.02)	0.03 (0.02)	0.04+ (0.02)	0.04+ (0.02)	0.02 (0.02)	0.02 (0.02)	0.01 (0.02)	0.01 (0.02)
LnAGE	0.13 (0.16)	0.13 (0.16)	0.12 (0.11)	0.12 (0.11)	-0.01 (0.09)	-0.01 (0.09)	0.00 (0.11)	0.00 (0.11)	-0.14 (0.10)	-0.14 (0.10)	-0.09 (0.10)	-0.09 (0.10)	-0.11 (0.09)	-0.11 (0.09)	-0.04 (0.12)	-0.04 (0.12)
Ln#EE	0.06 (0.09)	0.06 (0.09)	-0.08 (0.07)	-0.08 (0.07)	0.01 (0.06)	0.01 (0.06)	-0.03 (0.06)	-0.03 (0.06)	0.01 (0.06)	0.01 (0.06)	0.15** (0.05)	0.15** (0.05)	0.00 (0.06)	0.00 (0.06)	-0.04 (0.06)	-0.04 (0.06)
Computer	-0.03 (0.25)	-0.03 (0.25)	-0.16 (0.15)	-0.16 (0.15)	0.12 (0.17)	0.12 (0.17)	-0.12 (0.17)	-0.12 (0.17)	0.22 (0.15)	0.22 (0.15)	-0.19 (0.15)	-0.19 (0.15)	0.31* (0.14)	0.31* (0.14)	0.18 (0.17)	0.18 (0.17)
Medical	-0.11 (0.25)	-0.11 (0.25)	-0.14 (0.18)	-0.14 (0.18)	0.12 (0.14)	0.12 (0.14)	0.03 (0.17)	0.03 (0.17)	0.19 (0.16)	0.19 (0.16)	0.13 (0.16)	0.13 (0.16)	0.24+ (0.14)	0.24+ (0.14)	0.21 (0.17)	0.21 (0.17)
Expansion	-0.17 (0.26)	-0.17 (0.26)	-0.34* (0.18)	-0.34* (0.18)	0.05 (0.17)	0.05 (0.17)	0.14 (0.18)	0.14 (0.18)	0.18 (0.17)	0.18 (0.17)	0.03 (0.18)	0.03 (0.18)	0.16 (0.17)	0.16 (0.17)	-0.07 (0.18)	-0.07 (0.18)
Later	-0.87* (0.43)	-0.87* (0.43)	-0.59+ (0.31)	-0.59+ (0.31)	-0.41 (0.35)	-0.41 (0.35)	-0.36 (0.30)	-0.36 (0.30)	-0.01 (0.24)	-0.01 (0.24)	-0.56* (0.26)	-0.56* (0.26)	0.02 (0.31)	0.02 (0.31)	-0.06 (0.28)	-0.06 (0.28)
Stage	-0.10 (0.22)	-0.10 (0.22)	0.22+ (0.13)	0.22+ (0.13)	-0.08 (0.14)	-0.08 (0.14)	0.03 (0.17)	0.03 (0.17)	-0.03 (0.14)	-0.03 (0.14)	0.33* (0.13)	0.33* (0.13)	0.04 (0.13)	0.04 (0.13)	0.18 (0.14)	0.18 (0.14)
Europe	9.44 (0.05)	1.68 (0.08)	2.66 (0.10)	2.31 (0.10)	9.66 (0.05)	1.52 (0.09)	4.05 (0.02)	1.37 (0.07)	7.01 (0.05)	2.09 (0.11)	0.00 (0.14)	3.41 (0.14)	13.71 (0.09)	2.46 (0.14)	1.35 (0.01)	0.83 (0.04)
F	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164
R <sup>2</sup>																
N																

Note: This table presents results for univariate and multivariate OLS regressions. The dependent variables are VC influence on CEO hiring, HR practices, Executive compensation, Employee incentives, Board decisions, Board appointments, Strategy, and Investment, which are likert-type variables ranging from 1 to 4, 1 representing no influence and 4 indicating high influence. The independent variables are the proportion of VC funding received by sample companies; # VCs which is the number of different VC investors funding sample companies; LnAge which is a natural logarithm of the company age; Ln # Employees which is a natural logarithm of the number of company employees; industry controls are performed through the Computer and Medical dummy variables with "Other industries" as a baseline; Stage controls are performed through the Expansion and Later stage dummy variables with "Start-up" stage as the baseline; region control is performed in Panel A through the "Europe" dummy variable with "US" as the baseline. Robust standard errors are reported in parentheses. Significance at the 0.1 %, 1%, 5% and 10% level is denoted by \*\*\*, \*\*, \* and + respectively.

Source: Based on Bonini et al. (2012)

The percentage of VC funding is statistically significant in explaining the variance in venture capitalists' influence in some governance structures: as the percentage of funding increases, venture capitalists' influence on CEO hiring, executive compensation, employees' incentives, board decisions and board appointments grows accordingly. As shown by Gompers (1995), VC investors frequently require seats on the board of directors of portfolio companies as a monitoring covenant, since this allows better access to information and ongoing oversight on managerial decision-making. Confirming this preliminary evidence, results show that the proportion of funding and influence on board decisions and appointments is highly significant ( $\beta = 0.662$ ,  $p < 0.01$  and  $\beta = 0.852$ ,  $p < 0.001$ ).

VC is a well-known case of a principal-agent problem where the venture capitalist as a principal is exposed to large moral hazard issues not only by the entrepreneurs but also by a larger workforce which can be critical to the success of the venture. In such a case incentive alignment mechanisms such as profit sharing and pay-per-performance plan can be useful in reducing risk. The *EXE* and *INCENT* models confirm this intuition, showing increasing effects the larger the investment by the venture capitalist.

Given the categorical nature of the survey response variables, Bonini et al. (2012) perform appropriate ordinal logistic tests to overcome the problems highlighted by Menard (1995) in adopting linear approaches in a non-linear context. Results reported in Table 7.3 are aligned with those obtained in ordinary least squares (OLS) specifications.

As expected, significance increases both for the overall model and for the single estimated parameters. Figure 7.1 provides a graphical interpretation of the O-logit results plotting the predicted probabilities for the extreme response categories (1 = 'No or low influence' and 4 = 'High influence') for the four most significant dependent variables, namely: *CEO hiring (CEO)*, *Executive compensation (EXE)*, *Board of Directors decisions (BODD)* and *Board of Directors appointment (BODA)*.

The dashed lines graph the predicted probabilities for the response category 1 for each variable while the solid lines graph the predicted probabilities for the response category 4. Estimations are computed for changes in the VC ownership stake keeping all other variables constant at their mean values. Due to the non-linear nature of categorical models the interpretation of this graph is not straightforward: each line represent the predicted probabilities of observing a high or low influence of the amount of VC invested on the selected independent variable. For instance, when the VC stake is at its mean value of 70.35 percent looking at the effect on board of directors appointment, the model predicts a probability of recording a high influence slightly below 60 percent compared with a probability for a

Table 7.3 Ordinal Logistic Regressions of VC influence on governance practices

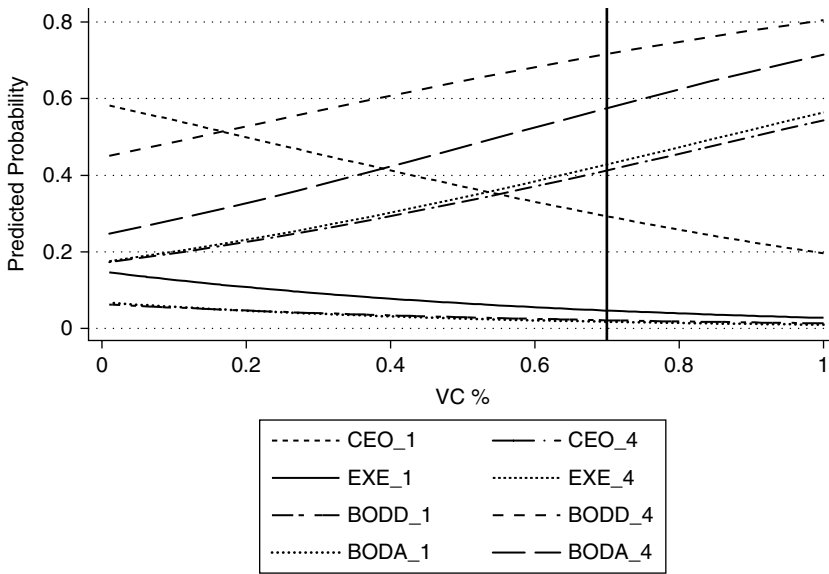
Panel A – Full sample									
	CEO	HR	EXE	INCENT	BODD	STR	BODA	INV	
VC%	1.76** (0.61)	1.07+ (0.59)	1.82** (0.56)	1.23* (0.60)	1.63** (0.61)	0.08 (0.61)	2.05*** (0.59)	0.67 (0.55)	
#ofVCs	-0.01 (0.06)	0.11* (0.05)	0.07 (0.06)	0.01 (0.06)	0.11 (0.06)	0.10* (0.05)	0.04 (0.06)	0.02 (0.06)	
LnAGE	0.24 (0.23)	0.26 (0.27)	0.12 (0.22)	-0.01 (0.24)	-0.35 (0.32)	-0.33 (0.26)	-0.29 (0.26)	-0.11 (0.26)	
Ln#EE	0.05 (0.12)	-0.27 (0.16)	-0.04 (0.13)	-0.05 (0.12)	0.02 (0.16)	0.37* (0.15)	-0.06 (0.15)	-0.1 (0.14)	
Computer	0.07 (0.37)	-0.29 (0.35)	0.47 (0.40)	-0.19 (0.37)	0.72 (0.47)	-0.51 (0.38)	0.93* (0.41)	0.4 (0.37)	
Medical	-0.1 (0.36)	-0.42 (0.42)	0.24 (0.35)	0.13 (0.38)	0.58 (0.46)	0.3 (0.39)	0.55 (0.40)	0.39 (0.39)	
Expansion	-0.22 (0.42)	-0.71+ (0.43)	0.15 (0.38)	0.42 (0.39)	0.59 (0.50)	-0.03 (0.44)	0.53 (0.46)	-0.07 (0.39)	
Later stage	-1.25+ (0.69)	-1.38+ (0.80)	-0.68 (0.86)	-0.61 (0.68)	-0.33 (0.67)	-1.46* (0.63)	0.28 (0.78)	-0.09 (0.59)	
Europe	-0.2 (0.33)	0.46 (0.31)	-0.12 (0.33)	0.09 (0.30)	-0.2 (0.39)	0.84* (0.33)	0.11 (0.35)	0.34 (0.30)	

Table 7.3 (continued)

Panel A – Full sample									
	CEO	HR	EXE	INCENT	BODD	STR	BODA	INV	
No influence	0.48	-0.77	-1.31	-0.86	-2.19	-2.14	-2.32	-2.46	
Low influence	1.05	1.38	-0.11	0.98	-0.64	0.13	-0.38	-0.86	
Moderate influence	1.71	3.25	2.01	3.16	0.72	2.29	1.44	1.00	
$\chi^2$	12.82	20.95	12.76	10.52	22.54	26.17	19.43	7.73	
$P_{pseudo-R^2}$	0.03	0.05	0.04	0.03	0.07	0.06	0.07	0.02	
$N$	164	164	164	164	164	164	164	164	164

Note: This table presents results for a set of Ordinal logistic regressions. The dependent variables are Likert-type variables ranging from 1 (no influence) to 4 (high influence) capturing the VC influence on: CEO hiring, HR practices, Executive compensation, Employee incentives, Board decisions, Board appointments, Strategy, and Investment. Parameters estimated are presented at the mean values of the independent variables. The independent variables are the proportion of VC funding received by sample companies; # VCs which is the number of different VC investors funding sample companies; LnAge which is a natural logarithm of the company age; Ln # Employees which is a natural logarithm of the number of company employees; industry controls are performed through the Computer and Medical dummy variables with “Other industries” as a baseline; Stage controls are performed through the Expansion and Later stage dummy variables with “Start-up” stage as the baseline; region control is performed in Panel A through the “Europe” dummy variable with “US” as the baseline. Cut points are reported for the No influence (response 1), Low influence (response 2) and Moderate influence (Response 3) categories of the dependent variable. Robust standard errors are reported in parentheses. Significance at the 0.1 %, 1%, 5% and 10% level is denoted by \*\*\*, \*\*, \* and + respectively.

Source: Based on Bonini et al. (2012)



*Note:* This figure plots predicted probabilities for the four dependent variables significant at the 1% level or more from the full-sample ordinal logistic regression reported in Table 3. The four variables are: influence on CEO hiring (*CEO*), influence on Executive compensation (*EXE*), influence on Board of directors decisions (*BODD*) and influence on Board of directors appointment (*BODA*). The dashed lines plot the predicted probabilities for the ‘No or low influence’ outcome (i.e. response category = 1), while the solid lines report the predicted probabilities associated with the ‘High influence’ outcome (i.e. response category = 4). Predicted probabilities are computed setting all other variables at their mean values. The vertical line reports the mean level of VC contribution.

*Source:* Based on Bonini et al. (2012)

Figure 7.1 Full sample predicted probabilities

low influence of less than 5 percent. Probabilities are increasing in the VC amount for the high category and decreasing for the low one.

**VC Influence on Governance and Financial Performance of Portfolio Firms**

The previous results clearly illustrate the existence of strong influence by VC investors on the design of governance mechanisms within firms. A connected question is whether more elaborated governance structures also lead to superior financial performance. Farag et al. (2014) tackle this issue by looking at VC-backed firms listing on the United Kingdom (UK) Alternative Investment Market (AIM). Given the extensive set of possible governance variables, Farag et al. (2014) develop an ad hoc comprehensive



corporate governance (CG) measure: the CGAIM50 Index. This index is obtained by aggregating 50 governance items. Each item is modeled as a dummy variable taking the value of 1 if the item is found as being present in the observed firm and 0 otherwise. All items are then equally weighted to avoid any potential scoring and scaling biases to yield a final score that ranges between 0 and 1. A company with a sophisticated and articulated governance structure would exhibit a CG index close to 1 as opposed to a weakly governed firm that would rank not far from 0.

Farang et al. (2014) conjecture that VC ownership leads to superior governance which in turn leads to superior financial performance. Given the potentially severe endogeneity and simultaneity issues they adopt a three-stage least squares model and an alternative generalized method of moments (GMM) specification to cross-validate the results.

The first step in their approach is to design the following set of simultaneous equations:

$$\begin{aligned} \text{Governance} &= f(\text{Ownership}, \text{Performance}, \bar{\Xi}, \varepsilon_1) \\ \text{Ownership} &= f(\text{Governance}, \text{Performance}, \bar{\Xi}, \varepsilon_2) \\ \text{Performance} &= f(\text{Ownership}, \text{Governance}, \bar{\Xi}, \varepsilon_3) \end{aligned}$$

where  $\bar{\Xi}$  is a vector of control variables.

To empirically establish the dynamic relationship between corporate governance, VC ownership structure and financial performance of AIM companies, Farang et al. (2014) run a three-stage least squares (3SLS) model to estimate the previous equations jointly within a system of simultaneous equations in which they are treated as endogenous variables. The essential advantage of the 3SLS estimation technique is that it allows not only for simultaneity among corporate governance, VC ownership and financial performance, but also for correlations among the error components. As a robustness check the authors estimate also simpler 2SLS and OLS models. Results of this exercise are reported in Table 7.4.

Panel A shows that there is a positive and significant relationship between governance characteristics and both the percentage of VC ownership and financial performance. Panel B reveals a positive and significant relationship between governance characteristics and financial performance; however there is no significant relationship between VC ownership and financial performance. This result supports the conjecture that causality flows from VC ownership to governance and that better governance translates into superior financial performance. Finally, the results reported in panel C show that there is no direct relationship between VC ownership and both financial performance and corporate governance. Their findings can be interpreted as follows: companies with

Table 7.4 Simultaneous equation systems

	Panel A: Governance equation			Panel B: Performance equation			Panel C: VC Ownership equation		
	3SLS	2SLS	OLS	3SLS	2SLS	OLS	3SLS	2SLS	OLS
Lagged CG index	0.937*** (0.46)	0.937*** (0.46)	0.876*** (0.16)						
CG index				0.891** (0.386)	0.995** (0.368)	0.565* (0.294)	0.501 (0.427)	0.501 (0.436)	0.157 (0.772)
Lagged VC own							0.602** (0.205)	0.571** (0.217)	0.501** (0.198)
VC own	0.031** (0.011)	0.022* (0.010)	0.032** (0.012)	0.248 (0.205)	0.251 (0.212)	0.250 (0.231)			
Lagged ROA				0.008*** (0.002)	0.009** (0.003)	0.002* (0.001)			
ROA	0.034** (0.011)	0.026* (0.011)	0.001† (0.001)				0.678 (0.521)	0.674 (0.524)	0.679 (0.521)
Lnmcap	0.017*** (0.005)	0.014** (0.005)	0.007*** (0.002)	0.391** (0.140)	0.299* (0.141)	0.268* (0.139)	0.108 (0.107)	0.112 (0.109)	0.097 (0.077)
Debt/TA	-0.029 (0.023)	-0.022 (0.025)	-0.005 (0.010)	-1.065 (0.812)	-1.062 (0.819)	-1.039 (0.819)	-0.016 (0.530)	-0.014 (0.534)	-0.029 (0.452)
R&D/sales	0.004*** (0.001)	0.002* (0.001)	0.001 (0.001)	-0.005*** (0.001)	-0.002* (0.001)	-0.001 (0.001)	0.013*** (0.003)	0.011* (0.005)	0.127*** (0.003)
No. risk factors	0.011* (0.005)	0.014* (0.006)	0.005* (0.002)	0.238† (0.137)	0.239† (0.139)	0.228† (0.139)	0.012 (0.100)	0.012 (0.101)	0.018 (0.077)

Table 7.4 (continued)

	Panel A: Governance equation			Panel B: Performance equation			Panel C: VC Ownership equation		
	3SLS	2SLS	OLS	3SLS	2SLS	OLS	3SLS	2SLS	OLS
VC reputation	0.003*** (0.001)	0.002* (0.01)	0.001 (0.001)	0.009** (0.003)	0.008*** (0.002)	0.006 (0.004)	0.231*** (0.018)	0.245*** (0.011)	0.239*** (0.014)
Age	0.001 (0.001)	0.002 (0.003)	0.002 (0.004)	0.004 (0.044)	0.005 (0.045)	0.002 (0.045)	-0.037 (0.025)	-0.038 (0.027)	-0.036 (0.025)
Foreign	-0.022† (0.012)	-0.023† (0.013)	-0.016* (0.007)	0.105 (0.588)	0.108 (0.593)	0.073 (0.591)	0.301 (0.325)	0.301 (0.328)	0.287 (0.326)
CEO/founder	0.014 (0.011)	0.016 (0.013)	0.007 (0.005)	0.827† (0.443)	0.778† (0.466)	0.682 (0.545)	-0.281 (0.256)	-0.281 (0.258)	-0.261 (0.245)
Lockup period	-0.001 (0.001)	-0.001 (0.01)	-0.001 (0.003)	-0.001 (0.003)	-0.002 (0.003)	-0.001 (0.003)	0.002* (0.001)	0.003 (0.002)	0.005 (0.012)
Constant	0.228* (0.104)	0.236* (0.105)	0.045† (0.025)	8.351*** (2.180)	8.302*** (2.254)	8.289*** (2.251)	0.609 (2.464)	0.686 (2.482)	0.664 (1.249)
Ind. dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

<i>System Chi sq.</i>	(0.000)	(0.003)	(0.031)	(0.000)	(0.003)	(0.031)	(0.000)	(0.003)	(0.031)
(p-value)									
<i>System</i>	0.651	0.418	0.185	0.651	0.418	0.185	0.651	0.418	0.185
<i>weighted R sq.</i>									
<i>Hausman Specification Tests</i>									
OLS vs 3SLS	(0.000)								
p-value									
OLS vs 2SLS	(0.009)								
p-value									
2SLS vs 3SLS	(0.239)								
p-value									

*Note:* This table reports the result of a three-stage least squares (3SLS) model to empirically establish the dynamic relationship between corporate governance, VC ownership structure and financial performance of AIM companies. Variables are defined as follows. CG index: CGAIM50 index; VC Own: percentage of total number of shares outstanding owned by VCs. *ROA*: return on assets; *Tobin's Q*: (Book value of assets + market value of common stock) – (book value of common stock + deferred taxes))/the book value of assets. *Lnmcap*: natural logarithm of market cap as a proxy for company size; *Debt/TA*: long-term debt/total assets as a proxy for leverage; *R&D/sales*: research & development/total sales as a proxy for growth; *No*: risk factors: total number of risk factors (e.g., technology, competition, legal aspects, and exchange rate changes). We assign the value of one for each risk factor if it is mentioned in the *IPO* prospectus/annual reports and zero otherwise; *VC reputation*: total market value of all companies taken public by the VC firm for a given calendar year and normalize it by the aggregate market value of all VC-backed companies that went public in the same calendar year; *Age*: company age measured by the difference between founding year and IPO year (AIM admission year); *Foreign*: dummy variable takes the value of 1 if the company is foreign and 0 otherwise; *CEO/Founder*: dummy variable takes the value of 1 if the *CEO* is the founder of the company and 0 otherwise. *Lockup*: the length of the lockup period in days. Clustered standard errors in parentheses. \*\*\*, \*\*, \* and † indicates significance at the .1, 1, 5 and 10 percent levels respectively.

*Source:* Based on Farag et al. (2014)

better financial performance are keen to develop their governance mechanism and characteristics through employing high-profile and experienced directors, in particular non-executive directors. Similarly, companies with better corporate governance characteristics have better-quality management and this is reflected in the decision-making process and thus the overall financial performance of the firm.

## PRIVATE EQUITY AND CORPORATE GOVERNANCE

Many academics and practitioners have argued that the success of private equity-backed buyouts stems in part from a more effective corporate governance structure implemented after a company is acquired. Most obviously, ownership changes from a dispersed base of public shareholders, none of which may have adequate incentives to participate fully in governance, to a small number (often one) of buyout funds whose own success and remuneration depends on the returns provided by their investments and which are thus highly motivated to maximize value.

Several studies have examined governance features of companies with private equity (PE) or specifically buyout fund sponsorship to determine the extent to which governance structures indeed differ between these companies and companies without a professional investor sponsorship. The features that are typical of private company governance, such as small, engaged boards and high pay–performance sensitivity, can be adopted by public as well as private companies but they may appear redundant for the case of concentrated private ownership that characterizes PE deals. Accordingly, private equity sponsors – given their own performance-based compensation and retained equity stakes – may implement less of these features in their portfolio companies. A rival conjecture though might be that given that exits are mainly expected through IPOs, PE-backed firms may align to best practices related to board independence and dilution from equity compensation plans to attract investors who, as minority shareholders, attach significant value to governance mechanisms. The relevance of these questions in terms of economic and welfare effects has spurred a number of studies investigating the effects of PE sponsors on several governance structures.

### **Private Equity and CEO and Management Turnover**

According to agency theory, companies with a high level of undistributed free cash and a low level of leverage suffer from severe agency problems,

among which are CEOs enjoying private benefits and engaging in ‘empire building’ activities. Jensen (1989) argues that private equity buyouts are a form of governance mechanism that addresses the inefficiencies observed in companies that have incurred agency costs beyond an equilibrium point. In particular, PE firms investing in companies characterized by significant agency costs are more likely to remove incumbent CEOs. In such a case, the CEO replacement, firm restructuring and eventual firm sale – in short, the PE intervention – generates value for the economy as a whole, and in particular for minority shareholders.

Many studies (among others, Baker and Wruck, 1989; Lehn and Poulsen, 1989; Leslie and Oyer, 2009), have addressed the intervention channels of PE sponsors at the operating level, through the implementation of so-called operational re-engineering strategies; and at the incentive mechanism level, through the design and enforcement of pay-per-performance compensation schemes at multiple organization levels. Surprisingly, though, few studies have specifically looked into the differential degree of CEO turnover in PE-backed companies.

Gong and Wu (2011) filled the gap by looking at a US sample of 126 PE-sponsored leveraged buyouts (LBOs)<sup>2</sup> that occurred between 1998 and 2006. A methodological issue affecting the size of the sample is that when gathering buyout data, all MBOs have to be excluded, in that MBOs are almost always initiated by the former management led by the pre-buyout CEO, thus determining a sharp decline in available data points. Gong and Wu’s (2011) results indicate an unconditional CEO replacement probability of 51 percent, which strikingly exceeds by a factor of five the market average replacement rate of 11 percent documented by Parrino (1997) and Farrell and Whidbee (2003). Moving to a standard logistic regression approach they include in the analysis a set of important agency cost controls.

Results reported in Table 7.5 show that some sources of agency costs appear to have a meaningful and large effect on the likelihood of observing a CEO replacement. In particular, leverage is strongly negatively related to CEO turnover, providing a confirmation of Jensen’s (1986) hypothesis: debt acts as a disciplining mechanisms for CEOs. Since leverage is by and large determined by managerial discretion, a new owner will most likely face a conflict with the incumbent CEO who chose a suboptimal capital structure and this will generate an almost mechanical pressure for CEO replacement. In a similar spirit we can interpret the positive coefficient of the free cash flow. Very interestingly the strongly significant, very large and negative coefficient for return on assets (ROA), a measure of the efficiency in asset exploitation, indicates that the company was underperforming its peers, most likely due to agency costs. A comforting

Table 7.5 Logistic regression for CEO replacement

	Simultaneous equation systems											
	Panel A: Governance equation			Panel B: Performance equation			Panel C: VC Ownership equation					
	3SLS	2SLS	OLS	3SLS	2SLS	OLS	3SLS	2SLS	OLS	3SLS	2SLS	OLS
Lagged CG index	0.937*** (0.046)	0.937*** (0.046)	0.876*** (0.016)									
CG index				0.891** (0.386)	0.995** (0.368)	0.565* (0.294)	0.501 (0.427)	0.501 (0.436)	0.157 (0.772)			
Lagged VC Own	0.031** (0.011)	0.022* (0.010)	0.032** (0.012)	0.248 (0.205)	0.251 (0.212)	0.250 (0.231)						
VC Own				0.008*** (0.002)	0.009** (0.003)	0.002* (0.001)						
Lagged ROA												
ROA	0.034** (0.011)	0.026* (0.011)	0.001 <sup>†</sup> (0.001)				0.678 (0.521)	0.674 (0.524)	0.679 (0.521)			
Lnmcap	0.017*** (0.005)	0.014** (0.005)	0.007*** (0.002)	0.391** (0.140)	0.299* (0.141)	0.268* (0.139)	0.108 (0.107)	0.112 (0.109)	0.097 (0.077)			
Debt/TA	-0.029 (0.023)	-0.022 (0.025)	-0.005 (0.010)	-1.065 (0.812)	-1.062 (0.819)	-1.039 (0.819)	-0.016 (0.530)	-0.014 (0.534)	-0.029 (0.452)			
R&D/sales	0.004*** (0.001)	0.002* (0.001)	0.001 (0.001)	-0.005*** (0.001)	-0.002* (0.001)	-0.001 (0.001)	0.013*** (0.003)	0.011* (0.005)	0.127*** (0.003)			
No. risk factors	0.011* (0.005)	0.014* (0.006)	0.005** (0.002)	0.238 <sup>†</sup> (0.137)	0.239 <sup>†</sup> (0.139)	0.228 <sup>†</sup> (0.139)	0.012 (0.100)	0.012 (0.101)	0.018 (0.077)			
VC reputation	0.003** (0.001)	0.002* (0.01)	0.001 (0.001)	0.009** (0.003)	0.008*** (0.002)	0.006 (0.004)	0.231*** (0.018)	0.245*** (0.011)	0.239*** (0.014)			
Age	0.001 (0.001)	0.002 (0.003)	0.002 (0.004)	0.004 (0.044)	0.005 (0.045)	0.002 (0.045)	-0.037 (0.025)	-0.038 (0.027)	-0.036 (0.025)			

Foreign	-0.022 <sup>†</sup> (0.012)	-0.023 <sup>†</sup> (0.013)	-0.016* (0.007)	0.105 (0.588)	0.108 (0.593)	0.073 (0.591)	0.301 (0.325)	0.301 (0.328)	0.287 (0.326)
CEO/founder	0.014 (0.011)	0.016 (0.013)	0.007 (0.005)	0.827 <sup>†</sup> (0.443)	0.778 <sup>†</sup> (0.466)	0.682 (0.545)	-0.281 (0.256)	-0.281 (0.258)	-0.261 (0.245)
Lock up period	-0.001 (0.001)	-0.001 (0.01)	-0.001 (0.003)	-0.001 (0.003)	-0.002 (0.003)	-0.001 (0.003)	0.002* (0.001)	0.003 (0.002)	0.005 (0.012)
Constant	0.228* (0.104)	0.236* (0.105)	0.045 <sup>†</sup> (0.025)	8.351*** (2.180)	8.302*** (2.254)	8.289*** (2.251)	0.690 (2.464)	0.686 (2.482)	0.664 (1.249)
Ind. Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
System <i>Chi sq.</i> (p-value)	(0.000)	(0.003)	(0.031)	(0.000)	(0.003)	(0.031)	(0.000)	(0.003)	(0.031)
System weighted <i>R sq.</i>	0.651	0.418	0.185	0.651	0.418	0.185	0.651	0.418	0.185
<i>Hausman Specification Tests</i>									
OLS vs 3SLS p-value	(0.000)								
OLS vs 2SLS p-value	(0.009)								
2SLS vs 3SLS p-value	(0.239)								

*Note:* This table exhibits results for our logistic regressions. Variable definitions are provided in Table 7.2. All monetary variables are adjusted for inflation to the 1990 dollar. Significance levels are denoted by: <sup>†</sup>p < .1, \*p < .05, \*\*p < 0.01, \*\*\*p < .001 (one-tailed test for variables with predicted signs, two-tailed test otherwise). Huber–White’s heteroscedasticity consistent standard errors are used to calculate the z-statistics (reported in parenthesis).

*Source:* Based on Gong and Wu (2011)



result from a welfare perspective is the very weak effect of the experience or quality of the PE sponsor on the replacement likelihood. The sign of the parameter is positive but most often insignificant, meaning that one can expect the average PE fund to recognize inefficiencies and, following an investment, address them through appropriate actions.

Supporting these results, Cornelli and Karakas (2014) show that following CEO replacement the turnaround of CEOs in PE-backed firms is essentially null, which again compares with an unconditional expected replacement rate of 11 percent for the market. This result suggests that by actively intervening in companies characterized by an abnormal level of agency costs, private equity investors alleviate board myopia and generate value for all stakeholders.

### **Private Equity and Boards**

The role of boards in public companies is to provide management supervision in the presence of fragmented shareholders and in particular of small, minority investors who express a need for protection. However, firms acquired by private equity firms lack this characteristic, as the rationale often given for the success of private equity is exactly that it concentrates the ownership in the hands of few shareholders, allowing direct, more efficient control. In such respect the intervention of a PE investor may significantly alter the composition and powers of the board of a company. In particular, because PE investors could provide advice and monitoring without a board, one could argue that boards may be considerably diminished in terms of both size and powers. A counter-argument though is that, as Lerner (1995) showed for VC firms, investors tend to exert their influence by taking board seats. Following this analogy, one could expect boards to be vastly dominated by PE members empowered with superior, direct monitoring and that independent directors would essentially be absent. These arguments suggest that there is a clear rationale for expecting board composition and powers to be significantly different in PE-backed firms.

In a seminal study Gertner and Kaplan (1996) explored this question by comparing board characteristics of 59 companies target of a reverse-LBO with a sample of industry and size matched peers. The authors found that the reverse-LBO companies' boards were smaller, owned more equity and met less frequently. At the director level, boards were younger, directors had served for shorter time periods, were less likely to be women and were at least as likely to serve on other boards. This preliminary evidence has been complemented by Cao (2008) who examined post-IPO ownership by buyout sponsors and insiders and governance characteristics in

a sample of reverse-LBO companies between 1981 and 2006. Cao shows that buyout sponsors' ownership drops from 60 percent equity ownership to 40 percent immediately following the IPO. However, the residual stake diminishes only slowly over time to an average of 24 percent three years after the IPO. Importantly, however, Cao finds that buyout sponsors continue to be active investors after the IPO, in that they retain significant control of board and board committees. In particular, Cao's results indicate that buyout sponsors retain control over compensation and nominating committees disproportionately to their ownership stakes.

Cornelli and Karakas (2014) address this compelling research question by looking at a sample of 142 public-to-private transactions in the UK between 1998 and 2003. Out of this initial sample, 88 deals are pure PE-sponsored transactions and are compared with other transactions where there was no involvement of a PE firm. Their analysis yields a number of results. First, the presence of a PE sponsor is not significantly related with a change in board size: both sponsored and unsponsored public-to-private transactions experience a drop in board size by about two units from an unconditional mean of 6.5. However, experience matters in that PE-backed deals where the PE sponsor has considerable experience (this variable also partially captures reputation) experience a much bigger shrinkage in board size. In a way, experienced PE seems to be taking a more direct, hands-on approach, and almost exclusive management of the company. Supporting this view, Cornelli and Karakas (2014) show that independent directors practically disappear from boards after the company has been taken private.

### **Private Equity and Takeover Defenses**

An issue of hot debate is the perception by non-PE investors that post-IPO PE firms tend to maintain disproportionate control rights through a plethora of mechanisms to the disadvantage of investors at large. When a portfolio company completes an IPO, the buyout fund sponsor usually does not dispose of its entire investment in the offering; instead, it retains an equity stake, which diminishes over time. For example, sponsors of a 'vote no' campaign against directors at Safeway in 2004 objected to the presence on Safeway's board of four directors affiliated with buyout sponsor KKR, which owned only 9 percent of Safeway's shares, as well as the existence of related-party transactions involving KKR. An open question is therefore whether PE-backed firms exhibit stronger and more articulated anti-takeover practices and whether these add or destroy value.

Klausner (2003), building on survey data from the Investor Responsibility

Research Center (IRRC), unveiled the striking effect of PE investors in introducing and maintaining anti-takeover provisions in newly listed PE-backed companies. Klausner (2003) first notices the booming share of PE-backed firms in the IPO market that went from a few percentage points in the early 1980s to about 40 percent by the end of the century. In the same time frame IRRC data reported in Bebchuck (2003) show a spectacular increase in the presence of anti-takeover provisions at the time of the IPO. For instance, classified boards went from being present in 36.2 percent of the newly listed firms in the period 1988–92 to more than 82 percent in 1999. Similarly, provisions limiting the right to call for special meeting skyrocketed from 12.4 percent to 84.8 percent of the cases.

Barret et al. (2009) in a follow-up IRRC-sponsored study show that, despite harsh criticism by shareholders and advocates of corporate governance practices, this phenomenon has continued. In their study, Barret et al. (2009) show that IPO companies backed by buyout funds had significantly stronger takeover defenses than companies brought public by non-private-equity sponsors. Additionally, companies backed by buyout funds were more likely than others to have classified boards, ‘poison pills’, and restrictions on director removal by shareholders.

A recent report (WilmerHale, 2014) on IPO data between 2007 and 2012 compiled by WilmerHale, a large law data provider, provides an effective overview of this phenomenon. As reported in Table 7.6, PE (and VC) funds introduce strong anti-takeover provisions in their portfolio company charters, with classified boards, supermajority and exclusive forum defense mechanisms showing the largest difference with non-PE-sponsored firms.

The prevailing view seems to be that anti-takeover provisions reduce shareholder value, and are meant only to entrench existing firm management, allowing them to maintain control and extract private benefits of control. This entrenchment hypothesis has been partially supported by Daines and Klausner (2001). In an important paper, Field and Karpoff (2002), in contrast to this view, did not find evidence of poorer performance conditional on the presence of takeover defenses. Chemmanur and Jiao (2005) addressed this empirical puzzle by proposing a model in which, in the presence of asymmetric information, takeover defenses allow managers to engage in riskier but value-creating long-term projects that could not be pursued if the company could easily be target to a proxy contest. Chemmanur and Jiao’s (2005) model goes further in showing that their results hold conditional on managers’ quality: when managers exhibit high quality the expected effect on performance is positive and large. Conversely, if managers are of low quality, anti-takeover provisions destroy value because they generate inefficient investment decisions.

*Table 7.6 Anti-takeover provision in IPO companies*

	All IPO companies (%)	VC-backed (%)	PE-backed (%)	Other IPO companies (%)
Classified board	72	83	72	48
Supermajority voting requirements to approve mergers or change corporate charter and bylaws	62	72	65	37
Prohibition of stockholders' right to act by written consent	83	91	84	64
Limitation of stockholder? right to call special meetings	89	94	94	73
Advance notice provisions	93	96	95	86
Section 203 of the Delaware corporation statute	79	95	51	76
Blank check preferred stock	94	96	98	84
Multi-class capital structure	7	7	4	10
Exclusive forum provisions	27	22	44	14
Stockholders rights plan	2	4	1	2

*Note:* This table reports the fraction of IPO companies exhibiting an anti-takeover provision at the time of the IPO. Data are compiled from SEC filings from 2007 to 2012 for US issuers.

*Source:* Based on WilmerHale (2014)

Consequently, the model predicts that highly reputable managers are more likely to put defense mechanisms into place so that they can pursue longer-term, value-creating strategies. Since a building block of PE firms is that they provide not only capital but also valuable managerial skills, the evidence that PE firms exhibit stronger defense mechanisms seems to confirm Chemmanur and Jiao's (2005) model. This hypothesis implies that firms with strong protection provisions and high-quality managers should exhibit superior performance. In a follow-up study, Chemmanur et al. (2011) answer this question by looking at a large sample of IPOs from 1993 to 2000. They define management quality through eight different dimensions: managerial team size; education; professional certification; prior experience; prior experience in a law or accounting firm; CEO dominance; length of tenure; and tenure heterogeneity across team members. However, given that each measure may have unique limitations as a measure of the underlying unobservable construct, they develop an

aggregate, principal components quality score that captures the overall management quality and is increasing in it.

Their comprehensive results robustly show that the abnormal holding period returns of IPO firms with stronger anti-takeover protection are significantly larger than those of IPO firms with weaker anti-takeover protection. The differences in mean abnormal holding period returns are statistically significant at conventional levels and hold across a number of robustness tests. In particular, despite IPOs' performance being generally lower than the benchmark as already pointed out by Ritter (1991), Loughran and Ritter (1995), Brav and Gompers (1997) and Teoh et al. (1998), firms with high-quality managers and strong anti-takeover provisions significantly mitigate such an endogenous downward bias and align more to the benchmark. In a recent paper Karpoff et al. (2015) further extend this evidence, providing alternative interpretations of the transmission channel that allows anti-takeover provisions to generate value. In particular, they argue and show that firm stability in the absence of an external risk of takeover allows the generation of valuable relationships with the economic environment (the bonding hypothesis) that ultimately translate into superior performance.

## CONCLUSIONS

Private equity investors have risen to be one of the most notable forces shaping corporate governance practices in young and fast-growing companies as well as in established market players. The significantly increasing volume of investment has given rise to multiple classes of investors specialized in different stages of the life of a company. As such, the market is now populated by business angels, venture capitalists and later-stage private equity investors. This specialization has also contributed to shape different practices, including the extent and design of corporate governance practice in portfolio companies. Surprisingly, the literature on this topic is fairly recent and relatively preliminary, and several questions are still unanswered. First, despite business angels being an investor class comparable to formal venture capital in terms of invested capital, little is known about the performance of their investments, the characteristics of the investment decision process and the governance of portfolio companies. Second, there is a wide gap in our understanding of the links between informal and formal venture capital. Since informal venture capital appears to be an obvious precursor (or pre-screening device) for formal venture capitalists, it would be natural to observe significant connections between angel investors and proper venture capital funds, and considerably higher rates

of success in securing follow-up investments by business angel-sponsored firms. None of these expected links is robustly observed. Confirming this apparent puzzle and understanding its drivers are crucial in advancing our knowledge of the development of entrepreneurial activity. Third, there is still ambiguous evidence on the effects of anti-takeover and protection mechanisms in PE-backed deals. While there is a clear, general consensus on limiting these practices, there is also a striking and puzzling evidence of the widespread adoption of such provisions in firms controlled by private equity investors. Whether this is beneficial or detrimental to firms, stakeholders and the market at large is largely an open question. We envision these to be fruitful areas for future research.

## NOTES

1. The definition of 'aggressive' versus 'conservative' accounting practices is the one adopted by Hochberg (2004) and Teoh et al. (1998), who consider accounting policies as 'aggressive' when characterized by higher discretionary accruals, as opposed to lower discretionary accruals for 'conservative' policies.
2. A leveraged buy-out (LBO) is a type of acquisition by a financial investor that relies significantly on external debt financing. A special class of LBO is the management buy-out (MBO), an LBO initiated by the existing management team that seeks support of a financial sponsor to buy out the company from its existing shareholders.

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