Hospital-Affiliated Venture Capital and Healthcare Innovation

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Abstract

This paper examines how investments by hospital-affiliated venture capital (HaVC) shape healthcare startup outcomes. HaVCs represent a distinct organizational form in entrepreneurial finance: unlike traditional VC firms that optimize for financial returns, HaVCs deploy capital from hospital systems' balance sheets and pursue clinical and operational improvements, alongside financial objectives. Theory suggests both advantages and disadvantages for startups receiving HaVC investments. We investigate whether HaVCs' distinctive characteristics—insider knowledge of clinical workflows, ability to provide pilot sites, and maintained connections between innovators and ventures—translate into superior portfolio company performance, or whether conflicts of interest, limited investing experience / VC capabilities, and peripheral network positions offset these advantages. Using data on U.S. healthcare VC deals from 2000 through 2022, we find that HaVC-backed startups are 3.4 percentage points (6.71%%) more likely to raise subsequent funding and raise 0.07 (7.10%) more subsequent financing rounds compared to a matched group of non-HaVC-backed startups. We further examine heterogeneity between academic and non-academic HaVCs and between internal investments (founders from affiliated hospitals) and external investments. These findings contribute to understanding how organizational form in venture capital affects innovation outcomes.

JEL Classifications: G24, I11, O31, L26

Keywords: Healthcare; Venture Capital; Corporate Venture Capital; Innovation; Hospital Systems; Entrepreneurship

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Extended Abstract

Healthcare innovation depends on effective financing mechanisms that bridge technological development and clinical implementation. While considerable research has examined how venture capital shapes innovation in software, semiconductors, and biotechnology, the distinctive challenges of financing innovations for healthcare delivery remain poorly understood. Healthcare delivery involves complex organizational processes, fragmented decision-making, and implementation barriers that differ from those in manufacturing or pure technology sectors (Christensen et al., 2009; Herzlinger, 2006). The translation of promising technologies into routine clinical practice has proven persistently difficult, with studies documenting adoption timelines measured in decades and widespread variation in the uptake of innovations with demonstrated clinical value (Balas and Boren, 2000; Greenhalgh et al., 2004). These implementation challenges suggest that healthcare delivery innovation may require distinctive approaches to support effective entrepreneurial ventures.

This gap in understanding has become increasingly relevant as healthcare delivery institutions have emerged as a new group of participants in venture capital markets. Over the years since the passage of the Health Information Technology for Economic and Clinical Health (HITECH) Act in 2009 and the Affordable Care Act in 2010, major hospital systems and academic medical centers across the United States have established dedicated venture capital funds to invest in healthcare startups. These hospital-affiliated venture capital funds—which we refer to as HaVCs—represent a qualitatively new organizational form in entrepreneurial finance. Unlike traditional venture capital firms that raise capital from institutional investors and optimize for financial returns, HaVCs deploy capital from their parent health systems' balance sheets and explicitly pursue operational improvements alongside financial objectives. HaVCs are also distinct from traditional corporate venture capital in healthcare–e.g., from pharmaceutical or medical device manufacturers–which focuses on product pipelines and acquisition opportunities. Instead, HaVCs invest with the goal of implementing (and often incubating) innovations within their own care delivery operations.

The theoretical case for HaVCs as a distinctive organizational form rests on recognizing two challenges in healthcare delivery innovation. First, healthcare delivery organizations face barriers to commercializing internally developed intellectual property through traditional technology transfer mechanisms (Shane, 2004; Thursby and Thursby, 2002). Academic medical centers generate substantial inventive output—new clinical protocols, care

coordination models, digital health applications—but struggle to move these innovations from internal pilot projects to scalable commercial ventures. Second, healthcare delivery organizations face challenges in identifying, evaluating, and successfully implementing externally developed innovations. Traditional venture capital firms often lack the deep operational knowledge of healthcare delivery required to accurately assess which innovations will successfully navigate implementation barriers.

HaVCs potentially address both challenges through both "inside-out" and "outside-in" mechanisms. For inside-out investments—i.e., the commercialization of innovations developed from within the parent health system—HaVCs offer an organizational structure that maintains connection between the original innovation context and the emerging commercial venture. For outside-in investments—i.e., providing capital to external startups with promising new healthcare delivery technologies—HaVCs possess superior information about what is most likely to not only work in hospital environments, but also fit into existing clinical work flows. As such, they can provide natural pilot sites for portfolio companies. However, these theoretical advantages come with countervailing challenges: first, there may be conflicts of interest when the hospital serves simultaneously as investor and customer, creating both short- and long-term challenges associated with such investments. Further, in the HaVC context there may be reduced incentives to maximize portfolio company performance, and potentially peripheral positions within established VC syndication networks (Hochberg et al., 2007; Lerner, 1994).

We investigate these questions using comprehensive data from PitchBook on U.S. healthcare venture capital deals from 2000 through 2022. Our sample includes 29,138 healthcare startup deals, of which 1,165 involve one or more of the 145 HaVC investors. Figure 1 documents the growth in both HaVC participation and overall healthcare VC activity over this period. Figure 2 shows the parallel growth in the number of active HaVC and healthcare VC investors. We further distinguish between academic and non-academic HaVCs (Figure 3) and between internal ("inside-out") investments, where the startup founder has an affiliation with the investing hospital system, and external ("outside-in") investments (Figure 4).

In preliminary estimates of the effect of HaVC investment on startup outcomes, we employ nearest-neighbor matching on deal year with exact matching on funding round type (seed, early stage, or later stage VC). This approach compares HaVC-backed startups to observationally similar non-HaVC-backed startups receiving funding in the same year and at the same stage. Our primary outcomes are the probability of raising (any) subsequent funding

and the number of subsequent funding rounds a given startup raises. Given the mechanical association with these outcomes over time, matching on investment timing (deal year) and funding round type is vitally important.

Table 1 presents our initial main results. We find that HaVC-backed startups are 3.4 percentage points (or 6.71%) more likely to raise (any) subsequent funding compared to matched non-HaVC-backed startups ($p<0.05$). This effect is robust across specifications using 1, 5, 10, 15, and 20 nearest neighbors. We also find that HaVC-backed startups raise approximately 0.07 (7.10%) more subsequent funding rounds ($p<0.05$), suggesting that the advantage extends beyond the immediate next round.

Our preliminary findings suggest that HaVCs' distinctive organizational characteristics may translate into measurable benefits for portfolio companies. Whether these benefits derive from superior screening, value-added support through pilot site access and clinical expertise, or signaling effects to follow-on investors remains an open question for ongoing research. Future versions of this manuscript will further explore additional dimensions of heterogeneity, matching models with additional features, and approaches using causal forest models.

References

Balas, E. A. and Boren, S. A. (2000). Managing clinical knowledge for health care improvement. *Yearbook of Medical Informatics*, 9(1):65–70.

Christensen, C. M., Grossman, J. H., and Hwang, J. (2009). *The Innovator's Prescription: A Disruptive Solution for Health Care*. McGraw-Hill.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., and Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *The Milbank Quarterly*, 82(4):581–629.

Herzlinger, R. E. (2006). Why innovation in health care is so hard. *Harvard Business Review*, 84(5):58–66.

Hochberg, Y. V., Ljungqvist, A., and Lu, Y. (2007). Whom you know matters: Venture capital networks and investment performance. *The Journal of Finance*, 62(1):251–301.

Lerner, J. (1994). The syndication of venture capital investments. *Financial Management*, 23(3):16–27.

Shane, S. A. (2004). *Academic Entrepreneurship: University Spinoffs and Wealth Creation*. Edward Elgar Publishing.

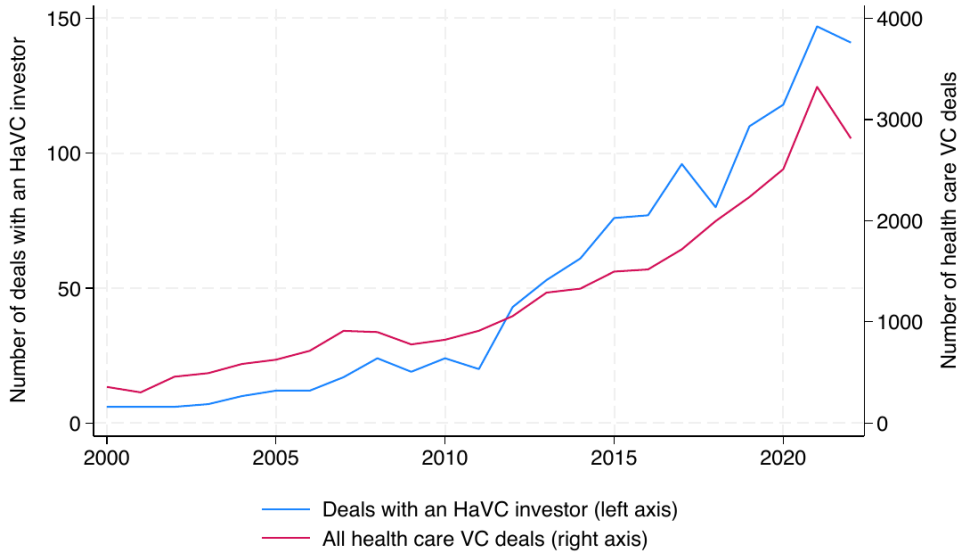
Thursby, J. G. and Thursby, M. C. (2002). Who is selling the ivory tower? Sources of growth in university licensing. *Management Science*, 48(1):90–104.

Table 1: Impact of HaVC Investment on Startup Outcomes

	(1)	(2)	(3)	(4)	(5)
Number of nearest neighbors	1	5	10	15	20
Panel A: Probability of Raising Another Round					
HaVC (ATET)	0.0339**	0.0339**	0.0338**	0.0337**	0.0337**
	(0.0136)	(0.0136)	(0.0136)	(0.0136)	(0.0136)
Panel B: Number of Subsequent Rounds					
HaVC (ATET)	0.0708**	0.0708**	0.0715**	0.0711**	0.0711**
	(0.0342)	(0.0342)	(0.0342)	(0.0342)	(0.0342)
Observations	29,138	29,138	29,138	29,138	29,138
Exact Matching	Round Type	Round Type	Round Type	Round Type	Round Type

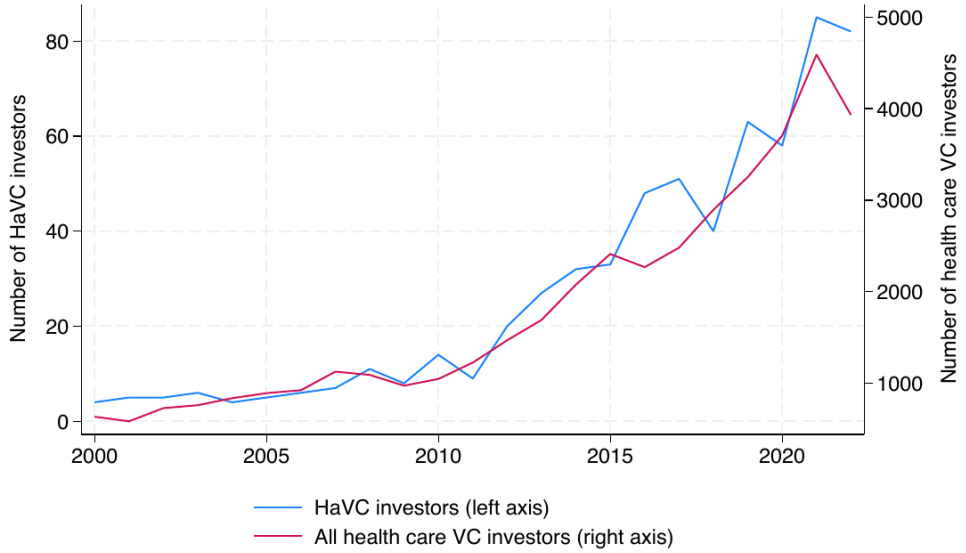
*Notes. This table reports average treatment effects on the treated (ATET) from nearest-neighbor matching estimators. The treatment is receiving investment from an HaVC. Panel A reports effects on the probability of raising at least one subsequent funding round. Panel B reports effects on the total number of subsequent funding rounds. All specifications use Mahalanobis distance matching on deal year with exact matching on round type (seed, early stage VC, or later stage VC). Abadie-Imbens robust standard errors in parentheses. ** p<0.05, * p<0.1.*

Figure 1: HaVC and Healthcare VC Deals by Year



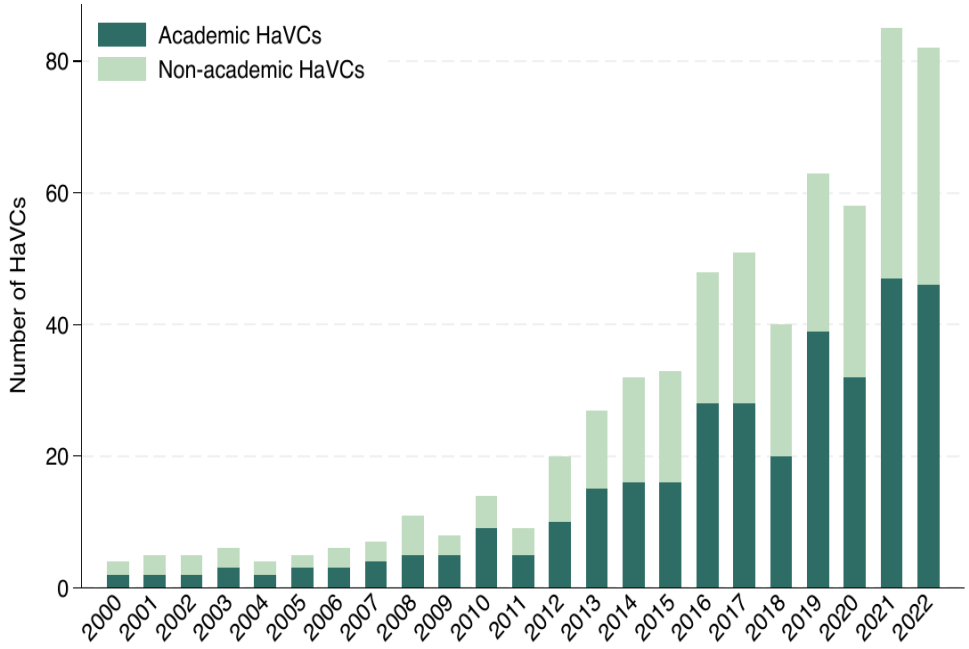
Note: This figure shows the number of healthcare VC deals with at least one HaVC investor (left axis) and the total number of healthcare VC deals (right axis) by year, from 2000 to 2022.

Figure 2: HaVC and Healthcare VC Investors by Year



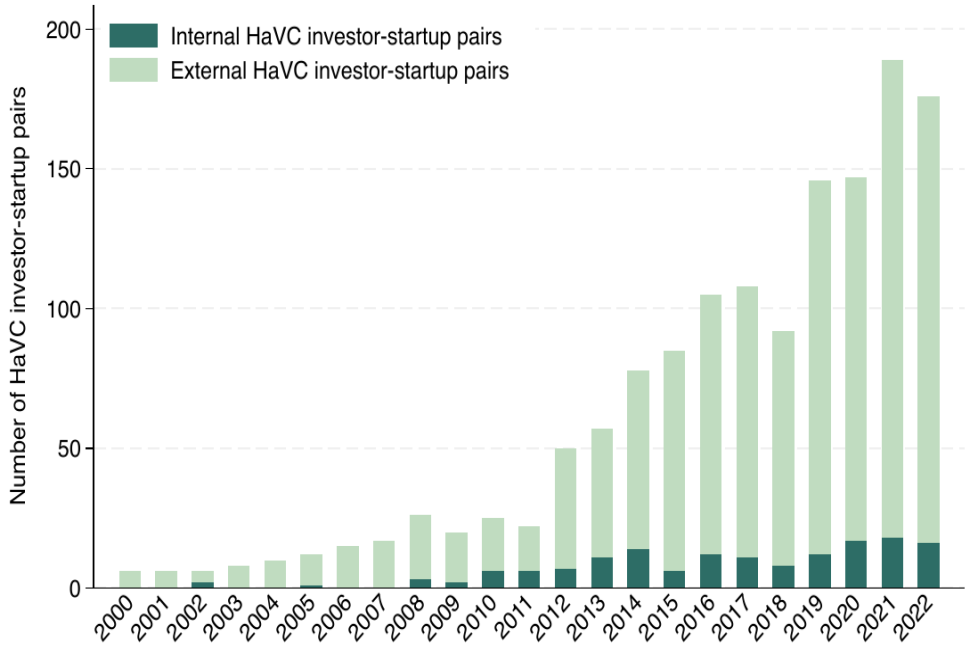
Note: This figure shows the number of active HaVC investors (left axis) and all healthcare VC investors (right axis) by year, from 2000 to 2022.

Figure 3: Academic and Non-Academic HaVCs by Year



Notes. This figure shows the number of academic and non-academic HaVC investors by year, from 2000 to 2022.

Figure 4: Internal and External HaVC Investments by Year



Notes. This figure shows the number of internal HaVC investments (where the startup founder has an affiliation with the investing hospital system) and external HaVC investments by year, from 2000 to 2022.