

VENTURE CAPITAL IN A TIME OF TURMOIL

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One area of consensus among academic economists and policymakers is the need for greater innovation. This concern is rooted in worries about the lagging rate of productivity growth in many Western nations. In the U.S., for instance, the productivity growth rate has reverted in last decade to the anemic levels seen from the late 1970s to the mid-1990s after a short surge in the late 1990s and early 2000s. The picture in Europe is also discouraging when total factor productivity (the most complete measure) is examined. This pattern is worrisome given the strong connections between innovation, productivity, and economic prosperity.

Moreover, several indications suggest that reigniting productivity growth in future years through innovation will be challenging. Research efficiency is falling sharply across fields (Bloom et al., 2020): ideas appear to be getting harder to find. In addition, large American firms are investing less in R&D, with the decline is concentrated in research (as opposed to development) expenditures (Arora, Belenzon, and Sheer, 2021). The roots of this change can be debated: is it a response to the unwillingness of the stock market to reward these activities (as those authors suggest) or to changing corporate incentive schemes (Lerner and Wulf, 2007)? Whatever the causes, the consequences are likely to be substantial, as basic research has long been seen as critical to economic vitality (Griliches, 1986).

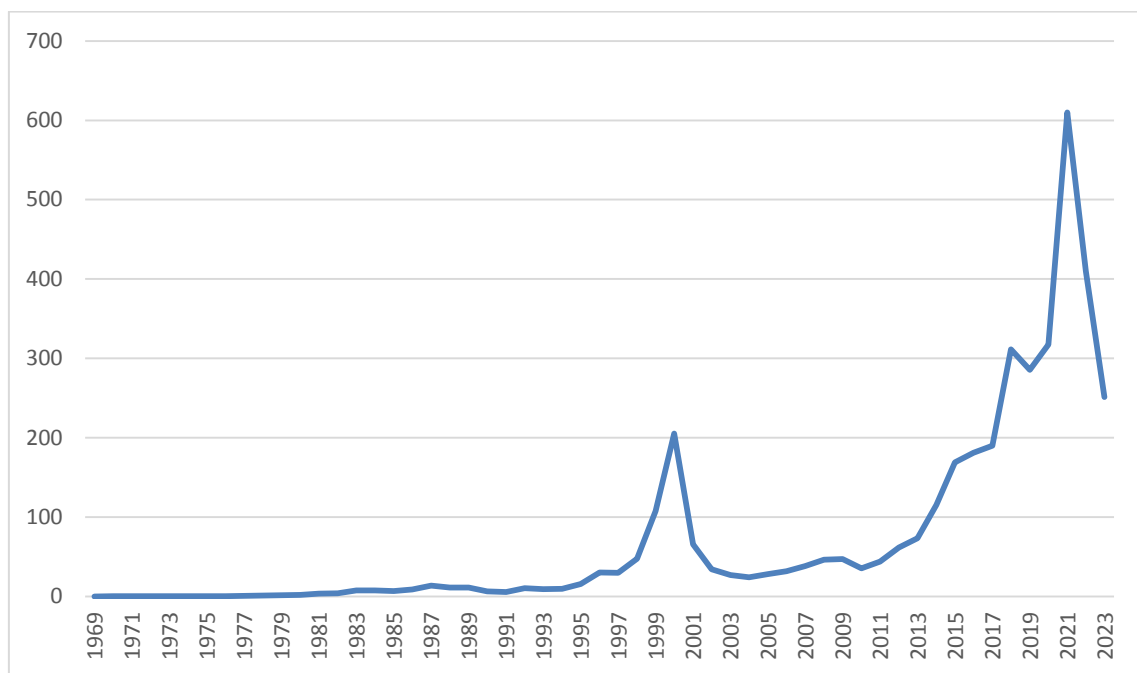
Against this sober backdrop, the venture

capital (VC) industry appears to be a bright spot in the global innovation landscape. Over the last decade, the amount of capital deployed by VC investors and the number of startups receiving funding has grown very substantially (see Figure 1 for data on activity). Entirely new financial intermediaries such as accelerators, crowd funding platforms, and “super angels” have emerged at the early stage of new venture finance, competing with traditional early-stage funds. Meanwhile, mutual funds, hedge funds, and sovereign wealth funds have deployed large sums of capital into more mature, but still private, venture capital backed firms.

Despite this growth in capital committed to VC over the past four decades, the pool of capital currently under management by US VCs remains small in comparison to the several trillion dollars managed by the broader US private equity asset class, which include buyout and distressed debt funds. Nevertheless, VC is associated with some of the most high-growth and influential firms in the economy. More generally, although comprising less than 0.5% of firms that are born each year (Puri and Zarutskie, 2012), VC-backed firms represent a very significant share of innovative companies that graduate to the public marketplace.

One way illustrate this contention is to examine the impact of venture investing on public firms (Gornall and Strebulaev, 2021). If ones looks at the subset of firms which were founded after 1968, went public after 1978, and remain traded today (consistent

FIGURE 1
EVOLUTION OF THE GLOBAL VENTURE CAPITAL INDUSTRY BETWEEN 1985 AND 2023



Notes: This exhibit shows total global venture investment, compiled from PitchBook and Refinitiv data, expressed in billions of 2011 dollars. This is an updated version of a graph in Lerner et al. (2024)

information on venture-backed firms that were acquired or went out of business is hard to find), these firms have had an unmistakable effect on the U.S. economy. In mid-2021, these “newer” venture-backed firms made up one-half of the total number of newer public firms and 77% by value at the end of 2020. But its impact on innovation is truly extraordinary. These firms make up 92% of all R&D spending in 2020, and 93% of all value-weighted patents in 2018.

This success is no accident, as the academic literature has shown. Much work has focused on the tools employed by venture capitalists to monitor and govern, such as the use of staged financing (Gompers, 1995; Neher, 1999), securities that have state-contingent cash flow and control rights (Hellmann, 1998; Cornelli and Yosha, 2003; Kaplan and Strömberg, 2003; 2004), and the active role on VC investors on boards of these firms (Hellmann and Puri, 2000; 2002; Lerner, 1995).

The growth of the venture capital market in the past decade, however, cannot blind one

to its limitations as an engine of innovation. I would argue that if the reader anticipates that the growth of venture capital will address the challenge of lagging innovation delineated in the introductory paragraphs, these hopes are excessively rosy.

Limited academic work has focused on the limitations inherent in the venture capital model, many of which may have been exacerbated by the growth in recent years. I lay out below what I see three distinct areas of concern about venture capital and its ability to successfully spur innovations. These include the very narrow band of technological innovations that fit the requirements of institutional VC investors (see Figure 2 for an industry breakdown) and the relatively small number of VC investors who hold, and shape the direction of a substantial fraction of capital that is deployed into financing radical technological change.

A third concern relates to the cyclicity of governance. Focusing on the third concern, venture capital has traditionally been a tough business, with onerous stock purchase agreements (Kaplan and Ström-

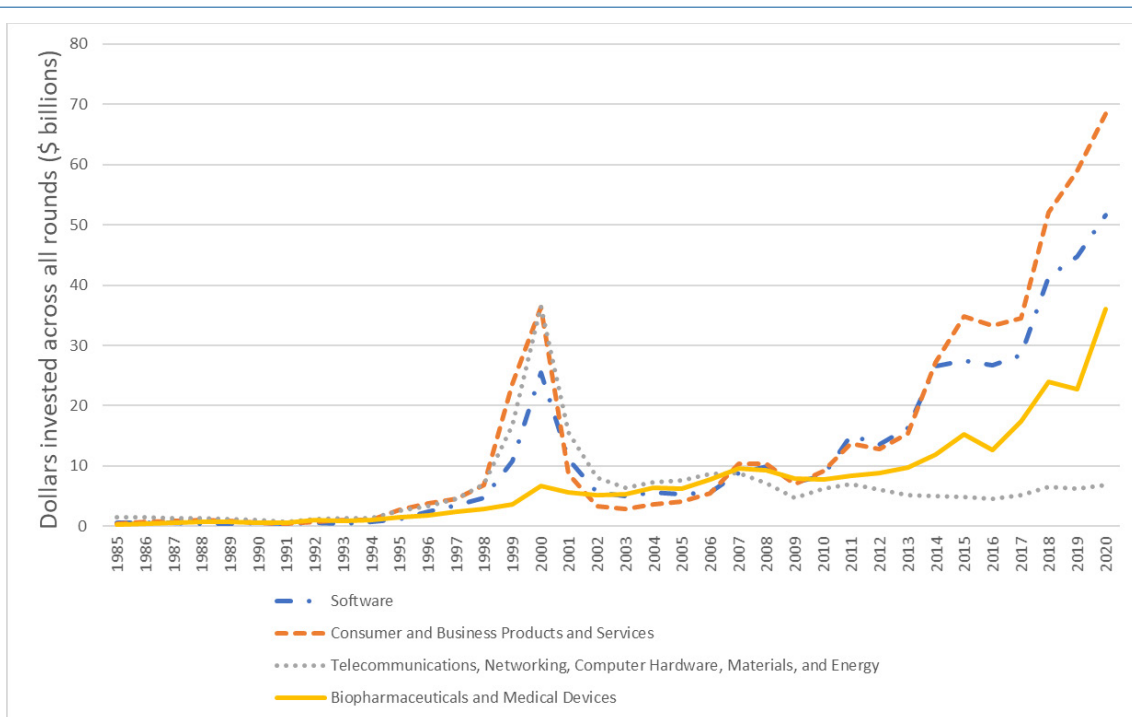
berg, 2003). Moreover, Kaplan, Sensoy and Strömberg (2009) and Ewens and Marx (2018) document, these are not just “paper rights”: frequent turnover of management has been the rule. These patterns have changed dramatically in the past decade. Across the board, “founder friendly” terms appear to have replaced the onerous provisions traditionally demanded by venture capitalists. Several potential explanations can be offered for these patterns.

One may be an increase in competition between venture capitalists associated with the growth documented above. Given the very skewed nature of venture returns, where a few deals generate the bulk of the returns (Hall and Woodward, 2010; Ouyang, Yu, and Jagannathan, 2020), the competition to get access to the firms that show potential to generate outsized returns is

particularly intense. Reflecting this competition, groups appear to have chosen to outdo each other in the extent of their hospitality toward company founders.

To an economist, however, this explanation is puzzling. If the intensive governance provided by venture capitalists is socially beneficial—as generations of academic analyses would suggest—why would groups choose to abandon it? Should venture firms not compete exclusively by offering entrepreneurs progressively higher valuations (and less dilution of their initial equity stakes) and not be abandoning governance provisions? While more work needs to be done to understand these dynamics, a part of the explanation may be because entrepreneurs have a lot of discretion in who they choose to take funding, are strategic in whom they take money from (Hsu, 2004), and may un-

FIGURE 2
VENTURE CAPITAL INVESTMENT (IN BILLIONS OF DOLLARS) INTO U.S. STARTUPS BETWEEN 1985 AND 2020, BY SECTOR



Notes: This exhibit reports investment by VC investors into U.S. startup between 1985 and 2020, broken down by four distinct sectors. Data are drawn from the U.S. National Venture Capital Association’s yearbooks and related resources. Consumer and Business Products and Services refer to startups in the following categories: Business Products and Services, Consumer Products and Services, Financial Services, Healthcare Services, IT Services, Media and Entertainment and Retailing/ Distribution. Telecommunications, Networking, Computer Hardware, and Energy refers to startups in the following categories: Computers and Peripherals, Electronics / Instrumentation, Networking and Equipment, Semiconductors, Telecommunications, Industrial/ Energy and Other. Biopharmaceuticals and Medical Devices refers to startups in the following categories: Biopharmaceuticals and Medical Devices and Equipment.

derestimate the need for governance. In an intensely competitive market, some VCs may be tempted to pitch entrepreneur-friendly contracts to founders to get access to the most attractive deals.

In the final section, I summarize some elements that may require reconceptualization for the industry to become more effective and increase the resiliency of the venture capital sector. These hypotheses, which are designed will provide some ideas to practitioners and academics alike interested in thinking “outside the box,” are developed in more length in Lerner and Nanda (2020) and (regarding the organizational and incentive structure of venture partnerships) in Lerner (2012). My first set of suggestions relate to the design of the venture fund. Since the early days, VC funds have been eight-to-ten years in length, with provisions for one or more one-to-two year extensions. Venture capitalists typically have five years in which to invest the capital, and then are expected to use the remaining period to harvest their investments.

The uniformity of these rules is puzzling, given that funds differ tremendously in their investment foci: from quick-hit social media businesses to long-gestating biotechnology projects. In periods when the public markets are enthusiastic, venture capitalists may be able to exit still-immature firms that have yet to show profits and, in some cases, even revenues. Given the reasonable short fund life—and the fact that groups after a few years shift their focus to raising their next fund—it is not surprising that the venture funds have increasingly focused on sectors such as software and social networking, which are characterized by fast innovation “clock speeds.” Revisiting the uniformity of fund life would be an important first step.

A second idea relates to de-risking ventures. Venture funds invest in stages. This enables them to reinvest in businesses that continue to show promise while abandoning those that do not (Reis, 2011). One of the potential reasons why there has been a dramatic rise in venture capital directed towards software and related ventures is that this industry has seen much more rapid declines in the cost of learning about

the ultimate viability of the venture in these sectors. This approach may not be well suited for ventures with substantial regulatory and technological risk, such as clean energy and advanced materials.

The approach to de-risking ventures begins with the process that VCs use to identify promising new ideas. The traditional approach entails entrepreneurs coming to VCs to pitch them new ideas and VCs deciding whether to fund them or not. This approach has the benefit of enabling the investors to maintain an arms-length relationship from the entrepreneurial team, reducing the entrenchment that is sometimes associated with corporate R&D and internal capital markets.

An alternative approach, however, has begun to be used by some VC investors specializing in bio-pharmaceuticals (such as Third Rock Ventures and Flagship Pioneering): to incubate and finance ideas in-house. This process has the benefit of reducing asymmetric information because much of the staff for the team of entrepreneurs comes from within the fund. It also enables the VC firm to fund what it might believe is the most promising idea or approach, as opposed to selecting among a set of ideas that came through the door. Such new approaches may hold promise for widening the scope of venture capital investment.

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