such as research and development (R&D). Preferences for financial income have little relation with interests in entrepreneurship. Together these preferences shape individuals' predispositions toward entrepreneurship, which in turn condition how they respond to factors thought to promote entrepreneurship, such as having a faculty adviser who has founded a company. Individuals with a strong predisposition toward entrepreneurship are most likely to be interested in becoming a founder, whereas those who lack preferences for entrepreneurial job attributes show no interest in founding, regardless of external factors. Individuals with a moderate entrepreneurial predisposition are most susceptible to external factors, which increase their interest in joining a startup as an employee. Efforts to foster technology entrepreneurship should recognize that individuals may respond in different ways; blanket efforts, such as mandated entrepreneurship training, are likely to be inefficient. Programs should also prepare scientists and engineers for a variety of entrepreneurial roles—joiners as well as founders.

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Cash from the crowd

By **Massimo G. Colombo,[5] Chiara Franzoni,[5]§ Cristina Rossi-Lamastra[5]**

Crowdfunding (CF), in which financing for projects is sought via the Internet from large groups of individuals, is a $3.3 billion per year phenomenon. But it's not clear how well CF, typically used for creative arts projects, can be used to finance science and technology ("tech") projects. We analyzed nearly 112 thousand CF campaigns launched on Kickstarter.com through late 2014 (see supplementary materials). The share of tech projects is increasing, from 4% of total projects in 2009 to 8% in 2014. Tech projects have the largest average target budgets ($86,529; nontech average, $18,003). The rate of tech projects that reached their target budget and were funded, 38%, is lower than the overall 58% success rate. Tech projects received 14% of the capital raised through Kickstarter, totaling $139.8 million. Although this is a substantial amount, it is only 3% of the $4.7 billion invested by venture capitalists in high-tech ventures in the United States in 2013. CF also differs qualitatively from other forms of entrepreneurial finance.

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CF money is not invested in exchange for a financial return but is pledged in the form of product prepurchasing from end users as consumers. This has three important implications. First, CF invites gathering feedback from users during project development, a practice shown to be effective in problem-solving and product-testing in open-source and open-innovation platforms. By cutting development time and failure rates, this feature offers new means for tech transfer. Second, crowdfunders are highly responsive to social exchanges that the entrepreneur uses inside the CF community and beyond (*1*). Third, CF is more suitable when the project outcome is a ready-to-use product that can be offered in exchange for the pledge. This makes CF more suitable for applied projects, which are close to market delivery, but calls into doubt the suitability of CF as a means for funding basic research.

SUPPLEMENTARY MATERIALS

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Intangible but bankable

By **Yael V. Hochberg**,[6,7,2] **Carlos Serrano**,[8,9,10]*¶ **Rosemarie Ziedonis**[11,12]

Young science and technology companies are often rich in intangibles but lack physical assets and cash flows required to secure a loan. Intangibles, such as patents, are effectively "unbankable" for traditional lenders because of international banking regulations. Intangibles also are often difficult to value and sell. External debt is therefore widely cast as an unlikely way to fund the risky projects of intangibles-rich companies. Despite this conventional wisdom, we uncover a surprisingly active market for "venture lending" to patent-producing U.S. startups in three innovation-intensive sectors: medical devices, semiconductors, and software (*1*). Venture lenders fund such startups in early stages of development, most often alongside VC investors. According to one estimate, venture lenders supply roughly $5 billion in growth capital to startups each year, with funds originating from both regulated banks and specialized lenders. To minimize downside risk, lenders typically require a lien on assets, including intangibles, and record liens involving patents with the U.S. Patent and Trademark Office. Lenders also pay keen attention to the solvency and reputations of VCs backing startups that apply for funding. Among VC-backed startups in our sample, 36% received venture loans. Lending was more prevalent for startups with top-tier VCs and for startups with more "saleable" patents. After the NASDAQ crash of 2000, many VCs faced severe constraints in raising capital, whereas others were flush with recently raised funds. Lenders continued to finance startups backed by less capital-constrained investors but withdrew from otherwise promising projects that may have needed their funds the most. Thus, VCs play a vital intermediary role in lending relations with risky startups. Attempts to stimulate entrepreneurial activity through debt channels alone may have limited economic effects in the absence of well-developed markets for buying and selling patents and infrastructures for equity investing.

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ILLUSTRATION: DAVIDE BONAZZI

Accelerators and ecosystems

By **Yael V. Hochberg**[6,7,2] | *and* **Daniel C. Fehder**[7]

A new institutional form has emerged in the entrepreneurial ecosystem in recent years: the seed accelerator. These fixed-term cohort-based "boot camps" for startups offer education and mentorship for startup founders and culminate in a "demo day," during which graduates pitch their businesses to potential investors. Many local governments hope to use accelerators to transform their local economies through establishment of startup technology clusters. Evidence of accelerators' efficacy is limited, however, so we examine their effects on regional entrepreneurial ecosystems, particularly provision of venture capital (VC) financing to new startups (*1*). Accelerators emerge in different regions in different years, often for reasons exogenous to the nature of the ecosystem or precisely because of its lacking. This allows us to compare changes in regions that receive an accelerator with similar regions that do not have one. We see a shift in funding for startups in accelerator-treated regions: more deals, more dollars, and more local investment groups. This applies to startups that attend the accelerator and those that do not. Most accelerators focus on software companies, and regions with accelerators shift toward a higher share of early-stage software and information technology–related VC deals (although financing for other industry groups, such as biotechnology, is not necessarily reduced). These patterns hold both for high- and low-ranked accelerators in the annual Seed Accelerator Rankings, which suggests that the funding increase is less about the effect of accelerator programs on companies that attend them and more about what such programs