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Angel finance: the other venture capital[1]

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- *The procurement of capital is an important consideration for an entity transforming from an entrepreneurial idea to a revenue generating company.*
- *Angel financing is one of the most common, but least studied methods, to finance new ventures.*
- *The term "Angel Investor" generally refers to a high net-worth individual who typically invests in small, private firms on his or her own account.*
- *Using a unique dataset of firms financed by angels between 1994 and 2001, our research provides some insight into the role of angels in funding, monitoring and guiding their investments.*
- *Although exposed to greater uncertainty by investing earlier in the life of a firm compared to venture capital investors, angel investors do not rely on traditional control mechanisms such as board control, staging, or contractual provisions to protect against expropriation.*
- *Angels may use more informal methods of control such as investing in close geographic proximity and syndicating investments with other angels to mitigate risks.*
- *The results of the study indicate that angels have a complementary role to venture capital in the financing of new ventures.*

In 1976, Anita Roddick, a self-confessed hippie who found natural ingredients to sell as cosmetics in cheap plastic bottles, needed money to open a second shop. Her bank had rejected her request for a loan on the grounds that her business idea was not viable. Ian McGlinn offered her £3000 to set up the shop. In 2006, when Roddick sold her company, 'The Body Shop', McGlinn's stake was worth approximately £137 million.[2]

One of the most important considerations a new entity faces in the transformation from an entrepreneurial idea to a revenue-generating company is the procurement of capital. Institutional venture capital has long been glamorized in the press and academic research as the primary source of outside equity financing for these entities. However, many studies estimate that institutional venture capital contributes less than half of the total equity financing for new firms. The less-scrutinized, yet equally important, source of

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[1] This article is largely based on Dr Wong's PhD dissertation, which can be found at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=941228&high=%20andrew%20wong and a chapter in the *Companion to Venture Capital* (John Wiley & Sons, forthcoming). The views and opinions in this article are those of the authors and not Analysis Group, Inc. All errors are our own.

[2] *London Times*, 18 March 2006. http://www.timesonline.co.uk/tol/news/uk/article742490.ece

start-up capital is the informal venture capital market known as angel financing.

Originally used to describe financers of theatrical productions, today the term 'angel investor' refers to an affluent individual who provides equity capital for a business start-up. Typically, angel investors fill the financing gap between funding from family and friends and funding from institutional venture capital firms. Angels exist primarily because it is typically difficult for friends and family to contribute more than a few thousand dollars, and institutional venture capital firms will rarely consider smaller deals. Bank loans are often not a viable option for these start-ups because of the lack of collateral and/or interest payback requirements.

> *. . . [W]e raised a million dollars and I had to talk to about 60 different people. These were angel investors. Venture capitalists were totally uninterested . . . So, with a lot of hard work we raised that million dollars from about 20 different angel investors who invested about $50,000 each, and that was the original money that really funded Amazon.com.* (Jeff Bezos, Founder, Amazon, Inc.[3])

While it is difficult to precisely quantify the size of the angel market due to its informal nature, many studies estimate its size as at least twice that of the institutional venture capital market. In a 1992 study, Freear *et al.* suggest that angels fund more than ten times the number of firms as venture capitalists. In 2000, the National Venture Capital Association assessed the size of the angel market at $100 billion in the United States while the institutional venture capital market was estimated at less than half this at $48.3 billion.[4] In 2002, the Global Entrepreneurship Monitor (GEM) assessed the size of the angel market at five times the institutional venture capital market.[5] More recently, Shane (2008) compiled data from several different surveys conducted between 2001 and 2003. He finds between 140,000 and 266,000 angels commit between $12.7 and $36 billion to between 50,000 and 57,000 companies annually.

Angel financing's importance in funding new businesses raises several questions. Who are these investors and what kinds of businesses do they invest in? Do angels operate in the same manner as institutional venture capital firms? If not, how do angels maintain control over their investments? More generally, why do two types of equity-based start-up financing exist? Do angels provide more than just financial assistance? This article provides some insight into the role of angels in funding, monitoring, and guiding their investments.

Who are angel investors?

While there are many definitions of angel investors, the term generally refers to high-net-worth individuals who typically invest in small, private firms on their own account. Formally, angel investors are 'accredited investors' according to the United States Securities and Exchange Commission (SEC). SEC Rule 501 of Regulation D states that an accredited investor is an individual who has a net worth of more than $1 million or an expected individual (household) yearly income of more than $200,000 ($300,000). However, many angels may not be accredited — according to a 2008 study by Shane, accredited investors account for only 23% of the total angel population. While the Federal Reserve's Survey of Consumer Finances estimates that over 6 million households qualify to be accredited investors, many studies estimate the number of active angel investors in the United States to be between 250,000 and 400,000.[6]

Angels invest their own money in firms. This criterion differentiates angels from institutional venture capitalists, who raise money from others that they invest in private firms.

[3] Academy of Achievement, 4 May 2001. http://www.achievement.org/autodoc/page/bez0int-4

[4] Venture Economics press release, January 2000. www.ventureeconomics.com

[5] Global Entrepreneurship Monitor. http://gemconsortium.org/files.aspx?Ca_ID=112

[6] *Forbes*, 2 November 1998 and *Individual Investor*, July 2000.

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According to a paper by Linde and Prasad (1999), the average angel has a total of $335,000 invested in four different companies. Shane (2008) finds that 20.8% of angels made only one angel investment in their careers.

As individual investors, angels exhibit great heterogeneity in personal characteristics such as age, experience, and investment preferences. Many angels are cashed-out entrepreneurs who continue to yearn for the next high-growth venture. Other angels are simply wealthy local businessmen such as doctors or lawyers. Because angels have to perform their own due diligence, they typically invest in ventures in industries familiar to them. In addition to making a financial investment, some angels actively participate in the firm's operations; however, such participation varies by angel. Some angels are passive.

The funding process and contractual terms also vary widely between formal and organized angels and those with a more informal approach. Angel investment can involve anything from a complete proposal to an individual handing over a check on a front porch.

> *In 1998, Andy Bechtolsheim, one of the co-founders of Sun Microsystems, wrote a check for $100,000 to two students after they had showed him their search engine software. The students' names were Sergey Brin and Larry Page. Their software was Google. The check was made out to a company that didn't even exist, 'Google Inc.' Before they could deposit the check, Brin and Page needed to incorporate and open a checking account.*[7]

The data

This article analyzes data from 215 investment rounds made by angel investors in 143 companies from 1994 to 2001. Angel-backed firms were identified via newswires, periodicals (such as *Angel Investor*), press releases, angel networks, and websites (such as *Red Herring*'s Herringtown and Localbusiness.com). Firms were asked if they had received any outside funding. Angel-backed firms were contacted for information regarding all financing received since firm initiation. In addition to financial information, the firms were asked to provide descriptive information on their firm such as the number of employees, revenues (if any), and background information on the founders. Due to issues of confidentiality and competition, some respondents only provided partial responses. Whenever possible, a founder or person responsible for investor relations was contacted for information.

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Companies receiving angel investments

Perhaps reflecting the technology boom of the late 1990s, most angel investments in the survey are made in computer-related industries which include internet services, internet

[7] *Wired Magazine*, 7 September 2007 [http://www.wired.com/science/discoveries/news/2007/09/dayintech_0907]; *San Francisco Chronicle*, 29 April 2004 [http://www.sfgate.com/cgibin/article.cgi?file=/chronicle/archive/2004/04/29/MNGLD6CFND34.DTL]

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content and design firms, and business-to-business/consumer companies. Not surprisingly, companies in California are the largest recipients of angel financing, consistent with venture capital research.

A majority of the angel-backed firms receive angel financing pre-revenue. A pre-revenue firm is a business that has not derived any revenue from its product. If revenue streams are an indicator of development, angel-backed firms receive financing earlier in the lifecycle than the typical venture-capital-financed firm that tends to have sales. Similarly, angel-backed firms are younger at first funding (in months since founding) than venture-capital-financed firms. Taken together, this indicates that angels are willing to finance firms with greater uncertainty about the prospects of success than venture capitalists.

Several other factors support the idea that angels and venture capitalists are different types of investors. Angels and venture capitalists are co-investors in less than a quarter of all funding rounds. On average for companies at comparable stages, the amount of money a company raises from venture capitalists is twice the amount provided by 'angel-only' financing rounds. These differences in funding suggest that angels play a complementary role to venture capital. Instead of competing with venture capitalists for firms at similar stages of development, angels provide a smaller amount of funding to younger firms.

Total funding amounts by type of round ($ millions)

	Mean
All rounds	$2.16
Co-invested rounds	$4.80
Angel funding in co-invested rounds	$0.88
Angel-only rounds	$1.28

Do angels use the same methods as venture capitalists to maintain control over their investments?

As angels typically invest in companies that are relatively early in their lifecycles, they may face a high risk of expropriation. Investors usually seek to protect their investment from expropriation through the use of control rights — the methods accorded to investors to allow them to oversee the entrepreneur's management of a company's affairs. Three control mechanisms commonly used by venture capitalists are board rights, staging investments, and contracting mechanisms. If angels are similar to venture capitalists, they should maintain similar protections, particularly in ventures where the threat of expropriation is the highest.

Board rights

Board seats give outside investors the ability to affect corporate decisions. Board rights are particularly important in environments with greater uncertainty, since it is not feasible to specify all possible contingencies in the *ex ante* contract. Sahlman (1990) finds board seats are typically allocated to venture capitalists as part of a financing round. This is not the case with angel investments. Board seats are granted in less than half of all funding rounds. The likelihood of providing a board seat does not change much when considering pre- and post-revenue funding rounds. Initial rounds of angel financing tend to have a slightly higher (though not statistically significant) probability of board seat allocation, although fewer than half of all first rounds relinquish board seats to outside investors.

Percentage of board seats granted by round

	Percent
All rounds	43%
Angels only	44%
Angels with co-investment	39%
Pre-revenue	44%
Post-revenue	41%
First round	46%
Later rounds	37%

Board sizes in angel-financed ventures are much smaller than board sizes in public companies or venture-backed firms. On average, only 0.6 board seats are added to the board of

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directors in a typical angel-financed investment round, while 1.1 seats are added in a typical venture capital round.[8] In addition to being smaller, the boards of directors of angel-backed firms tend to be dominated by insiders. Insiders had a majority in over 80% of the boards in the sample of angel-backed firms. However, in venture-capital-funded firms, insiders comprise the majority in only 13.9% of the boards. Angels tend to take a much smaller degree of control through board representation than venture capital firms.

The results on boards of directors are consistent with other theories which suggest a passive role for angels. Fama and Jensen (1983) hypothesize that the composition of the board should be shaped by the need for monitoring. If the threat of managerial expropriation is high, then the board will bear a greater responsibility for oversight. At the early age of the firm, much of the venture's value is embodied in the human capital of the entrepreneurs; therefore, the replacement of the founders would not seem to increase the value of the company.

Staging

Empirical and theoretical works have emphasized the importance of staging as a control mechanism for venture capitalists. Instead of providing the entirety of capital in a lump sum, the investment is allocated by stages, preserving the investor's option to abandon. Theoretical models such as Hart and Moore (1994), Bergemann and Hege (1998), and Neher (1999) stress the importance of staging as a control mechanism. Gompers (1995) finds that venture capitalists use staging as an important method to control agency costs.

We find that consecutive rounds funded entirely by angels tend to have follow-on investors from earlier rounds. However, if the subsequent financing round involves venture capital participation, angels do not follow on. This finding supports the complementary nature of angel and venture capital investment. Once the firm has been nurtured to success, with success defined as venture capital investment, the angels step aside for more professional or deep-pocketed investors. Even when angels do make follow-on investments, only an average of 40% of investors from previous rounds participate in the subsequent rounds.

Contractual provisions

Angel investors may use contractual provisions as protection from expropriation. More complex securities may provide investors stronger protections in the event of liquidation. Contractual clauses may give the investor additional protection from expropriation. Common protections in venture contracts include ratcheting and anti-dilution agreements. Complex securities should be used when the threat of expropriation is greater. Firms that have an identifiable revenue stream and/or an entrepreneur with prior entrepreneurial experience may not need as complex a security.

Figure 1 reports the types of securities issued in each round. Common equity is the most prevalent security issued in 34% of all rounds. In contrast, convertible preferred is the dominant security in venture capital financing. The high usage of preferred and common equity is consistent with the theoretical

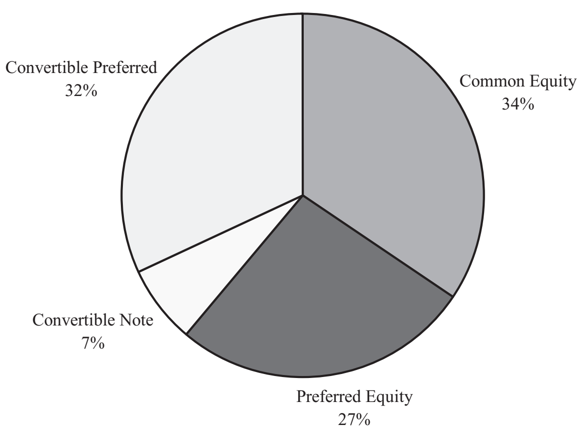

Figure 1. Type of security issued

[8] Lerner (1995) finds venture capital financing rounds add 1.1 board seats on average.

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predictions of Casamatta (2003). In her model, Casamatta finds common equity is better suited to smaller investments (such as those made by angels), while larger investments should use preferred or convertible preferred securities. Equity may be used more often with angel investments because the higher (legal and other) costs of writing a complex security with a small investment outweigh the benefits.

More complex securities were typically issued in larger funding rounds. The transaction costs from writing a more detailed contract may be more warranted with larger investments.

In addition to security choice, many investment contracts have provisions that protect and empower the investor. **Table 1** contains information on many of these contractual clauses.

Many contracts contain a follow-on right of first refusal provision that allows angels to participate in future rounds to capture the potential upside in successful ventures. However, many angels do not exercise this right. 26% of financing rounds contain weighted ratchet clauses for protection against future rounds at decreased valuations. Full ratcheting protection was not given in any investment round. In comparison, Kaplan and Strömberg (2003) find 21.9% of their sample use full ratcheting and 78.1% of their sample use weighted ratcheting. Kaplan and Strömberg (2003) find contingent equity ownership prevalent in venture capital contracts. In such contracts, additional funding is contingent on the firm meeting observable measures of financial and non-financial performance. However, very few angel contracts contain provisions for contingent equity stakes.

Table 1. Contractual provisions

Type of protection	Percent
Right to participate in future funding	24%
Weighted ratchet	26%
Warrants at lower valuation	4%
Other ratcheting protection	11%
No reported ratcheting provision	55%
Right to force bankruptcy	5%
Contingent board or equity rights	2%
Veto management decision	5%

Contractual protection from expropriation is not one-sided. 38 financing rounds contain provisions that allow the firm to repurchase the stake of the angel, similar to the call provisions explained in Sahlman (1990). Many entrepreneurs cite this clause as a way to rid themselves of 'bad apples' or investors whose vision does not coincide with that of the founders.

If angels do not use the methods used by venture capitalists, how do they maintain control?

In contrast to the control mechanisms adopted by venture capitalists, angels do not implement the same methods of managerial oversight. In particular, angels typically do not receive board seats, stage investments, or use particularly strong contractual clauses to protect their claims. Three other factors were explored to understand how angels mitigate the increased risk of investing in early stages: (1) the amount of funding, (2) the use of syndication, and (3) geographical proximity between angels and their investments.

Funding

If investors are concerned with large degrees of uncertainty, then the average contribution per investor, total funding amounts, and number of investors will be sensitive to variables that proxy for uncertainty — characteristics of the entrepreneur and management team, and the presence of a revenue stream. Intangible factors such as an entrepreneur's prior experience may provide signals to alleviate investor uncertainty. Funders may feel more secure investing with entrepreneurs who have a previous track record. More mature firms and larger firms also should have more existing information about their product and projections, decreasing the uncertainty associated with an investment. Having a management team or a revenue stream may indicate to investors that the firm has completed the initial idea phase and is ready to move forward.

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In regressions not reported in this article, we find high-growth firms received more funding in each round. Somewhat surprisingly, post-revenue firms actually received less funding than pre-revenue funds. No other measures of uncertainty seemed to strongly influence the amount of funding.

One reason to explain this is that outside investors typically own less than a quarter of the new firm. Despite the higher levels of inherent uncertainty associated with more nascent firms, angel investors may not need high degrees of control because the threat of expropriation is minimized by the large residual claim held by the founders. That is, the incentives of the founders are aligned with the prospects of the firm. In comparison, Kaplan and Strömberg (2003) find venture capitalists hold a larger proportion of cash flow rights (on average 40%) in the investments that they make. Because the incentives of the entrepreneur are not as strongly aligned with the outside investors, the need for formal control mechanisms may be greater. However, it is questionable whether such a difference in ownership drastically increases the need for formal controls.

We also find that having a management team in place, an indication that the firm has passed the initial development stages, decreases the equity share given to the outsider investors. Greater research and development intensity also leads to a decreased stake for angels.

Syndication

Another method of reducing risk is to syndicate investment with other investors. By syndicating investments, the investors may be able to share the risks and share in the monitoring of the firm. Additionally, a larger syndicate may indicate that the firm has passed the evaluation of more screeners. Some angels may cooperate (or free-ride) on the due diligence of others. Syndication may also act as a verification mechanism, thus it is expected that earlier funding rounds will have more investors.

On average, 12 angels co-invest together in a round. In comparison, Kaplan and Strömberg (2003) find venture rounds are normally syndicated with two to nine venture funds co-investing. While the increase in syndication may increase the monitoring capacities of the angel investment group, venture capitalists also syndicate their investments while maintaining more formal control mechanisms. Although angels do typically syndicate their investments with other angels, this does not answer the question — why do control mechanisms differ between angels and venture capitalists?

Geographical proximity

Entrepreneurs may begin their search for capital by exploring local resources. A localized bond of trust may exist between the entrepreneur and investor, making formal control mechanisms unnecessary. Being in close geographical proximity to their investment may mitigate the need for more formal control mechanisms. Because of the strong trust and familiarity many local investors may have with each other, syndication is greater among local investors. The need for subsequent larger funding amounts may exhaust the resources of the local investors and require more professional investors or institutions. Additionally, as a firm develops, the need for professionalization (i.e., management skills) is greater, leading the entrepreneur to turn to more professional investors who require more formal control because of their lack of familiarity with the founders.

> *Angels have one-degree of separation from people in their professional network — not two, or three, or four. But because angels tend to be operational types, the business relationships they bring to the table are personal, not transactional.* (Rob Convoy, angel investor)[9]

[9] *Angel Investment Journal*, 30 September 2008. http://www.angelinvestmentjournal.com/2008/8-reasons-why-angel-money-is-better-than-vc/

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In the sample, the average contribution per angel decreases when the nearest angel is less than 50 miles away, suggesting that local investors may not be as wealthy as more professional investors. However, this is offset by the increase in the number of angels who invest if they are located closer to the entrepreneur.

Local investors provide more help to new ventures. Entrepreneurs responded that they were more likely to receive help from angel investors if the investor resided less than 50 miles from the new enterprise. Considering the background and industry expertise of many of the angel investors, it is often this non-pecuniary assistance that is the most beneficial to the start-up. However, relying on angels in close geographical proximity may delay subsequent venture capital investment. A possible explanation is that local angels do not have as large a contact network as more professional investors.

Some additional validation for this idea is provided by examining the results on the formal control mechanisms: board seats, staging, and security choice. In contrast to Lerner's (1995) finding that close geographical proximity increases the likelihood of board representation, geographical proximity, defined as the investor residing within 50 miles of the venture, has a negative effect on the probability that a board seat is given in angel-funded rounds. The need for contractual monitoring (via a board seat) may be reduced because of the geographical proximity of investors. Geographical proximity also decreases the use of staging and increases the use of equity, consistent with the localized investor hypothesis.

Taken together, these results suggest many entrepreneurs begin their search for capital with local resources, relying on local ties to encourage investment. Local angel investors may not be as sophisticated as more professional investors, but may be more involved in the venture. They do not rely on formal control mechanisms; instead, they often participate in the new venture.

Post-investment assistance

There are many ways investors can participate in a new venture. They may work directly with the entrepreneur to further develop the idea. They may help secure future financing. Gorman and Sahlman (1989), Sahlman (1990), and Ehrlich *et al.* (1994) find that venture capitalists actively participate in their investments after funding. In addition to funding, angel investors can also play an active role in professionalizing the firm or bringing a product to market, similar to some of the activities that venture capitalists provide (Hellmann and Puri, 2002). Since many angels are former entrepreneurs or industry executives, they may derive some private benefits from assisting in the development of a new firm. Two of the more identifiable ways of providing help is assistance in procuring a management team and procuring additional funds.

Building the management team is an important step. Complete management teams typically lead to larger funding amounts in subsequent rounds. Venture capital firms routinely help form management teams. Angels helped form the management team in less than a quarter of the firms in the data. Kaplan and Strömberg (2000), in contrast, find that venture capitalists expect to replace the CEO or help recruit management in 50% of their investments. The results from the data suggest angels provide less assistance than venture capitalists in forming management teams.

Angels can provide assistance in another important area, helping to locate and secure subsequent financing from venture capital. Gorman and Sahlman (1989) report venture capitalists consider raising additional funds the most important activity. We find that more angel investors leads to a shorter time to venture financing. This is evidence that angels can play a networking role; a larger number of angels leads to a larger network of contacts and faster venture capital financing. Ibrahim (2008) also stresses the importance of angel finance as a precursor to venture capital,

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suggesting that angels agree to less complex contract terms to expedite future venture capital financing.

Not surprisingly, geographical proximity of the angel is the largest determinant of the amount of help the angel provides the founders. Angels who are in closer proximity tend to provide better assistance. Familiarity with issues confronting new ventures may require more interaction, therefore geographical proximity may encourage more assistance.

Conclusion

Angel financing is one of the most commonly used but least studied methods to finance new ventures. Using a unique dataset of angel-backed firms, we detail the characteristics of angels, the firms they invest in, and the methods they use to control their investments. Contrasting with an oft-studied method of financing new ventures (venture capital), we are able to get a better understanding of angel finance.

Analysis of the data indicates that angels have a complementary role to venture capital in the financing of new ventures. Angels take on more risks and invest smaller amounts in younger firms than venture capitalists. Angel investors appear to nurture younger firms until the company is established enough for venture consideration.

Angels are not awarded the same degree of control rights as typical venture capital investments use. Rather, one of the primary mechanisms to control agency costs is an alignment of the entrepreneur's interests with those of the firm through the large ownership positions. Angels also make smaller investments and use syndication when investing in riskier ventures. Another possible control mechanism is geographical proximity. The geographical proximity between angels and their investments plays a large role in determining the funding amount, control, and degree of post-investment assistance provided by angels.

Biographical notes

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