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Angel Investing By The Numbers

Simeon Simeonov, FastIgnite, June 30th, 2010

With high-tech companies needing less capital due to advancements in technology, startup development methodology and online marketing, we have seen a Renaissance in angel investing. While angel investors participate in part for the excitement of engaging with entrepreneurs and placing bets on the future, they also do it for the expectation of significant financial returns. Various studies of angel investing published in the last decade estimate aggregate returns to angels on the order of 18-37% per year, well above market. The catch is that 50-70% of angels make less than what they invest. Returns are very unevenly distributed and this begs the question to what extent is portfolio theory fundamental to angel returns.

The best data set with detailed investment & exit information comes from the Angel Investor Performance Project by the Kauffman Foundation. The data was collected by surveying angels who belong to angel groups. Cleaning the data and restricting to the domain I was interested in—first round investments in early-stage high-tech companies—yielded a data set about the returns of 56 angels with exits from 112 companies. The data show the type of skewed distribution one would expect from early stage investing:

* 75% of exits happened between 2001 and 2006. There is some reason to believe that the data may have a slight bias towards negative returns as 50% of investments happened between 1995 and 2000. Angels may have been buying high and selling low.

* 3.2x cash-on-cash return for all investments put together (total dollars out divided by total dollars in). However, returns are extremely sensitive to big hits. A lucky angel put $600K in a software company in three rounds from 1988 to 1994. In 1996 the company went public and the person got a nice 55x return. Removing this one company from the sample drops the aggregate cash-on-cash return for all angels nearly in half to 1.8x.

* Of the companies angels invested in, 63% were complete write-offs for the angels involved.

* 66% of angels made less than what they invested. 45% generated no return. The remaining 21% of angels received only 4% of the total returns (7% if you exclude the 55xer).

* 6% of the angels generated returns >10x that accounted for 68% of the total return (42% w/o the 55xer). The cash-on-cash return for that group was 36x with

and 21x without the one big hit, in both cases more than ten times the average for all angels put together.

* The data includes only one super angel who had 29 exits generating 2x return. Most other angels had one or two exits and only a handful had three or four.

* Due to missing or overly granular investment and exit dates, it is practically impossible to calculate meaningful IRR numbers or to calculate returns in excess of financial markets.

The analysis suggests that angel investing as a whole can be quite profitable but, when dabbled into a deal or two at a time, it is more akin to gambling.

Without accurate data about angel investment portfolios, the next best option is to do Monte Carlo simulations of synthetic portfolios where thousands of hypothetical angels invest in thousands of hypothetical companies. The hardest part in setting up Monte Carlo studies is making good assumptions as they can pre-determine outcomes. Some have approached the problem by guessing probabilities of certain outcomes much in the same way VCs do basic portfolio presentations for LPs but with a bit more math in the mix. Rather than guessing, I chose to reverse-engineer a distribution of returns based on the data from the 112 companies. For the math-inclined amongst you, this involved piecing together a cumulative density function from three separate pieces: 60% chance of zero return, a logarithmic non-linear model for 0-10x returns and a combination power/exponential non-linear model for the long-tail of exits greater than 10x where not much data was available.

I ran a very simple Monte Carlo simulation evaluating the portfolios—ranging from 5 to more than 100 companies—of hypothetical angels. The average cash-on-cash return was right around 3.2x, exactly as with the Kauffman data, which is a good sanity check. Average returns don't vary with portfolio size, which is to be expected.

Median returns vary substantially with portfolio size. Going from 5 investments to 10 investments increases median return by 68%, from right around 1x to nearly 1.7x. There are diminishing returns to growing portfolio size. Going from 10 to 15 increases median returns by another 40%. Doubling portfolio size from 15 to 30 adds another 50% but then in takes going all the way to a whopping 125 company portfolio to triple median returns compared to the 5 company portfolio. Similar conclusions apply with respect to other metrics. The probability of getting a return that's greater than 2x doubles (from 34% to 69%) as one moves from a five company portfolio to a 50 company portfolio.

The data unequivocally suggest that playing like a super angel or an active seed fund as opposed to dabbling with the occasional angel investment is a key strategy to consider if financial returns are important. The data also call into question the behavior of some angel groups that do just a few investments per year.

This is not to say that volume investing—like throwing darts to pick stocks—should replace doing due diligence and the thoughtful development of investment theses. In fact, every Monte Carlo simulation of angel or venture investing I've seen, including mine, doesn't take into account the various types of signaling that go on between entrepreneurs and investors and between investors themselves. For example, great entrepreneurs usually have over-subscribed investment rounds. A pure volume-oriented investor would find it difficult to compete for and win these hot deals, especially in a world where seed funds keep popping out like mushrooms after rain.

If you want to know more, let me know. I'm always curious to hear your thoughts. You can find me at @simeons or at FastIgnite.

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A very recent example of a social media company that benefitted from the network effect but has just a handful of employees. This company is not competing with Applaud.

TechCrunch

At 5 Million Users, It's Hard Not To View Instagram Through A Rose-Colored Filter

http://techcrunch.com/2011/06/13/instagram-five-million-users/
posted on Monday, June 13th, 2011

When we first previewed Instagram nine months ago, most of the initial comments predicted it would be dead on arrival. To say those people were wrong is a vast understatement. And Instagram now has five million ways to prove it.

Yes, Instagram now has five million users. That's 625,000 users for every month they've been in existence — with the growth accelerating. Just this past weekend they added 100,000 new users, for example. Even more amazing, there are now 1.25 million users *for every one employee* of Instagram.

I got a chance to catch up with Instagram co-founder Kevin Systrom this morning to talk about the milestone and the bigger picture for the service. Beyond the five million user mark (which they actually hit yesterday), Instagram is about to hit another huge milestone: 100 million photos. They're at 95 million right now, and they're adding roughly 860,000 a day. In other words, by the end of this week, the total number of pictures should cross 100 million.

For comparisons sake, it took Flickr two years to hit 100 million photos. Again, Instagram, just eight months. If you still had any doubts that a mobile photo revolution is happening, there you go.

As for the burgeoning Instagram ecosystem, Systrom says that there are now 2,500 unique apps out there accessing their APIs. Remarkably, they are also seeing some 350,000 connections across their API, meaning that some of the apps connected are massively popular. Which are the most popular? Webstagram and Flipboard were the top two the last time he looked, Systrom says. There are also now applications pushing photos into Instagram — not through the API, but through more creative means.

The emergence of Webstagram, which is a web-based viewer for Instagram photos, leads to the question of when Instagram might finally release their own web app? Systrom declined to comment on that, but did confirm that work continues in that area. As for the all-important Android question, same deal — nothing to share yet, but work continues. Systrom will say that the top priorities right now are to scale the service, scale the team, and improve the core parts of the existing iPhone app.

One of the most remarkable things about Instagram is that they've achieved such success while only being on one platform: iOS. There is no way to sign up on the web. No way to sign up on Android. They're currently a mainstay in the top social networking apps list in the App Store. And that's big because they're not spending anything on marketing, and Apple has only promoted them a few times. In other words, the growth and traction has been largely organic.

Instagram has scored some deals with partners to help promote the app. But in terms of bringing in revenue, "We're much more interested at growing the ecosystem right now," Systrom says. And they have plenty of money in the bank from nice funding round this past February to continue growing for some time.

He also says that they have a lot more work to do on the current iPhone app. "Lots of very cool new stuff coming soon," is all he'll vaguely say. Though I did get him to admit that yes, more filters, are in the works. He also says there will be some "fundamental shifts in the underlying technology," coming soon.

"We want to give people the tools to tell the story of their lives in a visual way — we're working hard on making those tools top-notch," Systrom says.

Giving their size and the rate at which they're growing, Instagram clearly has a lot of competitors gunning for them. So far, most have failed to gain any meaningful traction. But Twitter just recently put themselves in the photo-sharing game in partnership with Photobucket. Given that Twitter is such an important social discovery mechanism for Instagram, does this worry Systrom? "I'm excited to see how a more first-class experience of photos on Twitter will allow people to have a better Instagram experience within Twitter," he says. In other words, he think the rising tide will boost all boats, including his.

There are also a number of apps popping up that are attempting to be the "Instagram of video". That's interesting since Instagram does not currently support the sharing of videos — might they move in that direction? "I still think it's early — mobile video will always be slower to download and consume than photos," Systrom notes. "Instagram is about fast, beautiful experiences. Short snippets of friends' lives," he continues.

At the same time, "video is something that I think fits naturally into our roadmap — just not at the moment," Systrom says.

Earlier, I alluded to the fact (with math!) that despite their size, Instagram still has only *four employees*. That's insane. "Hiring great people is a top priority for me right now," Systrom says. "We clearly have something special, and we want to make sure to have the best of the best to help us to the opportunity," he continues. But they're not going to rush. "The thing we don't want to do is to hire just because we're big. Building a company is about building a product, but it's also about building a team. They're both very important to us," he says.

Given that Instagram is still iOS-only, surely they must have some thoughts about the just-announced iOS 5. "iOS5 provides some really awesome new tools for Instagram users. Twitter integration makes it easier than ever for users to share their photos with their followers," Systrom says. Since they have no need for DM access, Instagram should be one of the key apps helped by the new, deep iOS Twitter integration.

When I pointed out that I saw Instagram make a few appearances on stage during the keynote (in the background in demo images), this clearly made Systrom happy. "It was awesome to see Instagram on stage behind Steve during the keynote. It's humbling to think that we only started 8 mos ago and Instagram is now part of the de-facto set of apps that people use on the iPhone."

It's pretty well known as this point that Apple executive Phil Schiller is a big time user of Instagram. But we've heard other Apple executives are hooked on the service too — though more under the radar.

"It's not surprising that notification demos featured Instagram — we send over 10 million Push Notifications per day," Systrom says. "And I think having a home for all those pushes to be out of the way and usefully grouped makes total sense," he says of the new notifications system in iOS 5.

As for Apple's new Photostream feature (which shares pictures you take on your devices automatically with your other devices over iCloud), "Photostream is really awesome. I think there was a big focus on unity between your Apple devices this year. So it totally makes sense for photos to sync between devices," Systrom says. "I'd imagine photos you take with Instagram will get sync'd as well, but I'm unaware of exactly how it works," he continues.

Assuming that Instagram's huge growth keeps up, they could very well hit 6 million users before the end of June. And 10 million before the end of the year looks like a shoo-in. And none of that is taking into account the possibility of an Android app before the end of the year. Let's just hope Instagram finds a fifth employee before then.