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Fast Money and Slow Money in Venture Capital Through the Financial Crisis

April 2020

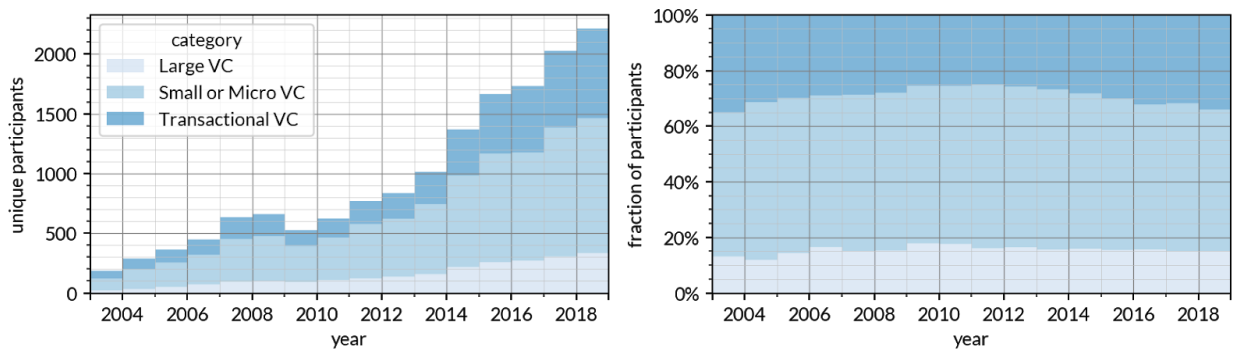
As a follow-up investigation to how startups weathered the 2008-9 financial crisis (link), we explore how Investors weathered the crisis. We learned that, overall, **investors fared slightly worse than startups, and the disruption from the financial crisis had significant and lasting effects on venture funds**. Along the way, **we saw two kinds of reactions to the crisis: *Fast* and *Slow***. Fast Money can come in quickly, sometimes opportunistically or for transactional reasons, and also trade out quickly; when the going gets tough, lines are redrawn or, if not, the funds struggle, slow down or close shop. Slow Money sees a crisis as a short-term disruption, but finds a way to work through it undeterred while maintaining a long-term mindset. Where was the retreating *Fast Money* and where was the steady, persevering *Slow Money*? We found …

(1) The financial crisis produced an overall decline in early-stage fund retention: For every 10 funds that would remain active after 5 years in normal times, 8 managed to do so in tough times.
(2) The shock affected smaller funds and funds whose core strategy lies outside Series A/B/C (which we call "Transactional VCs") -- this "Fast Money" Transactional VC group was hit particularly hard, with 1/3 such investors who would have stayed in the game during good times churning through the crisis.
(3) The prolific "Slow Money" Large VCs weathered the storm disproportionately well, showing no signs of yielding through tough times.

For this analysis, we consider funds that actively invested between 2003 and 2018 in Series A/B/C rounds in the USA and Canada based on Crunchbase data. We exclude 2019 because we need a full year to qualify investors. We look at many types of early-stage deals because investors commonly participate in a spectrum of deals rather than rigidly focusing on a specific check size. Importantly, we only start counting investors on their second deal to filter out the roughly 50% of institutional investors tagged on a single deal. The 3 investor segments we investigate are …

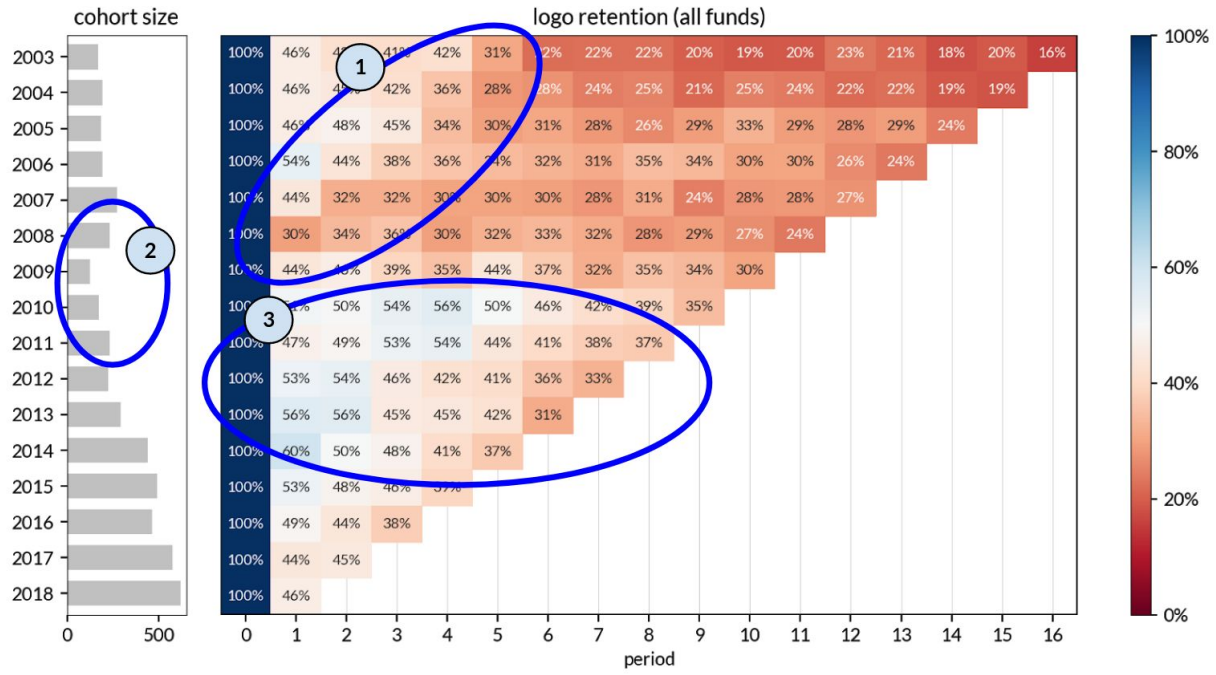
(1) **Large VCs.** Traditional early-stage funds with 5 or more investments in their first year.
(2) **Small or Micro VCs.** Venture-focused seed funds or funds with under 5 investments in their first year.
(3) **Transactional VCs.** Organizations whose focus is not venture investing, which includes PE, Corporate VC, Hedge Funds, and other players whose participation is strategic or opportunistic in nature.

See the FAQ for more color behind these investor segments. We show the investor composition below. In 2018, early-stage funds were 15% Large VCs, 51% Small or Micro VCs and 34% Transactional VCs. If we weigh investors by deal count, Large VCs are twice as prevalent.



The number of institutional participants has grown significantly over time, from 596 funds active in 2007, just before the crisis, to 2039 active during 2019. There was a slight dip in 2009, where 509 were active in the heat of the financial crisis.

While aggregate views are a helpful table-setting, in prying apart cohorts we can start to understand the richness of the ecosystem. Below we show the cohort sizes along with retention for the funds discussed above. A fund's cohort is a proxy for fund formation and is determined by their first investment year. Further, a fund is determined active in a subsequent year if it participated in an investment that was announced in that year. A fund might still be in business even if no funding announcements were made, a consideration we handle more carefully later in this analysis. But hints are abundant in this simplified view.



We highlighted 3 parts of the cohort retention chart:

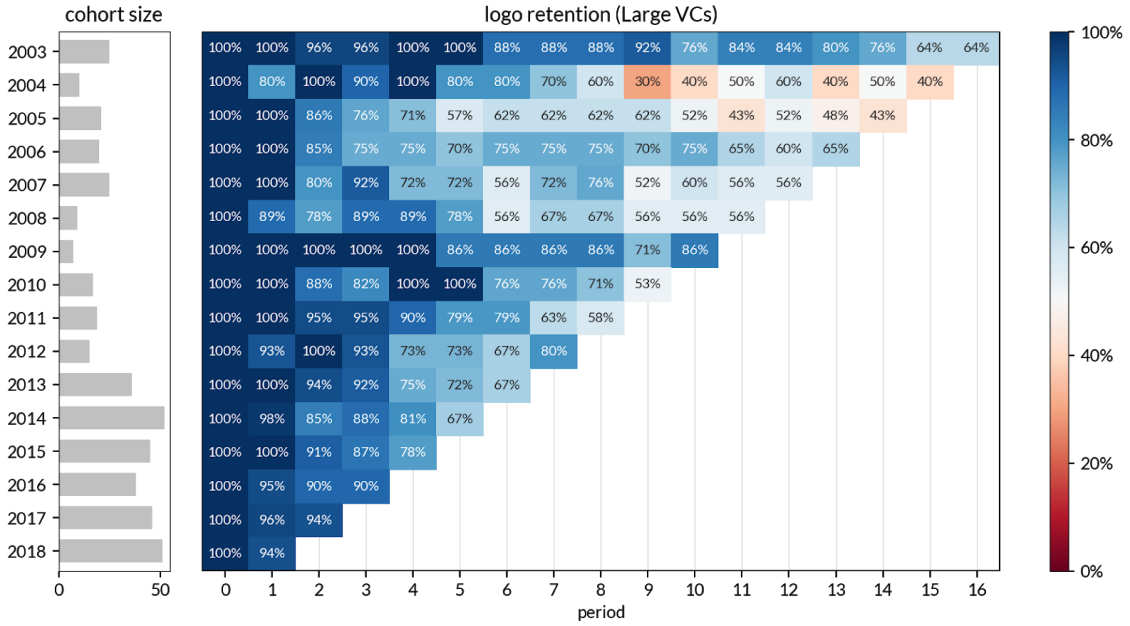
(1) **Pre-crisis** (2003-2007): The highlighted diagonal shows that 2009 resulted in a significant decrease in cohort level fund retention from 45% to 35%, meaning 8 in 10 investors active in 2008 were active in 2009. The active-rate for these cohorts never recovers fully.
(2) **Mid-crisis** (2008-2009): New fund formations dropped during the period of 2008-9, almost halving during the crisis.
(3) **Post-crisis** (2010-2013): During this period, funds do churn, but the year-4 active rate is 40-45%, markedly higher than what we saw among pre-crisis cohorts.

Diagonal changes on cohort heatmaps, as in (1) above, typically imply an external driver as highlighted for the pre-crisis cohorts. On the other hand, as highlighted in (3), the structure is consistent across cohorts, that is cohorts tend to evolve similarly over time: similar changes between year 1 and year 5 across cohorts indicating the similar retention evolution between cohorts. Hence there are not significant secular signs of changing

cohort retention, indicating changes in cohort dynamics tend to be caused by broad external factors such as the financial crisis.

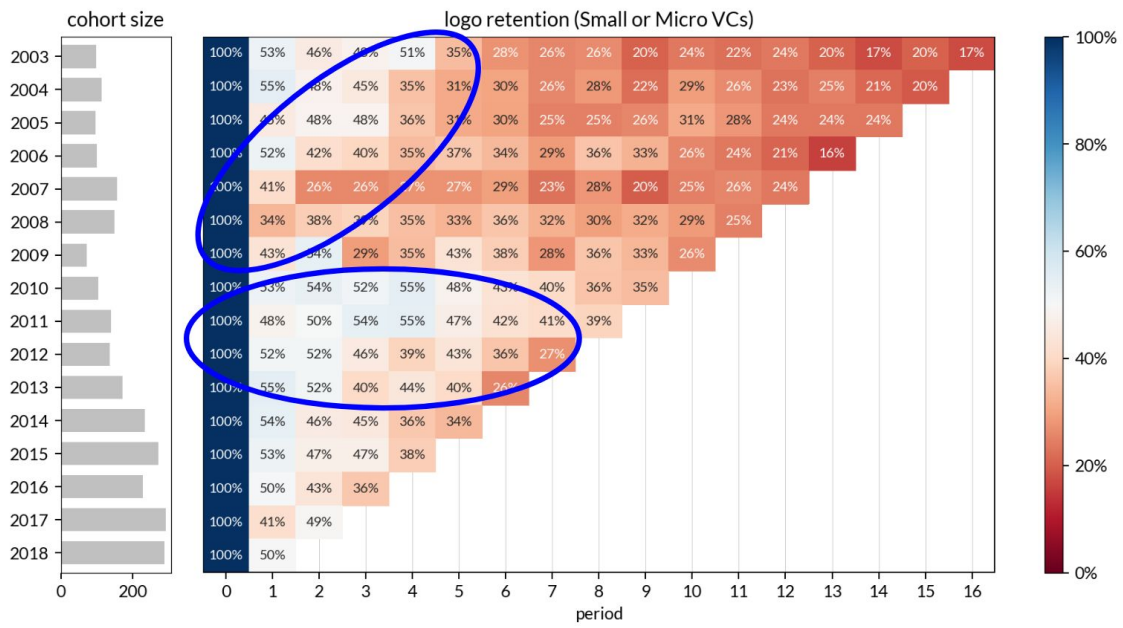
These observations imply that the great financial crisis caused many VCs to significantly pull back, or even entirely shut down, their investment operations.

To understand the observed shock, we'll break out our investor segments, beginning with Large VCs. Notice the cohort sizes -- Large VCs are 10% of all VCs but nearly 20% of total participation and 35% of all capital deployed because of their superior retention characteristics and larger typical round size. Notice that **the financial crisis shows no meaningful effect on cohort retention for Large VCs**, though there is still a drop in new fund formation. A typical year prior to 2014 saw 25 new Large VCs, with the 2008-9 years introducing 9 and 7.

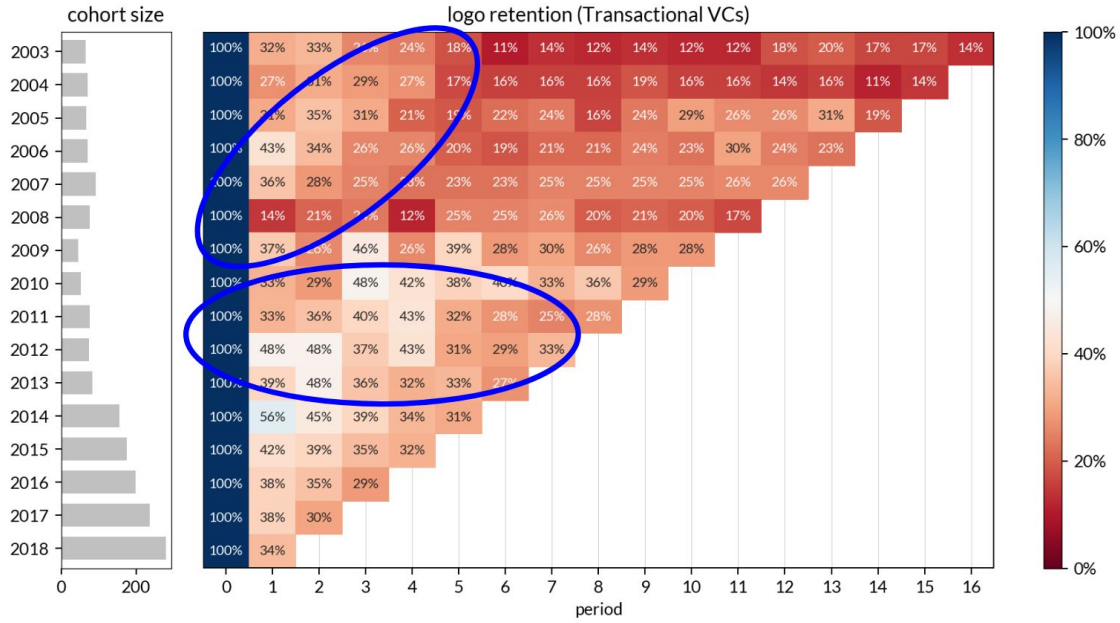


The story for Small or Micro VCs is different: we indeed see signs of a shock from the financial crisis highlighted below. **When 2009-10 came, cohort retention dropped from 40-50% to 30-35%, a sizable change.**

Note that we do not read as heavily into the *absolute* level of retention when thinking about the effect the crisis has, it is about the *relative* change. The lower retention for Small and Micro VCs versus Large VCs is expected given small funds might not invest every year, let alone have that investment widely announced and attributed. But the *relative change* in a one year period, of 45 to 35% retention across cohorts is remarkable.



Below we see the same pattern for Transactional VCs, with roughly 10% retention change in 2009-10, similar to Small and Micro VCs. But, as can be seen across the board (in particular for the post-crisis cohorts), because overall retention is lower, this implies a larger absolute effect for Transactional VCs.



Putting these together, **the big shift in active VC funds was the result of a large relative decline in Small or Micro VC retention coupled with a *larger* relative decline in Transactional VC retention**.

Let us now get more rigorous about what retention means, in particular by providing a more robust retention metric by increasing the time frame over which we detect fund activity. In this case, we'll look at a 2 year

window to see how active funds were between 4 and 6 years after their first investment. Details about this choice of metric are in the FAQ below. Using this definition, we have a more robust medium-term retention metric. Note that this (roughly) 5 year retention should expectedly be higher than those in the heatmap, as the heatmap had one year windows.

Of the 84 Large VCs formed in the years before the crisis (2003-7), 69 remained active 4-6 years later, or 82% retained. This compares to the 72 of 87 (or 83%) that survived such a period formed between the post-crisis period of 2010-13. The difference between the two seems small, and it is. But what about the 43% survival rate for Small or Micro VCs formed pre-crisis versus, 54% formed post-crisis? That *seems* like a big change, but is it a real effect, or just noise? What about the 30% to 43% figures for Transactional VCs?

We can develop confidence with a hypothesis test on the survival rates for funds that opened shop pre- and post-crisis. For readers who are less familiar with statistics, we construct such a test by supposing the two groups are equal (i.e. have similar retention rates), and if we observe something far-from-equal, we can conclude that there was a significant effect on one of the populations.

The findings are summarized in the following table (leaving the statistical details for the FAQ), where we show the retention rates 4-6 years out for funds formed pre- and post-crisis, the difference of those metrics with the associated confidence interval, and the test result.

Retention Rate 4-6 years after first investment

	Formed Pre-Crisis	Formed Post-Crisis	Estimated Diference	Conclusion
Large VCs	82.1%	82.8%	0.6% ± 11.7%	No effect
Small or Micro VCs	42.8%	54.2%	11.4% ± 6.0%	Statistically significant
Transactional VCs	30.0%	42.5%	12.5% ± 7.6%	Statistically significant

What we find is completely unambiguous: Small or Micro VCs and Transactional VCs had retention rates that were statistically significantly lower than we would have expected in good times. **Given that the churn happened largely in 2009-10, we have high confidence that the great financial crisis was the cause. These effect sizes are also large: the equivalent relative drop-offs are 2 in 10 for Small or Micro VCs and 3 in 10 for Transactional VCs.** These results are even richer when we look at how investors with"early wins" fared. This is explored further in the FAQ.

We can't say exactly why any fund might have become less active, be it from the availability of capital, LPs retrenching, on-paper markdowns negatively impacting unrealized IRRs or competition from fresh funds unburdened by the crisis (to name a few of many possible factors). **What we can say is Large VCs are Slow Money: they weathered crises and are ready on the other side, such as for a company's next milestone. Other VCs, particularly Transactional ones, are Fast Money: when times got tough they played fewer hands or closed shop.**

Slow Money is the best kind of money in VC, albeit difficult to achieve. When we think of the current climate, with a potential crisis ahead, these lessons help us see that should the situation degrade, we will face tough choices and it will be important for us to be there for our portfolio, LPs, and broader investing partners .

FAQ

Can you give some examples of investors from each of the Large, Small or Micro, and Transactional VS Segments?

Large VCs. Well-known examples in this category are Sequoia, a16z, Khosla, NEA and Accel. This category is the smallest by count, but contains some of the best known VCs, which typically invest at high volume out of the gate.

Small or Micro VCs. Some well known Seed funds of this category are Harrison Metal, Uncork and Founder Collective. These well known funds make up a fraction of the up to 200 funds that might show up in any given cohort and over 2000 active Small or Micro VCs: this is the largest segment by count, as it also includes the long tail of low-volume non-transactional VCs participating at any stage. Note there are anomalies here too, such as Lux Capital, one of the few large mid-late stage funds that ended up in this category due to very low deal volume in their initial 8-10 years of operating. We did not attempt a particularly sophisticated qualification that dynamically changes, as that would have interfered with our ability to do cohort analysis. It should be no surprise that of the set of thousands of small VCs, some will eventually be successful and become larger.

Transactional VCs. As discussed earlier, this category contains VCs whose primary objective is strategic or opportunistic. Participation in VC for this segment is typically not the core focus of the organization. This includes corporate VCs like GV, Tencent Holdings and Salesforce Ventures, but also Hedge Funds like Deerfield or Tiger Global, PE firms like IDG or Silver Lake. Family offices are also included here, among them Bezos Expeditions. Examples of active Transactional VCs that churned through the crisis are TD Capital (Then-TD Bank's PE arm), Liberty Media (a media PE firm) and even S.A.C. Capital Advisors (Steven Cohen's hedge fund -- the churn is unrelated to the controversy leading to Point72's formation in 2014).

What were some considerations behind the refined retention metric used to compare pre- and post-crisis retention?

Here we give more detail about the more rigorous retention metric used in the hypothesis test, in particular by motivating using the 2 year window. As mentioned earlier, participants with different pacing dynamics should naturally have a higher single-year retention. Further, rounds with more participants could have a higher rate of being announced, which potentially also affects what retention might look like. While the average number of investments per fund per year in scope of this analysis has stayed flat at roughly 2.8 (known) per year from 2005 to 2018, the average number of participants per round has doubled from roughly 3 to 5.8.

A simple adjustment is to just increase the time frame over which we detect fund activity, funds that are still actively investing in any capacity will surface over a sufficient window. In this case, we'll look at a 2 year window to see how active funds were between 4 and 6 years after their first investment. Using this definition, we can refine our retention measurements, which will expectedly be higher than those in the heatmap, as the heatmap had one year windows.

The choice of a 2 year window came after varying the window size to find a balance between (a) be short enough as to not restrict our measurement window (indeed, we could have had a 10 year investment window over which we'd be very sure who churned, but we wouldn't be able to investigate recent cohorts), and (b) long enough so that a fund that is active in some capacity will likely register. This measure is indeed imperfect, but

whatever is on the margin in terms of false negatives or false positives should likely be similar between cohorts, and while we aimed to minimize these factors, even their presence does not prohibit us from being able to run a sound hypothesis test.

How do early exits affect the survival rates? How did investors with early exits weather the crisis?

Above we presented a broad segmentation of which types of investors were robust through the crisis, but there are certainly more layers to the story. For example, we can start asking *why did a fund continue or cease to stay in business*? Truly understanding and answering such a question requires a far more comprehensive examination for another day. But we can provide a little insight by understanding who a VC's customers are, and how these customers would make decisions in the face of a financial crisis.

Different types of VCs have different customers. Large VCs might have more large, institutional and highly complex LPs as well as family office or Fund of Funds LPs, Small or Micro VCs might have a similar composition, perhaps tilted more toward family offices or wealthy individuals. Transactional VCs probably have a different set of customers, for example, the customer of a Corporate VC is the parent corporation whose objectives are typically fairly different from a traditional VC.

For investors, returns are the ultimate arbiter, so we will use proxies for returns to get a level-down understanding of the above. We prefer to not measure returns outright, as they are highly variable (indeed, perhaps with infinite variance given the power law nature of VC), but proxies are directionally aligned and easier to manage. In this case, we can define an "early win" as an investor who, within 5 years of when they started investing, had a Series A/B/C investment either (a) IPO or (b) acquired at 4x LiqPref. Subsetting to investors with early wins, we show retention rates below:

Retention Rate 4-6 years after first investment among funds with early wins

	Formed Pre-Crisis	Formed Post-Crisis	Estimated Diference	Conclusion
Large VCs	81.5%	85.4%	3.9% ± 18.9%	No effect
Small or Micro VCs	62.7%	68.7%	6.0% ± 14.2%	No effect
Transactional VCs	40.0%	62.5%	22.5% ± 18.7%	Statistically significant

A few interesting observations emerge:

(1) The retention rates for Large VCs with early wins are similar to the underlying population. This obtains even though 1/3 to 1/2 of this category had such an early win.
(2) Small or Micro VCs have a far higher retention rate, 10-20% higher ("2 to 5 in 10") higher than the overall population. Also, the recession did not present a significant shock to Small or Micro VCs with early wins.
(3) Transactional VCs with early wins also have 10-20% higher retention than the overall population, but the recession still caused a pullback.

The Large "Slow Money" VCs are profoundly consistent. There does not even appear to be a selection among those with early wins. These investors, and perhaps their LPs as well, understand that even without early wins in Venture, late wins may come. The capital base is long-term aligned and has slack to absorb short term paper writedowns. Small or Micro VCs are a bit mixed. The overall population saw a pullback, but those with early exits did not experience such a shock. It could be because their LPs have more strict allocations and had to retrench after their broader portfolio drew down, or it could be that the recycled or returned funds were

important to continue operating with their early LPs. These are some possible reasons, but nevertheless a new Slow Money subsegment exists among Small or Micro VCs with early wins. Transactional VCs appear to, in general, have been able to validate continued exploration of VC with their early wins, perhaps because it was easier to make the case to the CEO, or because the business unit was better capitalized, but overall this segment was still Fast Money: despite early wins, when the going got tough, participation pulled back.

What are your thoughts of the effect of follow-on rates on the observed retention rates?

One would reasonably imagine a VC that follows on to many of their own deals would in general have higher retention rates. For example, even if they were de-facto closing shop, if they tend to hold deep reserves with the intention of continuing to pro-rata down the line would register those types of VCs as active even if they might not have a new fund or are de-facto not making new investments. We do not have a view on which classes of investors this applies to, but if it affects different classes in different proportions then this bias could play a role. This effect is, if present, likely plays a role in absolute retention. As a side note, these reserves need to be deployed in subsequent rounds, and the scope of the analysis is Series A/B/C. Hence if a VC tends to invest in Series C, follow-ons are too late-stage to be counted. Nevertheless, this effect is described by the following relationship:

Observed retention = actual retention + (1 - actual retention) x fraction of investors continuing follow-on from a fund

The larger the fraction continuing follow-on, the larger the observed retention. We can take this model to a VC category. Suppose 50% of Large VCs deploy reserves for follow-on (note that the true reserve rate is higher, since reserves can be applied later than Series C, hence if it's actually over 50%, then ~50% is a decent approximation of the fraction that deploy at the earlier stage), then the actual retention rate, with 82% observed, is implied to be 64%. Do not index on that figure -- it is merely an example of how follow-on inflates true retention rates for the sake of argument.

Back to the topic of the effect of an external shock, changing reserve rates over time could be a confounding factor for a change in retention rates, in particular if average reserves within a category, such as Small or Micro VCs, increase over time, the observed retention would go up even if actual retention didn't. But given that a large fraction of pre-recession cohorts churned during a 2-year period, even if there is a secular ~10 year trend in reserve rates (which there may or may not be) we didn't perceive this to be the driver for the change in retention.

Can you describe the retention hypothesis test in more detail?

To conduct this test we ask how likely the observed outcome difference is under the null hypothesis H_0 that funds survival rates are the same over different eras and that fund survival is independent of the survival of other funds. There's a nuance here. Massive fund closures are most likely highly correlated, not independent. But the null is not meant to be "what happens in a financial crisis," rather, it is meant to be "what happens if there is smooth sailing?" The null is to be rejected, not accepted, to prove an effect exists.

Note that here we are comparing the survival rates of groups of cohorts, outlined above. The test statistic we are comparing is $\hat{P} = S/N$ where N is the total population in the pre- or post-crisis category and S is the number in that group that is active 4-6 years after they were in scope for the analysis (i.e. after the fund became active). We use the typical unbiased estimator for the variance of the mean.

Because under the null hypothesis investors are independent, the Central Limit Theorem will very well approximate the underlying distributions of the mean, particularly in this case where the Binomial distribution is already well approximated by the Normal distribution regardless of whether or not we are considering the distribution of the mean. Also, Because the pre- and post-crisis populations have different survival rates and different sample sizes, they have unequal variance.

The actual t-test conducted was Welch's t-test, the full details (degrees of freedom, p-value, ...) of which were not given in the tables, but we used a standard significance level of 5%, but ended up with p-values below 1 part in a thousand for our main result, indicating the data had strong evidence against the null hypothesis. As the variance is additive, the "Estimated Difference" with a "±" range provided as guidance was 2 times the square root of the sum of the variances of the estimators whose difference was being tested.