Cash or Stock? Agency Frictions in Venture Capital Distributions*

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Abstract

Using proprietary data on U.S. venture capital (VC) fund distributions, I document that at least 56% of capital is returned to limited partners (LPs) in kind as publicly listed equity rather than cash. Distributions follow substantial price appreciation, reflecting both general partners' (GPs) value-added activities and their ability to time exits. Distributed stocks experience a sharp, non-reversing price drop that modestly reduces LPs' realized returns. Losses are smaller for distributions made by reputable VCs, not because they employ more LP-friendly distribution practices, but because they invest in companies with stronger post-distribution performance. The findings reveal a new agency friction: GPs report fund returns, and earn carried interest, using distribution marks that LPs cannot feasibly realize. However, a counterfactual analysis shows that prohibiting stock distributions would reduce LP returns even more, underscoring the trade-off LPs face.

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Investors in venture capital (VC) funds take risks to finance innovation and technological transformation. Despite its importance, evaluating investor performance remains challenging due to limited data availability and the inherent difficulty of proper risk adjustment. A further complication is that while investors contribute capital to VC funds in cash, they do not always receive cash in return. Instead, VC funds frequently distribute publicly traded shares to investors in the form of in-kind distributions, which account for at least half of all U.S. VC fund distributions.

In-kind distributions typically involve large share blocks, the liquidation of which can generate downward price pressure. By distributing shares rather than selling them, general partners (GPs) effectively shift this price impact onto limited partners (LPs). Fund performance, reported in commercial datasets and understood in the literature, is not based on the prices ultimately realized by LPs when they liquidate distributed shares. Instead, fund returns, and thus the carried interest earned by GPs, are calculated using the market value of the shares at the time of distribution.

Because the widespread use of stock distributions creates potential agency conflicts between GPs and LPs, I address two questions in this paper. First, what are the price dynamics surrounding in-kind distributions, and how do they affect the returns earned by LPs? Second, why do LPs permit GPs to distribute in kind despite the evident conflict of interest?

I construct a novel sample of in-kind distributions using transaction records from a major financial institution (hereafter "the data provider") that provides liquidation services for numerous institutional investors in VC funds. When its client investors receive stock distributions, the data provider liquidates the shares on their behalf. The sample, best interpreted as a lower bound on the universe of stock distributions, includes 3,970 distribution events by U.S.-based VC funds between January 2012 and December 2023, totaling $406 billion. Over the same period, the National Venture Capital Association (NVCA) reports that U.S. VC funds collectively distributed $723 billion to their investors, implying that in-kind distributions account for at least 56% of the total.

The distributions occur primarily through two channels. Following an IPO of a portfolio company, a VC fund may distribute the newly listed shares ("IPO exits"). Alternatively, when a portfolio company is acquired by a publicly traded company in a stock-for-stock merger, the fund may distribute the acquirer's shares received as consideration ("M&A exits").

The prevalence of in-kind distributions does not imply that all VC-backed IPOs are distributed in kind. A natural question is whether the IPOs appearing in my distribution sample exhibit systematic economic differences relative to those that do not. Among VC-backed IPOs, larger and better-performing offerings are more likely to be distributed in kind. VC funds tend to distribute these post-IPO shares well after the lock-up period expires, consistent with Jenkinson, Jones, and Rauch (2025), who document that buyout funds retain post-IPO holdings long after lock-ups expire. The key difference is that buyout funds almost always distribute cash, whereas VC funds predominantly distribute shares, highlighting a distinct incentive friction in the VC setting.

GPs tend to distribute shares following periods of substantial price appreciation. Portfolios of in-kind distributed stocks earn monthly alphas of 2% to 3% over the twelve months preceding distribution, based on CAPM, Fama–French three-factor, and Carhart four-factor models. Daily portfolios over the twenty trading days before distribution earn a daily alpha of 40 basis points, corresponding to a monthly alpha of 8%. This magnitude is notable in light of the widespread post-lockup price declines among VC-backed IPOs (Field and Hanka 2001). Distributed stocks experience a sharp average one-day price drop of about −3% following distributions, but prices stabilize thereafter and track the market.

How do these price dynamics of in-kind distributions affect VC returns? At least 60% of distribution prices are based on the closing price on the distribution date, while the remainder use alternative conventions, such as the average closing price over the five preceding trading days. I compare these distribution prices, which determine reported fund returns, with the cash proceeds that LPs could feasibly obtain upon liquidation. Because VC funds have many LPs and individual liquidation behavior is heterogeneous and unobservable, I use a Monte Carlo simulation to approximate aggregate LP liquidation outcomes.

The simulation assumes that LPs sell distributed shares in ten equal tranches, randomly spaced over three, six, or twelve months following the distribution, thereby mitigating concentrated price impact. Trading volume increases on the first trading day after the distribution, indicating that some LPs sell distributed shares immediately. If more LPs were to sell simultaneously, price pressure would likely be more severe. At the same time, anecdotal evidence suggests that some LPs retain distributed shares, anticipating further price appreciation (Fratto 2025). The simulation uses actual CRSP data and assumes no trading costs or additional price impacts.

I discount the cash flows from these ten simulated sales to their present value as of the distribution date using the CRSP value-weighted return as the market benchmark, following the

Public Market Equivalent (PME) framework of Kaplan and Schoar (2005). The average discount is 2.9%, implying that the present value of cash proceeds from liquidating a stock distribution marked at \$100 is \$97.10. Given that in-kind distributions account for at least 56% of total distributions, the implied aggregate loss is about 1.6% (= 2.9% $\times$ 56%): LPs receive \$98.40 for every \$100 reported as distributed, where the \$100 reflects the combined value of cash and stock distributions. This estimate should be interpreted as a lower bound.[1] This adjustment produces a modest decline in overall VC returns from the LP perspective. Applied to net-of-fees internal rates of return (IRRs) reported in prior studies, the adjustment reduces IRRs by approximately 30 to 110 basis points.

What economic mechanisms account for the strong abnormal returns observed before distributions and the weak performance that follows? Are these results driven solely by GPs' market-timing ability, or does their value-added involvement with portfolio companies also contribute?

To disentangle these two mutually non-exclusive but competing mechanisms, I exploit the fact that a given portfolio company is often distributed multiple times because it typically has several VC investors, each of whom may distribute in multiple tranches. I build on the literature's finding that VCs remain actively involved with their portfolio companies well after the IPO, as reflected in their continued board representation (Iliev and Lowry 2020). Because providing such value-added support is costly, GPs have little incentive to continue doing so once they have fully exited their positions—mirroring patterns observed among buyout GPs, who typically step down from boards after fully selling their shares (Jenkinson et al. 2025). Consistent with this mechanism, "final" distributions, the last distribution for a given company across all VCs and all tranches, are followed by significantly more negative post-distribution returns than earlier distributions.[2]

The preceding evidence is consistent with a mechanism in which pre-distribution abnormal returns are at least partly attributable to ongoing VC value-added activity, which ceases once VCs

[1] The data provider does not observe all in-kind distributions, which biases the estimate downward. The 2.9% discount represents the smallest value across several simulation specifications. The 56% in-kind share benchmarks against the NVCA's estimate of total U.S. VC distributions, an aggregate that may reflect the trade organization's incentives to portray its industry as large as possible. Using the research-quality MSCI Burgiss universe as the denominator implies an in-kind share of 76%, which would increase the implied aggregate loss.

[2] Another potential channel is VC certification: if the market infers that all VC investors, who are insider shareholders with presumably superior information, have exited, valuations may adjust accordingly. This mechanism is unlikely to drive the results, however, because there is no comprehensive, real-time public disclosure that would allow market participants to determine when all VCs have fully exited a given company. Public filings generally report aggregate insider ownership or the holdings of individual insiders and large blockholders; they do not provide a complete, time-varying account of each VC fund's remaining post-IPO position. While some large, late-stage focused VCs file Form 13F reports, these are available only with a substantial time lag, and many VCs are not 13F filers at all.

distribute all of their holdings. However, it does not rule out GPs' market-timing ability. To examine the timing channel, I analyze stock distributions arising from stock-for-stock M&A exits, where distributing VCs have no value-added role in the acquiring firm. Even so, the distributed acquiring firm shares exhibit positive short-run abnormal returns prior to distribution, albeit of smaller magnitude, consistent with some degree of market-timing by GPs. This appreciation is not driven by merger-announcement effects because VCs receive acquirer shares upon settlement rather than at the announcement. This evidence should be interpreted with caution, however: my data do not report when VCs receive these shares, making it impossible to determine how long they are held before distribution. Nonetheless, the presence of abnormal returns is consistent with at least some VCs timing distributions rather than distributing shares immediately upon receipt.

Taken together, the results indicate that both VCs' value-added activity (Hellmann and Puri 2002; Bernstein, Giroud, and Townsend 2016) and market-timing ability (Gredil 2021) contribute to the sizable pre-distribution alpha. Under the current regime, GPs are fully compensated for both channels because they can distribute large blocks of shares without internalizing the associated price pressure. What would happen if LPs required distributions to be made in cash only? I consider two polar responses by GPs under this counterfactual regime. First, GPs maintain their effort and sell their holdings in ten tranches on randomly selected trading days one to three months before the distribution date. This liquidation method mimics a simple "stealth trading" strategy to avoid signaling their sales to the market, as visible GP selling would depress prices. Second, GPs reduce their effort and sell everything at the IPO or immediately after the lock-up expires.

Conservatively estimated, both responses generate lower overall returns for LPs than the 2.9% loss associated with LPs liquidating distributed shares themselves. The pre-distribution price run-up is sufficiently strong that any mechanism requiring GPs to liquidate earlier reduces LP returns. These counterfactual exercises highlight a fundamental tradeoff LPs face: they seek to incentivize GPs to exert costly effort and apply their market-timing skills, even if doing so entails bearing the cost of liquidation and compensating GPs based on marks that LPs cannot feasibly realize. This helps explain why in-kind distributions, which require LPs' explicit authorization in limited partnership agreements (LPAs), remain prevalent despite the inherent conflict of interest.

Finally, I document that the eight most reputable VCs, as defined by Metrick and Yasuda (2021), manage 12% of U.S. VC assets under management yet account for 28% of in-kind distributions. Whether receiving shares from these reputable VCs is better or worse for LPs is a question with practical importance. High-quality GPs tend to match with high-quality LPs (Maurin, Robinson, and Strömberg 2023), VC returns are persistent (Harris, Jenkinson, Kaplan, and Stucke 2023), and access to top-performing VCs is limited (Abuzov, Gornall, and Strebulaev 2025), raising the possibility that in-kind distributions may amplify inequality among LPs.

Stocks distributed by these reputable VCs exhibit stronger post-distribution performance than those distributed by other VCs. However, this is not because reputable GPs intentionally leave money on the table for their LPs. When I employ a Khwaja and Mian (2008)–style identification strategy to compare stocks distributed by both reputable and non-reputable VCs, the positive abnormal post-distribution returns disappear. Reputable VCs do not adopt more LP-friendly distribution practices; rather, they invest in companies with stronger post-distribution performance.

This paper contributes to the understanding of agency frictions between GPs and LPs in the alternative asset management industry. Prior studies document that some GPs deliberately manipulate interim reported returns (Barber and Yasuda 2017; Chakraborty and Ewens 2018; Brown, Gredil, and Kaplan 2019). My study offers a new perspective on how reported fund returns can diverge from LPs' cash-based realized returns, highlighting a distinct agency friction in which GPs earn carried interest based on distribution marks that LPs themselves cannot realize.

This paper provides a more accurate assessment of VC returns from the LP's perspective (Harris, Jenkinson, and Kaplan 2014). By documenting the risk and return characteristics of the public equity holdings of VC funds, the study informs the risk profiles of VC investments (Cochrane 2005; Korteweg and Sorensen 2010; Korteweg and Nagel 2016; Korteweg 2019; Brown, Ghysels, and Gredil 2023).

Finally, my results speak to the blurred boundaries between public and private markets (Ewens and Farre-Mensa 2022) and to the question of who invests in which market (Kwon, Lowry, and Qian 2020; Chernenko, Lerner, and Zeng 2021; Agarwal, Barber, Cheng, Hameed, and Yasuda 2023) and generates alpha. A sizable fraction of VC investments ultimately results in public-equity holdings. Together, these findings call for a reexamination of how institutional investors allocate capital and measure exposure across asset classes (Korteweg and Westerfield 2022; Ghysels, Gredil, and Rubin 2024).

1 Institutional Background

VC funds are organized as closed-end, fixed-horizon limited partnerships between GPs and LPs, typically with contractual lives of ten years or more. Capital commitments are sourced primarily from large institutional investors, including public and private pension plans, endowments, and sovereign wealth funds, as well as from high-net-worth individuals.

LPs contribute capital entirely in cash, but distributions from VC funds are not always made in cash. In many cases, VC funds distribute publicly traded company stocks to LPs. I refer to these transactions as "in-kind distributions" and "stock distributions" interchangeably throughout the paper. For example, in January 2023, *The Wall Street Journal* reported that Khosla Ventures and Spark Capital distributed shares of Affirm Holdings, a portfolio company, to their LPs.[3] The article further observes that VC funds frequently continue to hold shares long after the expiration of IPO lock-up periods, a pattern consistent with the evidence in Jenkinson et al. (2025), who document extended retention of public-equity positions by buyout funds prior to cash distributions.

For GPs to make in-kind distributions, LPs must authorize this practice in the Limited Partnership Agreement (LPA). Anecdotal evidence indicates that nearly all LPAs explicitly permit in-kind distributions as long as the shares are marketable (i.e., publicly traded). Consistent with this practice, the model LPA provided by the Institutional Limited Partners Association (ILPA, the principal trade association representing investors in private equity and venture capital) permits in-kind distributions as the default option.[4]

Taxable LPs, such as insurance companies and high-net-worth individuals, may benefit from deferring taxes on the capital gains embedded in distributed shares. Cash distributions generally trigger immediate tax liabilities at the LP level, whereas in-kind distributions allow taxable LPs to defer realization until they liquidate the shares. In practice, however, the largest investor types in U.S. VC funds, public and corporate pensions and endowments, are tax-exempt. Accordingly, my analysis abstracts from taxes and effectively assumes tax-neutral LPs.

LPAs must also specify how distribution prices are determined. Although I do not have direct access to LPAs, my data provider records the exact distribution prices. I find that at least

[3] https://www.wsj.com/articles/venture-firms-strategy-of-holding-stocks-for-longer-backfires-during-market-rout-11672898888 retrieved in November 2025.

[4] See Item 14.4 (page 48) of the ILPA Model Limited Partnership Agreement: https://ilpa.org/wp-content/uploads/2020/07/ILPA-Model-Limited-Parnership-Agreement-Deal-By-Deal.pdf, retrieved November 2025.

60% of distributions are priced at the closing price on the distribution date (Panel A of Table 1). The remainder follow alternative pricing conventions, such as the average closing price over the five preceding trading days, as documented by Dore, Gompers, and Metrick (2008).

VC funds acquire the shares they distribute through two distinct channels. First, funds invest in privately held startups, some of which later become publicly traded through initial public offerings (IPOs) or mergers with special purpose acquisition companies (SPACs).[5] VCs also invest in firms that are already publicly traded, as documented by Iliev and Lowry (2020). These follow-on investments generally involve companies that previously received funding from the same VCs before going public. I refer to distributions of shares in companies that the VC fund invested in—whether the investment was private or public—as “IPO exits” or “direct” distributions. I classify distributions as IPO exits if they occur within three years of the IPO date and the IPO is identified as VC-backed in Jay Ritter’s IPO data (Ritter (2025)).

Second, some VC-backed companies are acquired by publicly traded firms in stock-for-stock mergers. In these transactions, VC funds receive shares of the acquiring firms—companies in which the distributing VC funds had no prior investment. I refer to distributions arising from these stock-based M&A transactions as “M&A exits” or “indirect” distributions. I classify distributions as M&A exits if they occur more than three years after the IPO date for VC-backed IPOs, or if the distributed stocks were not classified as VC-backed IPOs.

These stock distributions elicit at least three distinct responses from LPs. First, some LPs sell the distributed shares immediately, as reflected in elevated trading volumes and notable average price declines on the first trading day following the distribution date, as discussed in Section 4. Second, some LPs transfer the distributed shares to their internal public-equity teams, delegating subsequent decisions to colleagues who specialize in managing publicly traded securities. Finally, some LPs hire external investment managers to dispose of the distributed shares on their behalf.

The third type of LP has created a specialized but growing market for professional investment managers to handle VC stock distributions. For example, T. Rowe Price, a publicly traded investment management firm, disclosed in its Form ADV filing that it offers a “Distribution Man-

[5] According to Gahng, Ritter, and Zhang (2023), SPAC mergers significantly underperform the market. Given that VC-backed companies represent a non-trivial share of SPAC merger targets and that my in-kind distribution sample includes shares distributed following such mergers, the pre-distribution outperformance documented in Section 4 is therefore particularly noteworthy.

agement Service" for this purpose.[6]

> *The Distribution Management Service (DMS) assists institutional investors in seeking the efficient disposition of equity distributions from venture capital partnerships. Price Associates uses its investment acumen together with a client's risk tolerance, timing objectives, private equity portfolio structure and targeted account size to determine the most efficient time for the sale of stock distributions from these partnerships. We strive to optimize the return of capital to the client and minimize trading expenses through our fiduciary commitment to providing best execution.*

These stock distribution investment managers are typically granted full discretion to make sale decisions on behalf of their clients. According to the same Form ADV filing, T. Rowe Price charges a fee of 20 to 75 basis points of the value of distributed shares.

2 Data and Sample Construction

2.1 Stock Distribution Data

I construct a sample of in-kind stock distributions from U.S.-based venture capital funds using proprietary data from an anonymous financial institution (hereafter, the data provider). It is a large financial institution that offers a broad range of services, including stock-distribution management. Its clients are institutional investors—public and corporate pension plans, endowments, and foundations—that invest in VC funds as limited partners. When these clients receive distributions of publicly traded shares, the data provider manages the liquidation of the securities. The timing of sales is determined by the data provider based on position size, market liquidity, and other considerations, including its assessment of the distributed securities' fundamentals. The objective is to maximize realized proceeds, enabling clients to convert stock distributions into cash as efficiently as possible.

All distribution events in the dataset are actual instances in which the data provider offered stock distribution management services; the data are essentially the data provider's internal record. The data provider does not commercialize these data. The data should be interpreted as a lower

[6] See page 7 of Part 2A (Firm Brochure) of T. Rowe Price's Form ADV filing (March 2025), made available by the U.S. Securities and Exchange Commission (SEC) at https://files.adviserinfo.sec.gov/IAPD/Content/Common/crd_iapd_Brochure.aspx?BRCHR_VRSN_ID=969736, retrieved in November 2025. For more on SEC Form ADV filings, see Coakley and Allen (2011) and Gahng and Jackson (2025).

bound on the true universe of in-kind distributions by U.S. VC funds. This is because not all LPs are clients of the data provider, although the data provider's client base has gradually expanded. The data provider estimates that the data from recent years account for approximately 80% of the total in-kind distribution activities by U.S.-based venture capital funds. The data provider observes entire in-kind distributions of a VC fund as long as at least one of the fund's LPs is a client. Given that VC funds typically have dozens of LPs and that the data provider serves many large institutional clients, the dataset likely captures a substantial fraction of the in-kind distributions in the market, though it remains a lower bound.

The dataset is organized at the distribution-event level. Each event contains information on the distribution date, the name and ticker of the distributed security, the distribution price, the number of shares distributed, the total distribution value (the distribution price × the number of shares), and the name of the distributing fund.

My data include a total of 3,970 distributions by 496 funds between January 2012 and December 2023. For comparison, Gompers and Lerner (1998), who also study VC funds' in-kind distributions and provide an important early insight—namely, that stock distributions constitute a legal form of insider trading—use 731 VC distributions by 135 funds between 1983 and 1993. Dore, Gompers, and Metrick (2008), who study how distribution pricing policies interact with distribution behavior, use 1,976 VC distributions by 167 funds between 1986 and 2006.

The distribution price recorded by the data provider determines the distributing fund's reported returns, including the internal rate of return (IRR), and therefore directly affects the carried interest earned by the GP from LPs.

The reported number of distributed shares reflects the total quantity of stock distributed by the VC fund, not the portion received by the data provider's client. For example, suppose Fund A distributes 200 shares of Company B across 20 limited partners, only one of whom is a client of the data provider and receives 10 shares. In this case, the dataset records 200 distributed shares, corresponding to the fund's total distribution rather than the client's allocation (10 shares).

The number of distributed shares data is acquired from three sources, in the following order. First, the number originates from GPs. When VC funds distribute shares, GPs usually disclose the total number of shares distributed in their letters to LPs. Second, if the GPs do not disclose the total number of shares, the data provider acquires the information from brokers (investment banks) that handle the distribution. Finally, there are 183 cases out of 3,970 distributions (4.6%) for which the data provider cannot obtain the total number of distributed shares from GPs or brokers, as they only know the number of shares their client LPs received. In this case, instead of reporting the number of shares their client LPs received, I impute the total number of shares distributed by applying the average ratio of the total number of distributed shares / the daily trading volume ($\frac{\text{total number of distributed shares}}{\text{daily trading volume}}$) of all the other distributions.

TABLE 1

Panel A of Table 1 reports the distribution event-level summary statistics. The average distribution price is \$51.38, and the average number of distributed shares is approximately 3 million.

Panel B reports summary statistics for the distributed stocks, focusing on those listed in the United States. The distributed companies have, on average, 225 million shares outstanding and a daily trading volume of 4 million shares. Thus, the average distribution represents roughly 1.5% of shares outstanding and 75% of the daily trading volume. Across the 3,842 distribution events involving U.S.-listed stocks, there are 664 unique companies, implying an average of about six distributions per company. This pattern reflects that VC-backed companies typically raise multiple rounds of financing before exit and that these rounds are often syndicated across several VCs. It is also the case that VCs sometimes distribute shares of a portfolio company across multiple tranches instead of a single distribution.

One notable fact is that distributions tend to occur well after the IPO. The average time from IPO to the first distribution is 33 months. The median is 20 months, while the standard IPO lockup period is six months from the date of the IPO. This pattern echoes the finding of Jenkinson et al. (2025) that buyout funds, on average, retain their publicly listed portfolio companies for three years after the IPO date—well beyond the mandatory lock-up period.

Panel C of Table 1 reports statistics at the distributing fund level. The average fund size is approximately \$1.0 billion, which is relatively large by venture capital standards. This high average reflects that large, late-stage–focused funds tend to have more portfolio companies to distribute and therefore tend to enter the sample multiple times. The average fund vintage is 2009, and the typical distribution occurs roughly nine years after the fund's vintage year.

2.2 Commercial Data

This paper supplements the stock distribution data with information from CRSP, Pitchbook, Preqin, MSCI (Burgiss), and Jay Ritter's IPO data. I use CRSP to obtain stock returns, shares outstanding, trading volume, and the first trading date (IPO date or SPAC merger date) for distributed companies. I primarily use Pitchbook data to acquire portfolio company-level information, including the names of investing VCs and associated investment dates and amounts. I link the distribution data to CRSP and Pitchbook based on exact name matching. For unmatched cases, I employ a combination of term frequency–inverse document frequency (tf–idf) and large language model (LLM)–assisted string matching. These additional steps improve match accuracy by assigning greater weight to distinctive words, such as "Uber" from "Uber Technologies" instead of "Technologies." For observations where both the LLM and the tf-idf algorithms yield low confidence scores, I conduct manual validation to assess classification accuracy.

Out of 3,970 unique observations from the distribution data that contain names of distributed stocks, I successfully match 3,842 to CRSP and Pitchbook data, representing 97% of the matching outcome. I was unable to match the remaining 128 observations to CRSP because those companies are listed on non-US foreign exchanges. In other words, about 3% of in-kind distributions by the U.S.-based VC funds involve the transfer of foreign-listed shares.

For distributing fund-level information, such as fund sizes, sequences, vintages, and performances, I primarily rely on Preqin and MSCI (Burgiss). Similar to the matching between Pitchbook and distribution data at the company level, I use exact matching between Preqin's fund names and the distribution data's fund names, followed by tf-idf and LLM-assisted string matching, and manual reviews. This way, I could map two seemingly different fund names, such as between New Enterprise Associates and NEA.

Panel C of Table 1 reports that out of 3,970 unique observations from the distribution data that include the names of distributing VC firms, I successfully match 3,477 to funds listed in Preqin, yielding an 87% match rate. The remaining 493 observations could not be matched because the corresponding funds are not covered by Preqin. Preqin compiles fund-level data primarily through Freedom of Information Act (FOIA) requests filed with U.S. public pension plans, supplemented by voluntary disclosures from general partners (GPs) and limited partners (LPs) (Kaplan and Lerner (2016)). As Abuzov et al. (2025) document, some of the most selective VC firms deliberately avoid accepting capital from public pensions in order to circumvent disclosure requirements. For instance, Preqin does not report information on several funds managed by Sequoia Capital, one of the most notable VC firms in the U.S.

3,477 distributions are made by 496 unique VC funds. Panel C of Table 1 reports fund-level characteristics from Preqin. The average fund size is approximately $1 billion, which is large by VC industry standards. The average firm-level fund sequence number is 9, indicating that the distributing funds are sponsored by experienced VC firms. This pattern is consistent with the broader observation that IPO and stock-based M&A exits tend to be the highest-value outcomes, disproportionately generated by larger, late-stage funds operated by more experienced investors.

One important caveat of the Preqin and MSCI fund-level data is that these databases observe complete cash-flow histories for only a subset of the funds in the sample. Of the 496 unique Preqin funds mapped to the distribution data, only 242 report quarterly cash flows for more than five years (Table IA1). Section IA.2 discusses this data limitation in greater detail.

2.3 Descriptive Facts on In-Kind Distributions

Panel A of Table 2 quantifies the economic magnitude of stock distributions. Between 2012 and 2023, stock distributions totaled $406.4 billion in distributed value. I benchmark these figures against two independent data sources that report aggregate distributions of U.S.-based VC funds over the same period. The first source is the National Venture Capital Association (NVCA)'s 2025 yearbook. The second source is MSCI, which acquired Burgiss, a data provider known for its detailed and comprehensive cash flow coverage (Harris et al. 2014).

TABLE 2

As shown in Panel A, NVCA's aggregate distribution statistics consistently exceed those reported by MSCI. This likely reflects differences in incentives and coverage: NVCA, as a trade association representing the U.S. venture capital industry, has an interest in portraying the industry's scale to be as large as possible.[7] MSCI, by contrast, collects detailed fund-level cash flow

[7] "*NVCA is a nonprofit association powered by our members. We convene venture capital investors, entrepreneurs, and industry partners to shape public policy priorities, to develop new industry initiatives, to provide premier research,*

information reported by its limited partner clients. Especially for VC, MSCI (Burgiss) is regarded as the most comprehensive and reliable source of fund-level data (Brown, Harris, Jenkinson, Kaplan, and Robinson (2015)). Accordingly, NVCA's statistics can be viewed as an upper bound on the total volume of VC distributions, while MSCI's figures represent an upper bound on the subset of distributions with verifiable cash flow histories used in empirical research.

Stock distributions account for 56% of the NVCA totals and 76% of the MSCI Burgiss totals. The coverage share varies over time, showing evidence of cyclicality documented by Robinson and Sensoy (2016). For example, in 2018—a year in which the NASDAQ posted losses—the stock distributions represent 52% of the Burgiss total, lower than in years with stronger market performance. In 2023, the stock-to-total ratio exceeds 100% relative to MSCI Burgiss, reflecting differences in sample coverage across data sources. It also reflects the fact that the data provider's coverage of stock distributions (i.e., the fraction of total U.S. stock distributions they observe) has increased over time, as additional clients have been added.

Panel B of Table 2 decomposes in-kind distributions of U.S.-listed stocks by exit route. IPO exits (direct distributions) following VC-backed IPOs account for 2,400 events and \$219.0 billion in value, while indirect distributions following M&A exits account for 1,447 events and \$176.7 billion. Thus, although IPOs remain the primary source of in-kind distributions, stock-financed M&A exits are quantitatively comparable, consistent with the broader trend of declining IPO exits and rising M&A exits among VC-backed firms (Ewens and Farre-Mensa 2022; Ewens, Xiao, and Xu 2024; Chemmanur, He, Ren, and Shu 2025). It is worth noting that M&A exits are stock-for-stock acquisitions in which VC fund A sells its portfolio company B to a publicly traded acquirer C, and the shares of company C are subsequently distributed to the LPs of VC fund A.

3 Which VC-Backed IPOs Are Distributed in Kind?

In Section 2 and Table 2, I show that stock distributions constitute a substantial share of total venture capital (VC) distributions. This does not imply, however, that all VC-backed companies are distributed in kind. Table 3 examines which VC-backed IPOs are subsequently distributed in

and to participate in professional development opportunities with their peers." Retrieved from https://nvca.org/ in October 2025.

kind to limited partners. Among the 881 U.S. VC-backed IPOs between 2010 and 2021 reported in Jay Ritter's IPO database (Ritter 2025), 283 appear in my distribution data.

TABLE 3

Panel A presents univariate comparisons of firm and IPO characteristics between offerings that are later distributed in kind ("Distributed") and those that are not ("Not Distributed"). To quantify these differences, I estimate the following specification:

$$y_i = \beta \, \text{Distributed}_i + \varepsilon_i, \tag{1}$$

where y_i denotes the variable of interest for IPO i, and Distributed_i equals one if the IPO is ever distributed in kind. The coefficient β measures the average difference in y_i between distributed and non-distributed IPOs. The last two columns of Panel A report the estimated β and its statistical significance based on t-statistics computed from robust standard errors.

Panel A shows that in-kind distributed IPOs are systematically larger. The average distributed IPO raises \$393 million in proceeds, compared with \$168 million for not in-kind distributed IPOs. Distributed firms also exhibit higher pre-IPO sales (\$315 million versus \$125 million) and are more likely to be taken public by high-prestige underwriters, as measured by the Carter–Manaster (0–9) rank scale reproduced by Loughran and Ritter (2004) and updated on Jay Ritter's website.[8] In contrast, firm age, the fraction of primary shares, and profitability are statistically indistinguishable across the two groups. One notable pattern is that only a very small percentage of VCs exit at the time of the IPO, as indicated by the percentage of primary shares (newly issued as opposed to shares offered by existing shareholders)—94.1% for distributed IPOs and 95.6% for non-distributed IPOs.

Panel A also compares post-IPO return performance between distributed and non-distributed firms. Distributed IPOs exhibit substantially higher initial returns: the average first-day return (underpricing) is 35.2%, compared with 21.1% for non-distributed IPOs. During the lock-up period—the first six months following the IPO—distributed firms continue to outperform, with an average return of 5.5% versus –3.4% for non-distributed firms. The performance gap widens over longer

[8] "IPO Underwriter Reputation Rankings (1980 – 2024)" available at https://site.warrington.ufl.edu/ritter/ipo-data, retrieved in November 2025.

horizons. Over the first three years after the IPO, distributed firms deliver an average buy-and-hold return of 49.5%, whereas non-distributed IPOs return only 8.5%. These patterns indicate that distributions are disproportionately concentrated among larger IPOs with strong post-IPO performance.[9] A natural interpretation is that VC funds tend to hold larger positions in larger offerings, so the potential impact of a distribution on fund returns and carried-interest realization is correspondingly greater. As a result, the incentive to distribute in kind is strongest precisely when the underlying IPO is large and performs well.

Next, I examine whether these differences predict which IPOs are eventually distributed in kind. Panel B reports estimates from the following specification:

$$\text{Distributed In-Kind}_i = \alpha + \beta' X_i + \psi_{y(i)} + \varepsilon_i, \tag{2}$$

where Distributed In-Kind$_i$ equals one if IPO i is ever distributed in kind, X_i includes firm and IPO characteristics, and $\psi_{y(i)}$ denotes IPO-year fixed effects. Specifications (1)–(2) use only information available at the time of the IPO, while specifications (3)–(4) additionally include post-IPO performance measures. The results mirror the univariate comparisons in Panel A: larger offerings are more likely to be distributed, as reflected in the positive and significant coefficients on *Ln(IPO Proceeds)* and *Ln(Sales)*, holding year effects constant. Profitable firms are significantly less likely to be distributed. When post-IPO performance measures are added in Columns (3)–(4), both first-day and six-month (lock-up period) returns enter positively and significantly, indicating that VCs are more likely to distribute shares following strong post-listing performance.

4 Returns and Trading Volumes Around Distributions

This section examines return and trading-volume dynamics around in-kind distributions. Section 4.1 reports estimates from CAPM, Fama–French three-factor, and Fama–French–Carhart momentum regressions. Section 4.2 analyzes trading activity and short-selling behavior around distribution events.

[9] Such conditioning on post-IPO performance is related to the broader venture capital exit-timing literature, which discusses whether VCs optimally time exit and liquidation decisions in response to market conditions (Lerner 1994; Ball, Chiu, and Smith 2011).

4.1 Fama French Regressions

Figure 1 shows that stocks subsequently distributed in kind outperform the market prior to the distribution event. Consistent with this visual evidence, Table 3 indicates that IPOs that are later distributed in-kind exhibit better performance relative to the market during the first three years following the IPO. A relevant question is whether this outperformance is statistically significant and, if so, whether it reflects risk-adjusted abnormal returns. To address this question, Table 4 reports estimates from the CAPM, the Fama–French three-factor model, and the Carhart four-factor model.

FIGURE 1

I construct monthly and daily portfolios. For the monthly specification, firms enter the *Pre-Distribution* portfolio twelve months prior to the distribution month and remain for twelve months thereafter. For the *Post-Distribution* portfolio, firms enter in the first month following a distribution and remain for twelve months unless delisted earlier. The distribution month is excluded from both portfolios. For the daily specification, firms enter the *Pre-Distribution* portfolio nineteen trading days before the distribution date and remain through the distribution day, which is included in the *Pre-Distribution* period because distributions almost always occur after the market close. For the *Post-Distribution* portfolio, firms enter on the first trading day following a distribution and remain for twenty subsequent trading days unless delisted earlier.

I estimate the following specifications on portfolio excess returns, where the dependent variable is the equal-weighted portfolio return in excess of the risk-free rate, for both monthly and daily levels:

$$R_{p,t} - R_{f,t} = \alpha + \beta\left(R_{m,t} - R_{f,t}\right) + \varepsilon_{p,t}, \tag{3}$$

$$R_{p,t} - R_{f,t} = \alpha + \beta\left(R_{m,t} - R_{f,t}\right) + s\,SMB_t + h\,HML_t + \varepsilon_{p,t}. \tag{4}$$

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + s\,SMB_t + h\,HML_t + m\,MOM_t + \varepsilon_{p,t}. \tag{5}$$

$R_{p,t}$ is the portfolio return, $R_{f,t}$ the risk-free rate, and $R_{m,t}$ the market return. SMB_t, HML_t, and MOM_t denote the small-minus-big, high-minus-low, and momentum factor returns obtained from Ken French's data library. I report t-statistics based on heteroskedasticity-robust standard errors in parentheses, with statistical significance denoted by ***, **, and * for the 1%, 5%, and 10% levels, respectively.

TABLE 4

Panel A of Table 4 reports estimates of Equations (3)–(5) over the twelve months surrounding distribution events. The estimated pre-distribution alphas are positive and statistically significant, equal to 2.3% per month under the CAPM and 2.8% per month under both the Fama–French three-factor model and the Carhart momentum model. The factor loadings indicate a high market beta (greater than one), a positive small-cap tilt (significant *SMB*), and a growth orientation (negative *HML* in the post-distribution period). There is no significant loading on the momentum factor.

For comparison, Gompers and Lerner (1998) document similar pre-distribution run-ups using data from 1983 to 1993. The post-distribution return dynamics, however, differ markedly: while Gompers and Lerner find severe post-distribution underperformance that reverses prior gains, I find that distributed stocks experience an average one-day price drop of about −3% following distributions, after which prices stabilize and track the market. Consistent with this pattern, post-distribution alphas are slightly negative, but they are statistically indistinguishable from zero.

Panel B repeats Equations (3)–(5) at the daily frequency over ±20 trading days around distribution events. Pre-distribution daily alphas are positive and highly significant (about 0.4% per day), while post-distribution daily alphas are negative on average (about −0.2% per day) and statistically significant. Market exposure is again above one, and the three-factor estimates show positive *SMB* and negative *HML*, consistent with a small, growth-tilted profile. Consistent with the monthly results in Panel A, the momentum factor is insignificant and contributes no incremental explanatory power.

Taken together, the factor models corroborate sharp run-ups into distribution dates and weaker (if anything, negative) abnormal performance immediately afterward. These results are consistent with VCs successfully timing in-kind distributions to transfer appreciated public equity to LPs near local peaks without incurring the price impact that would be associated with the sale of stock and distribution of cash.

4.2 Trading Volumes Around Distributions

Figure 2 documents trading activity around stock distribution events, benchmarked against sixty trading day moving averages. Motivated by Gompers and Lerner (1998), who characterize VC in-kind distributions as a legally permissible form of insider trading, I examine whether short-selling activity also increases around these distribution events. Panel A shows that both the average daily trading volume and the average short-sale volume begin rising gradually before the distribution and increase sharply in the five trading days leading up to the distribution event. Both series reach their maxima on the first trading day after the distribution (day 1), followed by a pronounced drop on day 2 and a gradual reversion toward baseline levels thereafter.

FIGURE 2

Panel B reports the average short-sale ratio, defined as (Short Sales Volume / Total Trading Volume), which likewise shows a gradual elevation before distributions and exhibits a pronounced jump on the day following the distribution (day 1), followed by a gradual decline, noticeably lower than the pre-distribution period.

5 Re-evaluating VC Performance

When distributing stock, VC funds report returns based on the distributed prices rather than the prices at which LPs ultimately liquidate those shares. Consequently, the VC returns reported in the literature are also based on distributed prices. The sharp price declines immediately following distribution dates, together with the lukewarm subsequent performance, raise a natural question: how do in-kind distributions affect the investment performance actually realized by LPs? In this section, I estimate how net-of-fees internal rates of return (IRRs) to LPs differ from the returns reported in the VC literature once I account for the fact that LPs must liquidate distributed shares in the public market to convert them into cash proceeds.

Each LP has its own procedure for liquidating distributed shares, as described in Section 1. Many LPs delegate the execution to the data provider of this study. Because each VC fund has multiple LPs and individual liquidation decisions are unobservable, I estimate the cash-equivalent value of distributions using a simulation framework. Rather than tracing the effect of each distribution back to its originating fund, I apply the average liquidation cost borne by LPs to the aggregate returns reported in the literature. This approach is necessitated by data limitations: commercial data providers report fund-level cash flows only for selected samples. As shown in Section IA.2, Preqin and MSCI Burgiss provide the cash-flow histories required to construct fund-level returns for only approximately half of the distributing funds. This pattern is consistent with evidence that many highly reputable VC firms—which account for a disproportionate share of in-kind distributions (Table IA4)—are underrepresented in commercial datasets. Their oversubscribed funds allow them to select LPs that are neither required nor willing to disclose fund-level information to commercial data providers such as Preqin and MSCI Burgiss (Abuzov et al. 2025).

Panel A of Table 5 describes a simple simulation designed to approximate the cash proceeds LPs would obtain under realistic liquidation behavior. I assume that LPs sell the distributed shares on ten randomly selected trading days within the 3-, 6-, or 12-month windows following distribution, and discount each tranche of proceeds back to the distribution date using the CRSP value-weighted market return, following the Private Market Equivalent approach of Kaplan and Schoar (2005). This structure allows LPs to unwind their positions within a reasonable horizon, assuming no additional negative price impact, thereby permitting the use of observed CRSP returns for each distributed stock.

TABLE 5

Panel B reports the resulting present-value estimates, assuming no transaction costs.[10] Across all windows, the expected cash value recovered by LPs ranges from 94.0% to 97.1% of the distribution value. Put differently, LPs lose at least \$2.90 when liquidating shares distributed at \$100. Given that at least 56% of total VC distributions occur in stock rather than cash under the NVCA statistics (or 76% under the MSCI universe), overall U.S. VC returns are therefore lower than the figures reported in the literature by at least 1.6% (= 2.9% × 56%). Panel C applies these

[10] The calculation begins with CRSP's day 1 total return, the first trading day following the distribution, equivalent to starting from the closing price on the distribution date. Most distribution prices are based on the distribution-day closing price, as shown in Table 1. For the small fraction of distributions marked at prices that differ from the closing price, I adjust the difference accordingly. For example, if a fund marks a distribution at \$9.80 while the closing price on the distribution date is \$10.00, I adjust 2% $\left(\frac{10.00-9.80}{10.00}\right)$ to align the starting point.

discounts to published net-of-fees IRRs from Harris et al. (2014), Korteweg and Nagel (2016), Barber and Yasuda (2017), and Brown et al. (2019).

To obtain a conservative estimate, I rely on the NVCA's aggregate estimates of total VC distributions and assume that 56% of distributions occur in kind, rather than the 76% share implied by MSCI Burgiss data. I also apply the least severe discount from Panel B (97.1% for means; 96.7% for medians). The adjusted IRRs decline modestly, by 30 to 110 basis points, depending on the sample size and average investment duration of each study. This exercise shows that in-kind distributions introduce a persistent and non-trivial wedge between reported fund performance and the cash proceeds ultimately realized by LPs.

5.1 Carried Interest

How does a 1.6% loss on total distributions translate into the dollar returns ultimately received by LPs? Estimating this quantity using fund-level data from Preqin or MSCI Burgiss would entail substantial sample attrition, as coverage of funds that make in-kind stock distributions is limited (see Section IA.2 and Table IA1). If this missingness is non-random, estimates based on the available subsample of funds would be subject to selection bias. Accordingly, as in the IRR analysis in Section 5, I base the calculation on aggregate estimates that apply sample-wide average statistics rather than restricting the analysis to the subset of funds observed in Preqin or MSCI Burgiss.

Using the NVCA universe on which my calculations are based, LPs are reported to have received \$723.2 billion from U.S. VC funds between 2012 and 2023. Adjusting for the 1.6% wedge implies that this figure should be reduced by roughly \$11.6 billion (= \$723.2 billion $\times$ 1.6% $\approx$ \$723.2 billion $\times$ 56% $\times$ 2.9%).

This \$11.6 billion wedge has a direct implication for GPs' carried interest income, which has long been a central focus of agency frictions between GPs and LPs (Chung, Sensoy, Stern, and Weisbach 2012; Robinson and Sensoy 2013; Hüther, Robinson, Sievers, and Hartmann-Wendels 2020). Because GPs earn carried interest based on reported fund performance, which is calculated using distributed prices rather than the prices LPs actually realize, this discrepancy directly affects the dollar amount of carry paid by LPs. In particular, fund returns—and therefore the GP's carried-interest base—are based on distributed prices that LPs cannot feasibly realize. The implied \$11.6

billion wedge in LP proceeds, therefore, raises a follow-on question: how much would carried interest be reduced if fund returns were instead calculated using the prices at which LPs liquidate distributed shares, rather than the distribution-day marks reported by funds?

VC fund contracts typically specify a 20% carried-interest rate, with preferred returns (i.e., hurdle rates) often set at 0% for VC funds, in contrast to the more common 8% hurdle in buyout funds (see Metrick and Yasuda (2010b) and Metrick and Yasuda (2021)). If all in-kind–distributing funds were to earn carry, excess carry would amount to \$2.3 billion (= \$11.6 billion × 20%). At the other extreme, if none of the in-kind–distributing funds earn carry, this figure would be zero. A recent study by Phalippou (Forthcoming) reports that roughly 70% of private-capital funds earn carried interest, which implies an excess carry of approximately \$1.6 billion (= \$2.3 billion × 70%) attributable to the wedge between distribution marks and the prices at which LPs ultimately liquidate the distributed shares.

6 Do VCs Add Value to their Portfolio Companies?

What explains the sizable alpha observed during the pre-distribution period? Two competing, but not mutually exclusive, mechanisms can rationalize this pattern. The first is that VCs actively add value to their portfolio companies prior to distributing shares, and that this value-added effort ceases once the final distribution occurs. This interpretation is consistent with Iliev and Lowry (2020), who document that VCs remain on portfolio-company boards well beyond the IPO, evidence of continued post-IPO involvement. The second mechanism is that VCs do not add incremental value during the pre-distribution period but instead possess superior information about the companies and industries in which they specialize (Gredil 2021) and strategically time distributions to coincide with periods of strong performance.

To address this question, I exploit the fact that VC-backed companies typically have multiple VC investors, and individual VCs may choose to distribute their holdings in multiple tranches. Multiple distributions for a given company offer an ideal setting to distinguish these two channels. Under the value-added mechanism, once the company's final distribution occurs, no VC retains shares and thus no longer has incentives to exert effort. This interpretation is based on Jenkinson et al. (2025), who hand-collected SEC Form 4 and Form DEF14A filings to show that buyout GPs generally stay on portfolio company boards after IPOs but step down once they fully exit. Consequently, if value-added effort by VC GPs played a role, final distributions should be followed by systematically weaker post-distribution performance than earlier distributions.

Consequently, I identify a firm's "final" distribution based solely on the last in-kind distribution observed in my data, without observing whether some VCs exit later through transactions unobservable to the data provider. This limitation biases the analysis against detecting differential effects for final distributions. If some VCs continue to hold shares after what I classify as the final distribution, they may continue to exert effort, reducing the contrast between the last and earlier distributions. Accordingly, estimates of post-distribution performance difference following the inferred final distribution should be interpreted as conservative.

Table 6 compares abnormal returns around (i) single-tranche (only) distributions, (ii) the first distribution, and (iii) the last distribution. Panel A shows no meaningful differences in pre-distribution abnormal returns across these categories. Pre-event run-ups are therefore not driven by whether a tranche is an investor's first, last, or only distribution.

TABLE 6

Panel B reveals a markedly different post-distribution pattern. Firms whose investors exit in a single tranche—by definition also the last tranche—experience substantial negative post-distribution abnormal returns: an 8.7% decline over the subsequent three months and a 16.6% decline over twelve months. Last distributions of multi-tranche exits also generate significantly negative abnormal returns, whereas first distributions exhibit no meaningful effects. This result is based on the full sample, including both IPO exits and M&A exits.[11] In Table IA7, I replicate this test using IPO exits only, the set of firms over which distributing VCs exert direct influence. I find similar results with larger magnitudes.

Overall, the evidence is consistent with a value-added mechanism in which VCs continue to contribute as monitors, directors, or activist blockholders as long as at least one VC remains invested. Following the final VC exits, this incremental contribution ends because it is costly and no longer compensated. Prices adjust downward accordingly. A pure timing or certification mechanism cannot generate this pattern.

[11] M&A Exits refer to cases in which a portfolio company is acquired in a stock-for-stock transaction by a publicly traded firm. LPs receive shares of the acquiring firm, which is not invested in by the distributing VC.

This finding rests on an observability assumption: public market investors cannot determine ex ante how long VC investors will retain post-IPO shares, nor can they determine ex post whether all VC investors have fully exited a given firm at any point in time. Public disclosures report only aggregate insider ownership or the holdings of directors and officers; they do not provide a comprehensive, time-varying account of each VC fund's residual post-IPO position. Although some large, late-stage–oriented VC firms file Form 13F reports, these filings are disclosed with a three-month lag, and many in-kind distributors are not 13F filers at all.

However, I also find indirect but suggestive evidence consistent with VCs' market-timing ability contributing to the strong pre-distribution abnormal returns, consistent with Gompers and Lerner (1998). In Section IA.4, I estimate factor regressions separately for IPO exits and M&A exits. Consistent with the value-added mechanism, firms distributed following IPO exits exhibit economically and statistically significant positive alphas over the three months prior to distribution, whereas firms distributed following M&A exits—where VCs have no value-added role in the acquiring firms—do not. By contrast, daily regressions over the twenty trading days before distribution reveal statistically significant short-horizon alphas even for M&A exits. These meaningful short-term alphas suggest systematic market-timing despite VCs' outsider status in the companies that acquired their portfolio companies.

This result should be interpreted with caution due to data limitations. Since my data do not report when VCs receive acquirer shares, I cannot determine the precise holding periods of these M&A-related positions. Note that this appreciation is not driven by merger-announcement effects because VCs receive acquirer shares upon the settlement of the transaction, not around the announcement.

7 Why do LPs allow GPs to Distribute In-Kind?

The empirical results above show that VC funds typically distribute shares well after the IPO lock-up expiration, at a point when portfolio companies have already experienced substantial post-listing appreciation. By distributing a large number of shares in kind, GPs effectively transfer the negative price impact to LPs. Because the Limited Partnership Agreement (LPA) specifies whether distributions can be made in kind, the central question is why limited partners permit general partners to distribute portfolio company equity rather than cash. What would happen if GPs were required to distribute cash only?

To address this question, it is useful to begin by considering the role VCs play in helping their portfolio companies achieve successful IPO exits and outsized post-listing returns. A large body of literature documents that VCs remain actively involved throughout the life of the investment. For example, the survey evidence in Gompers, Gornall, Kaplan, and Strebulaev (2020) shows that VCs frequently connect portfolio companies with potential customers and investors. This mentorship requires costly effort, often involving intensive, in-person engagement (Bernstein et al. 2016; Fu 2024). Such involvement appears to extend into the post-IPO period as well, consistent with the widespread presence of VC-affiliated directors on the boards of newly public firms (Iliev and Lowry 2020; Ewens and Malenko 2024).

Under the current in-kind distribution regime, GPs can maximize fund performance by timing distributions and transferring their positions to LPs in a single tranche, fully capturing the value of their post-IPO efforts through carried interest determined by distribution marks. This raises a natural question: if GPs were prohibited from making in-kind distributions, would they alter the level of effort they devote to supporting their portfolio companies?

Panel A of Table 7 outlines two potential GP responses under a prohibition of in-kind distributions. In the first scenario, GPs maintain their level of effort because they remain compensated through carried interest. Because GPs are insider shareholders, any noticeable sales are likely to elicit negative market reactions. To reduce the visibility of these sales and minimize price pressure, I implement a basic form of "stealth trading," motivated by Barclay and Warner (1993) and Chakravarty (2001). I assume that GPs unwind their positions in ten tranches by randomly selecting ten trading days within the one- and three-month pre-distribution windows, holding the distribution date fixed. I assume no trading costs and no additional adverse price impacts.

TABLE 7

In the second scenario, GPs reduce effort because they no longer fully internalize the gains from continued value creation and must exert additional effort to dispose of shares in the market, which may yield lower returns. In this reduced-effort case, I assume the extreme cases where liquidation occurs either at the IPO (via secondary share sales) or immediately after the mandatory lock-up period expires. I assume no trading costs and no incremental price impact from GP sales.

The first (same-effort) and second (reduced-effort) scenarios should be viewed as opposite corner solutions; actual GP behavior under a cash-only regime would likely fall between the two, depending on the costs and benefits of effort, as illustrated in the simple theoretical framework in Section IA.1.

Panel B reports the cumulative returns associated with these two liquidation strategies and compares them with the corresponding CRSP value-weighted market returns. I construct a *Foregone Gains* measure that quantifies the underperformance or outperformance of the counterfactual liquidation relative to the market over the same horizon, in the spirit of Kaplan and Schoar (2005). Positive values indicate that the distributed stock outperforms the market, implying that LPs would forgo returns of this magnitude if GPs were forced to liquidate instead of distributing shares in kind. The estimates show that requiring GPs to sell gradually in the months prior to distribution generates Foregone Gains of 7.2% to 11.1%, depending on the liquidation window. In contrast, if GPs fully shirk post-IPO effort and sell in the IPO or immediately after the lock-up period ends, LPs face substantially larger Foregone Gains ranging from 101% to 140%.

Figure 3 illustrates this interpretation by showing that VC-backed IPOs that are later distributed in-kind experience pronounced, sustained appreciation from the IPO through the distribution date, consistent with the IPO statistics in Table 3 and the factor model analysis in Table 4. These IPOs exhibit sizable underpricing on the first day. Once the lock-up expires, their returns accelerate sharply, substantially outperforming the CRSP benchmark.[12] This trajectory indicates that a cash-only requirement, which would force GPs to liquidate their positions earlier (either gradually or immediately), would cause them to forgo the bulk of this appreciation.

FIGURE 3

These findings indicate that prohibiting in-kind distributions would reduce the proceeds ultimately received by LPs under both corner solutions—one in which GPs maintain their effort levels and one in which they completely cease post-IPO efforts. The results underscore the trade-offs LPs face and help explain why in-kind distributions remain prevalent in VC funds: while GPs

[12]These post-IPO lock-up period outperformances stand in contrast to Jenkinson et al. (2025), who find that buyout-backed IPOs do not outperform the market once lock-up periods expire.

may capture some rents, LPs are, on net, better off under the existing regime. Section IA.1 provides a simple theoretical framework that rationalizes this conclusion.

If prohibiting in-kind distributions is not the appropriate solution for LPs, an alternative is to require distribution prices that better align GP and LP returns. Because the wedge between marked fund returns and LPs' cash-based returns arises from post-distribution price declines, using a post-distribution price, such as the average of the twenty trading days following the distribution, is a plausible candidate. This convention would make the fund returns that determine carried interest closely mirror LPs' cash-based returns. Assessing the efficacy of such an alternative pricing rule, however, requires examining whether it would alter GP incentives.

I investigate this issue in Section IA.3 and Table IA2. I document that distributions whose prices are set using conventions other than the distribution-day closing price exhibit similar pre-distribution returns but more negative post-distribution price drops. This analysis is motivated by Dore, Gompers, and Metrick (2008), who find that distributions priced using the average of five pre-distribution trading days have higher pre-distribution returns but more negative post-distribution returns.

These tests, however, do not provide conclusive evidence on how using post-distribution prices would affect GP incentives or subsequent price dynamics. First, Dore, Gompers, and Metrick (2008) rely on pricing rules based on the pre-distribution period, not the post-distribution period. They report that fewer than 5% of distribution prices are set using post-distribution prices. I do not have comparable information, and even if such information were available, causal inference would remain challenging. The distribution pricing rule is an endogenously negotiated contractual term between GPs and LPs rather than a randomly assigned policy. GPs operating under non-distribution-day pricing conventions may differ systematically from those using the distribution-day closing price, and unobservable factors correlated with these contractual choices could drive the observed differences in returns.

Accordingly, the extent to which distribution pricing conventions causally affect GP incentives and post-distribution price behavior, and, therefore, whether LPs would be better off under such a convention, remains an open question.

8 Are Reputable VCs Different from the Rest?

The paper's analysis thus far abstracts from cross-sectional heterogeneity. An important dimension is the identity of the distributing VCs, with particular attention to differences between successful elite VCs and the rest of the industry. The motivation for this split follows Harris et al. (2023), who document a persistent performance gap in subsequent funds between top-quartile VC funds and all others, in contrast to the limited persistence observed among buyout managers. This persistence is closely related to liquidity considerations in LP–GP matching: LPs that can tolerate illiquidity—"high-quality" LPs in the sense of Maurin et al. (2023)—systematically match with high-quality GPs. In addition, Abuzov et al. (2025) show that the most successful VCs avoid taking capital from public pension plans because doing so would subject them to state-level Freedom of Information Act (FOIA) disclosure. Successful VCs are consistently oversubscribed, reinforcing the economic relevance of distinguishing them from other VCs in studying distribution behavior.

I classify "reputable" VCs following the lists provided in Metrick and Yasuda (2010a) and Metrick and Yasuda (2021)—the second and third editions of the textbook. Because my sample period spans 2012–2023, I take the union of the reputable VCs identified in both editions: Accel, Benchmark, Charles River, Khosla, Kleiner Perkins, Matrix, Sequoia, and Union Square. Table IA4 reports the complete lists from the two editions and shows that while these eight reputable VCs collectively manage 12.4% of the U.S. VC industry AUM as of 2024, they account for 28.2% of all in-kind distributions in my sample—disproportionately large relative to their industry footprint.

Table 8 examines whether distributions made by reputable VCs differ systematically from those made by other VCs. Panel A presents "naïve" regressions that pool all portfolio companies backed by reputable and non-reputable VCs. In this specification, reputable VCs distribute fewer IPO exits (the non-IPO exits are M&A exits), sooner, and have lower pre-distribution abnormal returns (column 5), but higher post-distribution abnormal returns (columns 6–7). Just looking at this outcome, it might suggest that reputable VCs are worse than the rest when it comes to timing distributions, or that they intentionally leave money on the table for LPs.

TABLE 8

These patterns, however, combine treatment effects of reputable VCs with selection effects stemming from the types of companies in which they invest. The differences observed in Panel

A of Table 8 may simply mean that reputable VCs select portfolio companies with stronger post-IPO performance. Put differently, it is unclear whether the observed patterns arise from superior selection or from distinct distribution choices conditional on holding the same portfolio companies.

Figure 4 formalizes this concern using a Khwaja and Mian (2008)-style identification design. As shown in Panel A, in-kind distributed firms can be partitioned into three mutually exclusive groups. The estimates in Panel A of Table 8 pool all three. The overlap group (Group Y) consists of firms backed by both reputable and non-reputable VCs. By conditioning on this group, I hold firm quality constant and isolate differences arising from heterogeneous distribution choices.

FIGURE 4

When I re-estimate the regressions using only Group Y, the results change markedly. As shown in Panel B of Table 8, all coefficients lose statistical significance, except for the IPO exits dummy. Panel B of Figure 4 provides a visual confirmation: in the naïve specification (left panel), reputable VCs load positively on post-distribution abnormal returns and negatively on pre-distribution abnormal returns. In contrast, once the sample is restricted to the overlap group (right panel), all point estimates become statistically indistinguishable from zero. Reputable VCs do not distribute faster. Their associated pre- and post-distribution returns are indistinguishable from those of non-reputable VCs once selection is removed.

Taken together, the table and figure indicate that LPs fare better when the distributing VC is reputable. However, this advantage does not arise because reputable VCs deliberately leave money on the table for LPs to capture after distributions. Instead, it reflects differences in the underlying companies in which reputable and non-reputable VCs invest. In other words, the differential outcomes are driven by selection, not by differences in distribution behavior.

9 Conclusions

This paper examines the pervasive use of in-kind distributions by VC funds and the agency frictions that arise from this practice. Between 2012 and 2023, at least 56% of all U.S. VC distributions were delivered as publicly traded shares rather than cash. Larger and better-performing VC-backed IPOs are disproportionately distributed in kind. These distributed shares earn substantial positive abnormal returns prior to distribution but experience sharp, non-reversing price drops once released to LPs. A conservative estimation indicates that LPs lose at least 2.9% when liquidating distributed shares, modestly reducing overall VC returns relative to reported performances. Both VC returns and carried interest are calculated on distribution marks that LPs cannot realize.

I examine the economic mechanisms underlying the price dynamics surrounding distributions. Exploiting the fact that a given VC-backed company can be distributed multiple times because such companies typically have several VC investors and each VC may distribute in multiple tranches, I isolate the contribution of VC value added effort. The evidence indicates that at least part of the pre-distribution abnormal return reflects continued value-added activity, which plausibly dissipates once VCs fully exit and no longer have incentives to undertake costly effort.

In addition, distributions arising from M&A exits, where VCs do not influence the post-acquisition performance of the acquiring firms whose shares are distributed, also exhibit pre-distribution price run-ups. These run-ups, although smaller in magnitude than those observed by IPO exits, are consistent with GPs' market-timing abilities. Taken together, the findings suggest that both value-added activity and market-timing ability help explain the abnormal returns prior to distributions and the weaker performance thereafter.

LPs fare better when receiving shares from more reputable VCs, not because these VCs employ LP-friendly distribution strategies or intentionally leave money on the table for LPs, but because their portfolio companies exhibit stronger post-distribution performance.

Although LPs incur losses when liquidating distributed shares, prohibiting in-kind distributions would worsen LP outcomes. Requiring GPs to sell the shares themselves would either weaken their effort incentives or induce earlier exits, reducing fund returns by at least 7.2%, a decline substantially larger than the 2.9% loss currently borne by LPs. The results highlight a fundamental tradeoff LPs face in the agency relationship with GPs over distributions. Ultimately, most LPs explicitly permit in-kind distributions in limited partnership agreements (LPAs).

My data do not allow me to evaluate the causal impact of alternative contract designs, but one possibility worth considering is whether using an average of post-distribution prices—an average over the first twenty trading days, for example—would provide a more equitable benchmark. Future research could examine whether such alternative pricing conventions would alter GPs' incentives and, in turn, their distribution behavior.

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Figure 1: Stock Returns around Distribution Dates

Panel A: Cumulative Returns Around Stock Distributions

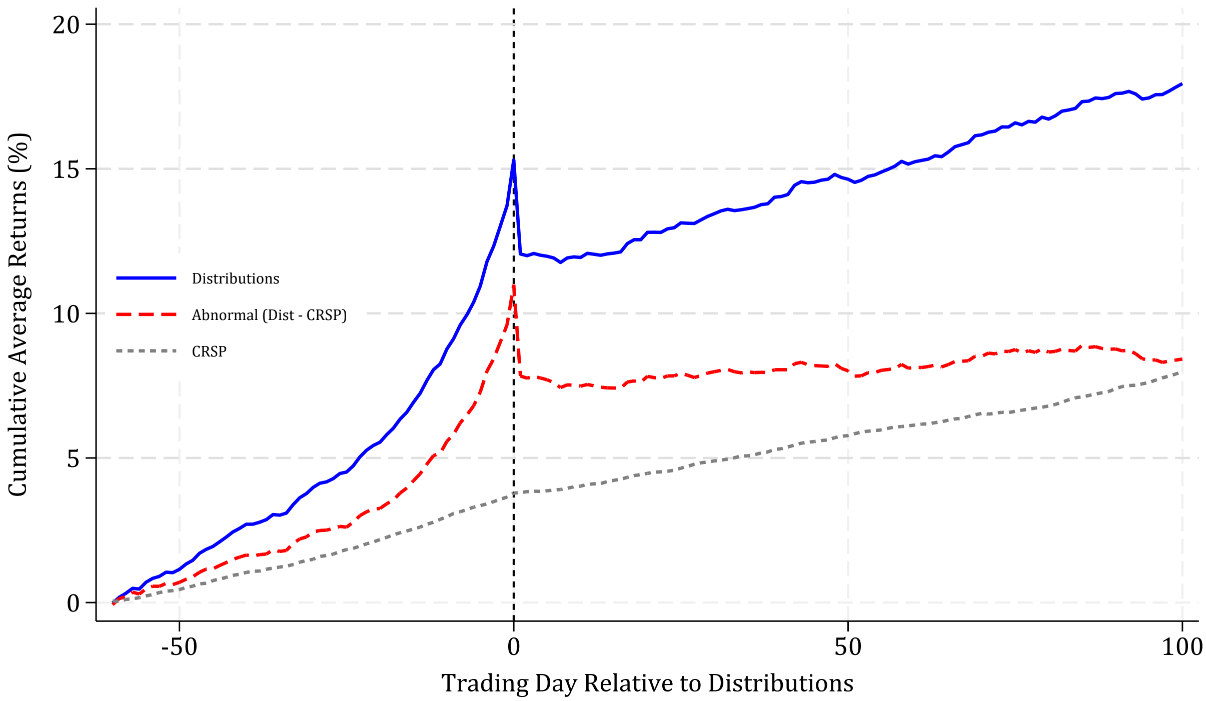
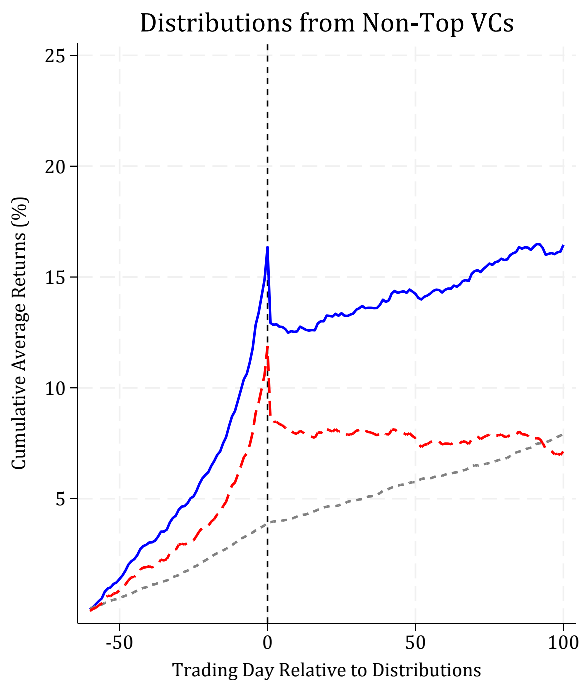


Figure 1: **Panel A** plots the average cumulative stock returns (equal-weighted) around the stock distribution dates of VC-backed companies. The x-axis represents trading days relative to the distribution date, with day 0 indicating the distribution event. The *solid blue line* plots the average cumulative returns of distributed stocks; the *dotted grey line* plots the CRSP value-weighted market index over the same window; and the *long dotted red line* plots the abnormal return, defined as the difference between the two series.

Figure 1 (continued): Stock Returns around Distribution Dates

Panel B: Non-Top VCs vs. Top VCs



Panel C: IPO Exits vs. M&A Exits

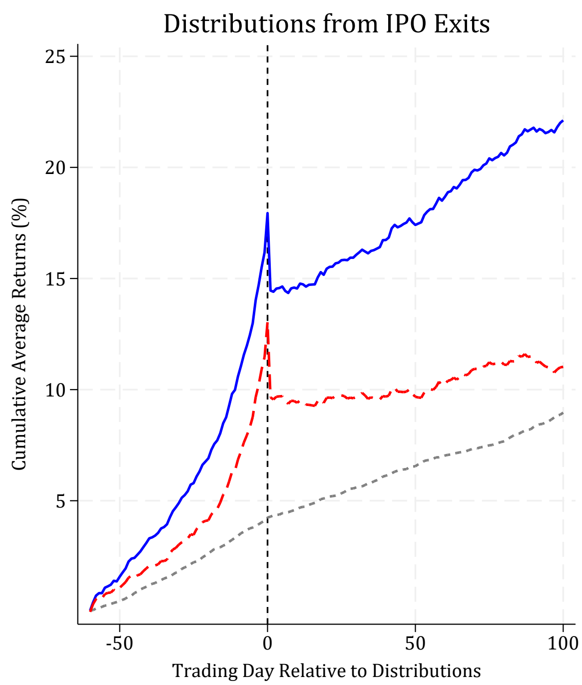
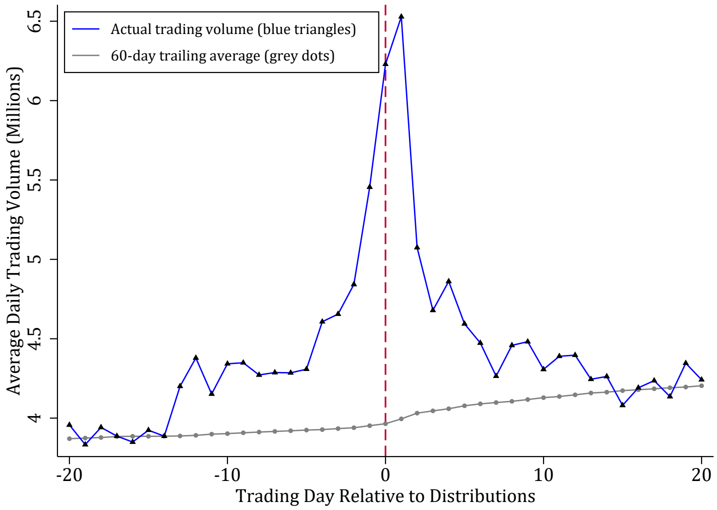
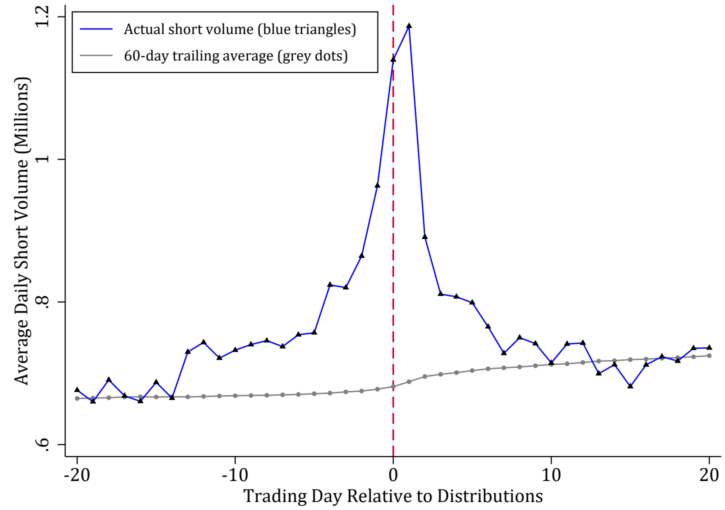


Figure 1: **Panel B** plots the same average cumulative return patterns as in Panel A, disaggregated by distributions made by Non-Top VCs and by Top VCs. Top VC firms follow the definition in Metrick and Yasuda (2010a) and Metrick and Yasuda (2021) and are Accel, Benchmark, Charles River, Khosla, Kleiner Perkins, Matrix, Sequoia, and Union Square (More details in Table IA4). **Panel C** plots the same average cumulative return patterns as in Panels A and B, disaggregated by exit type. IPO exits are defined as VC-backed IPOs whose shares are distributed within three years of the IPO date. M&A exits are defined as VC-backed IPOs whose shares are distributed more than three years after the IPO date, together with all non-VC-backed IPOs that are distributed.

Figure 2: Trading and Short Sale Volumes around Stock Distributions

Panel A: Average Daily Trading (left) and Short Sale (right) Volumes around Distribution Dates





Panel B: Average Short-Sale Ratio (Short Sales / Total Volume) around Distribution Dates

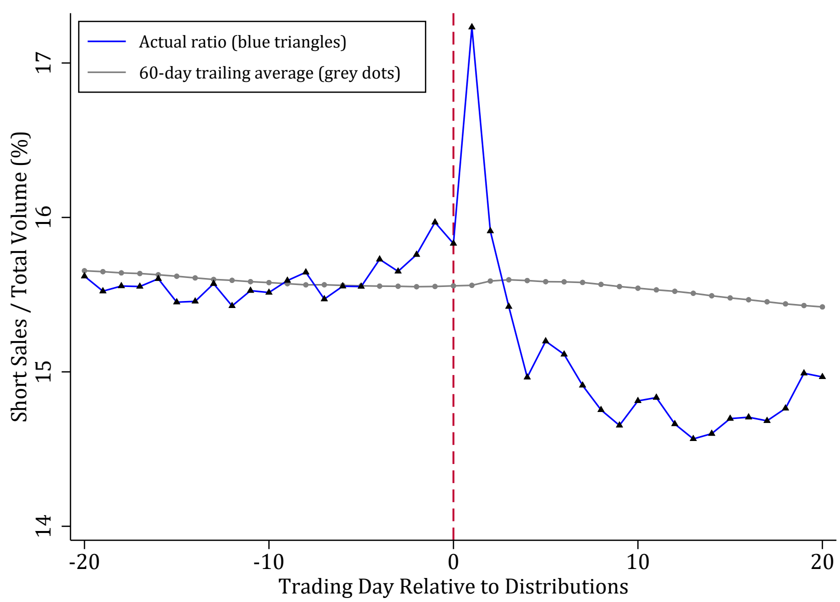


Figure 2: **Panel A** plots the average daily trading volume and the average daily short-sale volume (both equal-weighted) around the distribution dates of VC-backed companies. The x-axis measures trading days relative to the distribution date, with day 0 marking the distribution event. Blue lines with triangles display actual volumes, while grey lines with dots represent the sixty-day trailing moving averages. **Panel B** plots the average fraction of daily trading volume accounted for by short sales, measured as short-sale volume divided by total trading volume. The series is shown in percentage terms, and the x-axis measures trading days relative to the distribution date, with day 0 marking the event. Blue line with triangles displays actual ratios, while grey line with dots represents the sixty-day trailing moving averages.

Figure 3: Returns from IPO to Lock-Up Expiration and Distribution

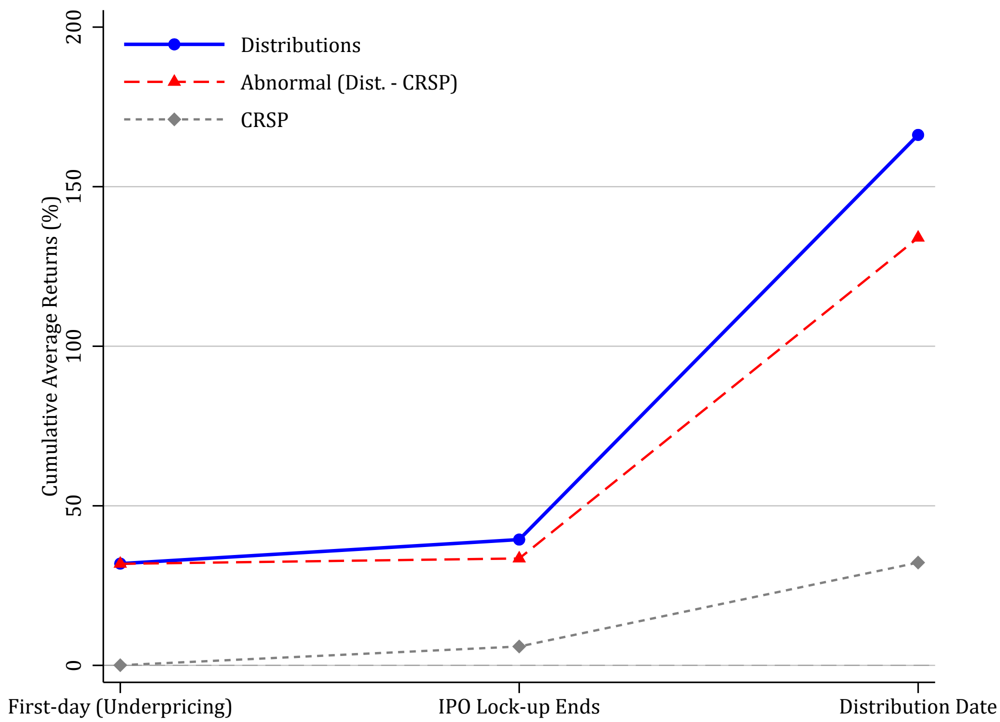
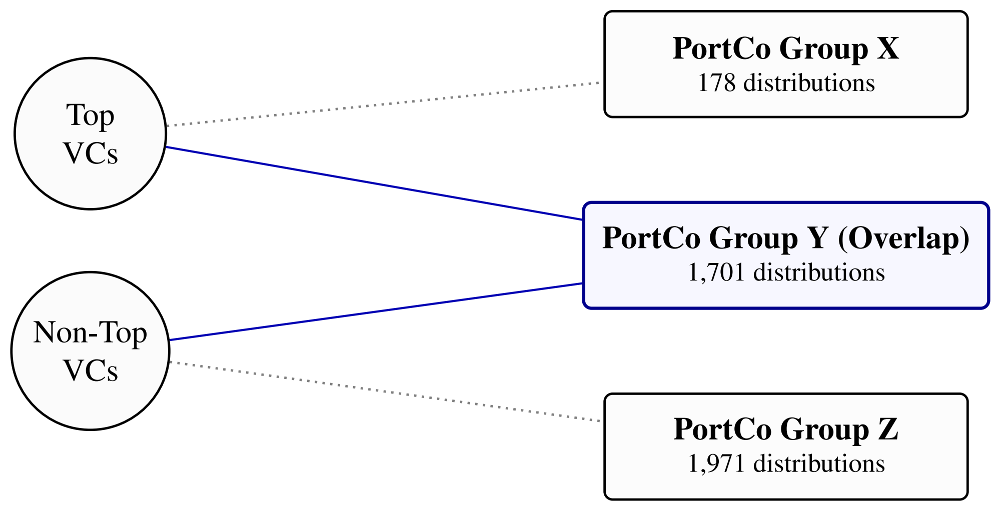


Figure 3: Plots cumulative, equally-weighted average returns for VC-backed companies from the IPO through the in-kind stock distribution. The sample includes only IPO exits, defined as VC-backed IPOs whose shares are distributed within three years of the IPO date. The analogous trajectory for M&A exits, defined as VC-backed IPOs whose shares are distributed more than three years after the IPO date, together with all non-VC-backed IPOs that are distributed, appears in Figure IA4. *First-day (Underpricing)* denotes IPO underpricing, measured as the percentage difference between the offer price and the first-day closing price. *IPO Lock-up Ends* marks the 180th calendar day after the IPO. *Distribution Date* refers to the date on which the in-kind distribution occurs. "Distributions" (blue solid line with circles) reports cumulative raw returns from the IPO offer price to the first day closing price through the end of the lock-up period and up to the initial distribution event. "Abnormal (Dist. – CRSP)" (red dashed line with triangles) reports cumulative abnormal returns relative to the CRSP value-weighted market index, while "CRSP" (gray dotted line with squares) shows the corresponding cumulative market returns. Returns are expressed in percent. The unit of observation is the distribution event. Because a firm may be distributed multiple times, Figure IA4 reports the corresponding company-level patterns.

Figure 4: Are Reputable VCs Different from the Rest? Free from Selection

Panel A: Empirical Strategy



Panel B: Comparing Regression Coefficients – Reputable VCs dummy

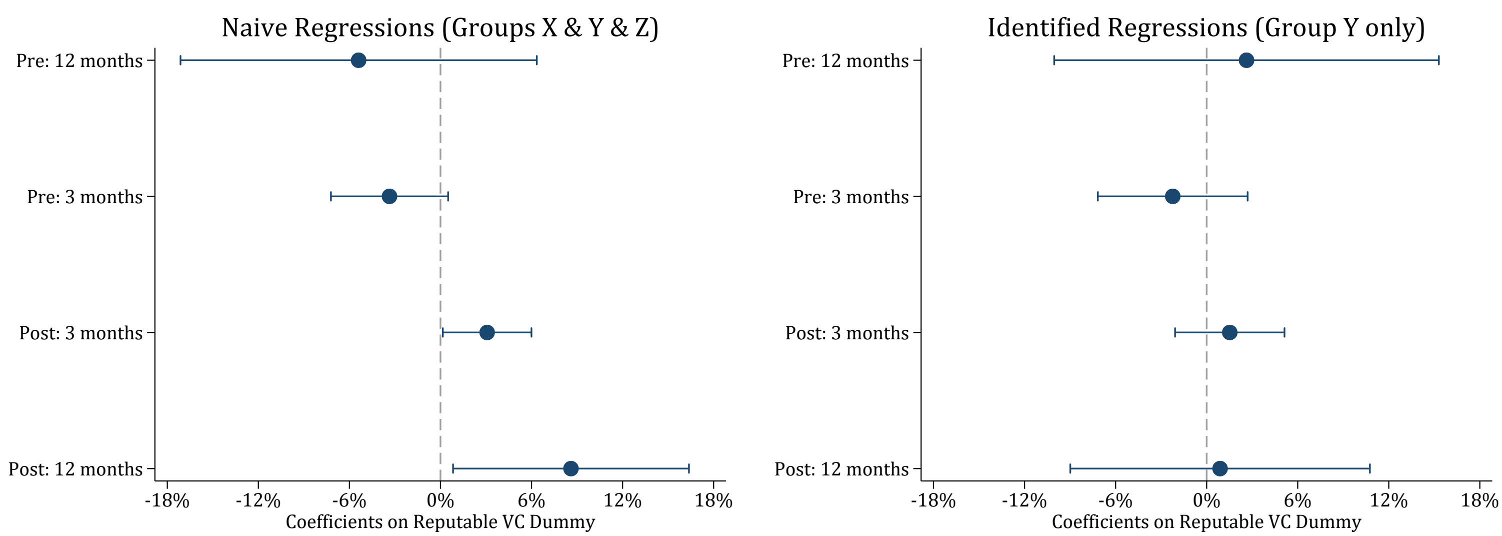


Figure 4: **Panel A** illustrates the identification framework following the spirit of Khwaja and Mian (2008). The left nodes represent *Top VCs* and *Non-Top VCs*, following the definition in Metrick and Yasuda (2010a) and Metrick and Yasuda (2021). Accel, Benchmark, Charles River, Khosla, Kleiner Perkins, Matrix, Sequoia, and Union Square are top VCs (More details in Table IA4). Solid blue edges correspond to the focal *overlap group* (Group Y)—portfolio companies distributed by both Reputable and Non-Reputable VCs—which eliminates the selection impact. By contrast, Group X and Group Z refer to portfolio companies distributed exclusively by reputable VCs and exclusively by non-reputable VCs, respectively. **Panel B** reports coefficients of the independent variable *Reputable VCs* from Table 8, with bars representing 95% confidence intervals.

Table 1: Summary Statistics

Panel A: Distribution Level (No. of Unique Distributions: 3,970)

Variable	No. of Obs	Mean	S.D.	25%	Median	75%
Distribution Price ($)	3,970	$51.38	$81.73	$15.84	$27.65	$51.22
(Dist. Date Price - Dist. Price) / Dist. P.	3,842	0.00	0.03	0.00	0.00	0.00
No. of Shares Distributed (million)	3,955	3.02	8.97	0.58	1.25	2.62
Distribution Value (million)	3,955	$103	$365	$16	$38	$88
Only Distributions	198	$129	$922	$8	$22	$69
First Distributions	665	$110	$617	$11	$26	$70
Last Distributions	763	$128	$700	$12	$33	$78

Panel B: Distributed Stock Level (U.S.-listed Stocks Only, No. of Unique Companies: 664)

Variable	No. of Obs	Mean	S.D.	25%	Median	75%
No. of Shares Outstanding (million)	3,842	225	573	40	78	188
Daily Trading Volume (million)	3,842	4.00	8.69	0.37	1.00	3.46
Daily Short Sale Volume (million)	3,830	0.58	1.27	0.05	0.13	0.45
Beta	3,830	1.38	0.61	0.97	1.30	1.72
Months from IPO to Distribution	3,847	33	46	10	20	37
IPO Exits	2,400	25	25	9	17	32
M&A Exits	1,447	65	45	12	25	50

Panel C: Distributing Fund Level (No. of Unique Funds: 496)

Variable	No. of Obs	Mean	S.D.	25%	Median	75%
Fund Size (LP Commitment, in $M)	3,477	$1,016	$1,573	$395	$550	$1,000
Fund Vintage	3,477	2009	5	2005	2008	2012
Distribution Year - Fund Vintage Year	3,477	9	4	6	9	12
Fund Sequence: Overall Firm Level	3,477	12	10	4	9	17
Fund Sequence: Fund Family Level	3,477	5	4	2	4	7

Table 1: **Panel A** presents summary statistics at the stock distribution level. Each observation corresponds to a specific distribution event, including the identity of both the distributed stock and the distributing venture capital fund. (Dist. Date Price - Dist. Price) / Dist. P. refers to the difference between the closing price on the distribution date and the distribution price, divided by the distribution price. Data on the number of shares distributed are unavailable for 15 observations (3,970 − 3,955) because the data provider does not have the information, and all of these 15 distributions are foreign-listed stocks. Distribution Value (defined as Distribution Price × Number of Shares Distributed) is reported for the full sample and for the subsamples of only, first, and last distributions. The number of last distributions exceeds the number of first distributions because multiple distributions may occur on a fund's final distribution date. **Panel B** summarizes characteristics of the distributed stocks. The sample size decreases to 3,842 due to the restriction to U.S.-listed stocks. Daily trading volume, daily short sale volume, and beta are computed over the twelve months preceding the distribution. Beta is estimated from daily CRSP returns using the Capital Asset Pricing Model (CAPM). The variable "Months from IPO to Distribution" measures the number of months (rounded to the nearest integer) between the month of the first public trading date and the month of the distribution date. Daily short sale volume is obtained from FINRA; all other variables are from CRSP. Panel C reports the distributing fund-level statistics, based on Preqin. The sample size decreases from Panel A to Panel C because Preqin does not report fund size and vintage information for the funds responsible for 493 distributions (3,970 − 3,477).

Table 2: Stock Distributions as a Fraction of Total Distributions

Panel A: Overall Distribution Statistics

Year	No. of Stock Distributions	Stock Dist. ($B)	Burgiss: Total Dist. ($B)	Burgiss Stock/Total	NVCA: Total Dist. ($B)	NVCA Stock/Total
2012	257	$23.5	$27.7	85%	$31.7	74%
2013	306	$22.2	$27.4	81%	$34.2	65%
2014	307	$23.2	$36.3	64%	$46.7	50%
2015	342	$24.8	$31.9	78%	$50.7	49%
2016	278	$20.8	$22.7	92%	$37.6	55%
2017	270	$15.9	$28.3	56%	$50.1	32%
2018	295	$19.1	$36.8	52%	$59.7	32%
2019	307	$37.4	$45.5	82%	$51.2	73%
2020	376	$48.6	$64.8	75%	$83.9	58%
2021	591	$88.8	$132.0	67%	$167.4	53%
2022	342	$37.5	$46.8	80%	$61.8	61%
2023	299	$44.6	$34.9	128%	$48.2	93%
Total	**3,970**	**$ 406.4**	**$ 535.1**	**76%**	**$ 723.2**	**56%**

Panel B: IPO Exits (Direct) vs. M&A Exits (Indirect)

	No. of Stock Distributions	Stock Distribution ($B)
IPO Exits (“Direct,” US only)	2,400	$219.0
M&A Exits (“Indirect,” US only)	1,447	$176.7
Total	3,847	$395.7

Table 2: **Panel A** reports annual distribution activity of U.S.–based VC funds from 2012 to 2023. *No. of Stock Distributions* counts the distinct distribution events of fund–portfolio company pairs. *Stock Dist. ($ B)* is the total dollar value of stock distributed to LPs, based on the stock distribution data from the data provider. *Total Dist. ($ B)* includes both stock and cash distributions, and these statistics are reported by two sources: Burgiss (part of MSCI) and National Venture Capital Association (NVCA). *Stock / Total* is the ratio of stock to total distributions. For example, in 2012, there were 257 stock-distribution events totaling $23.5 billion—85% of the $27.7 billion total distributions that year reported by Burgiss and 74% of the $31.7 billion total distributions that year reported by the NVCA. By 2023, the stock-to-total ratio exceeds 100% based on MSCI/Burgiss data, reflecting improved coverage of the stock distribution data and the MSCI/Burgiss universe's incomplete coverage of all U.S. VC funds (See Table IA1 for more detail). Panel A includes distributions from both U.S. and non-U.S.–listed companies distributed by U.S.-based VC funds. **Panel B** reports distributions by exit type for U.S.-listed companies. *IPO exits (Direct)* are distributions of VC-backed IPO shares within three years of the IPO date, identified using Jay Ritter's IPO data (Ritter (2025)). *M&A exits (Indirect)* include distributions from non–VC-backed IPOs or VC-backed IPO distributions made more than three years post-IPO, occurring when VC funds sell portfolio companies to publicly traded acquirers who pay partly or fully with newly issued shares later distributed to LPs. Dollar amounts are expressed in billions of U.S. dollars.

Table 3: Which VC-Backed IPOs Are Distributed in Kind?

Panel A VC-backed IPOs In-kind Distributed (N = 283, IPO Exits only) vs. Not (N = 598): Summary Stats

Variables	Dist. Average	Not Dist. Average	Diff. in Average	Dist. Median	Not Dist. Median
IPO Proceeds ($ million)	393.12	168.10	225.03***	125.00	99.85
Sales ($ million)	315.81	125.11	190.69**	108.82	9.56
Underwriter Rank	8.71	8.25	0.46***	9	9
Firm Age	9.42	9.20	0.22	9	8
Percentage of Primary Shares	94.1%	95.6%	-1.6%	100%	100%
Profitable	11.0%	12.2%	-1.3%	0%	0%
Returns					
First Day Return (Underpricing)	35.2%	21.1%	14.1%***	30.0%	11.8%
Lockup Period (First 6 Months)	5.5%	-3.4%	8.9%**	-3.0%	-12.1%
First Three Years: IPOs	49.5%	8.5%	41.1%***	-15.4%	-55.5%
First Three Years: Market	37.3%	32.5%	4.7%***	33.2%	29.4%

Table 3: **Panel A** compares observable characteristics of VC–backed IPOs that were distributed in kind at least once ("Dist.") with those that were not ("Not Dist."). "Dist." only includes IPO Exits, defined in Table 2 (N = 283). "Not Dist." includes VC-backed IPOs that were never distributed (N = 486) and that were distributed via M&A Exits (N = 112). M&A Exits refer to cases in which a portfolio company is acquired in a stock-for-stock transaction by a publicly traded firm. LPs receive shares of the acquiring firm, which may itself have been VC-backed at IPO but is not invested in by the distributing VC. The sample includes 881 U.S. VC-backed IPOs from Ritter (2025) based on 2010–2021 to ensure at least a two-year post-IPO window for in-kind distributions, given that distribution data are available from 2012 through 2023, and the average and median months from IPOs to the in-kind distributions are 33 months and 20 months, respectively. The sample excludes ADRs, unit offers, closed-end funds, REITs, natural-resource partnerships, best-efforts offers, banks, and S&Ls, and limits to IPOs with offer prices of at least $5 listed on Amex, NYSE, or NASDAQ.

Columns labeled *Average* and *Median* report, respectively, the mean and median values for each variable within the Distributed and Not Distributed IPO groups. The column labeled *Diff. in Average* shows the difference in means between the two groups (Distributed minus Not Distributed), estimated based on regressions $y_i = \beta \, \textbf{Distributed}_i + \varepsilon_i$ where asterisks denote statistical significance at the 1% (***), 5% (**), and 10% (*) levels. *IPO Proceeds* denote the amount raised in the IPO, excluding any over-allotment option. *Sales* are measured over the trailing twelve months. *Underwriter Rank* measures the prestige of the lead underwriter on the Carter–Manaster (0–9) scale, with higher values indicating greater prestige (Loughran and Ritter 2004). *Firm Age* is the age at the time of the IPO, measured from the firm's founding year to the year of the IPO. *Percentage of Primary Shares* represents the proportion of IPO proceeds raised from newly issued shares (the remainder from selling shareholders, referred to as secondary shares). *Profitable* equals one if the firm reports positive trailing-twelve-month EPS before the IPO. *First-Day Return* captures IPO underpricing, measured from the offer price to the first-day closing price. *Lockup Period (First 6 Months)* denotes cumulative buy-and-hold returns over the typical 180-day post-IPO lockup period. *First Three Years: IPOs* measures cumulative buy-and-hold returns of IPO firms over the first three post-IPO years starting from the first-day closing price, while *First Three Years: Market* reports benchmark market returns over the same periods.

Panel B VC-backed IPOs In-kind Distributed (IPO Exits only) vs. Not: Regressions

	Distributed In-Kind			
	IPO Characteristics Only		IPO Characteristics with Return Stats	
	(1)	(2)	(3)	(4)
Ln(IPO Proceeds)	0.057***	0.101***	0.054**	0.091***
	(2.83)	(4.44)	(2.52)	(3.94)
Ln(Sales)	0.024***	0.017***	0.023***	0.016***
	(5.30)	(3.68)	(5.22)	(3.52)
Underwriter Rank	0.031**	0.016	0.023*	0.010
	(2.35)	(1.20)	(1.70)	(0.77)
Ln(Firm Age)	-0.020	0.006	-0.020	0.005
	(-0.76)	(0.23)	(-0.77)	(0.20)
Fraction of Secondary Shares	0.047	0.179	0.041	0.179
	(0.34)	(1.28)	(0.29)	(1.29)
Profitable	-0.132**	-0.137**	-0.148***	-0.149***
	(-2.37)	(-2.48)	(-2.63)	(-2.69)
First Day Return			0.151***	0.165***
			(3.45)	(3.77)
First 6 Months Return			0.107***	0.089***
			(3.67)	(2.98)
Year FE	No	Yes	No	Yes
No. of Observations	880	880	880	880
Adj. R-Squared	0.079	0.133	0.103	0.152

Table 3: **Panel B** reports OLS regressions of an indicator variable, *Distributed In-Kind*, equal to one if a VC-backed IPO is ever distributed via IPO exits (Direct) in kind, on firm and IPO characteristics. The sample follows **Panel A**. Columns (1)–(2) include only variables observable at the time of the IPO, while Columns (3)–(4) additionally control for *First-Day Return* (IPO Underpricing) and *First 6 Months Return* (IPO Lockup Period). The specification is

$$\text{Distributed In-Kind}_i = \alpha + \beta' X_i + \psi_{y(i)} + \varepsilon_i, \tag{6}$$

where *Distributed In-Kind*$_i$ equals one if IPO i is ever distributed in kind in year t, X_i represents firm- and IPO-level characteristics, and $\psi_{y(i)}$ denotes IPO year fixed effects. t-statistics, based on robust standard errors are reported in parentheses. Significance levels are denoted by ***, **, and * for 1%, 5%, and 10%, respectively.

Table 4: Fama–French Three-Factor Regressions

Panel A Monthly Regressions: Twelve Months Before and After Distributions

	Pre-Distribution: 12 Months			Post-Distribution: 12 Months		
	(1) CAPM	(2) FF 3 Factors	(3) Momentum	(4) CAPM	(5) FF 3 Factors	(6) Momentum
Alpha	0.023***	0.028***	0.028***	-0.007	-0.003	-0.004
	(3.05)	(3.81)	(3.55)	(-1.50)	(-0.94)	(-1.03)
Market	1.555***	1.127***	1.169***	1.358***	1.143***	1.166***
	(8.89)	(10.54)	(9.47)	(13.10)	(12.65)	(12.16)
SMB		2.373***	2.409***		1.286***	1.308***
		(4.21)	(4.43)		(9.36)	(9.24)
HML		-0.398	-0.355		-0.424***	-0.399***
		(-1.52)	(-1.42)		(-4.31)	(-3.89)
MOM			0.150			0.081
			(0.77)			(0.83)
No of Obs.	155	155	155	154	154	154
Adj. R-Squared	0.30	0.52	0.52	0.53	0.72	0.72

Table 4: **Panel A** reports CAPM, Fama–French three-factor, and Fama–French–Carhart momentum regressions of monthly excess returns around venture capital in-kind distribution events. The dependent variable is the equal-weighted portfolio return in excess of the risk-free rate. For the *Pre-Distribution* portfolio, firms enter the portfolio twelve months before the distribution month and remain until the end of that month; for the *Post-Distribution* portfolio, firms enter in the month following a distribution and remain for twelve months unless delisted. The distribution month is excluded from both windows. I form a portfolio when there are at least two observations for a given month. The estimated models are:

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + \varepsilon_{p,t},$$

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + s\,SMB_t + h\,HML_t + \varepsilon_{p,t},$$

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + s\,SMB_t + h\,HML_t + m\,MOM_t + \varepsilon_{p,t}.$$

where $R_{p,t}$ is the portfolio return, $R_{f,t}$ is the risk-free rate, and $R_{m,t}$ is the market return. SMB_t, HML_t, and MOM_t denote the size, value, and momentum factors, respectively (Fama and French (1993); Carhart (1997)). Heteroskedasticity-robust t-statistics are reported in parentheses. Statistical significance is denoted by *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.10$.

Panel B Daily Regressions: Twenty Trading Days Before and After Distributions

	Pre-Distribution: 20 Days			Post-Distribution: 20 Days		
	(1) CAPM	(2) FF 3 Factors	(3) Momentum	(4) CAPM	(5) FF 3 Factors	(6) Momentum
Alpha	0.004***	0.004***	0.004***	-0.002***	-0.002***	-0.002***
	(5.73)	(6.11)	(6.23)	(-3.80)	(-3.90)	(-3.98)
Market	1.364***	1.120***	1.138***	1.084***	0.956***	0.969***
	(21.28)	(19.07)	(20.24)	(20.39)	(20.51)	(20.42)
SMB		1.260***	1.308***		0.921***	0.929***
		(13.32)	(12.39)		(13.61)	(13.77)
HML		-0.553***	-0.497***		-0.583***	-0.561***
		(-8.68)	(-5.97)		(-10.54)	(-9.12)
MOM			0.123			0.055
			(1.40)			(1.15)
No of Obs.	2,508	2,508	2,508	2,401	2,401	2,401
Adj. R-Squared	0.15	0.22	0.22	0.23	0.32	0.32

Table 4: **Panel B** reports CAPM, Fama–French three-factor, and Fama–French–Carhart momentum regressions of daily excess returns around venture capital in-kind distribution events. The dependent variable is the equal-weighted portfolio return in excess of the risk-free rate. For the *Pre-Distribution* portfolio, firms enter nineteen trading days before the distribution date and remain through day 0 (the distribution day), which is included because distributions almost always occur after the market close. For the *Post-Distribution* portfolio, firms enter on the first trading day following a distribution and remain for twenty trading days unless delisted. I form a portfolio when there are at least two observations for a given day. The estimated models are:

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + \varepsilon_{p,t},$$

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + s\,SMB_t + h\,HML_t + \varepsilon_{p,t},$$

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + s\,SMB_t + h\,HML_t + m\,MOM_t + \varepsilon_{p,t}.$$

where $R_{p,t}$ is the portfolio return, $R_{f,t}$ is the risk-free rate, and $R_{m,t}$ is the market return. SMB_t, HML_t, and MOM_t denote the size, value, and momentum factors, respectively (Fama and French (1993); Carhart (1997)). Heteroskedasticity-robust t-statistics are reported in parentheses. Statistical significance is denoted by *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.10$.

Table 5: Cash-Equivalent of In-Kind Distributions and Implications for VC Fund Returns

Panel A: Simulation Process Outline

Step 1	Randomly select ten trading days within the 3-, 6-, or 12-month post-distribution window.
Step 2	Liquidate 10% of the distributed shares on each of the ten trading days, assuming no transaction costs or price impact.
Step 3	Discount each day's proceeds to the distribution date using the CRSP value-weighted total market return.

Panel B: Present Value of Proceeds from Selling Distributed Shares

	3 months	6 months	12 months
Average (Discount Rate: CRSP)	97.0%	97.1%	97.1%
Median (Discount Rate: CRSP)	96.7%	95.5%	94.0%

Panel C: Estimated Impacts on net-of-fees VC Fund Returns

Return Statistics		IRR	
		Original	Adjusted
Harris, Jenkinson, and Kaplan (2014)	Average	16.8%	16.5%
Average Investment Duration: 5.1 Years	Median	11.1%	10.7%
Korteweg and Nagel (2016)	Average	8.8%	8.5%
Average Investment Duration: 5.3 Years	Median	4.4%	3.8%
Barber and Yasuda (2017)	Average	8.8%	8.5%
Average Investment Duration: 5.8 Years	Median	0.2%	-0.2%
Brown, Gredil, and Kaplan (2019)	Average	15.0%	13.9%
Average Investment Duration: 1.7 Years	Median	3.8%	2.7%

Table 5: **Panel A** outlines the simulation used to estimate the expected cash proceeds to limited partners from liquidating distributed shares. **Panel B** reports the present value of expected proceeds from ten randomly timed sales within the indicated post-distribution windows, discounted using the CRSP value-weighted market return in the spirit of the Private Market Equivalent of Kaplan and Schoar (2005). A value of 97.00% indicates that stock distributions marked at \$100 yield a present value of \$97.00 under the three-month liquidation schedule, using the CRSP data and assuming no transaction costs. **Panel C** applies these discounts to published net-of-fees VC fund Internal Rate of Returns (IRRs). "Original" denotes the IRRs reported in the cited studies; "Adjusted" implements a 56% in-kind share based on NVCA benchmarks (see Table 2) and uses the least severe estimated discount (97.1% for means; 96.7% for medians), producing conservative lower-bound adjustments.

Table 6: Comparing Single, First, and Last-Tranche VC Distributions

Panel A: Pre-Distribution Periods

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Abnormal Returns: Pre 3 Months				Abnormal Returns: Pre 12 Months			
Only Distribution	0.049			0.052	0.127			0.131
	(1.29)			(1.35)	(1.24)			(1.23)
First Distribution		0.002		0.006		-0.006		0.004
		(0.07)		(0.27)		(-0.17)		(0.10)
Last Distribution			0.007	0.011			0.010	0.019
			(0.39)	(0.61)			(0.21)	(0.37)
No. of Obs	3,846	3,846	3,846	3,846	3,752	3,752	3,752	3,752
Adj. R-Squared	0.016	0.015	0.015	0.016	0.056	0.055	0.055	0.056

Panel B: Post-Distribution Periods

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Abnormal Returns: Post 3 Months				Abnormal Returns: Post 12 Months			
Only Distribution	-0.087***			-0.099***	-0.166***			-0.187***
	(-3.88)			(-4.33)	(-3.52)			(-3.76)
First Distribution		-0.002		-0.015		0.018		-0.007
		(-0.18)		(-1.15)		(0.60)		(-0.21)
Last Distribution			-0.054***	-0.062***			-0.112***	-0.124***
			(-3.52)	(-3.92)			(-3.64)	(-3.81)
No. Obs	3,802	3,802	3,802	3,802	3,645	3,645	3,645	3,645
Adj. R-Squared	0.040	0.036	0.041	0.046	0.079	0.075	0.080	0.084

Table 6: **Panel A** (*Pre-Distribution Periods*) and **Panel B** (*Post-Distribution Periods*) report linear regressions of cumulative abnormal returns surrounding distribution events. The main regressors are: Only Distribution$_i$, which equals one if a company is distributed only once; First Distribution$_i$, which equals one for the first distribution when a company is distributed more than once; and Last Distribution$_i$, which equals one for the last distribution when a company is distributed more than once. A company can be distributed more than once if its VC investor distributes in multiple tranches, or if the company has multiple VC investors distributing at different times (or both). Each dependent variable is a cumulative abnormal return (CAR) computed relative to the CRSP value-weighted market index over the indicated window, defined as $(1 + R_{it})/(1 + R_t^M)$. Specifications (4) and (8) estimate OLS regressions

$$Y_i \ = \ \alpha \ + \ \beta_1 \, \text{OnlyDist}_i \ + \ \beta_2 \, \text{FirstDist}_i \ + \ \beta_3 \, \text{LastDist}_i \ + \ \psi_t \ + \ \varepsilon_i,$$

where Y_i denotes one of the abnormal return measures listed in the column headers and ψ_t denotes IPO year fixed effects. t-statistics, reported in parentheses, are based on heteroskedasticity-robust standard errors clustered at a company level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. To interpret magnitudes, consider Panel B's Specification (1), which regresses post-distribution abnormal returns on OnlyDist$_i$. The coefficient on OnlyDist$_i$, -0.087, implies that companies whose VC investors fully exit in a single tranche experience, on average, an 8.7% lower abnormal return over the three months following distribution, relative to firms whose shares are distributed in multiple tranches. The sample includes both IPO and M&A exits, and **Table IA7** reports the same regression results using IPO exits only.

Table 7: What would Happen if GPs were Prohibited from Distributing In-Kind?

Panel A: Two Possible Scenarios

Scenario	Economic Rationale	Implied Liquidation Strategy by GPs
Maintain Effort	GPs continue to supply monitoring and support because GP compensation, including potential carried interest, remains tied to exit outcomes.	Sell 10% of the distributed shares on each of ten randomly selected trading days within the 1- to 3-month pre-distribution window.
Reduce Effort	GP effort is costly, and GPs do not capture the full gains from continued effort if they have to internalize the costs of selling.	Sell the entire position at the IPO (via secondary shares) or immediately after the mandatory IPO lock-up period expires.

Panel B: Present Value of Proceeds from Alternative Options

	Sell in One-Month Pre-Distribution			Sales in Three-Month Pre-Distribution		
	Distributions	Market	Foregone Gains	Distributions	Market	Foregone Gains
Maintain Effort	9.0%	1.7%	7.2%	15.3%	3.8%	11.1%

	Sell at IPO			Sell after IPO lock-up Expires		
	Distributions	Market	Foregone Gains	Distributions	Market	Foregone Gains
Reduce Effort	233.0%	38.8%	139.8%	166.2%	32.2%	101.3%

Table 7: **Panel A** outlines two counterfactual actions available to general partners when they are prohibited from making in-kind distributions. The first assumes that GPs maintain their effort and therefore liquidate gradually before the distribution dates. The second assumes reduced effort, in which case GPs liquidate immediately at the IPO or upon expiration of the mandatory IPO lock-up. **Panel B** reports cumulative returns from these alternative liquidation strategies and compares them with CRSP value-weighted total market returns over the same windows. *Foregone Gains* are the difference between the cumulative return from liquidating distributed shares under the counterfactual selling rule and the cumulative CRSP value-weighted market return over the same window, calculated as $\frac{1+\text{Distribution Return}}{1+\text{Market Return}} - 1$. Positive Foregone Gains indicate that the distributed stocks outperform the market, implying that LPs would have to forgo returns of this magnitude under the counterfactual. "Maintain Effort" assumes GPs continue exerting efforts and sell the positions gradually at 10% per day during the one- or three-month pre-distribution window. "Reduce Effort" assumes GPs sell immediately at the IPO (secondary shares) or immediately after the mandatory lock-up period.

Table 8: Are Reputable VCs Different from the Rest?

Panel A: Naïve Approach – Including Selection

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dist. Value	IPO	Days from	Abnormal Returns ($= \frac{1+\text{Returns}}{1+\text{Market}}$)			
	($ million)	Exits	IPO to Dist.	Pre: 12 m	Pre: 3 m	Post: 3 m	Post: 12 m
Reputable	-8.44	-0.110**	-70.811*	-0.054	-0.034*	0.031**	0.086**
	(-0.52)	(-2.40)	(-1.66)	(-0.90)	(-1.71)	(2.07)	(2.17)
No of Obs.	3,843	3,843	3,843	3,843	3,750	3,800	3,643
Adj. R-Squared	0.010	0.152	0.792	0.048	0.009	0.031	0.072
Y-Mean	103	0.623	990	0.242	0.110	-0.031	-0.033

Panel B: Separating Selection – Treatment Only

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dist. Value	IPO	Days from	Abnormal Returns ($= \frac{1+\text{Returns}}{1+\text{Market}}$)			
	($ million)	Exits	IPO to Dist.	Pre: 12 m	Pre: 3 m	Post: 3 m	Post: 12 m
Reputable	-30.70	-0.091*	16.666	0.026	-0.022	0.015	0.009
	(-1.44)	(-1.94)	(0.36)	(0.41)	(-0.90)	(0.84)	(0.18)
No of Obs.	1,697	1,697	1,697	1,697	1,643	1,689	1,632
Adj. R-Squared	0.040	0.226	0.871	0.056	0.013	0.038	0.120
Y-Mean	123	0.615	818.652	0.222	0.105	0.022	0.054

Table 8: **Panel A** (*Naïve Approach – Including Selection*) and **Panel B** (*Separating Selection – Treatment Only*) report OLS regressions of event-level outcomes on an indicator for reputable VCs. The main regressor, *Reputable*, equals one for distributions by reputable (or top) VCs and zero otherwise. The list of reputable VCs follows Metrick and Yasuda (2021) - Accel, Benchmark, Charles River, Khosla, Kleiner Perkins, Matrix, Sequoia, and Union Square (see Table IA4 for more detail). Column (1) uses the distribution value (= the number of shares distributed × distribution price, reported in millions of dollars) as the dependent variable; column (2) is an indicator for IPO exits (the other option is M&A exits); and column (3) measures the number of days from the IPO to the distribution date. Columns (4)–(7) report cumulative abnormal returns over the specified windows (12 months before distributions, 3 months before distributions, 3 months after distributions, and 12 months after distributions). Cumulative abnormal return for window $[t_1, t_2]$ is computed as

$$AR_{[t_1,t_2]} = \prod_{t=t_1}^{t_2}(1 + R_{it}) \Big/ \prod_{t=t_1}^{t_2}\left(1 + R_t^M\right) - 1,$$

where R_{it} is the distributed stock's return and R_t^M is the CRSP value-weighted market return. I estimate

$$Y_{it} = \alpha + \beta \, \text{Reputable}_{it} + \psi_t + \varepsilon_{it},$$

where Y_{it} is the outcome described above and ψ_t denotes IPO-year fixed effects. **Panel B** further restricts the sample to the overlap group of portfolio companies backed by both reputable and non-reputable VCs (i.e., the treatment-only design illustrated in Figure 4: group Y). t-statistics, reported in parentheses, are based on robust standard errors clustered at the firm level. The sample includes U.S.-listed firms only. Sample sizes vary across return windows due to differences in return availability and post-distribution survival. "Y-Mean" reports the sample mean of the dependent variable. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Internet Appendix for:
Cash or Stock? Agency Frictions in Venture Capital Distributions

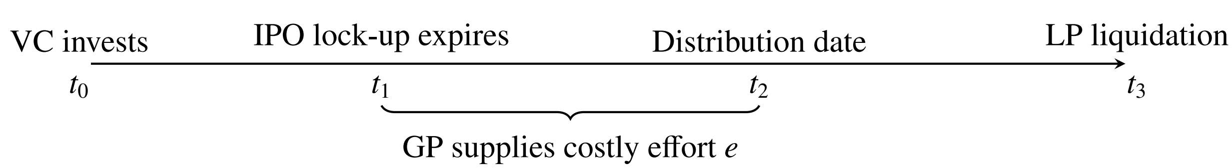
January 27, 2026

IA.1 Conceptual Framework

In this section, I develop a simple conceptual framework that rationalizes the main empirical findings of the paper: (i) strong abnormal returns between IPO lock-up expiration and distributions, a sharp price drop on the first trading day after the distribution, and market-like returns thereafter; (ii) a persistent wedge between reported fund performance, which determines GPs' carried-interest income, and LPs' realized proceeds due to liquidation costs borne by LPs; and (iii) the prevalence of in-kind distributions, as prohibiting them weakens GP incentives and ultimately reduces LP payoffs.

IA.1.1 Environment

A venture capital fund managed by a general partner (GP) invests in a single portfolio company on behalf of a group of limited partners (LPs). Time is discrete. At t_0, the GP invests when the portfolio company is private; at t_1 (IPO lock-up expiration), the GP decides post–IPO lock-up period effort $e \geq 0$; at t_2, the GP either distributes shares in kind or sells them and distributes cash; and at t_3, LPs liquidate any shares they receive if the GP distributes in-kind at t_2.[1]



Portfolio company value at t_2. In the spirit of the delegated-monitoring framework of Holmström and Tirole (1997), the GP's effort raises the portfolio company's expected value. I impose a reduced-form linear specification:

$$P(e) = \mu + \phi e, \qquad \phi > 0.$$

[1] The GP also undertakes effort during the pre–lock-up period (t_0, t_1), but this margin is omitted because the GP's optimal choice is identical across the two regimes considered below. If the GP exerts no post–lock-up effort ($e = 0$), it liquidates the entire position at t_1. However, the empirical evidence in Table 7 indicates that such a strategy is unlikely to satisfy the GP's incentive-compatibility constraint.

Effort reflects both value-added activities (e.g., board service and mentoring (Hellmann and Puri 2002)) and the GP's ability to identify distribution or sale dates when the portfolio company's stock price is elevated and near a local maximum (Gompers and Lerner 1998). As in canonical moral-hazard models (Ross 1973; Holmström 1979), LPs observe the outcome $P(e)$ but not the effort choice e. For tractability, I abstract from the standard stochastic formulation in which output takes the form $P(e) + \varepsilon$. Instead, I assume a deterministic mapping from effort to value and that LPs do not know ϕ, which is sufficient for the incentive-compatibility analysis below.

Cost of GP effort. Effort is costly for the GP. For notational simplicity, I write the cost of effort as:

$$c(e) = ke, \qquad k > 0.$$

I assume that effort is bounded above by an exogenous constraint $\bar{e} < \infty$, reflecting time, attention, and organizational limits. The linear specification should therefore be interpreted as a local approximation to a strictly convex cost function around the interior optimum.

Liquidation costs. Large block sales generate substantial price impacts in the spirit of Kyle (1985). Two distinct liquidation-cost parameters apply depending on which party executes the sale:

- θ_ℓ: the LPs' liquidation cost when LPs sell distributed shares at t_3. Each LP chooses its own liquidation schedule, so t_3 may vary across LPs. Empirically, about half of the distributed shares are sold the day following the distributions (Figure 2). A representative LP faces $\theta_\ell = 0.029$ (Table 5).
- θ_g: the GP's liquidation cost if the GP sells the entire block at t_2 to distribute cash. Insider block sales transmit an adverse signal to the market; consequently, GPs rely on "stealth sales" (Barclay and Warner 1993). Empirically, the smallest observed value of θ_g is 0.072 (Table 7), implying $\theta_g > \theta_\ell$.

Execution prices are therefore:

$$P^\ell(e) = (1 - \theta_\ell)P(e) \;\; > \;\; P^g(e) = (1 - \theta_g)P(e), \qquad \theta_g > \theta_\ell.$$

Management fees. Between t_1 and t_2, the GP earns annual management fees proportional to the portfolio company's value (i.e., net invested capital). For tractability, I consolidate these management fee flows into a single payment proportional to the portfolio company's exit value:

$$\text{MFee}(e) = mP(e)Q, \qquad m \in [0, 0.02],$$

Carried interest. Carried interest is computed on the net of management fees value:

$$\text{Carried Interest} = \alpha(1-m)P(e)Q, \qquad \alpha \in (0,1),$$

where empirically $\alpha \approx 20\%$ for VC funds earning carry after the catch-up (Metrick and Yasuda 2010b).

IA.1.2 In-Kind Distribution Regime (Current)

At t_2, the GP distributes Q shares at the mark $P(e)$. The GP's payoff is the sum of management fees and carried interest, minus the cost of supplying effort:

$$\Pi^K_{GP}(e) = \underbrace{mP(e)Q}_{\text{mfees}} + \underbrace{\alpha(1-m)P(e)Q}_{\text{carry}} - \underbrace{ke}_{\text{cost of effort}} = QP(e)[m+\alpha(1-m)] - ke.$$

The GP maximizes $\Pi^K_{GP}(e)$ with respect to the effort level e. The first-order condition $Q\phi[m+\alpha(1-m)] - k = 0$ leads to

$$e^K = \frac{Q\phi[m+\alpha(1-m)]}{k}.$$

In economic terms, the GP's optimal effort level (e^K) increases with the size of the GP's holdings (Q) and with the effectiveness of effort in raising the exit price (ϕ). It also rises with the GP's effective share of the incremental value, $m + \alpha(1-m)$, and decreases with the marginal cost of effort (k).

When the GP exerts e^K, LPs receive the net-of-fees, net-of-carry value:

$$P(e^K)Q - \Big[\underbrace{mP(e^K)Q}_{\text{mfees}} + \underbrace{\alpha(1-m)P(e^K)Q}_{\text{carry}}\Big] = Q(1-m)(1-\alpha)P(e^K).$$

When LPs sell the shares, they incur the LP price impact θ_ℓ, so realized LP wealth is

$$W_{LP}^{K} = Q(1-m)(1-\alpha)(1-\theta_\ell)P(e^K).$$

IA.1.3 Cash-Only Regime (Counterfactual)

If the LPA forbids in-kind distributions, the GP must sell shares and distribute cash; it cannot fully capture the gains from continued effort. The two liquidation strategies analyzed below are opposing corner solutions—complete shirking with immediate exit versus full effort with delayed sale. Any realistic GP response would lie between these two polar cases.

(i) Reduce effort and sell at t_1. A disincentivized GP exits immediately at the IPO lock-up expiration (t_1), supplying no post–lock-up effort so that $e = 0$ between t_1 and t_2. The GP could alternatively sell at the IPO by offering secondary shares, but Table 3 shows that this is rare (less than 6% of shares offered at IPOs), largely because doing so forfeits the average first-day return of roughly 35%. An insider block sale at t_1 executes at price $(1-\theta_g)P(0)$. Management fees earned prior to t_1 apply equally under both liquidation strategies and are therefore omitted. Assuming the GP earns carried interest, the GP's payoff from exiting at t_1 is

$$\Pi_{GP}^{C}(t_1) = \underbrace{\alpha(1-m)(1-\theta_g)P(0)Q}_{\text{carry}}.$$

(ii) Sustain effort and sell at t_2. If the GP supplies costly post-lock-up effort $e > 0$ between t_1 and t_2 and sells later at t_2, the execution price is $(1-\theta_g)P(e)$. Assuming the GP earns carried interest, the GP's payoff from exiting at t_2 can be written as

$$\Pi_{GP}^{C}(t_2) = \underbrace{mP(e)Q}_{\text{mfees }(t_1,\,t_2)} + \underbrace{\alpha(1-m)(1-\theta_g)P(e)Q}_{\text{carry}} - \underbrace{ke}_{\text{cost of effort}}.$$ [2]

[2] While the management-fee rate m could differ between $\Pi_{GP}^{C}(t_1)$ and $\Pi_{GP}^{C}(t_2)$, I assume it is identical across the two cases for simplicity, since any variation would be immaterial to the analysis.

Comparison of GP incentives. The GP compares $\Pi^C_{GP}(t_2)$ with $\Pi^C_{GP}(t_1)$ and chooses the higher payoff. Selling at t_2 is preferred whenever

$$\Pi^C_{GP}(t_2) > \Pi^C_{GP}(t_1): \qquad mP(e)Q + \alpha(1-m)(1-\theta_g)P(e)Q - ke \;>\; \alpha(1-m)(1-\theta_g)P(0)Q.$$

Subtracting $\alpha(1-m)(1-\theta_g)P(0)Q$ from both sides yields

$$mP(e)Q \;+\; \alpha(1-m)(1-\theta_g)(P(e)-P(0))Q \;-\; ke \;>\; 0.$$

Using $P(e) = P(0) + \phi e$, the payoff difference can be written as[3]

$$\Delta\Pi^C_{GP}(e) = mP(0)Q \;+\; \Big[\phi Q(m + \alpha(1-m)(1-\theta_g)) - k\Big]e.$$

For a marginal increase in effort around $e = 0$, effort is incentive compatible whenever

$$\underbrace{\phi Q}_{\text{increase in exit value from effort}} \times \underbrace{(m + \alpha(1-m)(1-\theta_g))}_{\text{GP's effective share (mfees + carry)}} \geq \underbrace{k}_{\text{marginal cost of effort}}.$$

Thus, as long as the GP's share of the incremental exit value (through management fees and carried interest, net of the GP's liquidation costs) exceeds the marginal cost of supplying effort, the GP strictly prefers to sustain effort and liquidate the Q shares at t_2 rather than reduce effort and exit at t_1, even under a cash-only regime. This is consistent with the empirical findings of Table 7.

[3]The expression rewrites the GP's payoff difference $\Delta\Pi^C_{GP}(e) \equiv \Pi^C_{GP}(t_2) - \Pi^C_{GP}(t_1)$ as a function of effort. Starting from

$$mP(e)Q + \alpha(1-m)(1-\theta_g)[P(e) - P(0)]Q - ke,$$

substitute $P(e) = P(0) + \phi e$, so that $P(e) - P(0) = \phi e$. This yields

$$m[P(0) + \phi e]Q + \alpha(1-m)(1-\theta_g)\,\phi e Q - ke.$$

Expanding terms gives $mP(0)Q + m\phi eQ + \alpha(1-m)(1-\theta_g)\phi eQ - ke$. Collect the constant term $mP(0)Q$ and factor out e from the remaining terms to obtain

$$mP(0)Q + \Big[\phi Q(m + \alpha(1-m)(1-\theta_g)) - k\Big]e,$$

The subsequent inequality $\Delta\Pi^C_{GP}(e) > 0$ is the GP's incentive-compatibility condition.

LP wealth under cash-only. Assuming that GPs sustain effort, liquidate their shares at t_2, and distribute cash, LPs receive the net-of-management-fee, net-of-carry, and net-of-GP-liquidation-cost proceeds:

$$W_{LP}^{C} = Q(1-m)(1-\alpha)(1-\theta_g)P(e).$$

IA.1.4 Comparison of Regimes

From the LPs' perspective, the relevant comparison is the cash they ultimately receive under the in-kind distribution regime versus the cash-only regime. In both regimes, LPs receive the same net-of-management-fee, net-of-carry fraction $(1-m)(1-\alpha)$ of the position. The difference arises solely from (i) which party bears the liquidation cost—the GP or the LPs—and (ii) the exit price, which depends on the level of GP effort sustained prior to liquidation. Under the cash-only regime, I assume the GP continues to exert effort and liquidates the full position at t_2 through stealth sales before distributing cash to LPs. Accordingly, the only difference between the two regimes is the identity of the party bearing the liquidation cost.

If the GP distributes shares in kind at t_2, LPs realize

$$\underbrace{QP(e^K)}_{\text{total proceeds}} \;-\; \underbrace{[mQP(e^K) + \alpha(1-m)QP(e^K)]}_{\text{GP payoff (mfees + carry)}} \;-\; \underbrace{\theta_\ell QP(e^K)}_{\text{LP liquidation cost}} \;=\; (1-m)(1-\alpha)(1-\theta_\ell)P(e^K).$$

where e^K reflects the effort exerted under the in-kind regime and θ_ℓ is the liquidation cost incurred by LPs.

If the GP instead sells shares through stealth sales at t_2 and distributes cash, LPs receive

$$\underbrace{QP(e^C)}_{\text{total proceeds}} \;-\; \underbrace{[mQP(e^C) + \alpha(1-m)QP(e^C)]}_{\text{GP payoff (mfees + carry)}} \;-\; \underbrace{\theta_g QP(e^C)}_{\text{GP liquidation cost}} \;=\; (1-m)(1-\alpha)(1-\theta_g)P(e^C).$$

where $\theta_g > \theta_\ell$ reflects that the liquidation cost is higher for the GP than for LPs. As discussed earlier, this is because there is only one GP and multiple LPs, and each LP makes its own liquidation choice. The GP sales are more scrutinized in the market due to their informed insider shareholder status, making stealth sales necessary. LPs prefer in-kind distributions whenever

$$(1-m)(1-\alpha)(1-\theta_\ell)P(e^K) \;>\; (1-m)(1-\alpha)(1-\theta_g)P(e^C),$$

which simplifies to

$$(1 - \theta_\ell)P(e^K) > (1 - \theta_g)P(e^C).$$

Empirically, the minimum estimate of θ_g (0.072) exceeds θ_ℓ (0.029). Hence, the inequality holds in practice because $e^K \geq e^C$: LPs are better off receiving in-kind distributions even though they bear the 2.9% liquidation loss. By contrast, requiring GPs to sell would force earlier liquidation or impose a larger insider-sale price impact, reducing LP payoffs even when the GP supplies the same level of effort under both regimes ($e^C = e^K$). LPs would be even worse off if $e^C < e^K$, as in the reduced-effort case (e.g., the GP selling everything immediately after the IPO lock-up expires).

Portfolio company returns are lower in periods after all GPs have exited than in periods when at least one GP remains invested (Table 6). This pattern is consistent with the model's implication that GPs cease to exert costly effort once they fully exit.

IA.2 Preqin and MSCI Burgiss Data Coverage

Preqin and MSCI Burgiss are the principal commercial datasets used to study private equity and venture capital fund performance (Brown, Harris, Jenkinson, Kaplan, and Robinson 2015). Neither source, however, provides full coverage of the industry. I therefore examine, out of the 3,970 in-kind distributions reported in Table 1, how many originate from funds covered by these databases.

Table IA1 shows that Preqin reports fund vintages and sizes for funds responsible for 3,477 of the 3,970 distributions, an 88% coverage rate. Coverage declines substantially when quarterly cash-flow data (contributions, distributions, and net asset values) are required. Among the 496 funds for which Preqin reports vintages and sizes, only 242 have at least five years of quarterly cash-flow histories, corresponding to 1,586 distributions. Requiring at least ten years of cash-flow data further reduces coverage to 155 funds and 1,068 distributions.

TABLE IA1

The drop from five-year to ten-year cash-flow coverage is at least partly mechanical because the distribution sample spans 2012–2023, which includes funds that are younger than ten years. By contrast, the decline from vintage/size coverage to five-year cash-flow coverage is not likely driven by fund age. Prior studies show that the average investment horizon of VC portfolio companies is about five years (summarized in Table 5), implying that in-kind distributions occur primarily when funds are already mature. Thus, the likelihood that a fund fails to meet the five-year threshold solely because it is young is minimal. Table 1 shows that both the mean and median age of the fund at the time of distribution, measured as the distribution year minus the fund's vintage year, are nine years. In other words, most of the reduction from 496 funds to 242 funds reflects gaps in Preqin's cash-flow reporting rather than the youth of distributing funds at the time the Preqin data were accessed in 2024.

Coverage in MSCI Burgiss is more limited due to the platform's non-disclosure policy. MSCI Burgiss reports at least five years of cash-flow data for 325 funds, but it does not disclose the number of associated distributions or provide further detail.

Panel C of Table IA1 compares distribution characteristics across Preqin coverage tiers. Relative to distributions from funds without cash-flow coverage, distributions from funds with cash-flow histories are smaller on average, involve a larger fraction of IPO exits, and exhibit relatively stronger abnormal returns both before and after distribution dates. As discussed in Section 5, these systematic differences motivate the use of an averaging approach, rather than fund-by-fund return reconstruction, when estimating LPs' realized cash-based returns in Table 5.

IA.3 Distributed Prices vs. Distribution Date Closing Prices

As discussed in Section 1, VC funds may distribute shares in kind only if such distributions are expressly permitted in the limited partnership agreement (LPA). LPAs also specify the method used to determine the distribution price. This choice matters for two reasons. First, the distribution price enters directly into LPs' realized cash flows. For example, if the closing market price on the distribution date is \$10.00 but the LPA mandates the use of an average price or another convention, the reported distribution price may instead be \$9.60. In the return calculations in Section 5, any such wedge between the reported distribution price and the distribution date closing price is reflected in LPs' realized returns, because the data provider records the exact distribution prices and my calculations begin from those prices.

Second, and potentially more importantly, the pricing convention may affect GP incentives. If LPAs prescribe a rule that deviates from the closing price on the distribution date, GPs may alter the timing or manner of distributions, which in turn could influence return dynamics. Dore, Gompers, and Metrick (2008) examine this issue using 1,976 in-kind distribution events between 1986 and 2006. They find that when distribution prices are based on the average closing price over the ten days prior to distribution, pre-distribution abnormal returns are higher and post-distribution price drops are larger. This evidence suggests that the choice of pricing rule may shape GP behavior and, thus, the return patterns surrounding distributions.

I compare the reported distribution prices with the closing market prices on the distribution dates. Figure IA1 plots the distribution of $(P_{\text{dist}} - P_{\text{close}})/P_{\text{dist}}$, the percentage difference between the two. The histogram is truncated to the $[-20\%, 20\%]$ range and uses one–percentage-point bins. The mass is sharply concentrated at zero, with the modal bin corresponding to $[0\%, 1\%)$ and very little mass in the tails. This visual evidence corroborates the summary statistics in Panel A of Table 1: for most distributions, the reported distribution price is effectively identical to the distribution-date closing price, and only a small minority of cases exhibit meaningful deviations attributable to alternative pricing conventions. This pattern stands in contrast to Dore, Gompers, and Metrick (2008), who report that more than 60% of distributions in their setting use prices other than the distribution-date closing price.

FIGURE IA1

Table IA2 examines whether distributions that do not use the closing price differ systematically from those that do. The main regressor is an indicator $\mathbf{1}\{P_{\text{dist}} \neq P_{\text{close}}\}$, which equals one when the reported distribution price deviates from the distribution-date closing market price. Column (1) shows that such distributions do not meaningfully differ in size (= the number of shares distributed $\times$ the distribution price): the coefficient on $\mathbf{1}\{P_{\text{dist}} \neq P_{\text{close}}\}$ is economically modest ($10.6 million relative to a mean of $103 million) and statistically insignificant. Column (2) indicates that they are more likely to be associated with IPO exits than M&A exits, with the IPO probability higher by 8.9% relative to a mean of 62.3%. Column (3) shows no statistically significant difference in the timing of distributions relative to the IPO date.

Columns (4)–(7) of Table IA2 report cumulative abnormal returns over 12- and 3-month windows before and after the distribution. The coefficients on $\mathbf{1}\{P_{\text{dist}} \neq P_{\text{close}}\}$ in the pre-distribution windows are positive but statistically insignificant, indicating no evidence of differential pre-distribution returns. By contrast, the post-distribution coefficients are negative and statistically significant: distributions that rely on alternative pricing conventions are followed by modestly lower abnormal returns over both the three-month and twelve-month windows.

TABLE IA2

Taken together, the figure and table show that although a small subset of distributions employs pricing rules other than the distribution-date closing price, these cases are not associated with systematically larger distribution events or meaningfully different pre-distribution performance. This contrasts with the findings of Dore, Gompers, and Metrick (2008). On the other hand, the lower post-distribution abnormal returns associated with alternative pricing conventions are broadly consistent with Dore et al.'s evidence.

However, I do not interpret these patterns as causal. The distribution pricing rule is an endogenously negotiated contractual term between GPs and LPs, not a policy randomly assigned across funds. GPs operating under non-distribution-day pricing conventions may differ systematically from those using the distribution day closing price, and unobservable factors correlated with these contractual choices may drive the return differences. Accordingly, the extent to which distribution pricing provisions influence GP behavior remains an open question.

IA.4 Evidence of VC Market-Timing

Table IA3 evaluates whether pre-distribution alphas differ between IPO exits and M&A exits, thereby providing evidence on whether value-added activity or market-timing drives the price dynamics documented in the main text. Panel A shows that, consistent with the overall monthly factor regressions in Table 4, firms distributed following IPO exits exhibit economically and statistically significant positive alphas over the three months preceding distribution. By contrast, firms distributed following M&A exits do not display positive monthly alphas, which is unsurprising given that VCs have no value-added role in the acquiring firms that purchase the distributing VCs' portfolio companies. The absence of positive alphas in the three-month pre-distribution window also indicates that any market-timing ability they may possess does not manifest at this three-month horizon.

TABLE IA3

The daily regressions in Panel B, however, reveal economically and statistically significant short-horizon alphas for M&A exits. These shorter-term return patterns are consistent with GPs' exercising market-timing ability: the magnitudes are smaller than for IPO exits—reflecting the fact that VCs are not insiders in the acquiring firms—yet still indicative of systematic timing.

This result should be interpreted with caution due to data limitations. My data do not identify which VC-backed companies are acquired in the underlying transactions, nor do they report the date on which VCs receive the acquirer shares that are ultimately distributed. As a result, it is not possible to determine how long these M&A-related shares are held prior to distribution. Nonetheless, the statistically significant pre-distribution alphas at the daily frequency over the twenty trading days before distribution suggest that not all VCs distribute immediately upon receipt, providing indirect evidence consistent with market-timing.

IA.5 Additional Return Statistics

Table IA4 summarizes the reputable VCs identified in the second and third editions of Metrick and Yasuda's textbooks, published in 2010 and 2021 (Metrick and Yasuda 2010a; Metrick and Yasuda 2021). The table also highlights that, although these VCs collectively manage 12% of U.S. VC assets under management, they account for more than 28% of the in-kind distributions in my sample—an outsized presence relative to their share of industry AUM.

TABLE IA4

Figure IA2 reports cumulative returns around stock distributions, as in Panel A of Figure 1, but disaggregated by distribution year from 2012 to 2023.

FIGURE IA2

Table IA5 reports equally weighted buy–and–hold returns for the distributed stocks and the CRSP value-weighted market return over windows centered on the distribution date. Two patterns emerge. First, there are pronounced pre-distribution run-ups, consistent with the central finding of Gompers and Lerner (1998). The distributed stocks outperform the market by 28.3% over the twelve months preceding distribution (39.3% vs. 11.1%) and by 11.5% over the final three months (15.3% vs. 3.8%). Distributed stocks always outperform the market except for 2022.

TABLE IA5

Second, post-distribution performance is slightly weaker than the market. Over the three months following the distribution, the differential is −2.8% (−0.5% vs. 2.3%); over twelve months, it is −1.0% (10.0% vs. 11.0%). These results align with the sharp first-day price drop documented in Figure 1, but after that date, the performance of distributed stocks closely tracks the market. This pattern contrasts with Gompers and Lerner (1998), who find that post-distribution declines are sufficiently large to erase all positive abnormal returns during the pre-distribution period.

Figure IA3 visualizes the performance of the Fama–French portfolios introduced in Table 4 in Section 4. These portfolios are constructed to characterize the return dynamics of VC-backed firms around in-kind distribution events. Since the timing of distributions is chosen by general partners, this trading strategy cannot be exploited by public. However, the exercise is still informative for understanding the magnitude and persistence of price dynamics surrounding distributions.

FIGURE IA3

Figure IA3 shows that both the monthly and daily Fama–French portfolios exhibit pronounced pre-distribution run-ups and weaker post-distribution performance. In Panel A (monthly returns), the *Pre-Distribution* portfolio appreciates sharply over the twelve months preceding distributions, far exceeding the CRSP value-weighted benchmark, whereas the *Post-Distribution* portfolio performs similarly to, or slightly below, the market. Panel B (daily returns) displays the same pattern at a much stronger magnitude: cumulative returns rise steeply in the twenty trading days before distributions, substantially outperforming the market, whereas the *Post-Distribution* portfolio underperforms the market.

Panel A of Figure IA4 reports returns from the IPO to the lock-up expiration and the distribution date, following the same construction as Figure 3, but using the company as the unit of observation. A given company may be distributed multiple times because it can have several VC investors distributing at different times, and a single VC investor may distribute its holdings in multiple tranches. Both Figure 3 and Panel A of Figure IA4 restrict the sample to IPO exits. Panels B and C of Figure IA4 present the analogous trajectories for M&A exits.

FIGURE IA4

Table IA6 conducts the same comparison as Table 3 but uses a more focused comparison group. Recall that Table 3 compares VC-backed IPOs that are ultimately distributed in kind with those that are not. An important nuance is that some VC-backed IPOs are distributed in kind more than three years after the IPO. I classify these as M&A exits. The rationale is that, beyond three years, it is more likely that an in-kind distribution reflects the IPO firm's acquisition of another VC-backed company in a stock-for-stock transaction—an M&A exit for a different company—than continued GP ownership of the IPO firm's shares for more than three years.

TABLE IA6

Overall, Table IA6 compares VC-backed IPOs that are distributed in kind within three years of the IPO (IPO exits) to those that are never distributed in kind, demonstrating that the conclusions in Table 3 are robust to using a more focused comparison sample.

Table IA7 replicates the analysis in Table 6, which shows that "final" distributions are followed by lower post-distribution returns. This pattern is consistent with the interpretation that VCs' value-added effort contributes to the positive abnormal returns prior to distributions, and that such effort ceases once VCs fully liquidate their holdings. Table 6 is based on the full sample, which includes both IPO exits and M&A exits. In Table IA7, I restrict the sample to IPO exits only—the set of firms over which distributing VCs exert direct influence.

TABLE IA7

Table IA7 yields qualitatively similar results with larger economic magnitudes. For example, when examining three-month post-distribution returns following last distributions (column 3), the coefficient on the Last Distribution indicator is −0.054 in the full sample but −0.078 in the IPO-only sample.

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Figure IA1: Distributed Prices vs. Distribution Date Prices

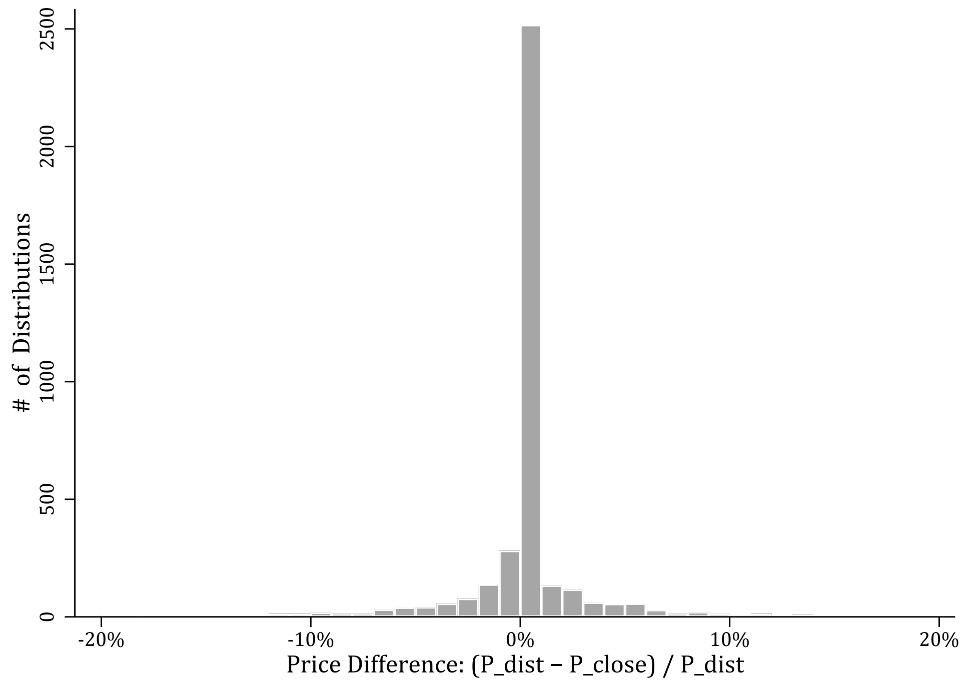


Figure IA1: Plots the distribution of differences between distributed prices (P_{dist}) and the closing market price on the distribution date (P_{close}) for the distributed stocks. The x-axis, $(P_{\text{dist}} - P_{\text{close}})/P_{\text{dist}}$, measures the price difference as $\frac{\text{Distributed Price}-\text{Closing Price on the Distribution Date}}{\text{Distributed Price}}$, expressed in percent and truncated to the range $[-20\%, 20\%]$. The bars report the frequency of in-kind distributions falling within each 1-percentage-point bin, following a left-closed, right-open [ ) convention. For example, the modal bin corresponds to $[0\%, 1\%)$. The figure confirms the summary statistics in Panel A of Table 1, which indicate that the reported distribution price equals the closing market price on the distribution date for most distributions. Some distributions adopt alternative conventions, such as using the average closing price over the preceding five trading days, as documented by Dore, Gompers, and Metrick (2008). Table IA2 examines whether distributions that use the closing price on the distribution date differ systematically from those that rely on alternative pricing conventions.

Figure IA2: Stock Returns around Distribution Dates by Year

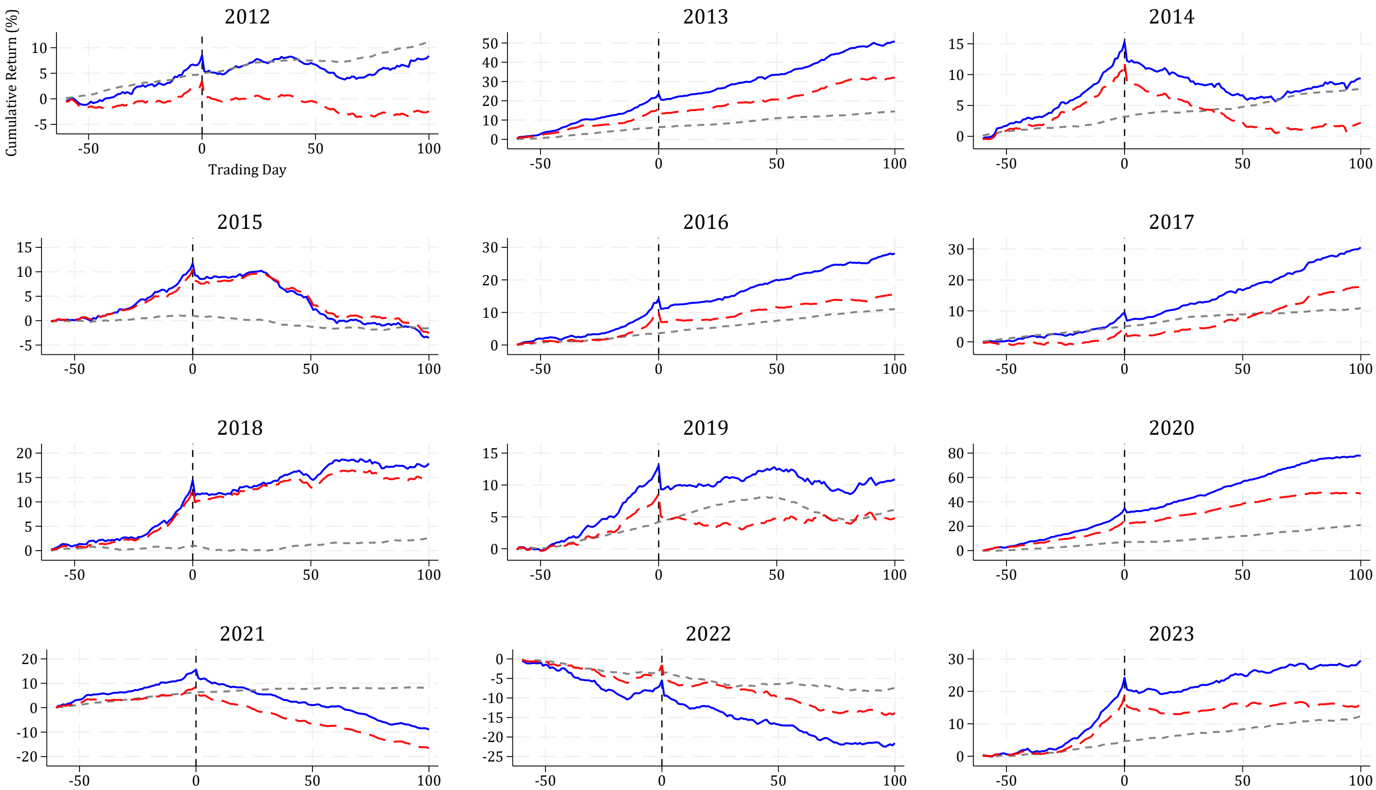
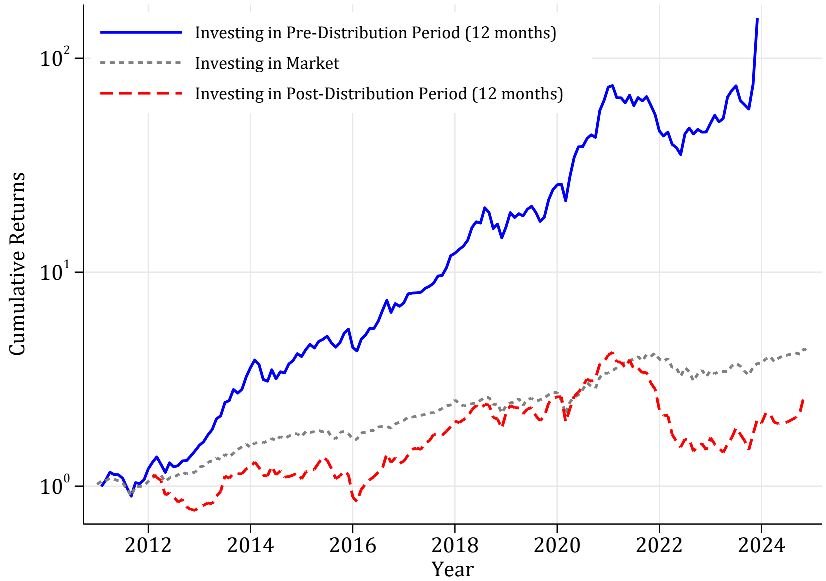


Figure IA2: Plots the cumulative average stock returns (equal-weighted) around the stock distribution dates of VC-backed companies for each calendar year. A figure based on the aggregated sample is reported in Figure 1. The x-axis represents trading days relative to the distribution date, with day 0 indicating the distribution event. The **solid blue line** plots the average cumulative returns of distributed stocks; the **short dotted grey line** plots the CRSP value-weighted market index over the same window; the **long dotted red line** plots the abnormal return, defined as the difference between the two series.

Figure IA3: Investing in Pre-Distribution vs. Post-Distribution Periods

Panel A: Monthly Portfolio



Panel B: Daily Portfolio

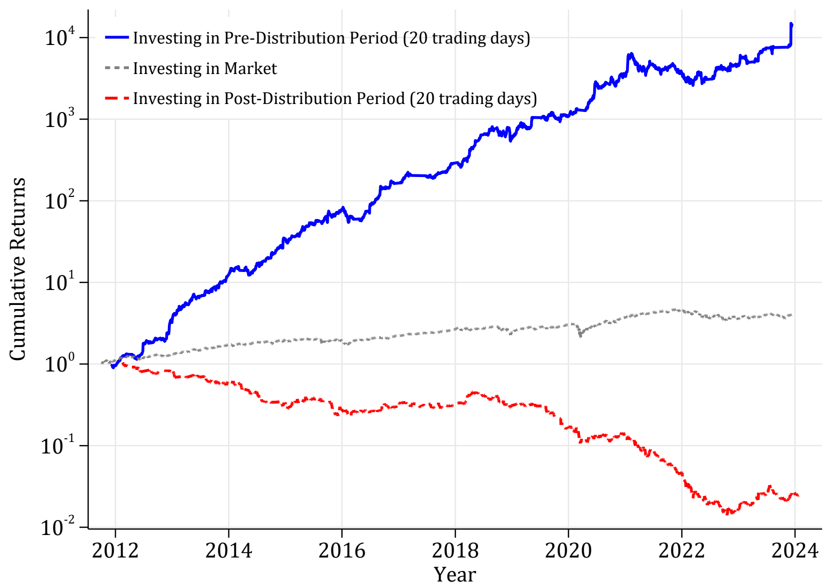


Figure IA3: Plots cumulative wealth from investing \$1 in equal-weighted portfolios of VC-backed firms formed around stock distribution dates, benchmarked against the CRSP value-weighted market index. **Panel A** uses monthly data to form monthly portfolios; **Panel B** uses daily data to form daily portfolios, following Fama–French portfolio-formation conventions (Fama and French (1993)). Firms enter the *Pre-Distribution* portfolio prior to the distribution event and are held until the distribution date (12 months in Panel A; 20 trading days in Panel B). Firms enter the *Post-Distribution* portfolio immediately after the distribution event and are held for up to the full post-event window unless delisted (12 months in Panel A; 20 trading days in Panel B). Blue solid lines represent *Pre-Distribution* period returns, gray dotted lines report the CRSP value-weighted market index (*Investing in Market*), and red dashed lines represent *Post-Distribution* period returns. The distribution month (Panel A) is excluded from both Pre- and Post-Distribution windows. The distribution date (Panel B) is included in the Pre-Distribution window because distributions almost always occur after market close. The y-axes report cumulative returns relative to \$1 invested at the beginning of each sample. The first distribution event occurred in 2012, so the *Pre-Distribution* portfolios and the market benchmark began in 2011.

Figure IA4: Returns from IPO to Lock-Up Expiration and Distribution (Robust)

Panel A: IPO Exits: Company-level

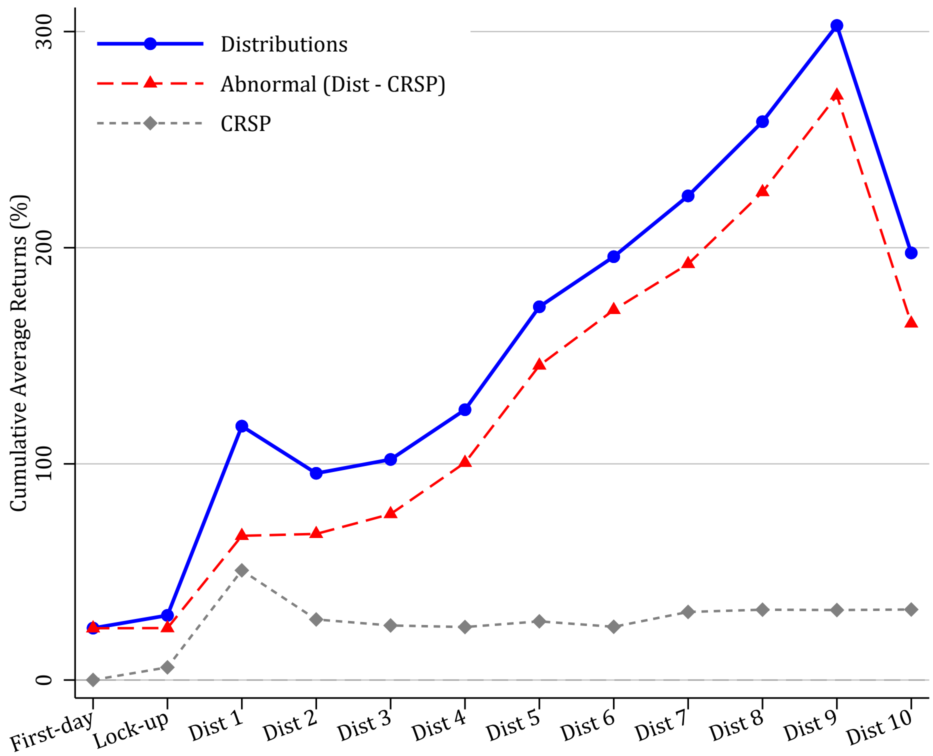
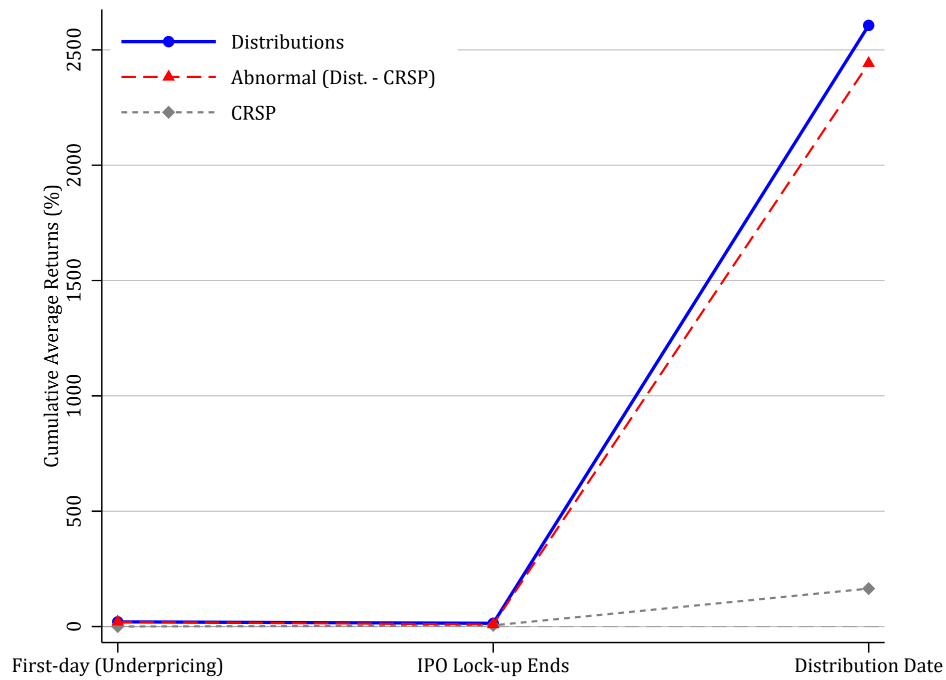


Figure IA4: **Panel A** plots cumulative, equally weighted average returns for VC-backed companies from the IPO through the in-kind stock distribution. The sample is based on IPO exits only. *First-day* denotes IPO underpricing, measured as the percentage difference between the offer price and the first-day closing price. *Lock-up* marks the 180th calendar day after the IPO. *Dist 1* refers to the date of the first in-kind distribution. *Dist 2*, *Dist 3*, and so forth refer to the second, third, and subsequent in-kind distributions for the same firm, if they occur. For firms with more than ten distributions, all distribution events from the eleventh onward are grouped into *Dist 10*. The sample size declines from *Dist 1* to *Dist 10*, as not all VC-backed firms in the distribution sample experience more than ten in-kind distributions. "Distributions" (blue solid line with circles) reports average cumulative returns from the IPO offer price through the first-day closing price, the end of the lock-up period, and to the corresponding distribution event. "Abnormal (Dist. – CRSP)" (red dashed line with triangles) reports cumulative abnormal returns relative to the CRSP value-weighted market index, while "CRSP" (gray dotted line with squares) shows the market returns for the corresponding periods. Returns are expressed in percent. The unit of observation is the firm-level. Figure 3 reports the corresponding distribution-level patterns.

Figure IA4 (cont.): Returns from IPO to Lock-Up Expiration and Distribution (Robust)

Panel B: M&A Exits: Distribution-level



Panel C: M&A Exits: Company-level

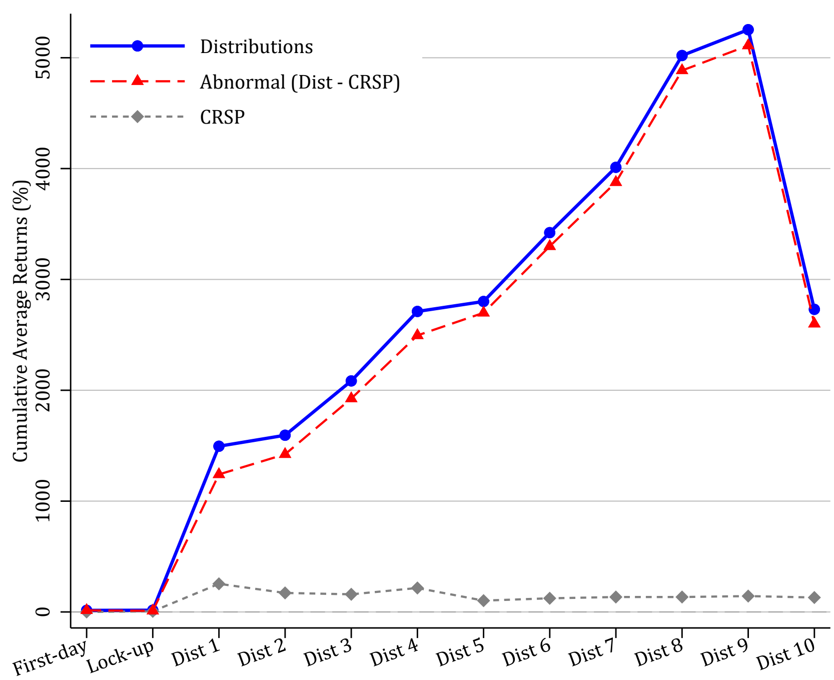


Figure IA4: **Panel B** reports the same return patterns as in Figure 3 for M&A exits at a distribution level. **Panel C** reports the same return patterns as in Panel A of this Figure for M&A exits at a firm level.

Table IA1: Preqin and MSCI Burgiss Coverage

Panel A: Preqin coverage of distributing funds

Category	Full sample	Preqin coverage: Fund vintage & size	Preqin coverage: Cash-flow history ≥5 yrs	Preqin coverage: Cash-flow history ≥10 yrs
No. of distributions	3,970	3,477	1,586	1,068
No. of unique funds	-	496	242	155

Panel B: MSCI Burgiss coverage of distributing funds (N/D: Not Disclosed)

Category	Full sample	MSCI Burgiss coverage: Fund vintage & size	MSCI Burgiss coverage: Cash-flow history ≥5 yrs	MSCI Burgiss coverage: Cash-flow history ≥10 yrs
No. of distributions	3,970	3,482	N/D	N/D
No. of unique funds	-	498	325	N/D

Panel C: Comparing Key Variables based on Preqin Coverage Status

		Full Sample	CF hist. <5 yrs	CF hist. ≥5 yrs	CF hist. ≥10 yrs
Average distribution Value (million)		\$103	\$121	\$82	\$87
Fraction of IPO exits		62.4%	57.3%	68.2%	65.5%
Abnormal Returns	Pre-12 months	23.4%	21.1%	28.2%	29.1%
	Pre-3 months	11.0%	10.0%	13.0%	11.9%
	Post-3 months	-3.1%	-3.3%	-3.3%	-2.2%
	Post-12 months	-3.3%	-3.9%	-2.1%	1.4%

Table IA1: This table documents the extent to which in-kind distributing VC funds in the sample can be found in Preqin and MSCI Burgiss universes. **Panel A** reports Preqin coverage, distinguishing between the full distribution sample, funds for which Preqin reports fund-level attributes (vintage year and size), and funds with at least five or ten years of reported cash-flow histories. **Panel B** provides analogous coverage statistics for MSCI Burgiss. "N/D" indicates information withheld under MSCI's non-disclosure policy. **Panel C** compares key variables used in the empirical analyses of the main paper, across Preqin coverage tiers. *CF hist. <5 yrs* denotes distributions from funds with no or incomplete (<5 years) cash-flow histories in Preqin. *CF hist. ≥5 yrs* and *CF hist. ≥10 yrs* denote distributions from funds with at least five or ten years of cash-flow histories, respectively. The in-kind distribution sample spans from 2012 to 2023. Preqin data were accessed in 2024 and MSCI Burgiss data in 2025. The likelihood that a fund is classified as having incomplete cash-flow coverage solely because it is younger than five years is minimal. Table 1 shows that both the mean and median age of the fund at the time of distribution, measured as the distribution year minus the fund's vintage year, are nine years. Prior studies show that the average investment horizon of VC portfolio companies is about five years (summarized in Table 5).

Table IA2: Do Distributions Using Closing Prices Differ from Those Using Alternatives?

	(1) Dist. Value ($ million)	(2) IPO Exits	(3) Days from IPO to Dist.	(4) Abnormal Returns (= $\frac{\text{1+Returns}}{\text{1+Market}}$) Pre: 12 m	(5) Pre: 3 m	(6) Post: 3 m	(7) Post: 12 m
$\mathbf{1}\{P_{\text{dist}} \neq P_{\text{close}}\}$	10.60	0.089***	49.253	0.068	0.024	-0.024*	-0.068**
	(0.48)	(2.74)	(1.13)	(1.52)	(1.44)	(-1.75)	(-1.98)
No of Obs.	3,831	3,831	2,389	3,831	3,750	3,800	3,643
Adj. R-Squared	0.011	0.149	0.407	0.049	0.008	0.030	0.071
Y-Mean	103	0.623	984	0.242	0.110	-0.031	-0.033

Table IA2: Examines whether distributions that use the closing price on the distribution date differ from those that adopt alternative pricing conventions. The main regressor, $\mathbf{1}\{P_{\text{dist}} \neq P_{\text{close}}\}$, equals one when the reported distribution price differs from the closing market price on the distribution date. Column (1) uses the distribution value (= the number of shares distributed × distribution price, reported in millions of dollars) as the dependent variable; column (2) is an indicator for IPO exits; and column (3) measures the number of days from the IPO to the distribution date, conditional on IPO exits (i.e., excluding M&A exits). Columns (4)–(7) report cumulative abnormal returns over the specified windows (12 months before distributions, 3 months before distributions, 3 months after distributions, and 12 months before distributions). Cumulative abnormal return for window $[t_1, t_2]$ is computed as

$$AR_{[t_1,t_2]} = \prod_{t=t_1}^{t_2}(1 + R_{it}) \Big/ \prod_{t=t_1}^{t_2}(1 + R_t^M) - 1,$$

where R_{it} is the stock's return and R_t^M is the CRSP value-weighted market return. I estimate OLS regressions

$$Y_{it} = \alpha + \beta \mathbf{1}\{P_{\text{dist}} \neq P_{\text{close}}\}_{it} + \psi_t + \varepsilon_{it},$$

where Y_{it} denotes the outcome described above and ψ_t denotes IPO-year fixed effects. t-statistics, reported in parentheses, are based on robust standard errors clustered at the firm level. "Y-Mean" reports the sample mean of the dependent variable. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table IA3: VC Market-Timing: Evidence from Factor Regressions

Panel A Monthly Regressions: Three Months Before Distributions

	IPO Exits			M&A Exits		
	(1) CAPM	(2) FF 3 Factors	(3) Momentum	(4) CAPM	(5) FF 3 Factors	(6) Momentum
Alpha	0.029**	0.035***	0.034***	0.004	0.006	0.003
	(2.43)	(3.02)	(2.88)	(0.40)	(0.66)	(0.34)
Market	1.404***	0.950***	1.032***	1.149***	0.978***	1.148***
	(4.66)	(3.67)	(3.57)	(6.34)	(5.08)	(5.37)
SMB		2.571***	2.639***		1.040***	1.188***
		(3.71)	(3.90)		(3.13)	(3.51)
HML		-0.392	-0.321		-0.522**	-0.359
		(-1.10)	(-0.91)		(-2.42)	(-1.58)
MOM			0.268			0.508**
			(1.05)			(2.36)
No of Obs.	132	132	132	128	128	128
Adj. R-Squared	0.16	0.34	0.34	0.21	0.30	0.32

Table IA3: **Panel A** reports CAPM, Fama–French three-factor, and Fama–French–Carhart momentum regressions of monthly excess returns around venture capital in-kind distribution events. The dependent variable is the equal-weighted portfolio return in excess of the risk-free rate. For the *IPO Exits* portfolio, firms classified as IPO exits—VC-backed IPOs (per Jay Ritter's data) whose in-kind distributions occur within three years of the IPO—enter the portfolio twelve months before the distribution month and remain until the end of that month. For the *M&A Exits* portfolio, firms classified as M&A exits—non–VC-backed IPOs or VC-backed IPOs whose distributions occur more than three years after the IPO—enter in the month following a distribution and remain for twelve months unless delisted. The distribution month is excluded from both windows. A portfolio is formed only when at least two observations are available in a given month. The estimated models are:

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + \varepsilon_{p,t},$$

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + s\,SMB_t + h\,HML_t + \varepsilon_{p,t},$$

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + s\,SMB_t + h\,HML_t + m\,MOM_t + \varepsilon_{p,t}.$$

where $R_{p,t}$ is the portfolio return, $R_{f,t}$ is the risk-free rate, and $R_{m,t}$ is the market return. SMB_t, HML_t, and MOM_t denote the size, value, and momentum factors, respectively (Fama and French (1993); Carhart (1997)). Heteroskedasticity-robust t-statistics are reported in parentheses. Statistical significance is denoted by *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.10$.

Panel B Daily Regressions: Twenty Trading Days Before Distributions

	IPO Exits			M&A Exits		
	(1) CAPM	(2) FF 3 Factors	(3) Momentum	(4) CAPM	(5) FF 3 Factors	(6) Momentum
Alpha	0.004***	0.004***	0.004***	0.001*	0.002**	0.002**
	(4.13)	(4.33)	(4.49)	(1.79)	(2.11)	(2.11)
Market	1.430***	1.126***	1.138***	1.389***	1.163***	1.176***
	(17.03)	(13.23)	(13.62)	(14.97)	(13.45)	(13.57)
SMB		1.392***	1.439***		1.146***	1.163***
		(11.01)	(10.41)		(8.68)	(8.51)
HML		-0.963***	-0.912***		-0.620***	-0.583***
		(-9.78)	(-7.88)		(-5.55)	(-4.80)
MOM			0.116			0.078
			(1.03)			(0.92)
No of Obs.	1,813	1,813	1,813	1,349	1,349	1,349
Adj. R-Squared	0.11	0.17	0.17	0.18	0.23	0.23

Table IA3: **Panel B** reports CAPM, Fama–French three-factor, and Fama–French–Carhart momentum regressions of daily excess returns around venture capital in-kind distribution events. The dependent variable is the equal-weighted portfolio return in excess of the risk-free rate. For the *IPO Exits* portfolio, firms classified as IPO exits—VC-backed IPOs (per Jay Ritter's data) whose in-kind distributions occur within three years of the IPO—enter the portfolio nineteen trading days before the distribution date and remain through day 0 (the distribution day), which is included because distributions almost always occur after the market close. For the *M&A Exits* portfolio, firms classified as M&A exits—non–VC-backed IPOs or VC-backed IPOs whose distributions occur more than three years after the IPO—enter the portfolio on the first trading day following a distribution and remain for twenty trading days unless delisted. A portfolio is formed only when at least two observations are available in a given day. The estimated models are:

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + \varepsilon_{p,t},$$

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + s\,SMB_t + h\,HML_t + \varepsilon_{p,t},$$

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + s\,SMB_t + h\,HML_t + m\,MOM_t + \varepsilon_{p,t}.$$

where $R_{p,t}$ is the portfolio return, $R_{f,t}$ is the risk-free rate, and $R_{m,t}$ is the market return. SMB_t, HML_t, and MOM_t denote the size, value, and momentum factors, respectively (Fama and French (1993); Carhart (1997)). Heteroskedasticity-robust t-statistics are reported in parentheses. Statistical significance is denoted by *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.10$.

Table IA4: List of Reputable VCs

Panel A : Six Reputable VCs Defined by "Venture Capital and the Finance of Innovation" by Metrick and Yasuda (2010a) (2nd edition) and Metrick and Yasuda (2021) (3rd edition)

	2nd edition (2010)	3rd edition (2021)
1	**Accel Partners**	**Accel Partners**
2	**Benchmark Capital**	**Benchmark Capital**
3	Charles River Ventures	Khosla Ventures
4	**Kleiner Perkins**	**Kleiner Perkins**
5	Matrix Partners	**Sequoia Capital**
6	**Sequoia Capital**	Union Square Ventures

Panel B: Eight Reputable VCs (union of the 2nd edition and the 3rd edition)

No.	Reputable US VC Firms	Stock Distribution Frequency (#)		Stock Distribution Volume ($B)		AUM ($B, 2024)	
1	**Accel Partners**	217	5.5%	$26.29	6.5%	$29.94	2.5%
2	**Benchmark Capital**	123	3.1%	$11.17	2.7%	$1.64	0.1%
3	Charles River Ventures	20	0.5%	$0.70	0.2%	$2.50	0.2%
4	Khosla Ventures	66	1.7%	$7.00	1.7%	$2.27	0.2%
5	**Kleiner Perkins**	197	5.0%	$8.78	2.2%	$20.00	1.7%
6	Matrix Partners	57	1.4%	$3.48	0.9%	$4.00	0.3%
7	**Sequoia Capital**	443	11.2%	$53.25	13.1%	$87.61	7.3%
8	Union Square Ventures	12	0.3%	$3.89	1.0%	$1.50	0.1%
	Reputable US VC Firms	**1,135**	**28.7%**	**$ 114.55**	**28.2%**	**$ 149.46**	**12.4%**
	Total US VC Firms	3,970		$406.44		$1,208.26	

Table IA4: **Panel A** lists the six reputable VC firms identified by "Venture Capital and the Finance of Innovation" by Metrick and Yasuda (2010a) (2nd ed.) and Metrick and Yasuda (2021) (3rd ed.); **bolded firms** are the intersection of the two editions. **Panel B** reports distribution activity and assets under management (AUM) for the *union* of the two editions (eight firms). *Frequency* is the count of stock distributions, *Volume* is the dollar value of distributed stock; both are shown alongside their shares of the U.S. VC totals over the sample. AUM and AUM shares are as of 2024. The bottom rows summarize aggregates for the union set of eight reputable VC firms and for the U.S. VC industry as a whole.

Table IA5: Returns Around Stock Distributions

Dist.	Twelve Months to Distributions			Three Months to Distributions			Three Months After Distributions			Twelve Months After Distributions		
Year	Distributions	CRSP	Diff.	Distributions	CRSP	Diff.	Distributions	CRSP	Diff.	Distributions	CRSP	Diff.
2012	15.4%	8.0%	7.4%	8.5%	5.0%	3.6%	-4.0%	2.5%	-6.5%	31.6%	21.0%	10.6%
2013	68.2%	20.2%	48.1%	23.7%	6.3%	17.3%	10.3%	5.0%	5.3%	33.9%	18.2%	15.7%
2014	53.8%	15.6%	38.2%	15.3%	3.2%	12.1%	-7.5%	2.3%	-9.8%	0.9%	6.4%	-5.5%
2015	40.6%	6.5%	34.0%	11.7%	1.0%	10.7%	-10.5%	-2.6%	-7.9%	-24.3%	0.2%	-24.5%
2016	5.2%	1.8%	3.5%	14.2%	3.6%	10.6%	6.9%	4.5%	2.3%	32.0%	18.6%	13.3%
2017	41.2%	17.3%	23.9%	9.5%	5.0%	4.5%	10.1%	4.0%	6.1%	35.7%	11.4%	24.4%
2018	52.8%	11.9%	41.0%	14.5%	1.1%	13.3%	4.8%	0.7%	4.1%	14.4%	5.4%	9.0%
2019	26.6%	5.5%	21.2%	13.1%	4.3%	8.9%	-1.3%	2.7%	-4.0%	35.5%	11.6%	24.0%
2020	77.2%	10.1%	67.1%	34.6%	7.0%	27.7%	20.1%	6.8%	13.3%	63.5%	35.0%	28.5%
2021	61.5%	24.8%	36.7%	15.6%	6.3%	9.3%	-12.9%	1.7%	-14.6%	-53.6%	-8.0%	-45.6%
2022	-30.7%	-6.4%	-24.3%	-5.5%	-3.4%	-2.1%	-13.5%	-3.1%	-10.4%	-7.2%	3.7%	-10.9%
2023	32.4%	6.8%	25.6%	24.2%	4.7%	19.5%	2.1%	4.4%	-2.3%	21.8%	24.9%	-3.1%
Total	**39.3%**	**11.1%**	**28.3%**	**15.3%**	**3.8%**	**11.5%**	**-0.5%**	**2.3%**	**-2.8%**	**10.0%**	**11.0%**	**-1.0%**

Table IA5: Reports the number of stock distributions by U.S.–based venture capital funds by year, along with average returns calculated around the distribution dates. Columns under *Twelve Months to Distributions* report equally weighted buy–and–hold returns over the twelve months preceding the distribution date, ending with the closing price on the distribution date. Columns under *Three Months to Distributions* report equally weighted buy–and–hold returns over the three months preceding the distribution date, ending with the closing price on the distribution date. Columns under *Three Months After Distributions* report returns over the three months following the distribution date, beginning with the closing price on the day of the distribution. Columns under *Twelve Months After Distributions* report returns over the twelve months following the distribution date, beginning with the closing price on the day of the distribution. *Distributions* refer to the return on the distributed stock, *CRSP* refers to the CRSP value–weighted total market return over the same period, and *Diff.* is the difference between the distribution–stock return and the market benchmark. All returns are total returns, including price appreciation and dividend income.

Table IA6: Which VC-Backed IPOs Are Distributed in Kind? (Robust)

Panel A IPO Exits (Direct) In-kind Distributed (N = 283) vs. Not (**N = 486**): Summary Stats

Variables	Dist. Average	Not Dist. Average	Diff. in Average	Dist. Median	Not Dist. Median
IPO Proceeds ($ million)	393.12	140.57	252.56***	125.00	91.55
Sales ($ million)	315.81	86.57	229.24***	108.82	3.78
Underwriter Rank	8.71	8.16	0.55***	9	8.5
Firm Age	9.42	9.17	0.26	9	8
Fraction of Primary Shares	94.1%	96.1%	-2.0%	100%	100%
Profitable	0.1%	0.1%	0.0%	0%	0%
Returns					
First Day Return (Underpricing)	35.2%	18.8%	16.3%***	30.0%	8.9%
Lockup Period (First 6 Months)	5.5%	-4.9%	10.4%**	-3.0%	-12.7%
First Three Years: IPOs	49.5%	-1.5%	51.0%***	-15.4%	-61.6%
First Three Years: Market	37.3%	32.7%	4.6%***	33.2%	29.9%

Table IA6: **Panel A** compares observable characteristics of venture capital (VC)–backed IPOs that were distributed in kind at least once ("Dist.") with those that were not ("Not Dist."). "Dist." only includes IPO Exits, also referred to as "Direct," defined in Table 2 (N = 283). **"Not Dist." only includes VC-backed IPOs that were never distributed (N = 486), excluding ones that are distributed via M&A exits**. The rest stays the same as Table 3. The sample includes 769 U.S. VC-backed IPOs from Ritter (2025) based on 2010–2021 to ensure a three-year post-IPO window for in-kind distributions, given that distribution data are available from 2012 through 2023, and the average and median months from IPOs to the in-kind distributions are 33 months and 20 months, respectively. The sample excludes ADRs, unit offers, closed-end funds, REITs, natural-resource partnerships, best-efforts offers, banks, and S&Ls, and limits to IPOs with offer prices of at least $5 listed on Amex, NYSE, or NASDAQ.

Columns labeled *Average* and *Median* report, respectively, the mean and median values for each variable within the Distributed and Not Distributed IPO groups. The column labeled *Diff. in Average* shows the difference in means between the two groups (Distributed minus Not Distributed), estimated based on regressions $y_{it} = \beta\,\mathbf{Distributed}_{it} + \varepsilon_{it}$ where asterisks denote statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

IPO Offer Price, *IPO Proceeds*, and *Sales* are standard IPO characteristics. *Underwriter Rank* measures the prestige of the lead underwriter on the Carter–Manaster (0–9) scale, with higher values indicating greater prestige (Loughran and Ritter (2004)). *Firm Age* is the age at the time of the IPO, measured from the firm founding year to the year of the IPO *Fraction of Primary Shares* represents the proportion of IPO proceeds raised from newly issued primary shares (the remainder from selling shareholders, referred to as secondary shares). *Profitable* equals one if the firm reports positive trailing-twelve-month EPS before the IPO.

First-Day Return captures IPO underpricing, measured from the offer price to the first-day closing price. *Lockup Period (First 6 Months)* denotes the buy-and-hold return over the typical 180-day post-IPO lockup period. *First Three Years: IPOs* measures cumulative buy-and-hold returns of IPO firms over the first three post-IPO years starting from the first-day closing price, while *First Three Years: Market* reports benchmark market returns over the same periods.

Panel B IPO Exits (Direct) In-kind Distributed vs. Not: Regressions (Robust)

	Distributed In-Kind			
	IPO Characteristics Only		IPO Characteristics with Return Stats	
	(1)	(2)	(3)	(4)
Ln(IPO Proceeds)	0.079***	0.147***	0.074***	0.135***
	(3.95)	(6.66)	(3.45)	(6.14)
Ln(Sales)	0.031***	0.022***	0.030***	0.021***
	(6.46)	(4.50)	(6.29)	(4.30)
Underwriter Rank	0.031**	0.012	0.023	0.007
	(2.29)	(0.86)	(1.63)	(0.48)
Ln(Firm Age)	-0.028	-0.006	-0.029	-0.008
	(-1.00)	(-0.23)	(-1.05)	(-0.31)
Fraction of	0.083	0.313*	0.073	0.310*
Secondary Shares	(0.54)	(1.91)	(0.47)	(1.90)
Profitable	-0.141**	-0.132**	-0.159**	-0.142**
	(-2.23)	(-2.12)	(-2.47)	(-2.31)
First Day Return			0.173***	0.193***
			(3.74)	(4.23)
First 6 Months Return			0.126***	0.100***
			(4.01)	(2.98)
Year FE	No	Yes	No	Yes
No. of Observations	768	768	768	768
Adj. R-Squared	0.124	0.184	0.153	0.208

Table IA6: **Panel B** reports OLS regressions of an indicator variable, *Distributed In-Kind*, equal to one if a VC-backed IPO is ever distributed via IPO exits (Direct) in kind, on firm and IPO characteristics. The sample follows **Panel A**. Columns (1)–(2) include only variables observable at the time of the IPO, while Columns (3)–(4) additionally control for *First-Day Return* (IPO Underpricing) and *First 6 Months Return* (IPO Lockup Period). The specification is

$$\text{Distributed In-Kind}_{it} = \alpha + \beta X_i + \psi_t + \varepsilon_i,$$

where *Distributed In-Kind*$_{it}$ equals one if IPO i is ever distributed in kind in year t, X_i represents firm- and IPO-level characteristics, and ψ_t denotes year fixed effects. t-statistics, based on robust standard errors, are reported in parentheses. Significance levels are denoted by ***, **, and * for 1%, 5%, and 10%, respectively.

Table IA7: Comparing Single, First, and Last-Tranche VC Distributions (Robust)

Panel A: Pre-Distribution Periods: **IPO Exits Only**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Abnormal Returns: Pre 3 Months				Abnormal Returns: Pre 12 Months			
Only Distribution	0.130**			0.136**	0.248			0.257
	(2.19)			(2.28)	(1.52)			(1.56)
First Distribution		-0.002		0.009		-0.058		-0.034
		(-0.06)		(0.29)		(-1.24)		(-0.68)
Last Distribution			0.020	0.029			0.070	0.079
			(0.82)	(1.17)			(1.22)	(1.37)
No. of Obs	2,400	2,400	2,400	2,400	2,339	2,339	2,339	2,339
Adj. R-Squared	0.036	0.032	0.032	0.037	0.057	0.054	0.054	0.058

Panel B: Post-Distribution Periods: **IPO Exits Only**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Abnormal Returns: Post 3 Months				Abnormal Returns: Post 12 Months			
Only Distribution	-0.127***			-0.146***	-0.233***			-0.256***
	(-3.73)			(-4.20)	(-3.30)			(-3.49)
First Distribution		-0.011		-0.030*		0.030		-0.001
		(-0.66)		(-1.70)		(0.78)		(-0.02)
Last Distribution			-0.078***	-0.089***			-0.134***	-0.146***
			(-4.04)	(-4.47)			(-3.44)	(-3.61)
No. of Obs	2,370	2,370	2,370	2,370	2,279	2,279	2,279	2,279
Adj. R-Squared	0.059	0.053	0.061	0.07	0.104	0.1	0.105	0.111

Table IA7: **Panel A** (*Pre-Distribution Periods: IPO Exits Only*) and **Panel B** (*Post-Distribution Periods: IPO Exits Only*) report linear regressions of cumulative abnormal returns surrounding distribution events reported in Table 6. **Table 6 is based on full sample (both IPO exits and M&A exits) but this Table IA7 is based on IPO exits only**. The main regressors are: Only Distribution$_i$, which equals one if a company is distributed only once; First Distribution$_i$, which equals one for the first distribution when a company is distributed more than once; and Last Distribution$_i$, which equals one for the last distribution when a company is distributed more than once. A company can be distributed more than once if its VC investor distributes in multiple tranches, or if the company has multiple VC investors distributing at different times (or both). Each dependent variable is a cumulative abnormal return (CAR) computed relative to the CRSP value-weighted market index over the indicated window, defined as $(1 + R_{it})/(1 + R_t^M)$. Specifications (4) and (8) estimate OLS regressions

$$Y_i \;=\; \alpha \;+\; \beta_1\,\mathrm{OnlyDist}_i \;+\; \beta_2\,\mathrm{FirstDist}_i \;+\; \beta_3\,\mathrm{LastDist}_i \;+\; \psi_t \;+\; \varepsilon_i,$$

where Y_i denotes one of the abnormal return measures listed in the column headers and ψ_t denotes IPO year fixed effects. t-statistics, reported in parentheses, are based on heteroskedasticity-robust standard errors clustered at a company level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. To interpret magnitudes, consider Panel B's Specification (1), which regresses post-distribution abnormal returns on OnlyDist$_i$. The coefficient on OnlyDist$_i$, -0.127, implies that companies whose VC investors fully exit in a single tranche experience, on average, an 12.7% lower abnormal return over the three months following distribution, relative to firms whose shares are distributed in multiple tranches.