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Patrick J. Kelly, Jin Roc Lv and Garry Twite

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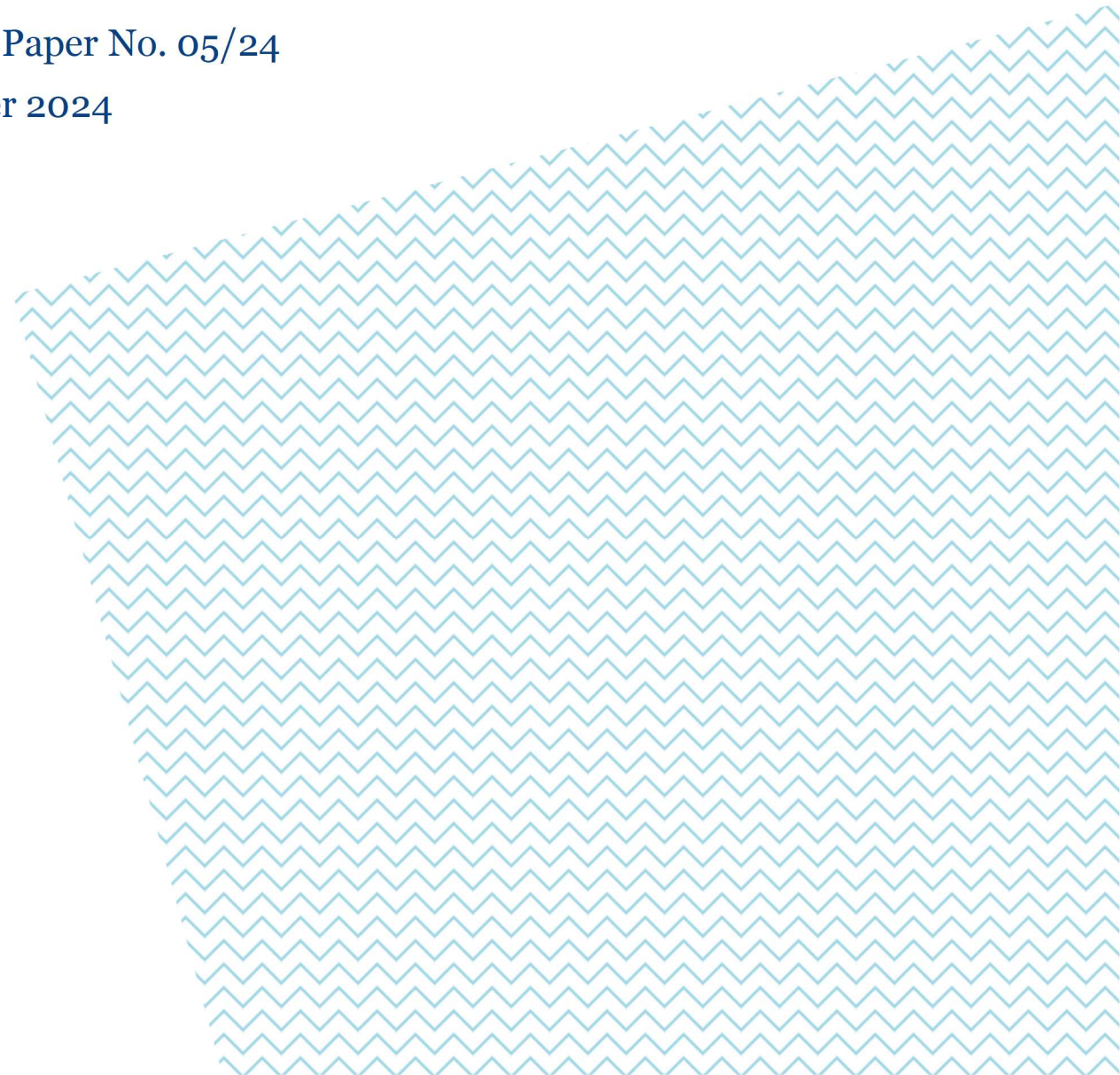

Early Release from Lockup: Insider Sales During the Post IPO Lockup Period*

Patrick J. Kelly
Faculty of Business and Economics
University of Melbourne

Jin Roc Lv
School of Accounting
Jiangxi University of Finance and Economics

Garry Twite
Faculty of Business and Economics
University of Melbourne

December 17, 2024

Abstract

Using the discretion that underwriters and managers have to sell shares before the end of the IPO lockup period, called "early release" in prospectuses, we provide compelling evidence that early release occurs only after the resolution of asymmetric information, consistent with lockups serving to mitigate asymmetric information costs. Rent seeking does not affect an underwriter's decision to early release, suggesting that it is also not a motivation for lockups. Inconsistent with moral hazard problems being a primary motivation for early release and lockups, we find only weak evidence in support of managers using early release to trade opportunistically.

The authors have no conflicts of interest to declare.

JEL Classification: G14; G24; G32; L14
Keywords: IPO; Lockup; Early release; Early sales; Underwriter retention

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1 Introduction

In the model of Leland and Pyle (1977) the post-IPO lockup addresses an adverse selection problem that arises from the inherent information asymmetries between managers and other investors. Lockups force a firm's management to remain overinvested in the firm, imposing a costly signal on management about the quality of the firm. Brav and Gompers (2003) instead provide evidence that suggests lockups solve a moral hazard problem, preventing opportunistic trading by insiders. Their evidence does not suggest that lockups solve a signaling problem or result in underwriters exploiting an opportunity for rent extraction. Brau, Lambson, and McQueen (2005), on the other hand, provide evidence that more transparent firms receive shorter lockups at the IPO, consistent with lockups addressing information asymmetries that result in adverse selection problems. Notably, nearly all underwriting agreements include a clause that allows underwriters, at their discretion, allow managers to sell their shares before the end of the lockup period, a practice often referred to in prospectuses as "early release".[1]

In this paper we investigate early release to understand whether its use is a response to the resolution of adverse section or moral hazard problems or for the underwriters to extract rents. In addition, we use these findings to revisit and shed light on whether the lockup period and its length addresses these same three problems. Each of these represent major potential costs that firms and investors face in the capital raising process. We believe it is important to understand the costs associated with raising capital and whether attempts to mitigate them are successful, because these costs have a direct impact on investors' willingness to invest in firms and the firms' ability to grow.[2]

[1] For the ease of language, we refer to firms that recently had an IPO with a lockup period in which top managers receive early release from lockup and are allowed to and choose to sell their shares before the end of the lockup period as "early released firms" or "firms with early release."

[2] As noted in Griffin and Kruger (2024) resource allocation is more efficient when frictions due to misalign incentives are lower.

The key feature of early release is that it is an endogenous decision made after the firm's shares start trading and the quality of the firm becomes better understood by market participants. By examining the stock price performance before and after early release and the decisions of underwriters and management, we can gain insight into each of these three motivations for the existence of lockups, the length of lockups and the decision to release management early, before the end of lockup. In addition, some underwriting agreements have contractual provisions automatically permitting early release under certain conditions. These provisions have the effect of shifting the decision to early release from underwriters to managers provided the contractual conditions are met. This provides a sample, albeit a noisy one, where managers desire to opportunistically trade might be easier to observe, because they do not need the permission of the underwriter.[3]

Our evidence provides compelling support that early release occurs only following the resolution of information asymmetries suggesting that lockups serve to address the adverse selection problem that arises from managers' information advantage over other investors, consistent with Brau, Lambson, and McQueen (2005). While there is a large literature that documents the presence of significant agency problems in the underwriting business,[4] we find no evidence that through the granting of early release underwriters are extracting rents. Some underwriting agreements include contractual language that, under certain conditions, allows managers to choose whether or not to sell before the end of the lockup period. Finally, by

[3] It is a noisy sample, because the contractual provisions must be triggered for managers to have full discretion over the decision to sell before the end of lockup.

[4] Michaely and Womack (1999) find that underwriter analyst recommendations are biased in favor of the firm. Gompers and Lerner (1999) provide evidence that in equity market investors price in conflicts of interest, resulting in lower offering prices for firms with greater underwriter conflicts. Chen and Ritter (2002) provide evidence consistent with collusion as see in the coordination across underwrites on fees being a standard 7% of fees (see Hatfield, Kominers, Lowery, and Barry, 2020, for a literature review of collusive behavior in IPO issuance). Liu and Ritter (2007) and Ritter (2008) describe instances of underwriters bribing executives to get their business, engendering managerial loyalty. Garrett (2019) comes to a similar conclusion in debt markets, by documenting that when financial advisors are prohibited from serving as an underwriter for a firm's debt, the cost of debt decreases consistent with investors perceiving a conflict of interest with the underwriter. Hatfield, Kominers, Lowery, and Barry, 2020, document evidence of tacit collusion among underwriters. Mehran and Stulz (2007) surveys numerous instances of conflicts of interest in the underwriting business.

examining this subset of early release events with contractual provisions about early release, where firm management has more control over the early release decision, we provide some weak evidence in favor of the lockups addressing a moral hazard problem by preventing opportunistic trading consistent with Brav and Gompers (2003).

Lockups have become increasingly standardized, which may be a problem for management if information asymmetry about the firm is resolved prior to the expiration of the lockup, because managers are forced to remain over invested in the firm, which imposes unnecessary under-diversification costs on them, and may lead to overly conservative, suboptimal decisions for the firm. In the U.S. since the 1980's lockup lengths have become more standardized at 180 days. In 1988, only 32.5% of lockup lengths are 180 days, while in most years from 2002 to 2021, over 90% of lockup lengths are 180 days. A resolution of this problem standardization causes may come from underwriters permitting sales by insiders before the end of the lockup, henceforth called "early release." For the period from 1988 to 2021, we observe early release in 12.9% of IPOs. 58% of early releases occur at or before halfway through the lockup.

Building on the framework of Leland and Pyle (1977), we hypothesize that early release from lockup can be an optimal response of an underwriter in the presence of valuation uncertainty once information asymmetry about the true value of a firm is resolved. While Leland and Pyle's (1977) model does not predict a direction of returns as uncertainty is resolved, their model implies that there should be no difference in return performance following early release between firms with early release and similar firms without. We find that when compared to their matched peers, firms with early release from lockup up have no greater IPO underpricing, something the prior literature has associated with uncertainty around the value of the firm.[5] In our sample, the IPO day returns of firms with early release and

[5] Beatty and Ritter, 1986, Michaely and Shaw, 1994, and Lowry, Officer and Schwert, 2010, among others.

without early release are both 24.6%. Following the IPO, early released firms have on average superior return performance through the day of the early release from lockup with average buy and hold abnormal returns of 16.1%. However, the day of the early release is where the out-performance ends, buy and hold abnormal returns through the end of lockup are flat at 0.6% with a p-value of 0.809, and long run, post-lockup-period, buy and hold abnormal returns are insignificantly different from zero at 12, 24 and 36 months past the end of the lockup period. Figure 1, depicting the buy and hold abnormal returns from the offer, displays these central findings concisely.

[Figure 1 about here]

These findings are consistent with early released firms having an asymmetric information environment around the time of the IPO, which is resolved by the time of the early release. If the uncertainty had not yet been resolved, investors might view the early release of shares as a negative signal about the firm's quality. However, the lack of a statistically or economically significant response on or post early release is indicative of a symmetric information environment, supporting the notion that underwriters release shares in response to the resolution of asymmetric information. We see patterns in analyst coverage and analyst forecast dispersion that are consistent with the resolution of asymmetric information before the date of early release as suggested by the results in Figure 1. Our return performance results notably differ from similar studies examining the negative price response around the end of the lockup period (see for example, Brav, Gecyz, and Gompers, 2000, Field and Hanka, 2001, and Brav and Gompers, 2003). This may result from the end of lockup occurring before information asymmetries are resolved, downward sloping demand curves for shares, or persistent investor surprise about the negative information conveyed by managerial sales at the end of lockup. Using early release to test whether lockups serve to address asymmetric

information problems might be a cleaner test precisely because it is the endogenous decision of an underwriter.

Given that early release on average follows superior stock price performance, one might argue that early release occurs simply because the likelihood of a bad outcome is significantly reduced, what Brav and Gompers (2003) refers to as "diminished moral hazard risk" the relation between post-IPO performance and early release. To examine this possibility, we separately examine the 139 of 789 instances of negative returns from the IPO to early release. The patterns following early release are strikingly similar with no statistically significant differences in performance immediately following early release or in the years past the end of lockup. A result more in line with the asymmetric information and adverse selection stories.

The discretion that underwriters have over early release process potentially creates its own set of agency costs. Given the history of incentive alignment problems throughout the underwriting process, one may be concerned that early release may instead be a symptom of underwriters having an incentive to serve the interests their client, the managers of the IPO firm, over the interest of enforcing a costly signal to outside investors, the management lockup period. Evidence that early release occurs before information asymmetries are resolved or if firm prospects are poor or if underwriters appeared to be incentivized by pecuniary benefits to release management early, would all be signs that the decision to early release may not be aligned with the interests of outside investors. For example, evidence in Brav and Gompers (2003) suggests that early release is more likely if a firm is held by a VC. Given that managers and VCs would have a greater incentive to sell shares, if they believe that their firm is overvalued, rather than undervalued, if underwriters are inappropriately succumbing to pressure from managers and VCs before information asymmetries were resolved, then we would expect early released firms' prices to react negatively to news of early release and

potentially for returns to deteriorate following early release. We find neither. There is no significant event day price change around the early release date and the early released firms' returns are no worse on average than their matched peers. This means that, more broadly, any hypothesis where the underwriter is persuaded to release shares early because shares are overpriced or where insiders have some other information advantage over outside investors, would lead to firms with early release experience worse performance than their matched peers following early release. We do not see this.

While our evidence is not consistent with a rent extraction story, we do examine whether underwriters receive some benefits from allowing firm management to sell shares before the end of the lock-up period. We conjecture that underwriters use early sales to increase client loyalty and accordingly generate more future business from their clients. [6] While early release firms are more likely to conduct an SEO, our evidence that early release engenders loyal to the underwriter is economically small and statistically insignificant.

Prior to 2012 early release is largely at the discretion of the underwriter. From 1996 to 2011 14% of the underwriting agreements between underwriters and the management of early released firms have contractual provisions conditionally permitting early release. Since 2012, 76% of underwriting agreements contain some kind of contractual provision, that permits early release. One possibility is that managers are attempting to reduce the conflict of interest between underwriters and themselves through the addition of contractual provisions included in the underwriting agreement that mandate early release under certain conditions. These conditions include reasons unrelated to firm quality (such as allowing a manager to sell to make tax payments or if a manager dies), but they sometimes also include requirements related to the information environment, such as requiring an audited earnings release.

[6] Krigman et al. (2001), Brav and Gompers (2003), and Ljungqvist and Wilhelm (2005) also use the underwriter switch to measure client loyalty and future business.

By including in underwriting contracts language that conditionally mandates early release, management effectively has the ability to grant themselves early release, as long as those contractual provisions are met. With this in mind, we also examine whether or not the patterns in performance differ for IPOs with contractual provisions mandating early release and those that do not, because this allows us to look for evidence incentive alignment problems or other indicators of opportunistic selling, which Brav and Gompers (2003) suggest as a major motivation for lockups. We find that early-released firms with contractual provisions are marginally significantly more underpriced compared to their matched peers in the mean (but not in medians). In addition, there is some weak evidence that managers of IPOs with contractual provisions sell opportunistically as they have marginally significantly worse performance following early release, consistent with some incentive-alignment problems, when managers decide on early release themselves.

This paper contributes to the literature on capital raising, to the literature on conflicts of interest, and by extension to the field of forensic finance. We contribute to the literature on capital raisings through our evidence that early release only occurs after information asymmetries have been resolved. This finding builds on earlier work that finds that early release is related to post IPO return performance (Brav and Gompers, 2003, and Karpoff et al., 2013); and as the result of pressure from venture capital firms, with which the underwriters expect to conduct future business (Field and Hanka, 2001). We add one more reason for early release to this list, because underwriters are behaving consistently with the model of Leland and Pyle (1977) by granting early release only upon the resolution of asymmetric information.[7] This evidence also supports the findings of Brau, Lambson, and McQueen (2005) which finds

[7] On a more minor note, we also provide evidence that early release is a signal of additional and more rapid subsequent equity issuance. We find that when there is early release, (1) the IPO firms are more likely to issue SEOs within the four years after the IPO; and (2) the time between the IPO and the first SEO is shorter.

that lockups are shorter for ex-ante more transparent firms.

We contribute to the literature on conflicts of interest and forensic finance, by examining whether the discretion around allowing managers to sell their shares before the end of lockup, a decision rife with potential incentive alignment problems, is in fact associated with evidence of agency conflicts. While we find some evidence consistent with firm managers selling opportunistically when they have more control the decision to sell shares before the end of the lockup period, the evidence of severe agency problems is not compelling, as we no evidence of post-early release underperformance, which is inconsistent with several rent-extraction stories, nor do we find meaningful evidence of a *quid pro quo*, when we examine whether the management of IPO firms are particularly loyal to underwriters when they are granted early release. We find little significant evidence that underwriters or managers of early released firms are enriching themselves at the expense of other investors. As Griffin and Kruger (2024) note, documenting non-results is also informative as it indicates instances where there are fewer frictions to inhibit the optimal allocation of resources.

This paper is organized as follows: Section 2 discusses the sample. Section 3 examines firm fundamentals and characteristics associated with early release. Section 4 presents our findings about the resolution of asymmetric information prior to early release. Section 5 examines one avenue for pecuniary benefits the derive from early release. Section 6 concludes.

2 Data and Sample

In this study, we use data from LSEG (formerly Refinitiv) for insider trading data to derive our measure of early release, the SDC Platinum new issues database to identify IPOs and SEOs, CRSP for market data, COMPUSAT for accounting data, the SEC Edgar website for prospectuses to identify contractual provisions mandating early release, and from Jay Ritter's website for the reputation rank of underwriters.

2.1 The Data

2.1.1 LSEG Insider Trading Data and Identifying Early Release

Our data on insider trading, upon which our early release indicator is based, is from Form 4 filings with the SEC and is provided by LSEG (formerly Refinitiv). We delete observations that LSEG/Refinitiv code as problematic or unconfirmed (CLEANSE code is 'A' or 'S'). We consider an insider sale to be from a top manager if it is coded as a sale (TRANCODE='S') and if the LSEG/Refinitiv Role Code indicates the seller is the Chairman of the Board (CB), Chief Executive Officer (CEO), Chief Operating Officer (CO), General Counsel (GC), President (P), Chief Financial Officer (CFO), an Officer and Director (OD)[8], or Vice President (VP).

"Early Release" is deemed to have occurred if a top manager of the firm sells shares before the end of the lockup period but at least 7 days after the IPO (following Karpoff, Lee, and Masulis, 2013). Consistent with this date, being a date when all top managers are released, in unreported results on the early release date identified using this method, we find that on average two top managers sell shares worth 2% of the value of the firm, and on average 2 non-top managers sell shares worth just over 4% of the value of the firm.

It is important to note that defining early release in the way we do means that early release reflects two decisions: the decision of managers to ask underwriters to grant early release and the decision of underwriters to grant early release. When we examine the subsample of firms with contractual provisions mandating early release, discussed in Section 2.3, that sample will include instances of early release where the management of the firm is the only group deciding whether or not to sell shares.

[8] See, for example Seyhun and Bradley (1997) and Chen et al. (2012).

2.1.2 SDC Platinum New Issues Database

Our data on equity offerings, both initial (IPO) and seasoned (SEO) comes from the SDC Platinum new issues database. Our initial sample of IPOs in the U.S. covers the period of 1988-2021. The data we use from this database, include the name of the issuer and its CUSIP, the issue date, deal number, the length of lockup periods for various classes of inside owners, whether or not an IPO has venture capital backing, proceeds of equity offerings, the fraction of a firm's equity sold at the initial public offering, the date of overallotment option exercise, the offer price of the new issue, and the identity of bookrunners and other underwriters.

We follow the procedures and filters used by Lowry, Michaely, and Volkova (2017), which limit the IPOs to the common equity of US-domiciled firms that are traded on major exchanges within the US. following previous studies on lockups,[9] we exclude stocks with an offer price below $5 and several special classes of IPOs, such as closed-end funds, real estate investment trusts (REITs), American depository receipts (ADRs), etc. Some IPOs have different lockup period lengths for different groups of investors. Sometimes more than one lockup period can apply to top managers. For example, if an IPO has both a "Company Lockup" and a "Current Shareholder Lockup" both would apply to top management. When this happens, we select the longest lockup period that applies to top management as the length of the lock up period. Please see the Internet Appendix for additional details of our data cleaning and matching procedures.

2.1.3 CRSP

Data for prices, returns including delisting returns, volume, and shares outstanding are from the Center for Research in Security Prices (CRSP). A firm that has an IPO must also have prices and returns from CRSP to be included in our sample.

[9] For example, Field and Hanka, 2001; Brav and Gompers, 2003; Yung and Zender, 2010; Chen et al., 2012,

2.1.4 COMPUSTAT

In order to calculate abnormal performance, we need to identify firms that are similar to those with early release, but do not themselves undergo early release. We describe our matching procedure in detail in Section 3. Part of the data we use to identify similar firms comes from financial ratios calculated from COMPUSTAT data.[10] We merge the financial ratio data with the SDC IPO data and identify the financial ratios which are non-missing data for at least 95% of firms with IPOs.[11] This results in the 26 financial ratios used in Table 3. These financial ratios are winsorized at the 0.1 and the 99.9 percentile to reduce the impact of potential data errors and other outliers.

2.1.5 SEC Edgar

From the Security and Exchange Commission's (SEC) Edgar website we collect the prospectuses (form 424B4 or S-1) of firms with early release back to 1996, which is the year when digitized versions of firms' prospectuses became available on the Edgar website. We use the Edgar website to manually cross check some of the data provided by SDC Platinum, and, for firms with early release, in order to extract contractual provisions which conditionally mandate early release.

2.1.6 Jay Ritter's data

Jay Ritter provides a wealth of IPO related data on his website: https://site.warrington.ufl.edu/ritter/ipo-data/. We use his results to cross-check our data and to obtain his update of Carter and Manaster's (1990) and Carter, Dark and Singh's (1998) ranking of the reputation of underwriters and used in Loughran and Ritter (2004), which is

[10] Calculated using the financial ratio code posted to the WRDS and written by Denys Glushkov, except Cash Burn, which is calculated as the Cash Balance divided by the Operating Cash Flow.
[11] 42% of the accounting periods end before the IPO date and 49% between the issue date and the end of the lockup period. The remaining 9% of accounting periods ends after the end of lockup. For firms with early release, 41% of accounting periods ends before the issue date, 42% end before early release, 16% between early release and the end of lockup and less than 1% after the end of the lockup period.

used in our matching procedure.

2.2 The Initial Sample

We begin with a sample of 7,167 IPOs from SDC Platinum. To perform empirical tests, we require IPO companies to have daily returns data available from the CRSP, financial statement data available from Compustat, and, in order to facilitate propensity score matching between IPOs with early release and those without, we further require firms to have data for 34 measures listed in Table 3.[12] The resulting sample consists of 6,299 IPOs, comprising 814 IPOs with early sales or 12.9% of IPOs. We reduce this sample further when we only include IPOs with early release and their matched peers our central analyses in Figure 1 and Tables 6, 7, and 8.

Table 1 reports the total number of IPOs, number of IPOs with early sales, and the percentage of IPOs with different lockup lengths in days. We split the sample by the issuance year. Consistent with Field and Hanka (2001) and Karpoff et al. (2013), the lockup length becomes more standardized at 180 days over the sample period. In 1988, only 32.5% of lockup lengths are 180 days, while in most years from 2002 to 2020, over 90% of lockup lengths are 180 days.

[Table 1 about here]

2.3 Contractual Provisions Mandating Early Release

It is not always the case that early release is the outcome of a negotiation between insiders and the underwriter, for some of the firms in our sample the underwriter is contractually required to allow the early release under stated conditions. This means that when

[12] See Section 2.1.4 for how we select the 26 accounting items in this set of 34 measures and Section 3 for the economic motivation for the remaining 8 measures.

contractual conditions are triggered, the decision to sell before the end of lockup is no longer a decision made by the underwriter, but it is at the sole discretion of management. After 1995, and over the full sample, 30% of all firms in which top management receives early release from the post-IPO lockup have a contractual provision which requires the underwriter to release management from the post-IPO lock up. After 2011 76% of IPOs with early release have contractual provisions conditionally mandating early release. To identify these contractual provisions for each IPO with early-release management we extract from the prospectus the 100 words around each instance of the word "lockup", "lock-up", or "lock up" and "early release". We then read each extract to identify and classify contractual provisions into 17 summary groupings.

As shown in Table 1 column (4) the absolute number of contractual provisions in the prospectus of IPOs where top management received early release are fairly similar across years; however, as a percentage all early-released firms, the number of prospectuses with contractually specified early release provisions approaches 100% following 2012. This is consistent with evidence in Morrison, Schenone, Thegeya, Wilhelm (2018) of a decline of underwriter/client loyalty as an enforcement mechanism to mitigate conflicts of interest.

[Table 2 about here]

The 17 summary groupings are listed in Table 2. The column on the right notes the fraction of prospectus with a given type of contractual provision. Note that for the full sample, these fractions do not sum to 17% because one prospectus can have multiple provisions. We do not include prospectuses from 1988 to 1995, because they are not available through the SEC's Edgar database.

3 Correlates of Early Release and Creating a Matched Sample

In this section we examine the differences between the characteristics of firms where managers are permitted to sell their shares before the end of the lockup period and those where they are not. This allows us to gain some insight into differences that may endogenously lead underwriters to grant top management early release from lockup and it serves as a foundation for the creation of the matched sample that we will use as a proxy for normal returns in our main returns in Tables 6 and 7.

In Table 3 we begin our examination of why underwriters allow managers to sell shares before the end of the lockup period by examining 8 IPO characteristics and 26 accounting measures. For the 8 characteristics we include VC Backing and IPO Return following Field and Hanka (2001), who find an association between these measures and early release. We include the length of the lockup ("Management Lockup Lengths") as it seems reasonable that there less of an incentive to request early release if the lockup period is short. We include the Percent of Equity Offered at the IPO to reflect the possibility that underwriters might want management to sell shares if there are fewer shares available to the public. We include the reputation ranking of the investment bank (following Carter and Manaster, 1990, using data collected by Jay Ritter and posted to his website), because reputation concerns could either affect underwriters' incentive to early release, potentially damaging their reputation if early release is permitted in error. We include IPO proceeds following Chiang, Lowry, and Qian (2019), who use the level of inflation-adjusted proceeds as a proxy for the degree of information asymmetry about an IPO akin to size. We include whether the underwriter exercises its overallotment option as this may be indicative of the demand for and scarcity of the firm's shares (see Ellis, Michaely, and O'Hara, 2000 for a discussion of overallotment options). The remaining items we include are financial ratios that are available for a large

fraction of IPOs and these accounting items capture aspects of firm quality (profitability and value), need for capital for investment and operations, and reliance on equity capital. Section 2.1.4 discusses the selection criteria for these 26 financial ratios.

This initial evidence sheds some light on the motivation for early release from lockup. Sensibly, we see that IPOs with early release also tend to have longer lockup periods, and, consistent with Brav and Gompers (2003) and Field and Hanka (2001), IPOs with early release more frequently have VC backing. However, reputation and IPO proceeds, our proxy for asymmetric information, are insignificantly different. In the full sample, early released firms have slightly higher IPO-day returns (greater IPO discounts), 24% for early-released firms vs. 22% for those not early released and 15% more have underwriters who exercise their overallotment options. Consistent with these high IPO returns, we also see that firms with early release during the IPO lockup have a higher valuation ratio and a lower book to market. Also, these firms are more profitable, but with lower investment, whether measured by capital expenditures or R&D, and lower cash balances, and have a greater reliance on equity capital (or conversely less reliance on debt). Together these results suggest a story in which managers of IPO firms that are incentivized to seek early release do so and receive it, but early release is permitted for firms that have both strong share and firm performance.

[Table 3 about here]

To identify the most important measures associated with early release and to serve as the basis of our model for matching early released firms to similar peers, we run a logistic regression in which we model early release as a function of the 34 measures included in Table 3. In Table 4 we present the results for the subset of these 34 measures that best predicts early

release. To arrive at this model, we begin by modelling early release, a zero/one dummy, as a function of all 34 measures listed in Table 3. Then we use stepwise procedures to identify the best fitting model, which includes the 10 measures listed in Table 4. Our objective in this exercise is not to definitively state which variables are the most important for the decision to release shares early, but rather to allow us to (1) examine one plausible model of the decision to release shares early so we can know how changes in several characteristics are associated with the likelihood of early release in sample and (2) to serve as the foundation for propensity score matching which we will use in subsequent results in Tables 5, 6, 7, and 8.

The interpretation is largely the same as what we can infer from Table 3. Early release is more likely when the lockup period is longer, the IPO is VC backed, the underwriter is more highly ranked, the overallotment option is exercised, higher firm value, higher profits, and more invested capital. The average marginal effects for a 1 standard deviation change are calculated and presented in column 2 of Table 4. A one standard deviation increase from the mean lockup length results in a 0.05% greater likelihood of early release. A one standard deviation increase in the book-to-market ratio results in a 11.2% decrease in the likelihood of early release. While a one standard deviation increase in profitability results in a 7.2% increase in the likelihood of early release.

[Table 4 about here]

In this section we examined what are the differences in observable characteristics between IPO firms with early release and those without. In the next section we move on to examine whether firms with early release have different stock performance consistent with early release occurring only after information asymmetries are resolved.

4 Asymmetric Information and the Stock Price Performance of Early Released Firms

To understand the evolution of the information environment around early release, we compare the performance of firms with early release to a matched sample of firms without early release over six time-periods, the day of the IPO, the day of the IPO through the day of early release, the day of the IPO through the end of lockup, and long horizons from the end of lockup through 12, 24 and 36 months after the end of the lockup period. These findings show that performance until early release is vastly superior to their matched counterparts, but that the event of early release itself conveys no additional information and performance following early release through the end of lockup reverts to normal.

4.1 Propensity Score Matching

Because errors in asset pricing models are exacerbated at long horizons, we use propensity-score matched firms to create our comparison group for normal returns. In addition, propensity score matching allows us to remove non-comparable firms from the analysis that could result in biased errors. To do this we run the logistic regression presented in Table 4, in which the decision to early release is modeled as a function of management lockup length, a dummy for VC backing, reputation rank, whether the overallotment option was exercised, the book-to-market ratio, gross profit to total assets, common equity to invested capital, total liabilities to tangible assets, long-term debt to invested capital, and total debt to market. The method for selecting this model is described in Section 3. For each firm in our sample of 6299 IPOs we calculate a propensity score. For each firm with early release, we find the closest match to a firm without early release without replacement. For each prospective match we calculate a pseudo early release day by adding the count of days to early release to the IPO date. For a match to be considered good we require that the matched firm has the exact same lockup length and that the matched firm has pricing data from CRSP on or up to 7 days after

the pseudo early release day. These restrictions mean that we lose 25 IPOs with early release, resulting in a sample of 789 IPOs with early release and 789 matched firms.

To get a sense of how closely the propensity-score-matched firms compare to the firms with early release in Table 5 we repeat the difference tests of Table 3, but only for the sample of firms with early release and their matches. Notably, none of the differences in firm characteristics and firm performance are significant at conventional levels, even though we only used a propensity-score-matching model based on a subset of the measures. Firms where top managers are released early from lockup have marginally significantly less leverage, as seen in the differences in, Total Liabilities/Total Tangible Assets, Total Debt/Total Assets and Long-term Debt/Book Equity which are marginally significantly lower with a p-value of 0.091, 0.073 and 0.100, respectively, for early-released firms than for their matches. In the subsequent performance results in Tables 6, 7, and 8 we use these propensity-score matched firms.

[Table 5 about here]

4.2 Stock-Price Performance around Early Release

The two central questions of this paper are: 1. whether information asymmetries are resolved prior to early release and 2. whether there is evidence that underwriters or managers are exploiting their control over early sales to the disadvantage of other investors. We can address both by examining the abnormal return response of firms with early release around the date of the first trade by top managers. If there are no differences in value-relevant information across managers and investors, then returns should not differ between early-release firms and their matched peers.

These results may also shed light on whether there is evidence of rent seeking or other opportunistic behavior. Opportunistic selling implies a directional hypothesis. Managers have

a greater incentive to sell before the end of lockup if stocks are overvalued, rather than undervalued. If early release results from an agency conflict between managers and underwriters or between these underwriters, managers and other investors, then we would expect early released firms to underperform their matched peers.

Figure 2 presents the buy and hold abnormal returns for early released firms in the 10 days abound early release, measured as the difference between the buy and hold returns for released firms and their matched peers. As we saw in Figure 1, there is no discernable jump in returns around the early release date, consistent with the investors in the market perceiving this event as conveying either good or bad news, there is a temporary positive drift, but that begins to revert by 10 days after early release, giving us the long-term results we see in Figure 1 and Table 6.

[Figure 2 about here]

In Table 6 we present our central evidence that firms with early release are initially underpriced, but that the valuation is corrected by the date of the early release. We focus on returns because two similarly risky, correctly priced firms should have the same return. This is to say that if returns of early release firms and their matched peers are not meaningfully different then information asymmetries must already be resolved and are no greater than they would be for any other similar firm.

[Table 6 about here]

Panel A of Table 6 presents our full sample results. Panel A.1 presents the returns for several

periods, on the day of the IPO (from the Offer Price to the Close of IPO), from the close of the IPO through early release, from early release through the end of the lock up, and for each of three years following the end of the lockup. The pattern is striking and depicted in Figure 1. While there is no difference in the IPO underpricing (return of 24.6%) for firms with early release and their matched peers, from the IPO through early release, firms with early release have buy and hold abnormal returns of 16.1% over their matched peers from the day following the IPO to the day of early release. Notably, this outperformance disappears following early release. Buy and hold abnormal returns are insignificantly different from zero for each subsequent period. In Panel A.2 of Table 6, we confirm that these results for each period hold when we consider the full buy and hold abnormal returns from early release through 1-year post-lockup through 3 years post lockup. To ensure these results are not driven by outliers, we repeat the analysis at the medians. The results are present in brackets, {}, below the main results in Table 6. The magnitudes are different, but the findings are otherwise the same. The results in Table 6 provide compelling evidence that whatever differences investors may perceive between early released firms and their matched peers, those differences are resolved by the date of early release consistent with the hypothesis that underwriters only permit early release from lockup upon the resolution of information asymmetries and against hypotheses that underwriters or managers are opportunistically exploiting their control over early release.[13]

[13] We acknowledge that if there were direct wealth transfers between managers and underwriters, such as cash bribes, we would not be able to observe evidence of underwriters exploiting their control over early release.

4.3 Robustness

4.3.1 Existence of contractual provisions

Prospectuses sometimes include provisions that contractually mandate early release. Consistent with the importance of information asymmetry, these provisions sometimes focus on disclosure, as well as performance, as discussed in Section 2. While we are unable to know what precisely triggered early release, we can examine whether or not there are differences between subsamples where early-released firms have contractual provisions and those where they do not.

In Panels B and C of Table 6, we repeat the analysis of Panel A, splitting the sample of early-released firms into those with contractual provisions mandating early release under given conditions in the prospectus in Panel B and those without in Panel C. We observe that the patterns in returns are broadly similar to the full sample, regardless of whether the prospectus includes contractual provisions mandating early release or not. However, there are some marginally significant differences in performance for firms with contractual provisions.

With contractual provisions in Panel B, we see that the mean firm is slightly more underpriced as seen in IPO-day returns that are 8.9% higher for early-release firms (p-value 6.1%), though the differences are not significant in the median. We also see some slight evidence of post-early-release underperformance in the median (p-value 6.4%) for firms with contractual provisions, however, the differences are not significant in the means, consistent with managers trading opportunistically. Once again, the results for firms without contractual provisions in Panel C are very similar to the full-sample results in Panel A. We interpret these findings in Panel B as providing weak evidence of managers engaging in opportunistic selling when they have more control over the decision to sell shares prior to the end of the lockup period

4.3.2 Is early release purely a response to strong performance?

Consistent with the findings of Brav and Gompers (20023), underwriters may allow early release following strong performance whether or not information asymmetries are resolved, merely because the risk of poor performance is diminished. If early release is a response to the resolution of information asymmetries, then we might expect to find no abnormal performance following early release, even if performance through early release is negative. Negative post-IPO returns are surprisingly common for early released firms. In our matched sample of 789 early released firms 139 have negative returns through the date of early release.

In Panels D and E of Table 6 and Internet Appendix Figure 1 we repeat the analysis of Table 6, splitting the sample into early-released firms experiencing a positive return from the IPO to the day of the first sale by a top manager (Panel D) and those early release firms experiencing a negative return (Panel E). As with the full sample, we observe that early-released firms, whether they experience positive or negative returns to early release have no significant difference in performance following early release. Buy and hold abnormal returns are insignificantly different from zero for each subsequent period, consistent underwriters only permitting early release on average only once information asymmetries have been resolved and not merely a function of strong performance. In Internet Appendix Table 2, we further subset our sample by firms with positive/negative returns through early release and those with and without contractual provisions. The findings are qualitatively similar.

Together the findings across the full sample and the four different subsamples with and without contractual provisions and with strong and weak performance up to early release suggest a fairly cohesive story that information asymmetries are resolved by the time of early release. With the exception of some weak evidence among firms with contractual early-release

provisions suggesting opportunistic trading, we see little other evidence of underwriters or managers extracting rents from their control over the decision to allow top managers to sell their shares before the end of lockup.

4.4 Corroborating evidence from analyst coverage and forecast dispersion

If lockups serve to help resolve the problem of asymmetric information about the quality of the firm, and early release only occurs if information asymmetries are resolved, then we may see evidence in the number of analysts following early release firms and in the magnitude of forecast dispersion. To the extent analysts generate or uncover private information, we would expect early released firms to have more analyst coverage than their matched peers prior to early release. How analyst coverage responds to a decrease in asymmetric information post early release is itself ambiguous.[14] With regard to forecast dispersion, we would expect to see less forecast dispersion where there is a less asymmetric information environment.

We count the number of unique analysts making forecasts and calculate forecast dispersion over two equal-length periods before and after early release. The first period is from the IPO date to the early release date. The second period begins on the early release date and is the same length as the period from issue date to early release. We want similar length periods so there is a similar opportunity for analysts to make forecasts within each period. Table 7, Panel A presents our findings for counts of analysts. Over our full sample, before early release, early released firms have an average of 1.98 unique analysts following them, which is statistically significantly higher than the 1.61 analysts following their matched peers. After early release, we see that both early released firms and their matched peers experience an

[14] On one hand, firms with more accurate prices are easier to cover and may have higher institutional demand leading to greater analyst coverage. On the other, analysts provide less value when there are fewer information asymmetries.

increase in analyst coverage, and the significant difference in coverage between early release firms and their matched peers continues.

In Panel B of Table 7, we examine the dispersion of analyst forecasts, measured as the standard deviation of analyst forecasts over issue price before and after early release. We require both the early released firm and its match to be followed by at least two analysts both before and after early release. This significantly reduces the size of the sample from 789 matched pairs to 159 matched pairs. Prior to early release, the difference in forecast dispersion is statistically insignificant, consistent with both the early released firm and its match having a similar information environment. Following early release, early released firms experience a marginally statistically significant reduction in forecast dispersion consistent with a reduction in information asymmetries, and the difference between early released firms and their peers becomes statistically significant reflecting the reduction in the disagreement between analysts as to the firm's future earnings. These findings are consistent with our central findings in Table 6 and Figure 1 that early release occurs after information asymmetries have been reduced or eliminated.

[Table 7 about here]

5 Early Sales and Pecuniary Benefits – Underwriters and SEOs

While we see little evidence in the return performance of early released firms suggesting that either underwriters or managers are engaging in rent seeking or other opportunistic behavior, engendering client loyalty can benefit underwriters by allowing them to earn more fees as their clients eschew competitive tenders for underwriting services (Morrison, Schenone, Thegeya, Wilhelm, 2018). In specific, underwriters might provide services (in our case early release) to their clients with the expectation that it translates to future underwriting business (Eccles and Crane, 1988, writing in the context of advisory services translating to underwriting business).

Seen differently, Field and Hanka (2001) note that in their discussions with underwriters, underwriters often feel pressure to release locked-up shares held by insiders with whom underwriters expect to conduct future business. The probability that an IPO firm conducts SEOs is a measure for the potential of future business between insiders and underwriters. Krigman et al. (2001), Brav and Gompers (2003), and Ljungqvist and Wilhelm (2005) use underwriter switching to measure client loyalty and future business.

Table 8 reports statistics on seasoned equity offerings (SEOs) for firms with early release, for matching firms without early release (early sale), and their difference. To be included the SEO must occur before December 31, 2022, but less than 4 years after the date of the IPO. IPOs that occur after December 31, 2018 are cut from the sample to allow 4 years for SEOs to occur. There are three panels in Table 8. Panel A is for the full sample, Panel B is for the subsample of early-released firms with contractual provisions conditionally mandating early release. Panel C is for the subsample of early-released firms without contractual provisions. We consider each of these subsamples, as the presence of contractual provisions might affect how early release translates to or engenders loyalty between management and underwriter.

Panel A.1 includes all SEOs that occur within 4 years as long as both the early released firm and the match their IPO before December 31, 2018. The combination of the date restriction and that both the early released firm and the match have their IPO before December 31, 2018 results in a smaller sample of 681 matched pairs. As shown in Table 8, Panel A.1, 51% of firms that are early released have an SEO within 4 years of the IPO compared to only 40% of their matched peers. Conditional on having an SEO, early released firms have the SEO 121 days sooner, and generate $1.3 million more fees (in 2022 dollars), although the proceeds from the SEO (where firms with no SEOs have 0 recorded for proceeds) are insignificantly

higher with a p-value of 0.07, for early released firms at $164.5 million versus $123.5 million for matched firms. Importantly, firms with early release are 9% more likely to have an SEO and stay loyal to the IPO underwriters, suggesting that early release either engenders or is a reflection of client-underwriter loyalty. Panel A.2 of Table 8, which focuses only on the first SEO per IPO, paints a very similar picture to Panel A.1.

One challenge interpreting the loyalty results in Panels A.1 and A.2, is the fact that firms with no SEO are grouped with firms that have an SEO, but switch underwriters. In panel A.3, we limit the analysis solely to pairs where both the firm with early release and its matched pair also has an SEO. This significantly narrows the sample because SEO issuance was not part of the matching criteria. This leaves us with only 141 pairs, but even in this small sample, the results are in the same direction, although largely statistically insignificant, suggesting that early release does little to engender manager loyalty. Early released firms have SEOs 76 days earlier (p-value 0.056). They are 3% more likely to stay with the same underwriters (p-value 0.59), they generate $770,536 more in fee revenue for the underwriters (p-value 0.34), though the proceeds for the SEO are statistically indistinguishable. The results in panels A.1 and A.2 giving the impression of increased loyalty are likely driven by the increased probability early-released firms have to have an SEO. In unreported modeling loyalty (not switching underwriters) as a function of early release, yields qualitatively similar results to Panel A.3. As such, we conclude early release does little to engender loyalty and as a result it does not like serve as a pecuniary benefit incentivizing underwriters to grant early release.

[Table 8 about here]

Examining the similar results for the subsample of firms with contractually specified

early release provisions in Panel B and without in Panel C, we see a broadly similar story, except that the magnitudes are more extreme in Panel B when we focus on the subsample with contractual provisions. Fees and proceeds are larger for firms with contractual provisions in Panels B.1 and B.2, than those without in Panels C.1 and C.2, and the time to the first SEO is shorter for early-released firms with contractual provisions. However, in both subsamples, when we limit the analysis solely to pairs where both the firm with early release and its matched pair also has an SEO, we see that there is no significant evidence that early release engenders loyalty in Panels B.3 and C.3, with and without contractual provisions.

6 Conclusions

If the purpose of lockups address adverse selection problems or moral hazard problems, why do underwriters allow managers to sell their shares before the end of lockup 12.9% of the time? In this paper we examine this question and in doing so we lend support to the prior research that suggests that lockups predominantly address adverse selection/information asymmetry problems. Firms with early release significantly outperform a matched sample through the date of early release, but subsequent performance is no better than their peers consistent with the resolution of uncertainty about the value of firm with early release. We do see some evidence that moral hazard motivates the need for lockups, because when underwriting agreements include contractual early release provisions giving management greater control over the early sale decisions, managers do trade opportunistically, but the evidence is weak.

The discretion that underwriters have over early release process, and in the case that management has negotiated contractual early-release provisions, the discretion that firm-management has over early release, potentially create their own set of agency costs. Given the history of incentive alignment problems throughout the underwriting process, one may be

concerned that early release may instead be a symptom of underwriters having an incentive to serve the interests their client, the managers of the IPO firm, over the interest of external shareholders. We find no evidence that underwriters exploit their discretion over early release to garner rents or other pecuniary benefits resulting from incentive alignment problems. Overall, despite opportunities to do otherwise, it appears that in this corner of the market underwriters and managers are behaving as if their incentives are aligned with each other and with other investors, both inside and outside the firm.

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Table 1 - IPO, Lockup Lengths, and Early Release from Lockup

For the full sample and for each year of the sample period January 1, 1988 through December 31, 2021, this table presents the number of IPOs (Col 2), the number of IPOs with "Early Release" (Col 3), the number of Early-Released firms with contractual provisions ("Contract Provis.") requiring the underwriter allow Early Release (Col 4), and the fraction of IPOs with different lockup period lengths (Cols 5-11). To be included in this table, the IPO must have fiscal-quarter or fiscal-year-end accounting data available through COMPUSTAT within 1 year of the IPO date for each item listed in Table 3. For details, see the table note to Table 3. IPO data are from SDC. We follow the procedures and filters used by Lowry, Michaely, and Volkova (2017), which limits the IPOs to the common equity of US-domiciled firms that are traded on major exchanges within the US. Insider data are from LSEG (formerly Refinitiv) based on Form 4 filings with the SEC. "Early Release" is deemed to have occurred if a top manager of the firm sells shares after the first 7 days (following Karpoff, Lee, and Masulis, 2013), but before the end of the lockup period. We consider an insider sale to be from a top manager if the LSEG (Refinitiv) Role Code indicates the seller is the Chairman of the Board (CB), CEO (CEO), Chief Operating Officer (CO), General Counsel (GC), President (P), CFO (CFO), an Officer and Director (OD), or Vice President (VP). When there are multiple lockup lengths for an IPO, we choose the lockup that applies to these top managers.

				Percent (%) of IPOs with Lockup Length in Days						
Year	**No. of IPOs**	**Early Release**	**Con-tract Provis.**	**0 (%)**	**1-90 (%)**	**91-179 (%)**	**180 (%)**	**181-270 (%)**	**271-360 (%)**	**≥ 360 (%)**
1988	40	4	--	17.5	2.5	32.5	32.5	2.5	0.0	12.5
1989	90	9	--	22.2	2.2	22.2	32.2	4.4	0.0	16.7
1990	101	4	--	29.7	9.9	14.9	35.6	1.0	2.0	6.9
1991	267	50	--	18.7	2.2	12.7	50.9	3.0	0.4	12.0
1992	366	54	--	10.9	0.3	5.7	63.1	4.6	2.5	12.8
1993	460	82	--	15.0	1.7	3.5	59.8	3.7	0.7	15.7
1994	370	67	--	15.4	1.9	1.9	57.8	3.2	3.2	16.5
1995	423	91	--	17.7	0.9	1.7	63.4	2.1	3.1	11.1
1996	627	78	6	16.7	2.2	0.8	66.3	1.6	1.3	11.0
1997	401	56	9	18.7	3.7	0.2	61.8	2.5	2.5	10.5
1998	244	22	5	34.0	2.9	0.4	48.0	0.0	5.3	9.4
1999	421	53	9	45.8	4.5	0.2	46.8	0.2	0.2	2.1
2000	313	14	1	52.7	2.2	0.0	42.5	0.3	0.0	2.2
2001	60	2	1	41.7	0.0	0.0	51.7	0.0	3.3	3.3
2002	57	5	2	0.0	0.0	0.0	91.2	3.5	1.8	3.5
2003	51	7	4	0.0	2.0	0.0	90.2	3.9	3.9	0.0
2004	151	17	1	0.7	2.0	1.3	87.4	2.6	2.6	3.3
2005	142	19	3	2.8	1.4	0.7	82.4	4.9	4.2	3.5
2006	124	18	3	0.0	0.0	0.8	87.9	0.8	8.1	2.4
2007	129	23	3	0.8	1.6	2.3	90.7	0.0	3.9	0.8
2008	17	1	0	5.9	0.0	0.0	94.1	0.0	0.0	0.0
2009	34	6	0	5.9	0.0	0.0	94.1	0.0	0.0	0.0
2010	79	10	1	8.9	0.0	1.3	87.3	2.5	0.0	0.0
2011	72	9	1	8.3	0.0	1.4	88.9	0.0	0.0	1.4
2012	85	11	6	5.9	2.4	1.2	85.9	3.5	0.0	1.2
2013	131	12	8	1.5	3.8	0.0	94.7	0.0	0.0	0.0
2014	175	11	5	3.4	2.3	0.0	93.7	0.0	0.6	0.0
2015	104	2	1	1.9	1.0	0.0	95.2	1.9	0.0	0.0
2016	61	1	1	0.0	0.0	0.0	100.0	0.0	0.0	0.0
2017	95	8	7	3.2	0.0	1.1	95.8	0.0	0.0	0.0
2018	120	6	3	1.7	0.0	1.7	95.0	1.7	0.0	0.0
2019	100	12	10	0.0	0.0	1.0	99.0	0.0	0.0	0.0
2020	132	16	11	1.5	3.0	0.0	93.9	0.0	0.8	0.8
2021	257	34	34	5.8	1.9	0.8	88.7	0.8	0.8	1.2
Total	6299	814	135	16.7	2.1	2.5	67.9	1.9	1.7	7.3

Table 2 – Types of Contractual Provisions

17% of all firms with early release from the post-IPO lockup after 1995 have a contractual provision which requires the underwriter to release management from the post-IPO lock up. We extract contractual provisions associated with early release from firms' prospectuses and devise the 17 summary groupings listed below. The column on the right notes the fraction of prospectus with a given type of contractual provision. Note that these fractions do not sum to 17% because one prospectus can have multiple provisions. We do not include prospectuses from 1988 to 1995, because they are not available through the SEC's Edgar database.

Contractual Provision Allowing Early Release	**Fraction of Prospectuses of Firms with Early Release with the Provision on the Left (%)**
Sales to underwriter	3%
Exercise of option or warrants, or conversion	8%
Employee/director stock options plan	8%
Repurchase agreements	1%
Open market transactions	3%
Change of control	2%
Rule 10b5-1 trading plan	4%
Transfer by law (domestic, divorce)	3%
Transfers to immediate family or trusts, as gifts, or via wills	5%
Employment termination (e.g., death)	2%
Earnings report release	3%
Stock price exceeds certain threshold	3%
Securities in joint ventures or strategic transactions (merger, acquisition)	6%
Conversion of preferred stock	2%
RSU settlements, tax obligations	3%
Transfers/distributions to stockholder affiliates	4%
Other (exception for certain group, blackout period, loan, etc.)	3%
Any Combination of the Above Provisions	**17%**

Table 3 – Differences in IPO and Firm Characteristics by Early Release – Full Sample

This table presents the mean financial ratios from the fiscal quarter or year closest to the IPO date for each firm in our full sample of 6299 IPOs (814 with "Early Release" and 5485 without). 40.5% of the fiscal-period ends are before the IPO date. 50.5% are between the issue date and the end of lockup, while the remaining 9% are after the end of the lockup period. For early release firms, 41% are before the issue date, 42% are between the issue date and the early-release date, 17% are between early release and the end of lock up, and 0.5% are after the end of the lockup period. Unbounded accounting data are winsorized at the 0.1 and 99.1 percentile. Items bounded by zero are only winsorized at the 99.1 percentile. IPO characteristics are not winsorized. The definition of "Early Release" and the IPO data are described in Table 1. Management Lockup Length is the number of days top managers may not sell shares in the firm without underwriter consent. Percent Equity Offered at the IPO is the fraction of a firm's shares floated at the IPO. VC Backed is a dummy variable that is 1 if the firm has investment by venture capital. Reputation Rank is the underwriter ranking created by Carter and Manaster (1990), used in Loughran and Ritter (2004), and available on Jay Ritter's website: https://site.warrington.ufl.edu/ritter/ipo-data/. IPO Proceeds are the amount of money raised across all markets in 2022 USD. IPO Return is based on the first closing price available on CRSP and the offer price. Market Capitalization is total shares outstanding times IPO-day closing price. The financial ratios are calculated as in the WRDS financial ratio suite, except fixed assets which is Total Tangible Assets/Total Assets and Cash Burn which is cash balance/operating cash flows. Significance tests of the differences in means assume equal variances unless rejected by a folded F-test for the equality of variances. For inclusion in the sample all data items listed in the table must be non-missing.

	With Early Release	Without Early Release	Diff	(p-value)
IPO Characteristics				
Management Lockup Lengths (days)	219.3	166.8	52.4	(0.000)
VC Backed (%)	50.4	43.5	6.8	(0.000)
Reputation Rank	7.32	7.35	-0.03	(0.710)
IPO Proceeds (millions of 2022 dollars)	171.2	210.0	-38.8	(0.198)
Pct Equity Offered at IPO (%)	29.5	30.1	-0.6	(0.411)
Market Capitalization on Day of IPO (millions)	685.0	659.8	25.2	(0.802)
IPO Return (%)	24.2	21.6	2.7	(0.041)
Overallotment Option Exercised (%)	79.5	64.5	15.0	(0.000)
Firm Characteristics				
Book Equity (millions)	119.8	170.1	-50.3	(0.006)
Book/Market	0.19	0.30	-0.11	(0.000)
Enterprise Value Multiple	2.71	-2.53	5.24	(0.146)
Gross Profit/Total Assets	0.58	0.33	0.25	(0.000)
Capital Expenditures/Sales	0.22	0.45	-0.24	(0.088)
R&D/Sales	1.04	2.60	-1.56	(0.004)
Cash Balance/Total Liabilities	1.46	2.21	-0.76	(0.000)
Fixed Assets (Total Tangible Assets/Total	0.17	0.18	-0.01	(0.115)
Intangible Assets/Total Assets	0.01	0.02	-0.01	(0.006)
Intangible Assets/Sales	0.34	0.42	-0.08	(0.253)
Common Equity/Invested Capital	0.53	0.46	0.07	(0.002)
Cash Burn (Cash Balance/Operating Cashflow)	-0.81	-0.57	-0.24	(0.727)
Short-term debt	10.9	37.1	-26.2	(0.000)
Long-term debt	74.7	158.4	-83.7	(0.000)
Total Debt/Market	0.13	0.28	-0.16	(0.000)
Total Debt/Total Assets	0.53	0.54	-0.01	(0.490)
Total Debt/Equity	3.27	2.59	0.68	(0.491)
Total Debt/Capital	0.42	0.45	-0.02	(0.066)
Total Liabilities/Total Tangible Assets	10.6	24.3	-13.7	(0.000)
Total Debt/Total Assets	0.22	0.26	-0.03	(0.000)
Long-term Debt/Total Liabilities	0.24	0.28	-0.04	(0.000)
Capitalization Ratio	0.27	0.31	-0.04	(0.013)
Long-term Debt/Invested Capital	0.27	0.29	-0.03	(0.061)
Total Debt/Invested Capital	0.50	0.49	0.00	(0.920)
Total Debt/EBITDA	1.49	1.29	0.21	(0.513)
Long-term Debt/Book Equity	2.50	4.41	-1.91	(0.075)

Table 4 – Modelling the Decision to Release Management from Lockup Early

This table presents optimal model for the occurrence of Early Release of management from lock-up restrictions in our full sample of 6299 IPOs (814 with "Early Release" and 5485 without) as a function of the 34 measures listed in Table 3 is chosen based on a stepwise selection procedure. This table presents the results of that optimal logistic regression. It models the occurrence of *Early Release* of management from lock-up restrictions as a function of 1. Management Lockup Lengths (days), 2. VC Backed, 3. The Reputation Rank 4. Overallotment Option Exercise, 5. Book/Market, 6. Gross Profit/Total Assets, 7. Common Equity/Invested Capital, 8. Total Liabilities/Total Tangible Assets, 9. Long-term Debt/Invested Capital, and 10. Total Debt/Market. The p-value is for a Wald test, which tests whether the variable's estimate equals zero. IPO and early release data are described in Table 1. Accounting data are described in Table 3.

	Avg. Marginal Effect (1 Std Change)	**Estimate**	**SE**	**(p-value)**
Intercept		-4.025	0.301	(0.000)
Management Lockup Lengths (days)	0.0005	0.004	0.000	(0.000)
VC Backed	0.045	0.432	0.093	(0.000)
Reputation Rank	0.012	0.112	0.025	(0.000)
Overallotment Option Exercised	0.058	0.565	0.097	(0.000)
Book/Market	-0.112	-1.086	0.216	(0.000)
Gross Profit/Total Assets	0.072	0.701	0.080	(0.000)
Common Equity/Invested Capital	0.031	0.304	0.087	(0.000)
Total Liabilities/Total Tangible Assets	-0.070	-0.676	0.238	(0.005)
Long-term Debt/Invested Capital	0.056	0.547	0.172	(0.001)
Total Debt/Market	-0.037	-0.354	0.154	(0.022)

Table 5 – Preliminary Results: IPO Characteristics by Early Release – Matched Sample

To demonstrate the success of the propensity score matching, this table presents the mean IPO and Firm Characteristics as in Table 3 for the 789 firms with early release and their 789 matched peers. Data and filters applied to the accounting data are described in the notes of Tables 1 and 3. We use propensity score matching to identify firms with IPOs that are most similar to those with early release from lockup. Propensity scores are derived for the logistic model presented and described in Table 4. The closest match within 0.25 times the standard deviation of the sample propensity score is used if it has the exact same number of days in the lockup period and it has price data on or within one week of the date of early release of the IPO/firm to which it is being matched. Following Rubin (2001) we confirm that the variance ratios of the matched sample for the propensity score and each measure included in the optimal model, shown in Table 4, is bounded by 0.5 and 2. Tests for the significance of the differences in means assume equal variances unless this assumption is rejected by a folded F-test for the equality of variances. For inclusion in the sample all data items listed in the table must be non-missing.

	With Early Release	Without Early Release	Diff	(p-value)
IPO Characteristics				
Management Lockup Lengths (days)	214.8	214.8	0.0	(1.000)
VC Backed (%)	50.6	51.1	-0.5	(0.840)
Reputation Rank	7.35	7.47	-0.12	(0.208)
IPO Proceeds (millions of 2022 dollars)	144.9	139.7	5.2	(0.708)
Pct Equity Offered at IPO (%)	29.5	31.1	-1.6	(0.335)
Market Capitalization on Day of IPO (millions)	667.1	537.5	129.5	(0.228)
IPO Return (%)	24.6	24.6	0.0	(0.993)
Overallotment Option Exercised (%)	79.6	81.4	-1.8	(0.374)
Firm Characteristics				
Book Equity (millions)	112.6	91.6	21.0	(0.230)
Book/Market	0.19	0.20	-0.01	(0.351)
Enterprise Value Multiple	2.74	3.96	-1.22	(0.814)
Gross Profit/Total Assets	0.57	0.57	0.00	(0.996)
Capital Expenditures/Sales	0.22	0.25	-0.03	(0.885)
R&D/Sales	0.89	1.40	-0.50	(0.566)
Cash Balance/Total Liabilities	1.48	1.43	0.05	(0.743)
Fixed Assets (Total Tangible Assets/Total	0.17	0.18	0.00	(0.783)
Intangible Assets/Total Assets	0.01	0.01	0.00	(0.870)
Intangible Assets/Sales	0.34	0.37	-0.03	(0.768)
Common Equity/Invested Capital	0.53	0.49	0.05	(0.123)
Cash Burn (Cash Balance/Operating Cashflow)	-0.92	0.76	-1.68	(0.080)
Short-term debt	10.8	7.3	3.4	(0.389)
Long-term debt	75.4	61.5	13.9	(0.417)
Total Debt/Market	0.13	0.14	-0.02	(0.354)
Total Debt/Total Assets	0.53	0.55	-0.02	(0.097)
Total Debt/Equity	3.22	1.76	1.46	(0.475)
Total Debt/Capital	0.42	0.45	-0.02	(0.215)
Total Liabilities/Total Tangible Assets	10.74	19.79	-9.04	(0.091)
Total Debt/Total Assets	0.22	0.25	-0.02	(0.073)
Long-term Debt/Total Liabilities	0.24	0.26	-0.02	(0.120)
Capitalization Ratio	0.27	0.30	-0.02	(0.224)
Long-term Debt/Invested Capital	0.27	0.29	-0.02	(0.206)
Total Debt/Invested Capital	0.50	0.46	0.04	(0.425)
Total Debt/EBITDA	1.51	1.99	-0.48	(0.420)
Long-term Debt/Book Equity	2.51	8.70	-6.19	(0.100)

Table 6 – Performance from the IPO through 3 Years after the End of the Lock-up Period – Matched Sample

This table presents average return performance for firms with early release, their propensity-score matched sample and their difference, that is abnormal return to early-released firms. Medians are in curly brackets{}. The number of matched pairs is listed in the Panel heading. Note that counts fall as the periods are farther from the issue date. Return data are from CRSP and include delisting returns. Column 1, "From", indicates the reference point for start of return measurement and Column 2, "To", indicates the end. Data and filters applied to the accounting data are described in the notes of Tables 1, 3, and 5. We use propensity score matching identify firms with IPOs that are most similar to those with early release from lockup. Propensity scores are derived for the logistic model presented and described in Table 4. The closest match within 0.25 times the standard deviation of the sample propensity score is used if it has the exact same number of days in the lockup period and it has price data on or within one week of the date of early release of the IPO/firm to which it is being matched. Tests for the significance of the differences in means assume equal variances unless this assumption is rejected by a folded F-test for the equality of variances. Tests for the significance of the differences in medians are based on a Fligner-Policello test.

		Mean {Median} Returns (%)			
From	**To**	**With Early Release**	**Without Early Release**	**Diff**	**(p-value)**
Panel A: Early Released IPOs – Full Sample (N=789)					
Panel A.1: Post IPO Performance by Period					
Offer Price	Close of IPO	24.6	24.6	0.0	(0.993)
{Median}		*{16.3}*	*{14.7}*	*{1.5}*	*(0.225)*
Close of IPO	Early Release	21.0	4.9	16.1	(0.000)
		{6.0}	*{0.0}*	*{6.0}*	*(0.000)*
Early Release	End of Lockup	2.7	2.1	0.6	(0.809)
		{-1.9}	*{-3.6}*	*{1.7}*	*(0.434)*
End of Lockup	1 Yr. after End of Lockup	3.6	3.6	0.0	(0.995)
		{-12.8}	*{-14.2}*	*{1.4}*	*(0.646)*
1 Yr. after End of Lockup	2 Yrs. after End of Lockup	9.1	10.3	-1.2	(0.802)
		{-9.9}	*{-9.1}*	*{-0.8}*	*(0.731)*
2 Yrs. after End of Lockup	3 Yrs. after End of Lockup	13.2	17.9	-4.7	(0.399)
		{-2.7}	*{-0.1}*	*{-2.7}*	*(0.537)*
Panel A.2: Cumulative Post-Early-Release Performance					
Early Release	1 Yr. after End of Lockup	7.6	3.8	3.8	(0.414)
{Median}		*{-14.8}*	*{-17.3}*	*{2.5}*	*(0.376)*
Early Release	2 Yrs. after End of Lockup	15.5	11.4	4.1	(0.551)
		{-23.9}	*{-25.3}*	*{1.4}*	*(0.595)*
Early Release	3 Yrs. after End of Lockup	27.5	18.1	9.3	(0.309)
		{-28.8}	*{-26.0}*	*{-2.8}*	*(0.899)*

(continued)

From	To	Mean {Median} Returns (%) With Early Release	Without Early Release	Diff	(p-value)
Panel B: Early Released IPOs with Contractual Early Release Provisions (N=126)					
Panel B.1: Post IPO Performance by Period with Contractual Early Release Provisions					
Offer Price	Close of IPO	34.0	25.1	8.9	(0.061)
{Median}		*{25.0}*	*{17.0}*	*{8.1}*	*(0.114)*
Close of IPO	Early Release	16.8	3.4	13.3	(0.016)
		{5.0}	*{-1.2}*	*{6.1}*	*(0.012)*
Early Release	End of Lockup	-4.7	0.1	-4.8	(0.266)
		{-8.0}	*{-0.5}*	*{-7.4}*	*(0.064)*
End of Lockup	1 Yr. after End of Lockup	-7.0	7.6	-14.6	(0.230)
		{-23.8}	*{-20.6}*	*{-3.2}*	*(0.295)*
1 Yr. after End of Lockup	2 Yrs. after End of Lockup	-8.1	7.5	-15.5	(0.200)
		{-15.6}	*{-12.0}*	*{-3.6}*	*(0.541)*
2 Yrs. after End of Lockup	3 Yrs. after End of Lockup	11.9	5.9	6.1	(0.634)
		{3.1}	*{-9.1}*	*{12.2}*	*(0.390)*
Panel B.2: Cumulative Post-Early-Release Performance with Contractual Early Release Provisions					
Early Release	1 Yr. after End of Lockup	-8.7	9.3	-18.1	(0.160)
{Median}		*{-32.9}*	*{-26.6}*	*{-6.3}*	*(0.208)*
Early Release	2 Yrs. after End of Lockup	-17.3	14.0	-31.3	(0.102)
		{-52.5}	*{-28.9}*	*{-23.6}*	*(0.272)*
Early Release	3 Yrs. after End of Lockup	-16.3	5.7	-22.0	(0.156)
		{-54.4}	*{-21.6}*	*{-32.8}*	*(0.538)*
Panel C: Early Released IPOs without Contractual Early Release Provisions (N=663)					
Panel C.1: Post IPO Performance by Period without Contractual Early Release Provisions					
Offer Price	Close of IPO	22.8	24.5	-1.7	(0.408)
{Median}		*{15.3}*	*{14.3}*	*{1.0}*	*(0.493)*
Close of IPO	Early Release	21.8	5.2	16.6	(0.000)
		{6.1}	*{0.0}*	*{6.1}*	*(0.000)*
Early Release	End of Lockup	4.1	2.5	1.6	(0.552)
		{-0.2}	*{-3.9}*	*{3.7}*	*(0.120)*
End of Lockup	1 Yr. after End of Lockup	5.6	2.8	2.8	(0.522)
		{-8.8}	*{-13.2}*	*{4.4}*	*(0.330)*
1 Yr. after End of Lockup	2 Yrs. after End of Lockup	12.2	10.8	1.4	(0.774)
		{-9.3}	*{-7.0}*	*{-2.3}*	*(0.951)*
2 Yrs. after End of Lockup	3 Yrs. after End of Lockup	13.4	20.2	-6.8	(0.270)
		{-3.4}	*{2.1}*	*{-5.5}*	*(0.296)*
Panel C.2: Cumulative Post-Early-Release Performance without Contractual Early Release Provisions					
Early Release	1 Yr. after End of Lockup	10.7	2.7	7.9	(0.108)
{Median}		*{-10.1}*	*{-16.8}*	*{6.6}*	*(0.120)*
Early Release	2 Yrs. after End of Lockup	21.8	10.9	10.9	(0.139)
		{-19.4}	*{-25.0}*	*{5.5}*	*(0.236)*
Early Release	3 Yrs. after End of Lockup	35.8	20.5	15.3	(0.144)
		{-22.9}	*{-27.4}*	*{4.5}*	*(0.612)*

(continued)

From	To	Mean {Median} Returns (%) With Early Release	Without Early Release	Diff	(p-value)
Panel D: Firms with Positive Returns to Early Release (N=650)					
Panel D.1: Post IPO Performance for Firms with Positive Returns to Early Release					
Offer Price	Close of IPO	28.4	25.9	2.5	(0.260)
{Median}		*{18.8}*	*{16.4}*	*{2.4}*	*(0.002)*
Close of IPO	Early Release	29.5	5.4	24.0	(0.000)
		{13.4}	*{0.0}*	*{13.4}*	*(0.000)*
Early Release	End of Lockup	2.8	2.9	-0.1	(0.968)
		{-2.0}	*{-2.6}*	*{0.6}*	*(0.518)*
End of Lockup	1 Yr. after End of Lockup	3.7	2.8	0.9	(0.847)
		{-13.1}	*{-13.7}*	*{0.6}*	*(0.679)*
1 Yr. after End of Lockup	2 Yrs. after End of Lockup	6.2	11.2	-5.0	(0.315)
		{-11.1}	*{-7.8}*	*{-3.3}*	*(0.355)*
2 Yrs. after End of Lockup	3 Yrs. after End of Lockup	13.8	18.9	-5.1	(0.417)
		{-3.2}	*{-3.0}*	*{-0.2}*	*(0.545)*
Panel D.2: Cumulative Post-Early-Release Performance for Firms with Positive Returns to Early Release					
Early Release	1 Yr. after End of Lockup	8.5	4.5	3.9	(0.444)
{Median}		*{-13.1}*	*{-16.9}*	*{3.7}*	*(0.457)*
Early Release	2 Yrs. after End of Lockup	13.5	14.4	-0.9	(0.905)
		{-26.2}	*{-22.1}*	*{-4.1}*	*(0.964)*
Early Release	3 Yrs. after End of Lockup	24.6	21.5	3.1	(0.757)
		{-31.0}	*{-24.8}*	*{-6.3}*	*(0.636)*
Panel E: Firms with Negative Returns to Early Release (N=139)					
Panel E.1: Post IPO Performance for Firms with Negative Returns to Early Release					
Offer Price	Close of IPO	6.8	18.3	-11.6	(0.000)
{Median}		*{2.2}*	*{8.7}*	*{-6.6}*	*(0.000)*
Close of IPO	Early Release	-18.6	2.3	-20.9	(0.000)
		{-11.8}	*{0.0}*	*{-11.8}*	*(0.000)*
Early Release	End of Lockup	2.2	-1.5	3.7	(0.465)
		{-1.2}	*{-4.1}*	*{2.9}*	*(0.630)*
End of Lockup	1 Yr. after End of Lockup	3.3	7.3	-3.9	(0.718)
		{-9.8}	*{-16.2}*	*{6.4}*	*(0.855)*
1 Yr. after End of Lockup	2 Yrs. after End of Lockup	24.3	5.7	18.6	(0.104)
		{-3.5}	*{-12.2}*	*{8.7}*	*(0.212)*
2 Yrs. after End of Lockup	3 Yrs. after End of Lockup	10.0	13.2	-3.2	(0.789)
		{-0.8}	*{3.1}*	*{-3.9}*	*(0.827)*
Panel E.1: Cumulative Post-Early-Release Perf. for Firms with Negative Returns to Early Release					
Early Release	1 Yr. after End of Lockup	3.5	0.4	3.1	(0.770)
{Median}		*{-22.0}*	*{-26.4}*	*{4.4}*	*(0.555)*
Early Release	2 Yrs. after End of Lockup	25.0	-2.8	27.8	(0.071)
		{-19.9}	*{-36.0}*	*{16.1}*	*(0.145)*
Early Release	3 Yrs. after End of Lockup	41.1	2.3	38.8	(0.092)
		{-18.2}	*{-41.3}*	*{23.2}*	*(0.178)*

Table 7 – Analyst Coverage and Forecast Dispersion before and after Early Release – Matched Sample

This table presents the mean dispersion of analyst forecasts and number of analysts following the firm for early-release firms, their propensity-score matched sample and their difference over two equal length periods. Both periods have the same number of days as from the IPO date to the early release date, but the first is before early release and the second starts on the early release date. In Panel A, we present the average number of analysts making EPS forecasts for the current and the next quarter for early released firms and their matches. If we cannot match a firm to I/B/E/S data, we count the number of analysts as zero. Dispersion of analyst forecasts is measured as the standard deviation of analyst forecasts over offer price. We only include early released firms if it and its match are each covered by at least 2 analysts, both in the periods before and after early release. When a firm has forecasts for more than one forecast period, we average the forecast dispersion to the firm level. We use propensity score matching to identify firms with IPOs that are most similar to those with early release from lockup. Propensity scores are derived for the logistic model presented and described in Table 4. The closest match within 0.25 times the standard deviation of the sample propensity score is used if it has the exact same number of days in the lockup period and it has price data on or within one week of the date of early release of the IPO/firm to which it is being matched. Tests for the significance of the differences in means are based on standard t-tests.

	With Early Release	**Without Early Release**	**Diff**	**(p-value)**
Panel A: Number of Analysts (N=789)				
Before Early Release	1.98	1.61	0.37	(0.002)
After Early Release	2.63	2.15	0.48	(0.001)
Difference	0.65	0.54	0.11	(0.149)
(p-value)	(0.000)	(0.000)	(0.149)	
Panel B: Forecast Dispersion / Offer Price (%) (N=159)				
Before Early Release	0.26	0.30	-0.04	(0.643)
After Early Release	0.14	0.22	-0.08	(0.004)
Difference	-0.12	-0.09	-0.04	(0.678)
(p-value)	(0.056)	(0.130)	(0.678)	

Table 8 – Frequency of SEO, Amount of Capital Raised, and Underwriter Loyalty – Matched Sample

This table presents statistics on seasoned equity offerings (SEOs) for firms with early release, for matching firms without early release (early sale), and their difference. SEOs through December 31, 2022, but less than 4 years after the IPO are included. IPOs that occur after December 31, 2018 are cut from the sample to allow 4 years for SEOs to occur. Panel A shows the full sample with the indicated restrictions, Panel B shows the subsample where early-release firms have contractual provisions, and Panel C shows the subsample where early-release do not have contractual provisions for early release. Proceeds from SEOs are in millions and inflation adjusted based on the CPI as reported by the US Bureau of Labor Statistics and reported in 2022 dollars. Missing proceeds (because there is no SEO within 4 years of the IPO) are set to zero. The length of time to the first SEO, "Days to SEO", is conditional on there being an SEO (i.e. firms with no SEO are excluded). "Loyal to Underwriter on first SEO" is the fraction of firms which use the same lead underwriter (SDC Platinum's Book Runner data item). If there is no SEO, "Loyal to Underwriter on first SEO" is set to zero. Data and filters applied to the accounting data are described in the notes of Tables 1 and 3. We use propensity score matching identify firms with IPOs that are most similar to those with early release from lockup. This procedure is described in the notes to Tables 4 and 5. Tests for the significance of the differences in means assume equal variances unless this assumption is rejected by a folded F-test for the equality of variances. Tests for the significance of the differences in medians are based on a Fligner-Policello test.

Measure	Count With Early Release	Count Without Early Release	With Early Release	Without Early Release	Diff	(p-value)
Panel A: Full Sample						
Panel A.1: All IPOs before December 31, 2018 Included						
At least 1 SEO w/in 4 Years	681	681	51%	40%	11%	(0.000)
Days to SEO (conditional on having an SEO)	349	274	361	482	-121	(0.000)
At least 1 SEO and the Lead Underwriter is the same for at least 1 SEO	681	681	39%	30%	9%	(0.000)
Gross Fees from all SEOs (as reported in 2022 $)	681	681	$5,958,099	$4,663,489	$1,294,610	(0.019)
Gross Spread (conditional on having an SEO)	341	260	5.01%	5.00%	0.01%	(0.902)
Proceeds from all SEOs w/in 4 years of IPO (in 2022 $)	681	681	$164,517,098	$123,535,883	$40,981,215	(0.073)
Panel A.2: Only First SEO per IPO						
Days to First SEO (conditional on Having an SEO)	349	274	361	482	-121	(0.000)
Has an SEO and the Lead at the IPO is the same as at the first SEO	681	681	38.6%	29.5%	9%	(0.000)
Gross Fees from all SEOs (as reported in 2022 $)	681	681	$4,321,717	$2,916,181	$1,405,536	(0.000)
Gross Spread (conditional on having an SEO)	336	255	5.10%	5.14%	-0.04%	(0.627)
Proceeds from all SEOs w/in 4 years of IPO (in 2022 $)	681	681	$100,514,141	$67,240,122	$33,274,019	(0.007)
Panel A.3: Both the Early-Released Firm and Its Match must have an SEO (Sample construction is the same as Panel A.2)						
Days to First SEO (conditional on Having an SEO)	141	141	386	462	-76	(0.056)
The Lead Underwriter for the SEO is the same as at the IPO	141	141	74%	72%	3%	(0.593)
Gross Fees from all SEOs (as reported in 2022 $)	141	141	$8,131,095	$7,360,560	$770,536	(0.341)
Gross Spread (conditional on having an SEO)	139	134	5.12%	5.22%	-0.10%	(0.417)
Proceeds from all SEOs w/in 4 years of IPO (in 2022 $)	141	141	$175,356,839	$171,816,460	$3,540,379	(0.876)

(continued)

Measure	Count With Early Release	Count Without Early Release	With Early Release	Without Early Release	Diff	(p-value)
Panel B: Only Early Release Firms with Contractually Specified Early Release Provisions and Their Matched Pairs						
Panel B.1: All IPOs before December 31, 2018 Included						
At least 1 SEO w/in 4 Years	67	67	60%	33%	27%	(0.002)
Days to SEO (conditional on having an SEO)	40	22	268	407	-139	(0.063)
At least 1 SEO and the Lead Underwriter is the same for at least 1 SEO	67	67	49%	30%	19%	(0.022)
Gross Fees from all SEOs (as reported in 2022 $)	67	67	$10,929,612	$3,623,628	$7,305,984	(0.002)
Gross Spread (conditional on having an SEO)	40	22	4.43%	4.99%	-0.56%	(0.054)
Proceeds from all SEOs w/in 4 years of IPO (in 2022 $)	67	67	$369,443,478	$100,661,687	$268,781,792	(0.006)
Panel B.2: Only First SEO per IPO						
Days to First SEO (conditional on Having an SEO)	40	22	268	407	-139	(0.063)
Has an SEO and the Lead at the IPO is the same as at the first SEO	67	67	49.2537%	29.8507%	19%	(0.022)
Gross Fees from all SEOs (as reported in 2022 $)	67	67	$7,355,501	$2,588,939	$4,766,562	(0.000)
Gross Spread (conditional on having an SEO)	39	22	4.58%	5.05%	-0.47%	(0.025)
Proceeds from all SEOs w/in 4 years of IPO (in 2022 $)	67	67	$177,652,777	$56,555,236	$121,097,541	(0.000)
Panel B.3: Both the Early-Released Firm and Its Match must have an SEO (Sample construction is the same as Panel B.2)						
Days to First SEO (conditional on Having an SEO)	18	18	272	440	-168	(0.052)
The Lead Underwriter for the SEO is the same as at the IPO	18	18	78%	89%	-11%	(0.386)
Gross Fees from all SEOs (as reported in 2022 $)	18	18	$12,646,412	$8,685,193	$3,961,219	(0.081)
Gross Spread (conditional on having an SEO)	18	18	4.44%	5.05%	-0.60%	(0.042)
Proceeds from all SEOs w/in 4 years of IPO (in 2022 $)	18	18	$330,702,442	$191,528,612	$139,173,830	(0.053)

(continued)

Measure	Count With Early Release	Count Without Early Release	With Early Release	Without Early Release	Diff	(p-value)
Panel C: Only Early Release Firms without Contractually Specified Early Release Provisions and Their Matched Pairs						
Panel C.1: All IPOs before December 31, 2018 Included						
At least 1 SEO w/in 4 Years	614	614	50%	41%	9%	(0.001)
Days to SEO (conditional on having an SEO)	309	252	373	489	-116	(0.000)
At least 1 SEO and the Lead Underwriter is the same for at least 1 SEO	614	614	38%	30%	8%	(0.003)
Gross Fees from all SEOs (as reported in 2022 $)	614	614	$5,415,605	$4,776,959	$638,646	(0.252)
Gross Spread (conditional on having an SEO)	301	238	5.09%	5.00%	0.09%	(0.343)
Proceeds from all SEOs w/in 4 years of IPO (in 2022 $)	614	614	$142,155,424	$126,031,927	$16,123,498	(0.481)
Panel C.2: Only First SEO per IPO						
Days to First SEO (conditional on Having an SEO)	309	252	373	489	-116	(0.000)
Has an SEO and the Lead at the IPO is the same as at the first SEO	614	614	37.4593%	29.4788%	8%	(0.003)
Gross Fees from all SEOs (as reported in 2022 $)	614	614	$3,990,669	$2,951,890	$1,038,779	(0.005)
Gross Spread (conditional on having an SEO)	297	233	5.17%	5.15%	0.02%	(0.818)
Proceeds from all SEOs w/in 4 years of IPO (in 2022 $)	614	614	$92,096,733	$68,406,063	$23,690,670	(0.070)
Panel C.3: Both the Early-Released Firm and Its Match must have an SEO (Sample construction is the same as Panel C.2)						
Days to First SEO (conditional on Having an SEO)	123	123	402	465	-62	(0.153)
The Lead Underwriter for the SEO is the same as at the IPO	123	123	74%	69%	5%	(0.399)
Gross Fees from all SEOs (as reported in 2022 $)	123	123	$7,470,317	$7,166,711	$303,606	(0.723)
Gross Spread (conditional on having an SEO)	121	116	5.22%	5.25%	-0.03%	(0.838)
Proceeds from all SEOs w/in 4 years of IPO (in 2022 $)	123	123	$152,623,336	$168,931,755	-$16,308,419	(0.484)

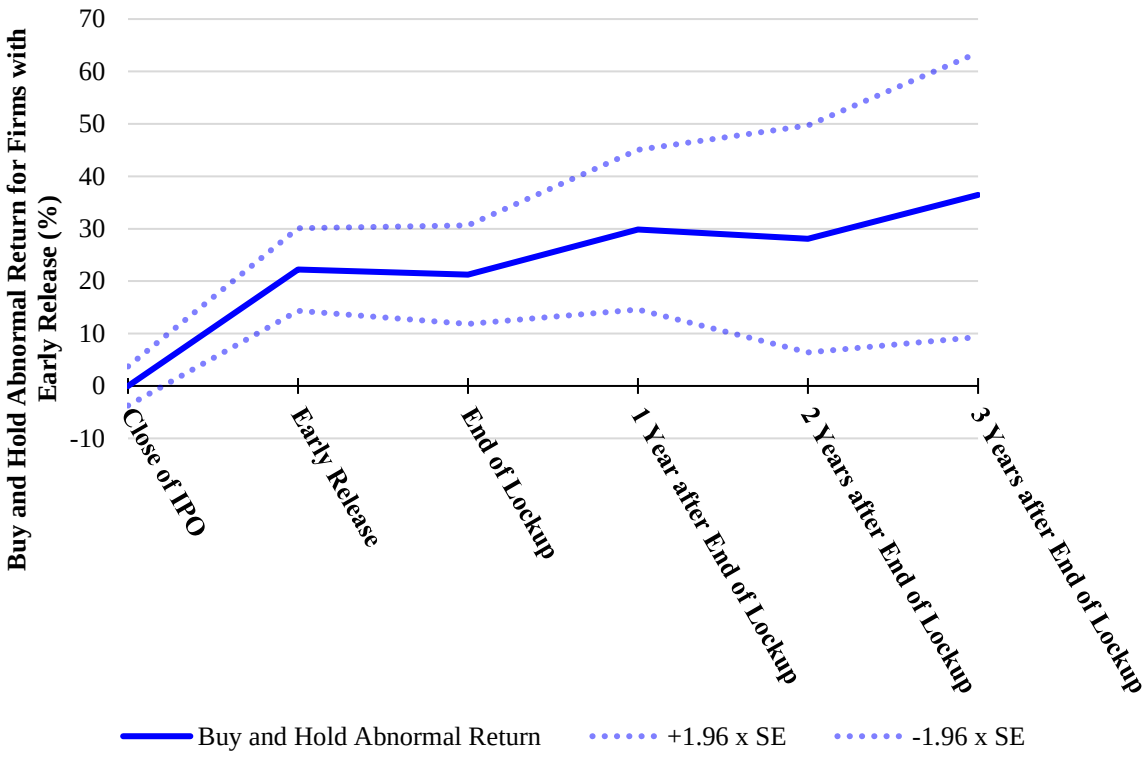


Figure 1 – Buy and Hold Abnormal Return for Firms with Early Release

This figure presents the buy and hold abnormal returns (BHAR) in percent for firms with early release. BHAR is calculated as the difference between the buy and hold return of a firm with early release and the buy and hold return of its matched peer. See the table notes to Tables 1, 3, 4, and 6 for a detailed description of the underlying data and the matching procedure. "Close of IPO" is the return from the offer price to the closing price on the day of the IPO. At "Early Release" is the buy and hold abnormal return from the offer price through the date a top manager (see the table notes for Table 1 for a definition) sells shares in the firm. Returns are from CRSP and include delisting returns.

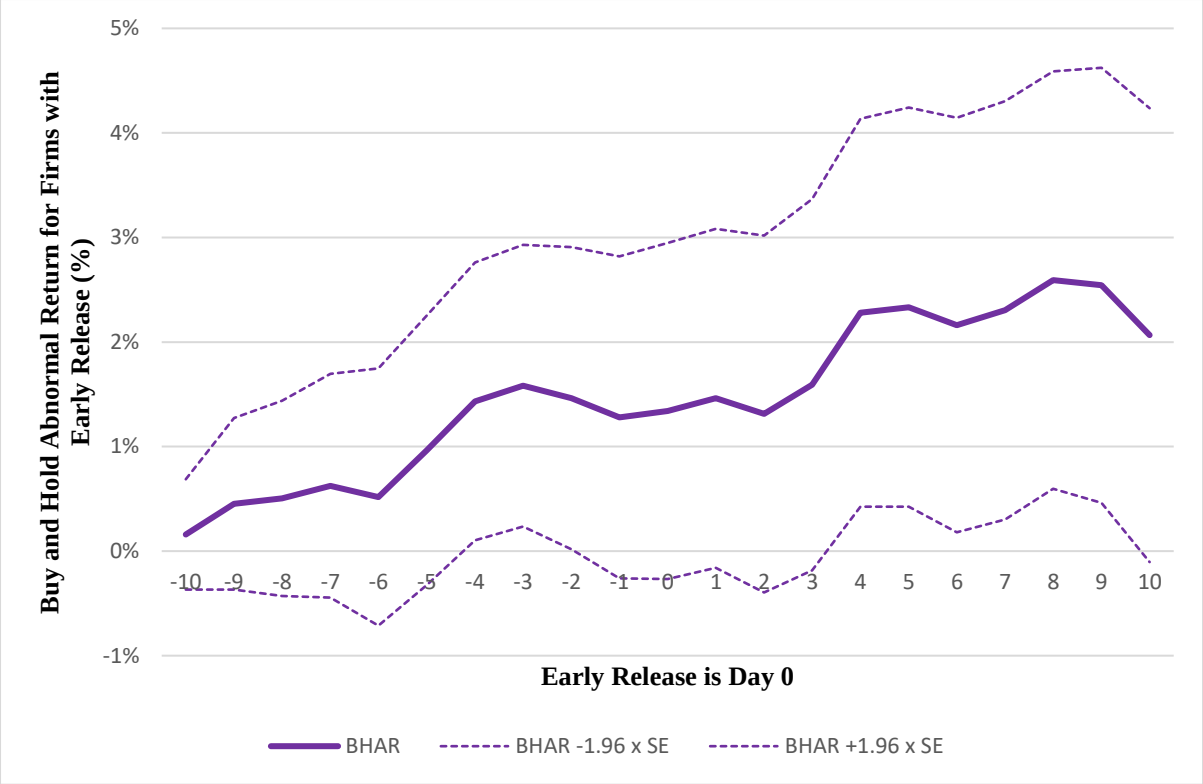


Figure 2 – Daily Buy and Hold Abnormal Return for Firms with Early Release in the ± 10 days around Early Release

This figure presents (in purple) the buy and hold abnormal returns (BHAR) in percent for firms with early release in the ± 10 days around early release. BHAR is calculated as the difference between the buy and hold return of a firm with early release and the buy and hold return of its matched peer. See the table notes to Tables 1, 3, 4, and 6 for a detailed description of the underlying data and the matching procedure. "Close of IPO" is the return from the offer price to the closing price on the day of the IPO. At "Early Release" is the buy and hold abnormal return from the offer price through the date a top manager (see the table notes for Table 1 for a definition) sells shares in the firm. Returns are from CRSP and include delisting returns.

Internet Appendix for

Early Release from Lockup: Insider Sales During the Post IPO Lockup Period

Appendix A. Additional notes on data cleaning

1. SDC: There are some data errors we have identified in SDC. Potential errors were cross-checked with Jay Ritter's IPO data and, where possible (most of the time), cross checked with contemporaneous news reports.
    a. These issues are incorrectly listed as IPOs. They are SEOs:
        i. DealNumbers 3090261002, 3311364002, 226010002, 1765344012, 3039997012
    b. Ekaterina Volkova in her work on the paper Lowry, Michaely, and Volkova (2017), posts to GitHub, https://github.com/volkovacodes/IPO-Review-Chapter, a number of corrections to issue dates. In addition to these, we identify the following:
        i. If DealNumber=168371002 then IssueDate=MDY(6,27,1990);
        ii. If DealNumber=222165002 then IssueDate=MDY(8,6,1991);
        iii. If DealNumber=306514002 then IssueDate=MDY(11,3,1992);
        iv. If DealNumber=310773002 then IssueDate=MDY(12,8,1992);
        v. If DealNumber=2438176002 then IssueDate=MDY(5,18,1994);
        vi. If DealNumber=419684002 then IssueDate=MDY(8,1,1994);
        vii. If DealNumber=432757002 then IssueDate=MDY(10,27,1994);
        viii. If DealNumber=436442002 then IssueDate=MDY(11,22,1994);
        ix. If DealNumber=592327002 then IssueDate=MDY(10,9,1996);
        x. If DealNumber=593434002 then IssueDate=MDY(10,11,1996);
        xi. If DealNumber=634835002 then IssueDate=MDY(1,31,1997);
        xii. If DealNumber=761814002 then IssueDate=MDY(5,28,1998);
        xiii. If DealNumber=1788693002 then IssueDate=MDY(12,14,2006);
        xiv. If DealNumber=1773951002 then IssueDate=MDY(1,25,2007);
        xv. If DealNumber=1901564002 then IssueDate=MDY(11,7,2007);
        xvi. If DealNumber=2166170002 then IssueDate=MDY(5,28,2010);
        xvii. if DealNumber=2608007002 then IssueDate='20MAY2014'd;
        xviii. if DealNumber=663433002 then IssueDate='14AUG1996'd;

    c. Sometimes IPOs have different lockup periods for different groups of investors. SDC labels these as:
        i. 10 Company Lockup (affects management);
        ii. 11 Employee Lockup (affects management);
        iii. 12 Institutional Lockup;
        iv. 13 Management Lockup (affects management);
        v. 14 Retail Lockup;
        vi. 15 Selling Shareholders Lockup (affects management);
        vii. 16 Strategic Lockup (affects management);
        viii. 17 Current Shareholders Lockup (affects management);
        ix. 16 Promoters Lockup;
        x. 19 Other Lockup (affects management);
        xi. 20 Not Available (affects management);

        We consider the Lockup Period that applies to top managers as the maximum length of lockup from these lockup length except the "Institutional Lockup" and "Retail Lockup".

2. We match SDC data to CRSP PERMNOs. To do this we match SDC and CRSP based on the company identifiers listed below, and after each match on a set of measures, we check the matches by eye to make sure the matches look correct. If a match looks

bad and we can identify the correct match, we correct the match. If we cannot, we throw it out. We match using company identifiers in the following order:

a. on 8-digit CUSIP, Ticker and the Issue Date,
b. using CRSP's 8-digit Header CUSIP, ticker, and Issue Date
c. on 8-digit CUSIP and the Issue Date
d. using CRSP's 8-digit Header CUSIP and Issue Date
e. on 6-digit CUSIP, ticker, and Issue Date
f. using CRSP's 6-digit Header CUSIP, ticker, and Issue Date
g. on 6-digit CUSIP and Issue Date
h. using CRSP's 6-digit Header CUSIP and Issue Date
i. on ticker and exchange
j. on ticker
k. on name

Again, after each step we check all the matches. If a match looks bad and we can identify the correct match, we correct the match. If we cannot, we throw it out. We cross-verify these matches with Jay Ritter's IPO data.

3. Insider trading data: We clean insider data by deleting all insider trading data where the CLEANSE code is 'A' or 'S', which indicate that there is a problem with the data, or the data has not been checked. For the purpose of identifying early release, we only use transactions coded as a sale (TRANCODE='S')

4. We match SDC and the LSEG/Refinitiv insider data in a similar manner to the SDC-CRSP match. To do this we match SDC and CRSP based on the company identifiers listed below, and after each match on a set of measures, we check the matches by eye to make sure the matches look correct. If a match looks bad and we can identify the correct match, we correct the match. If we cannot, we throw it out. We match using company identifiers in the following order:

   a. on 8-digit CUSIP, Ticker and the Insider Sale Transaction Date,
   b. on 8-digit CUSIP and the Insider Sale Transaction Date
   c. on 6-digit CUSIP, ticker, and Insider Sale Transaction Date
   d. on 6-digit CUSIP and Insider Sale Transaction Date
   e. on ticker

Appendix Table 1 – Extension of Table 6 – Liquidity Measures from the IPO through 3 Years after the End of the Lock-up Period – Matched Sample

This table presents average return daily turnover, average cumulative turnover, average Amihud (2002) illiquidity, and the average percentage spread for firms with early release, their propensity-score matched sample and their difference, that is abnormal return to early-released firms. Medians are in curly brackets{}. Data are from CRSP and include delisting returns. Column 1, "From", indicates the reference point for start of return measurement and Column 2, "To", indicates the end. Data and filters applied to the accounting data are described in the notes of Tables 1, 3, and 5. We use propensity score matching identify firms with IPOs that are most similar to those with early release from lockup. Propensity scores are derived for the logistic model presented and described in Table 4. The closest match within 0.25 times the standard deviation of the sample propensity score is used if it has the exact same number of days in the lockup period and it has price data on or within one week of the date of early release of the IPO/firm to which it is being matched. Tests for the significance of the differences in means assume equal variances unless this assumption is rejected by a folded F-test for the equality of variances. Tests for the significance of the differences in medians are based on a Fligner-Policello test.

From	To	With Early Sale	Without Early Sale	Diff	(p-value)
Panel C: Average Turnover (in 100s)					
Close of IPO	Early Release	20.3	16.3	4.1	(0.010)
		{*12.3*}	{*9.8*}	{*2.5*}	*(0.000)*
Early Release	End of Lockup	12.2	8.2	4.0	(0.000)
		{*7.0*}	{*5.1*}	{*2.0*}	*(0.000)*
End of Lockup	1 Year after End of Lockup	11.1	9.6	1.5	(0.062)
		{*7.9*}	{*6.4*}	{*1.5*}	*(0.000)*
1 Year after End of Lockup	2 Years after End of Lockup	11.3	9.6	1.7	(0.005)
		{*8.0*}	{*6.8*}	{*1.3*}	*(0.000)*
2 Years after End of Lockup	3 Years after End of Lockup	11.3	9.6	1.7	(0.004)
		{*7.6*}	{*6.9*}	{*0.8*}	*(0.052)*
Panel D: Sum of Turnover					
Close of IPO	Early Release	972.0	679.5	292.5	(0.017)
		{*400.0*}	{*338.8*}	{*61.2*}	*(0.001)*
Early Release	End of Lockup	816.5	636.5	180.0	(0.000)
		{*521.1*}	{*398.9*}	{*122.1*}	*(0.000)*
End of Lockup	1 Year after End of Lockup	2714.3	2346.8	367.6	(0.060)
		{*1942.1*}	{*1575.3*}	{*366.9*}	*(0.000)*
1 Year after End of Lockup	2 Years after End of Lockup	2672.2	2229.2	443.0	(0.002)
		{*1885.0*}	{*1496.9*}	{*388.1*}	*(0.000)*
2 Years after End of Lockup	3 Years after End of Lockup	2640.9	2254.3	386.6	(0.008)
		{*1714.2*}	{*1567.9*}	{*146.3*}	*(0.063)*

Appendix Table 1 – Extension of Table 6 –Liquidity Measures (continued)

Panel E: Illiquidity x 1,000,000					
Close of IPO	Early Release	0.2	0.4	-0.1	(0.133)
		{*0.0*}	{*0.0*}	{*-0.0*}	*(0.020)*
Early Release	End of Lockup	0.4	1.5	-1.1	(0.006)
		{*0.1*}	{*0.1*}	{*-0.0*}	*(0.000)*
End of Lockup	1 Year after End of Lockup	2.1	2.4	-0.3	(0.734)
		{*0.1*}	{*0.1*}	{*-0.0*}	*(0.004)*
1 Year after End of Lockup	2 Years after End of Lockup	2.1	4.9	-2.9	(0.006)
		{*0.0*}	{*0.1*}	{*-0.0*}	*(0.043)*
2 Years after End of Lockup	3 Years after End of Lockup	3.7	7.5	-3.8	(0.092)
		{*0.1*}	{*0.0*}	{*0.0*}	*(0.833)*
Panel F: Percent Spread					
Close of IPO	Early Release	2.4	2.4	0.0	(0.670)
		{*2.1*}	{*1.9*}	{*0.1*}	*(0.673)*
Early Release	End of Lockup	2.6	2.8	-0.3	(0.052)
		{*2.2*}	{*2.2*}	{*0.0*}	*(0.472)*
End of Lockup	1 Year after End of Lockup	3.0	3.1	-0.1	(0.450)
		{*2.1*}	{*2.1*}	{*0.0*}	*(0.683)*
1 Year after End of Lockup	2 Years after End of Lockup	3.0	3.4	-0.4	(0.098)
		{*1.9*}	{*1.8*}	{*0.1*}	*(0.671)*
2 Years after End of Lockup	3 Years after End of Lockup	3.1	3.3	-0.2	(0.438)
		{*1.9*}	{*1.5*}	{*0.4*}	*(0.102)*

Appendix Table 2 – Extension of Table 6: Performance from the IPO through 3 Years after the End of the Lock-up Period Separating Firms on Positive and Negative Performance from the IPO to Early Release and IPOs with and without Contractual Provisions Conditionally Mandating Early Release – Matched Sample

This table presents average return performance for firms with early release, their propensity-score matched sample and their difference, that is abnormal return to early-released firms. Medians are in curly brackets{}. Panels A and B present the performance of early-released firms and their matched peers conditional on the early-released firm experiencing positive returns from the IPO to the day of the first sale by a top manager. Panels C and D is the same for firms with negative returns through early release. Panels A and C present the performance of early-released firms and their matched peers conditional on the early-released firm having contractually mandated early release provisions on given conditions. Panels B and D is the same for firms without contractually mandated early release provisions. Return data are from CRSP and include delisting returns. Column 1, "From", indicates the reference point for start of return measurement and Column 2, "To", indicates the end. Data and filters applied to the accounting data are described in the notes of Tables 1, 3, and 5. We use propensity score matching identify firms with IPOs that are most similar to those with early release from lockup. Propensity scores are derived for the logistic model presented and described in Table 4. The closest match within 0.25 times the standard deviation of the sample propensity score is used if it has the exact same number of days in the lockup period and it has price data on or within one week of the date of early release of the IPO/firm to which it is being matched. Tests for the significance of the differences in means assume equal variances unless this assumption is rejected by a folded F-test for the equality of variances. Tests for the significance of the differences in medians are based on a Fligner-Policello test.

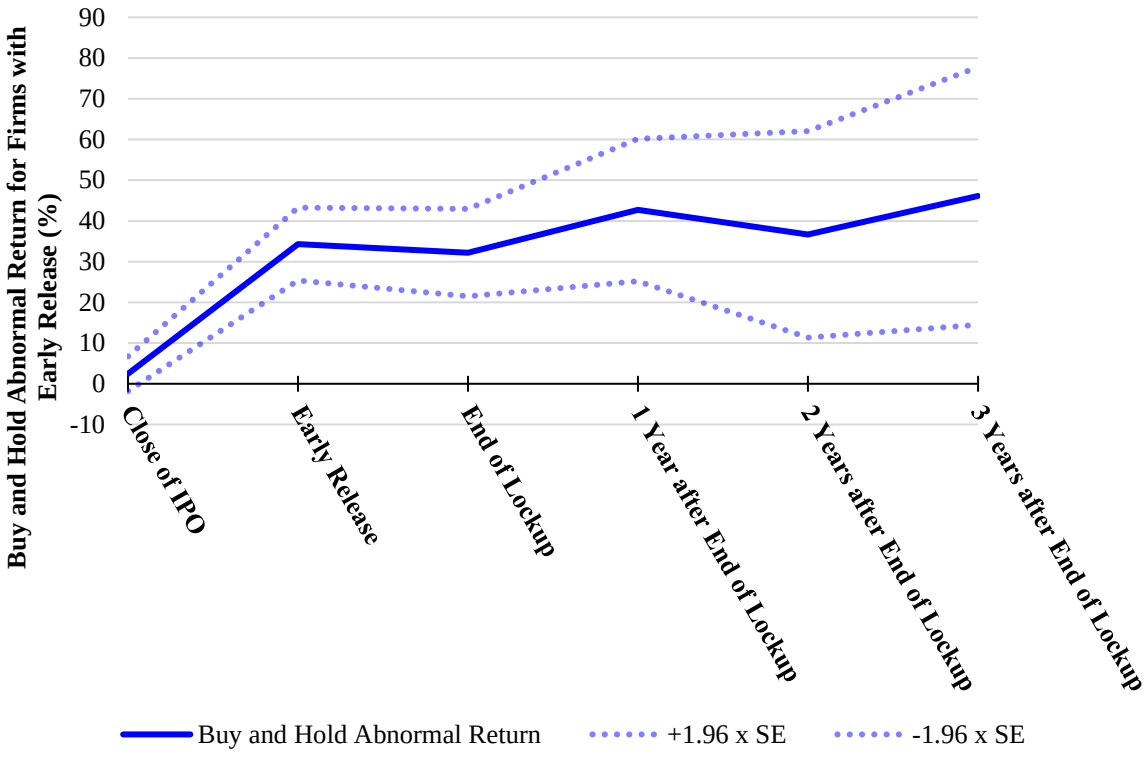
From	To	Mean {Median} Returns (%) With Early Release	Mean {Median} Returns (%) Without Early Release	Diff	(p-value)
Panel A: Firms with Positive Returns to Early Release & with Contractual Early Release Provisions					
Panel A.1: Post IPO Performance by Period					
Offer Price	Close of IPO	38.3	25.9	12.4	(0.018)
{Median}		*{27.1}*	*{18.0}*	*{9.1}*	*(0.026)*
Close of IPO	Early Release	23.9	4.2	19.7	(0.001)
		{11.9}	*{-1.5}*	*{13.4}*	*(0.000)*
Early Release	End of Lockup	-6.3	-1.7	-4.6	(0.271)
		{-8.3}	*{-0.3}*	*{-8.0}*	*(0.084)*
End of Lockup	1 Yr. after End of Lockup	-8.3	12.0	-20.2	(0.129)
		{-22.8}	*{-17.7}*	*{-5.1}*	*(0.198)*
1 Yr. after End of Lockup	2 Yrs. after End of Lockup	-9.9	11.3	-21.2	(0.117)
		{-17.0}	*{-11.8}*	*{-5.2}*	*(0.372)*
2 Yrs. after End of Lockup	3 Yrs. after End of Lockup	18.9	8.6	10.3	(0.446)
		{8.8}	*{-7.9}*	*{16.7}*	*(0.204)*
Panel A.2: Cumulative Post-Early-Release Performance					
Early Release	1 Yr. after End of Lockup	-11.1	11.3	-22.4	(0.098)
{Median}		*{-31.3}*	*{-23.9}*	*{-7.4}*	*(0.164)*
Early Release	2 Yrs. after End of Lockup	-17.7	22.3	-40.0	(0.067)
		{-53.0}	*{-25.0}*	*{-28.0}*	*(0.129)*
Early Release	3 Yrs. after End of Lockup	-12.9	13.9	-26.8	(0.125)
		{-49.8}	*{-18.1}*	*{-31.6}*	*(0.361)*

(continued)

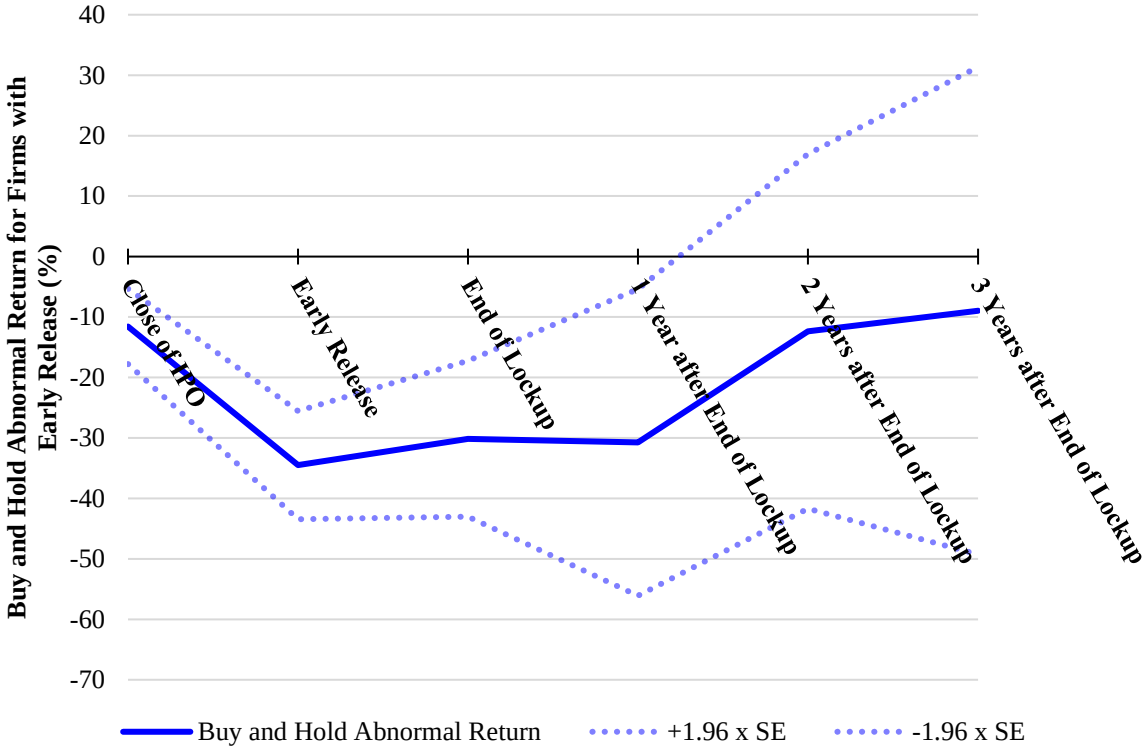
From	To	Mean {Median} Returns (%) With Early Release	Without Early Release	Diff	(p-value)
Panel B: Firms with Positive Returns to Early Release & without Contractual Early Release Provisions					
Panel B.1: Post IPO Performance by Period					
Offer Price	Close of IPO	26.4	25.9	0.5	(0.843)
{Median}		*{17.9}*	*{15.5}*	*{2.4}*	*(0.016)*
Close of IPO	Early Release	30.6	5.7	24.9	(0.000)
		{14.0}	*{0.0}*	*{14.0}*	*(0.000)*
Early Release	End of Lockup	4.6	3.8	0.8	(0.792)
		{-0.6}	*{-3.5}*	*{2.8}*	*(0.171)*
End of Lockup	1 Yr. after End of Lockup	6.1	1.0	5.1	(0.276)
		{-10.0}	*{-13.0}*	*{3.0}*	*(0.299)*
1 Yr. after End of Lockup	2 Yrs. after End of Lockup	9.3	11.2	-1.9	(0.728)
		{-9.7}	*{-6.4}*	*{-3.3}*	*(0.590)*
2 Yrs. after End of	3 Yrs. after End of Lockup	13.1	21.1	-8.0	(0.257)
		{-4.7}	*{1.5}*	*{-6.2}*	*(0.263)*
Panel B.2: Cumulative Post-Early-Release Performance					
Early Release	1 Yr. after End of Lockup	12.4	3.2	9.2	(0.097)
{Median}		*{-8.9}*	*{-15.6}*	*{6.7}*	*(0.141)*
Early Release	2 Yrs. after End of Lockup	19.7	12.8	6.9	(0.395)
		{-19.4}	*{-22.0}*	*{2.5}*	*(0.455)*
Early Release	3 Yrs. after End of Lockup	32.0	23.0	9.1	(0.429)
		{-28.0}	*{-25.9}*	*{-2.1}*	*(0.959)*
Panel C: Firms with Negative Returns to Early Release & with Contractual Early Release Provisions					
Panel C.1: Post IPO Performance by Period					
Offer Price	Close of IPO	8.2	20.1	-12.0	(0.220)
{Median}		*{5.5}*	*{9.8}*	*{-4.4}*	*(0.373)*
Close of IPO	Early Release	-26.2	-1.1	-25.2	(0.007)
		{-27.6}	*{1.6}*	*{-29.2}*	*(0.005)*
Early Release	End of Lockup	5.2	11.2	-6.0	(0.711)
		{-7.9}	*{-1.8}*	*{-6.1}*	*(0.460)*
End of Lockup	1 Yr. after End of Lockup	0.8	-20.3	21.1	(0.454)
		{-29.5}	*{-38.1}*	*{8.6}*	*(0.749)*
1 Yr. after End of Lockup	2 Yrs. after End of Lockup	9.2	-17.2	26.3	(0.307)
		{-5.6}	*{-30.8}*	*{25.2}*	*(0.541)*
2 Yrs. after End of Lockup	3 Yrs. after End of Lockup	-48.5	-15.8	-32.7	(0.275)
		{-59.9}	*{-33.3}*	*{-26.5}*	*(0.518)*
Panel C.2: Cumulative Post-Early-Release Performance					
Early Release	1 Yr. after End of Lockup	5.5	-3.4	8.9	(0.821)
{Median}		*{-43.8}*	*{-52.7}*	*{8.9}*	*(0.898)*
Early Release	2 Yrs. after End of Lockup	-14.7	-38.8	24.1	(0.296)
		{-46.3}	*{-58.8}*	*{12.5}*	*(0.332)*
Early Release	3 Yrs. after End of Lockup	-36.7	-46.9	10.2	(0.638)
		{-59.1}	*{-70.0}*	*{10.9}*	*(0.394)*

(continued)

From	To	Mean {Median} Returns (%) With Early Release	Without Early Release	Diff	(p-value)
Panel D: Firms w/Negative Returns to Early Release & without Contractual Early Release Provisions					
Panel D.1: Post IPO Performance for Firms					
Offer Price	Close of IPO	6.6	18.1	-11.5	(0.001)
{Median}		*{1.9}*	*{8.7}*	*{-6.8}*	*(0.000)*
Close of IPO	Early Release	-17.5	2.8	-20.3	(0.000)
		{-11.7}	*{-0.1}*	*{-11.6}*	*(0.000)*
Early Release	End of Lockup	1.8	-3.3	5.1	(0.344)
		{0.0}	*{-4.2}*	*{4.2}*	*(0.438)*
End of Lockup	1 Yr. after End of Lockup	3.7	11.2	-7.5	(0.527)
		{-7.4}	*{-13.9}*	*{6.5}*	*(0.953)*
1 Yr. after End of Lockup	2 Yrs. after End of Lockup	25.8	8.8	17.0	(0.171)
		{-3.3}	*{-11.1}*	*{7.8}*	*(0.311)*
2 Yrs. after End of Lockup	3 Yrs. after End of Lockup	14.9	16.4	-1.6	(0.900)
		{1.9}	*{4.5}*	*{-2.6}*	*(0.910)*
Panel D.2: Cumulative Post-Early-Release Performance					
Early Release	1 Yr. after End of Lockup	3.2	0.9	2.3	(0.835)
{Median}		*{-20.1}*	*{-23.2}*	*{3.1}*	*(0.537)*
Early Release	2 Yrs. after End of Lockup	31.0	2.3	28.7	(0.096)
		{-19.4}	*{-28.1}*	*{8.7}*	*(0.223)*
Early Release	3 Yrs. after End of Lockup	52.8	9.3	43.5	(0.095)
		{-9.6}	*{-37.6}*	*{28.0}*	*(0.185)*



Panel A: Firms with positive raw returns from IPO to Early Release



Panel B: Firms with negative raw returns from IPO to Early Release

Appendix Figure 1 - Robustness to Figure 1 – Buy and Hold Abnormal Return for Firms with Early Release by Positive and Negative Returns to Early Release

Notes: Same as Figure 1. Split on Positive or Negative raw returns through Early Release.

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