Cash-rich seasoned equity issuers[☆]

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Abstract

We document that a substantial fraction of seasoned equity issuers has large excess cash holdings and would have been far from running out of cash had they not completed the offering. Cash-rich seasoned equity issuers are not easily reconcilable with prevailing corporate finance theory, nor with recent empirical findings suggesting immediate cash needs as a driver of seasoned equity offerings (SEOs). We find that cash-rich equity issuers are more overvalued than non-cash-rich issuers and display more opportunistic uses of SEO proceeds and worse post-SEO operating performance. Moreover, although cash-rich equity issuers do not have more negative stock price reactions at the SEO announcement, they have worse long-term stock price performance than non-cash-rich issuers. Our results imply that investors should place a negative value on issuers' excess cash when assessing an SEO announcement.

Keywords: Excess cash, seasoned equity offerings, uses of proceeds; stock market reactions

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1. Introduction

Several studies provide evidence that firms issue seasoned equity to meet immediate cash needs. DeAngelo et al. (2010) document that 81.1% of U.S. seasoned equity issuers would have held subnormal cash balances after the year of the offering had they not made a seasoned equity offering (SEO). Huang and Ritter (2020) show that without issuance proceeds, 53.9% of U.S. seasoned equity issuers would have run out of cash in the year of the offering. Accordingly, the immediate cash needs rationale for SEOs suggests that equity issuers lack cash or have low cash relative to their target cash level at the time of the offering.[1]

While this rationale holds for the average issuer, in this paper we document that a substantial proportion of seasoned equity issuers have high pre-offering excess cash levels and would be far from running out of cash had they not made an SEO. As an initial illustration, Figure 1 shows distributions of excess cash relative to total assets (*Excess cash*) based on target cash levels reflecting a firm's book assets, market-to-book value of assets, and industry membership, following DeAngelo et al. (2010). Remarkably, 26% of seasoned equity issuers have excess cash levels at least 20% above their target cash ratios, compared with 15% of non-issuing public firms. An example of a cash-rich equity issuer is Agios Pharmaceuticals Incorporation (NASDAQ: AGIO), who made a $250 million SEO in 2017 while holding $541.3 million of cash (87% of its total assets), accounting for 17% excess cash over its normal level.[2] Using a sample of 1,699 SEOs made by U.S. industrial firms between 2000 and 2018, we replicate DeAngelo et al.'s (2010) and Huang and Ritter's (2020) finding that, on average, firms would have run out of cash had they not made an SEO, suggesting that our SEO sample is comparable to theirs. We also show, however, that the sample of seasoned equity issuers

[1] We often refer to equity rather than seasoned equity for brevity in the remainder of the paper.
[2] We base these calculations on SEO data from the Securities Data Company Global New Issues database and balance sheet data from Compustat.

includes a substantial proportion of cash-rich firms that would be far from running out of cash had they not completed an SEO.

The phenomenon of cash-rich seasoned equity issuers is inconsistent with the traditional version of the pecking order theory (Myers and Majluf, 1984) as well as with the notion that immediate cash needs drive SEOs (DeAngelo et al., 2010; Huang and Ritter, 2020). It is therefore an intriguing topic of research. To enhance our understanding of cash-rich seasoned equity issuers, we examine their issuing motives, uses of proceeds, operating performance, stock price reactions, and long-term stock price performance.

Pecking order and market timing theories suggest that excess cash may indicate an overvaluation motive for equity-like security offerings because the firm could have used its internal slack rather than raising financing externally (Myers and Majluf, 1984; Bayless and Chaplinsky, 1991; de Jong and Veld, 2001; Baker and Wurgler, 2002).[3] Consistent with a market timing motive, we find that cash-rich issuers are more overvalued than their non-cash-rich counterparts. This finding is robust to using alternative overvaluation proxies, to controlling for corporate governance proxies, and to including a comparison sample of non-issuing firms.

In a next step, we focus on cash-rich equity issuers' uses of proceeds and operating performance. We find that cash-rich issuers are more inclined to use proceeds for opportunistic purposes than their non-cash-rich counterparts. Specifically, cash-rich equity issuers tend to stockpile SEO proceeds as further cash reserves and working capital rather than to use them for investment. We also find worse post-SEO long-term operating performance for cash-rich equity issuers than their non-cash-rich counterparts. These results are consistent with cash-rich equity issuers having a market timing motive.

[3] Strictly speaking, the pecking order theory predicts that firms with significant financial slack never issue equity. Market timing theory predicts that cash-rich firms may issue equity if the rewards from doing so (in terms of exploiting overvaluation) exceed the stock market penalty of a negative stock price reaction to the SEO announcement.

In a final set of tests, we examine the short- and long-term stock market reactions to SEO announcements. We find no significant impact of ex-ante excess cash holdings on short-term SEO announcement returns. We also find no evidence of a moderating role for alternative indicators of overvaluation, information asymmetry, growth opportunities, or precautionary motives in affecting the stock price impact of excess cash holdings. But we observe more negative long-term stock price performance for cash-rich equity issuers than non-cash-rich issuers, again consistent with cash-rich equity issuers having a market timing motive.

Our results suggest that cash-rich equity issuers are more overvalued than their non-cash-rich counterparts and they use SEOs to opportunistically exploit a temporary window of stock price overvaluation. Investors, however, do not seem to be aware of these motives at the time of the SEO announcement. Our results imply that rational investors should consider placing a negative value on equity issuers' excess cash at the time of SEO announcements.

To our knowledge, we are the first to document the prevalence of cash-rich equity issuers, as well as their motives for conducting SEOs. In contrast with two papers that examine cash holdings following SEOs (Kim and Weisbach, 2008; McLean, 2011), we focus on pre-offering (ex-ante) cash holdings. As such, our paper contributes to a broader strand of literature on corporate cash holdings. Most papers within this strand examine the determinants of cross-sectional differences in the magnitude of cash holdings (e.g., Kim et al., 1998; Opler et al., 1999; Pinkowitz and Williamson, 2001; Dittmar et al., 2003; Almeida et al., 2004; Billett and Garfinkel, 2004; Ozkan and Ozkan, 2004; Foley et al., 2007; Bates et al., 2009; Klasa et al., 2009; Duchin, 2010; Palazzo, 2012; Gao et al., 2013). A second group of papers studies cross-sectional differences in the value of cash holdings (e.g. Faulkender and Wang, 2006; Pinkowitz et al., 2006; Dittmar and Mahrt-Smith, 2007; Frésard and Salva, 2010). A third strand of literature, most relevant to our work, focuses on the impact of cash holdings on financial decisions. While previous studies in this area focus on mergers and acquisitions (Harford, 1999;

Oler, 2008; Gao and Mohamed, 2018; Von Beschwitz, 2018; Yang et al., 2019), we study the role of ex-ante cash holdings in SEOs. Our finding that cash-rich equity issuers have value-decreasing post-SEO uses of proceeds and operating performance extends the underperformance of cash-rich acquirers that previous papers (Harford, 1999; Oler, 2008; Yang et al., 2019) highlight to the SEO literature.

Our paper also contributes to studies of the determinants of stock market reactions to SEO announcements.[4] Despite a general agreement that SEOs generate negative stock price reactions on average, there is little systematic evidence on the factors that drive cross-sectional differences in stock price reactions (Eckbo et al., 2007). Several studies include unadjusted cash as a control variable in SEO announcement return regressions (e.g., Jung et al., 1996; Lewis et al., 1999; Dutordoir and Hodrick, 2012; Dutordoir et al., 2014; Hao, 2014; Kim and Purnanandam, 2014; Golubov et al., 2016; Dutordoir et al., 2018). We are the first to formally test the effect of cash holdings on SEO announcement returns using a more refined measure of cash-richness that takes a firm's normal level of cash into account. While we do not detect a significant impact of excess cash holdings on SEO announcement returns, we find that excess cash holdings are associated with more negative long-term stock returns following SEOs.

The paper proceeds as follows. Section 2 develops our hypotheses. Section 3 describes our sample. Section 4 analyzes differences in characteristics between cash-rich and non-cash-rich equity issuers in order to examine a market timing motive for equity issues by cash-rich firms. Section 5 analyzes uses of proceeds and post-SEO operating performance for cash-rich versus non-cash-rich issuers. Section 6 examines the short- and long-term stock market reactions to

[4] An incomplete list of papers includes Myers and Majluf (1984), Asquith and Mullins (1986), Masulis and Korwar (1986), Mikkelson and Partch (1986), Hansen and Crutchley (1990), Lucas and McDonald (1990), Bayless and Chaplinsky (1991), Denis (1991), Denis (1994), Slovin et al. (1994), Bayless and Chaplinsky (1996), Autore et al. (2008), Walker and Yost (2008), Lee and Masulis (2009), Gao and Ritter (2010), Kim and Purnanandam (2014), Duca (2016), Dutordoir et al. (2018), and Veld et al. (2020).

SEO announcements for cash-rich versus non-cash-rich equity issuers, as well as the impacts of moderating factors predicted by theory. Section 7 concludes.

2. Hypothesis development

Myers and Majluf's (1984) pecking order model predicts that SEOs send a firm overvaluation signal to the market, resulting in negative stock price reactions around SEO announcements. As a result of this market penalty, firms resort to a hierarchy of financing, in which they prefer financial slack (defined as the sum of cash and marketable securities) to straight debt, and more debt-like to more equity-like securities. In Myers and Majluf's (1984) framework, the value of financial slack is that it allows the firm to undertake valuable investment opportunities without having to resort to external financing. Crucially, the authors argue that financial slack does not allow an issuer to issue equity only when it is overvalued. In particular, they state (p. 195): "*Slack does not allow the firm to take advantage of investors by issuing only when stock is overvalued: if investors know the firm does not have to issue to invest, then an attempt to issue sends a strong pessimistic signal.*" In conclusion, the existence of cash-rich seasoned equity issuers is hard to reconcile with the traditional Myers and Majluf (1984) model, which predicts that cash-rich firms should use their financial slack for investment instead of making an SEO.

The market timing hypothesis argues that managers, acting in the best interests of existing shareholders, exploit windows of opportunity and issue equity when the firm's stock is overvalued (Baker and Wurgler, 2002). Both the pecking order and market timing theories assume the presence of asymmetric information between investors and the firm and imply that the announcement of a new equity offering on average conveys negative information about the value of the firm. The difference between the two theories is the market timing theory's prediction that investors do not fully realize the extent of the firm's overvaluation at the time of the SEO announcement, and therefore initially underreact to the offering, while the pecking

order theory assumes that information asymmetry regarding firm value resolves at the time of the announcement. Therefore, whilst the pecking order theory leaves no room for firms with high financial slack to make an SEO, the market timing theory allows for the possibility that firms can take advantage of investors by issuing equity when they are overvalued. Conditional on an SEO announcement, in a setting with information asymmetry, investors should then consider higher financial slack as indicating more opportunistic, market-timing-related issuer motives, since the firm could have used its internal funds instead (Bayless and Chaplinsky, 1991; de Jong and Veld, 2001). In our study, we use the term excess cash rather than financial slack, for consistency with a range of other recent empirical studies (DeAngelo et al., 2010; Pinkowitz et al., 2013; Gao and Mohamed, 2018). We obtain the following prediction.

H1: Cash-rich seasoned equity issuers are more likely to be pursuing market timing motives than are non-cash-rich seasoned equity issuers.

If ex-ante excess cash holdings do proxy for opportunistic market timing motives, then this should result in less value-creating uses of proceeds, as well as more negative long-term operating performance following an SEO. We therefore have the following hypotheses:

H2: Cash-rich seasoned equity issuers use their offering proceeds for more opportunistic, less value-creating purposes than do non-cash-rich seasoned equity issuers.

H3: Cash-rich seasoned equity issuers experience more negative long-term operating performance than do non-cash-rich seasoned equity issuers.

Finally, we formulate hypotheses on the impact of ex-ante cash holdings on short- and long-term stock market reactions to SEO announcements. If ex-ante excess cash holdings proxy for firm overvaluation at the time of the offering, the market should penalize higher financial slack with a more negative stock market reaction at the SEO announcement. This should hold even when the stock market reaction is incomplete, leaving scope for the market timing

hypothesis to hold. We therefore further predict that ex-ante excess cash holdings result in more negative long-term stock price performance following the offering, as the market fully corrects its valuation of the firm in the long run. We thus obtain the following testable hypotheses.

H4: Cash-rich seasoned equity issuers have more negative stock price reactions to SEO announcements than do non-cash-rich seasoned equity issuers.

H5: Cash-rich seasoned equity issuers have more negative long-term stock returns than do non-cash-rich seasoned equity issuers.

3. Data

3.1 Sample construction

Our sample comprises U.S. SEOs between January 2000 and December 2018. We draw the initial SEO sample from Thomson's Securities Data Corporation Global New Issues (SDC) database. We exclude security offerings by non-U.S., private, utility and financial firms (SIC codes 4900–4999 and 6000–6999), and offerings with an offering price below $1 (Kim and Purnanandam, 2014). We exclude initial public offerings and secondary offerings not combined with primary stock offerings. Next, we identify the announcement date for each offering. For non-shelf offerings, following Duca et al. (2012), we set the announcement date as the SDC filing date, which is the date when a firm first files its offering registration with the Securities and Exchange Commission. For Rule 415 shelf offerings, we set the announcement date as the issue date. We eliminate offerings without an identifiable announcement date. These exclusion rules result in a sample of 4,697 SEOs.

If an issuer announces multiple SEOs in the same fiscal year, there is a concern about accurately measuring cash holdings for offerings after the first offering. For example, a cash-poor firm may become cash-rich after its first SEO in a given year. Following Pinkowitz et al.

(2013), we focus on the first SEO of a firm with multiple SEOs in the same fiscal year, and the unit of observation is a firm–year. This criterion reduces our sample to 2,289 SEOs.

Finally, we require equity issues to have non-missing values for explanatory variables (see Section 4.1), which further reduces our sample to 1,777 SEOs. We measure all accounting variables at the end of the fiscal year before the announcement. Similar to Chava et al. (2010), we allow for a three-month gap after the fiscal year-end to ensure that balance sheet information is updated and available to investors. We use data for the fiscal year-end before the announcement if the gap between the closest fiscal year-end and the announcement date is more than three months and use data for the preceding fiscal year-end if the gap is inside three months (Hirshleifer et al., 2004; Hou et al., 2015). For any two issues around the same fiscal year-end that would use identical accounting data, we drop the more recent issue. This results in the exclusion of an additional 78 SEOs. After imposing the above exclusion criteria, our final sample comprises 1,699 SEOs by 1,013 firms.

3.2 Ex-ante cash holdings and cash depletion

Most empirical studies of security offerings measure cash as the sum of cash, cash equivalents, and short-term investments divided by total assets (*Raw cash*) (e.g., Jung et al., 1996; Lewis et al., 1999; Dutordoir and Hodrick, 2012; Dutordoir et al., 2014; Hao, 2014; Kim and Purnanandam, 2014; Golubov et al., 2016; Dutordoir et al., 2018). However, *Raw cash* does not accurately capture whether a firm is cash rich because it does not account for differences in normal cash levels across firms. Different than previous papers, we use excess cash holdings (*Excess cash*), measured following DeAngelo et al. (2010), as our key measure of cash holdings. Excess cash (*Excess cash*) is the difference between a firm's actual cash (*Raw cash*) and normal cash (*DDS normal cash*). *DDS normal cash* is the median cash ratio of firms in the same industry, tercile of total book assets, and tercile of market-to-book value of assets for the year in question.

Figure 1 shows that, compared with 15% of non-issuing Compustat firms, 26% of seasoned equity issuers have a high ex-ante *Excess cash* ratio, at least 20% above the target level. The finding that cash-rich firms issue seasoned equity is inconsistent with Myers and Majluf's (1984) pecking order theory, which predicts that cash-rich firms use internal sources as their first choice for finance. It is also inconsistent with previous empirical papers linking SEOs with cash needs. According to DeAngelo et al. (2010) and Huang and Ritter (2020), most security issuers would have run out of cash had they not received the proceeds from external financing. To verify whether our seasoned equity sample is in any way atypical, we replicate their findings by calculating the ratio of pro forma cash holdings to pro forma total assets (*Pro forma Raw cash*) if a firm had not received the offering proceeds and all other operating and financing decisions had remained unchanged. A firm would have run out of cash if its *Pro forma Raw cash* is negative. Even if a firm might not have faced cash depletion without the offering proceeds, it might have held a suboptimal cash ratio. We measure a pro forma suboptimal cash ratio (*Pro forma Excess cash*) as *Pro forma Raw cash* minus the normal cash ratio (*DDS normal cash*). A firm would have held a suboptimal cash ratio if its *Pro forma Excess cash* is negative.

Table 1 shows the likelihood of immediate cash depletion had firms not made SEOs. The first column shows the results for the full sample of SEOs. Row (1) shows that for 38.9% of SEOs, firms would have run out of cash in the year of the offering. This is a lower figure than Huang and Ritter's (2020) corresponding figure of 53.9% for their sample period covering 1972 to 2013. If we restrict our sample period to 2000 and 2013 the percentage of firms that would have run out of cash increases to 42%. The likelihood of firms running out of cash remains similar in the year after the offering (row 3). Meanwhile, for 72.9% (71.5%) of SEOs, firms would have held suboptimal cash ratios in the year of (after) the offering (rows 2 and 4), consistent with DeAngelo et al.'s (2010) finding that 81.1% of seasoned equity issuers would have held suboptimal cash balances in the year after the offering without the offering proceeds.

We conclude that our sample of SEOs is not materially different from samples used in these existing studies, once we account for differences in sample periods. The key new insight in our study, however, is that a substantial proportion of SEO firms have high ex-ante cash holdings. The last two columns of Table 1 report the likelihood of immediate cash depletion split by ex-ante cash-richness. In the year of (after) the offering, cash-rich issuers would have run out of cash in the case of 15.9% (21.9%) of SEOs, significantly lower than the corresponding figures, 57.2% (56.8%), for non-cash-rich seasoned equity issuers (rows 1 and 3). Furthermore, while 91.1% (87.3%) of non-cash-rich counterparts would have held suboptimal cash in the year of (after) the offering, only 50.2% (51.1%) of cash-rich seasoned equity issuers would have held corresponding suboptimal cash balances (rows 2 and 4). Overall, while our full-SEO sample results are similar to those of previous studies, we document that cash-rich equity issuers are significantly less likely to have run out of cash without external financing than their non-cash-rich counterparts. In subsequent analyses, we examine issuing motives, uses of proceeds, operating performance, stock market reactions, and long-term stock price performance for the subsample of cash-rich firms, to obtain a better understanding of cash-rich seasoned equity issuers' motives.

4. Issuing motives of cash-rich versus non-cash-rich equity issuers

4.1 Univariate analysis of differences between cash-rich and non-cash-rich equity issuers

This section reports a univariate analysis of differences in characteristics between cash-rich and non-cash-rich equity issuers. We first introduce and motivate the characteristics. Appendix A gives detailed definitions and sources of all variables. Financial data are from the Compustat database, stock price data from the Center for Research in Security Prices (CRSP) database, and security offering-related data from the SDC database. We calculate all items at the end of the fiscal year before the SEO announcement as defined in Section 3.1 unless noted

otherwise. To attenuate the impact of outliers, we winsorize all continuous variables at the 1st and 99th percentiles.

Our key measure of cash is *Excess cash*, the difference between a firm's actual (*Raw cash*) and normal cash (*DDS normal cash*). To identify cash-rich seasoned equity issuers, we construct a *Cash rich* dummy variable that equals one if a firm's *Excess cash* is in the top third of the universe of U.S. Compustat firms in a given year and zero otherwise, consistent with Pinkowitz et al. (2013).[5]

We examine variables suggested by the literature to capture firm- and offer-specific characteristics, which fall into five main groups. The first group includes market timing proxies. We predict that cash-rich firms are more inclined to issue equity to exploit windows of overvaluation, as per H1. Autore et al. (2008) show that higher pre-announcement stock returns increase the likelihood of an overvaluation motive. We calculate pre-issuance stock returns adjusted for market returns (*Stock runup*). Firms issuing equity to take advantage of market timing tend to have low long-term abnormal returns (Loughran and Ritter, 1995). We calculate a firm's abnormal stock returns over the 36 months following the SEO month (*Post return*) to capture a market timing motive. A larger issue size (*Issue size*), captured by the offering's dollar value relative to total assets, may also indicate overvaluation (Krasker, 1986; Dutordoir et al., 2016). Finally, sales of secondary equity by managers may send a stronger overvaluation signal because managers possess inside information (Leland and Pyle, 1977; Masulis and Korwar, 1986). We therefore include a secondary dummy (*Secondary*) denoting an equity offering with a secondary tranche.

The second group of variables capture cross-sectional differences in information asymmetry about firm value. Higher information asymmetry increases the adverse selection

[5] In an unreported robustness analysis, we define a firm as cash-rich if it has positive *Excess cash*. Using a different definition of cash-rich firms, our main findings that cash-rich equity issuers have a stronger timing motive, use proceeds more opportunistically, experience worse operating performance following SEOs, and have more negative long-term stock price performance than non-cash-rich equity issuers remain unchanged.

costs associated with an SEO (Myers and Majluf, 1984; Bayless and Chaplinsky, 1991). Cash-rich seasoned equity issuers may have lower information asymmetry, enabling them to issue equity without suffering adverse selection costs materializing in the form of a negative announcement effect. We use three proxies to capture information asymmetry. Denis (1991) shows that shelf registrations lack investment bank certification, intensifying the asymmetry between managers and investors. We construct a shelf dummy (*Shelf*) denoting shelf SEOs. Younger firms have less information available to investors and suffer greater information asymmetries (Helwege and Liang, 1996). We include the number of years listed (*Years listed*) to proxy for firm age. Finally, higher stock return volatility (*Volatility*) increases uncertainty and leads to higher levels of information asymmetry (Lee and Masulis, 2009).

We further examine the role of taxation on repatriated cash. Foley et al. (2007) show that U.S. multinational firms hold more cash abroad because of the tax implications of repatriating cash. Cash-rich multinational firms might make an SEO rather than use their internal cash in order to avoid tax payments on cash repatriations. We include an indicator to capture multinational firms (*Multinational*) and predict that cash-rich equity issuers are more likely to be multinational firms and have cash trapped abroad.

Our fourth set of variables capture debt-related financing costs. Firms with higher debt-related financing costs are more likely to make SEOs, but we have no clear predictions on the different effects of these costs on cash-rich and non-cash-rich equity issuers. Firms with higher profitability, captured by return on assets (*ROA*), have lower debt-related financial distress costs (Lemmon and Zender, 2010). Higher leverage (*Debt ratio*) increases the potential for asset substitution and costly financial distress, resulting in higher debt-related financing costs and lower capacity to issue additional debt (Fama and Miller, 1972; Stein, 1992). Debt provides tax shields, which offset debt-related financing costs. We use taxes payable (*Taxes*) to capture

debt benefits (Bayless and Chaplinsky, 1991). We use the U.S Treasury bill return (*Tbill*) as an economy-wide measure of debt-related financing costs (Bayless and Chaplinsky, 1991).

Our final group of variables capture a range of firm-specific financing costs. Larger firms (*Firm size*) generally have lower information asymmetry (e.g., Helwege and Liang, 1996; Jung et al., 1996) and greater debt capacity (e.g., Lemmon and Zender, 2010; Dutordoir et al., 2018). Similarly, tangible assets (*Tangible assets*) proxy for both lower information asymmetry (Helwege and Liang, 1996) and higher debt capacity (Dutordoir et al., 2018). We have no clear prediction on the different effects of these variables on cash-rich and non-cash-rich equity issuers. We further include market-to-book (*MB*) and asset growth (*Asset growth*) as proxies for growth opportunities (Bayless and Chaplinsky, 1991; Denis, 1994; Jung et al., 1996; Dechow et al., 2001; Diether et al., 2009; Lemmon and Zender, 2010) and predict that equity issuers with higher cash balances have higher growth opportunities. However, we note that MB can also proxy for overvaluation. Keynes' (1936) precautionary motive for cash contends that firms accumulate cash balances to finance future positive net present value (NPV) investments, which they might otherwise have to reject. Therefore, we expect that cash-rich equity issuers have more financing constraints than non-cash-rich issuers. As financially constrained firms usually have strong precautionary motives (Gao and Mohamed, 2018), we use Kaplan and Zingales' (1997) index (*KZ*) and a dividend dummy (*DivDummy*) denoting whether a firm pays dividends to proxy for financial constraints (Kaplan and Zingales, 1997; Almeida et al., 2004).

Table 2 presents descriptive summary for the above variables. The first two columns show that the mean (median) value of *Excess cash* is 0.06 (0.02), suggesting that cash holdings of U.S. seasoned equity issuers on average do not diverge far from the target level. The descriptive statistics for other variables for the full sample are similar to those of prior SEO studies (e.g., Lee and Masulis, 2009; Dutordoir and Hodrick, 2012; Dutordoir et al., 2018).

The last four columns of Table 2 show the differences in variables between cash-rich and non-cash-rich equity issuers. In terms of both means and medians, cash-rich seasoned equity issuers have higher *Excess cash*, larger *Issue size*, and lower *Post return* than non-cash-rich issuers, suggesting a market timing motive for their equity offerings, although a lower mean value of *Secondary* for non-cash-rich issuers is inconsistent with an overvaluation rationale. Additionally, the higher mean and median *MB* of cash-rich equity issuers could be consistent with both higher growth opportunities and higher overvaluation. The results for other variables show that cash-rich equity issuers have higher information asymmetry (captured by *Shelf*, *Years listed*, *Volatility*, *Firm size*, and *Tangible assets*) and are less likely to be multinational (*Multinational*) than non-cash-rich issuers, inconsistent with our predictions. Except for *Debt ratio*, other debt-related cost variables (*ROA*, *Taxes*, *Firm size*, and *Tangible assets*) suggest that cash-rich equity issuers have lower debt capacity. The difference in financial constraints between cash-rich and non-cash-rich equity issuers is unclear. The financial constraint index *KZ* shows that cash-rich equity issuers have lower financial constraints than their non-cash-rich counterparts, while *DivDummy* suggests the opposite. Overall, the comparison of the two subsamples suggests that cash-rich equity issuers have stronger overvaluation motives, higher information asymmetry, less potential repatriation taxation, and lower debt capacity. We next turn to a logistic regression analysis.

4.2 Regression analysis of differences between cash-rich and non-cash-rich equity issuers

This section examines hypothesis H1 using a logistic regression model. The dependent variable is *Cash rich*, while the key variables of interest are overvaluation proxies. All regressions include year fixed effects and use robust standard errors. [6, 7]

[6] Our results remain unchanged when including industry fixed effects defined by two-digit SIC codes.
[7] More than a half (62%) of firms in our sample issue once over the sample period. Therefore, we do not cluster standard errors at the firm level.

Table 3, panel A reports a comparison between cash-rich and non-cash-rich equity issuers. Model (1) shows that *Post return* has a negative impact and *Issue size* has a positive impact on the likelihood of being cash rich, suggesting a market timing motive, although the negative coefficient on *Secondary* is inconsistent with an overvaluation prediction.[8] Meanwhile, larger firms (*Firm size*) with higher information asymmetry (*Years listed*, *Shelf*, and *Tangible assets*), a smaller probability of being multinational (*Multinational*), and a lower debt capacity (*ROA* and *Tangible assets*) are more likely to be cash-rich than non-cash-rich equity issuers. The impact of financial constraints (*KZ* and *DivDummy*) on being cash rich or non-cash rich is not clear, similar to the results of the univariate analysis. Following Pinkowitz et al. (2013), we add two additional overvaluation proxies to our models: industry-adjusted market-to-book (*Standardized MB*) and an indicator of overvaluation decomposition, *RRV* (Rhodes-Kropf et al., 2005), equal to one if the sum of firm-specific and time-series industry errors exceeds zero.[9] Model (2) includes these two variables.[10] The positive impact of *RRV* confirms that cash-rich firms are more overvalued than their counterparts, consistent with hypothesis H1. Coefficients of all other variables are unchanged in magnitude and significance except that *Firm size* is insignificant in model (2).

In the next set of tests, we include corporate governance variables. Some previous papers find that firms with higher cash holdings have better corporate governance because poorly governed firms dissipate cash more quickly (Dittmar and Mahrt-Smith, 2007; Harford et al., 2008). We use the percentage of shares held by institutional owners (*InstOwn*) and the number of institutions owning at least 5% of shares (*Blockholdings*) to control for corporate governance. Model (3) shows that firms with higher *Standardized MB* and *RRV*, larger *Issue size*, and more

[8] In unreported regressions, we calculate post-return based on 12-, and 24-month periods after the SEO and our finding of a significantly negative impact of post-return remains unchanged.
[9] We exclude *RRV* from our control variables because it substantially reduces our sample size.
[10] Models (2) and (3) exclude *MB* to avoid potential multicollinearity between *MB* and *Standardized MB* because the correlation between them is 0.9822.

negative *Post return* are more likely to be cash-rich equity issuers than non-cash-rich equity issuers, consistent with H1. Consistent with previous literature, we find some evidence that cash-rich issuers have better corporate governance (as proxied by *Blockholdings*) than non-cash-rich issuers. Impacts of all other variables remain similar.

Table 3, panel B compares cash-rich and non-cash-rich equity issuers with non-issuers. Following DeAngelo et al. (2010), we construct the non-issuer sample by including firms that: (1) are not utility or financial companies (SIC codes 4900–4999 and 6000–6999); (2) have common stock (CRSP share codes 10 or 11); (3) are listed on the New York Stock Exchange (NYSE), National Association of Securities Dealers Automated Quotations System (NASDAQ), or NYSE MKT (previously the American Stock Exchange (AMEX)); (4) are U.S. firms according to Compustat; and (5) have non-missing values for firm-specific control and advanced overvaluation variables. The sample period is again between January 2000 and December 2018. The non-issuer sample includes 39,761 firm–years in which no SEO is issued. Since we have no announcement dates for the non-issuer sample, we exclude variables calculated based on SEO announcement dates from the model.[11] Model (4) shows a comparison of cash-rich equity issuers with non-issuers, while model (5) shows a comparison of non-cash-rich equity issuers with non-issuers. *Standardized MB* and *RRV* are significantly positive in model (4) and insignificant in model (5), indicating that cash-rich equity issuers are more overvalued than non-issuers while there is no difference in overvaluation between non-cash-rich equity issuers and non-issuers, consistent with a market timing motive for cash-rich equity issuers. Regarding other variables, *ROA*, *Taxes*, *Firm size*, and *DivDummy* have negative impacts while *Asset growth* has a positive impact in both models (4) and (5). Meanwhile, firms with higher information asymmetry (*Years listed*), lower potential repatriation taxation

[11] Variables calculated relative to the SEO announcement date are *Stock runup*, *Post return*, *Issue size*, *Secondary*, *Shelf*, *Volatility*, and *Tbill*.

(*Multinational*), less tangibility (*Tangible assets*), and less financial constraints (*KZ*) are more likely to be cash-rich equity issuers than non-issuers, while firms with lower debt capacity (*Debt ratio*), higher tangibility (*Tangible assets*), and more financial constraints (*KZ*) are more likely to be non-cash-rich issuers.

Overall, we conclude that the comparison between cash-rich and non-cash-rich issuers shows that the former are more likely to be pursuing market timing motives, consistent with H1.

5. Uses of proceeds and operating performance

This section examines hypotheses H2 and H3. For issuers that make SEOs more than once in a fiscal year, we aggregate the proceeds. Therefore, there is a concern that the aggregated proceeds may contain proceeds from security offerings other than SEOs, such as convertible and straight bond offerings. Accordingly, different than the issuer characteristic analysis where we include all firm–offerings, we exclude firms that issue convertible or straight bond offerings in addition to SEOs in a fiscal year in order to avoid confounding information. After imposing this constraint, the sample comprises 1,667 SEOs by 998 firms.

5.1 Uses of proceeds

We consider six firm-specific variables to measure uses of proceeds by cash-rich and non-cash-rich equity issuers. Following previous studies (Kim and Weisbach, 2008; Walker and Yost, 2008; Dutordoir et al., 2018), the firm-specific variables include total assets (*TA*), capital expenditure and research and development expenditure (*Invest*1), inventory and plant, property, and equipment (*Invest*2), cash reserves (*Cash*), working capital (*WC*), and long-term debt (*LTD*). We scale each variable by total assets in the year before the offering. *TA* captures increases in firm size. *Invest*1 and *Invest*2 capture positive NPV investments and indicate value-increasing uses of proceeds, while *Cash* and *WC* capture opportunistic motives and indicate value-decreasing uses (Kim and Weisbach, 2008; Hertzel and Li, 2010; Dutordoir et

al., 2018). *LTD* reflects refinancing activities, which can be value-increasing or value-decreasing. Kim and Weisbach (2008) hold that a decrease in long-term debt indicates value-increasing uses of proceeds. However, Hertzel and Li (2010) and Walker et al. (2016) show that a reduction in long-term bonds indicates an opportunistic timing motive since overvalued firms may replace debt with cheaper equity, sending a value-decreasing signal.

We regress changes in variables relative to year −1 on proceeds (*Proceeds*) and control variables.[12] Following Kim and Weisbach (2008), for variables based on balance sheet items (*TA*, *Invest*2, *Cash*, *WC*, and *LTD*), we calculate changes as $V_t - V_{t-1}$, where V is the variable of interest and t is the relevant year. For variable(s) based on income statement and cash flow statement items (*Invest*1), we cumulate the variables over the time since issuance, $\sum_{i=0}^{t} V_i$. We include other sources of incremental funds, *Other*, in the regression. We normalize each variable by total assets in the year before issuance. Following Dutordoir et al. (2018), we include interactions of *Cash rich* with *Proceeds* and with *Other*.[13] Our main focus is on the coefficient of *Proceeds* × *Cash rich*. We control for firm size and year fixed effects and report heteroscedasticity-consistent standard errors clustered by two-digit SIC codes (Kim and Weisbach, 2008).

Table 4 reports the regression analysis of the uses of proceeds for SEOs. For brevity, we only report results for variables of interest. We observe positive coefficients on *Proceeds* × *Cash rich* in the *Cash* and *WC* regressions and negative coefficients on *Proceeds* × *Cash rich* in the *Invest*1 regressions for SEOs. The regression analysis suggests that seasoned equity issuers are more likely to reduce investment, stockpile cash after issuance, and increase

[12] An unreported univariate analysis of uses of proceeds gives qualitatively similar results.

[13] Swanquist and Whited (2018) argue that interactions between moderator variables and a key variable of interest may introduce omitted variable bias because these interactions are likely to correlate with interactions between moderator variables and control variables. They recommend estimating a fully interacted model, interacting moderator variables with each control variable. In an unreported analysis, we include an interaction between *Cash rich* and *Firm size* to address the omitted variables bias for interactions. Our multivariate analysis results on uses of proceeds remain unchanged.

working capital, suggesting a value-destroying use. Our finding that SEOs are associated with cash increases is consistent with the cash needs hypothesis of Huang and Ritter (2020) who argue that equity issuers use proceeds to increase cash reserves to cover high fixed costs and support long-lived cash needs. However, the reduction in investment does not support the cash needs hypothesis. Additionally, in an unreported analysis, we find that 96% and 61% of cash-rich equity issuers state their uses of proceeds as "General purposes" and "Working capital", figures significantly higher than those of non-cash-rich equity issuers, 91% and 49%, indicating stronger opportunistic motives for SEOs by cash-rich issuers. On the whole, the results suggest that the uses of proceeds for cash-rich seasoned equity issuers are more opportunistic than those of non-cash-rich issuers, consistent with hypothesis H2.

5.2 Post-SEO long-term operating performance

Previous studies (e.g., Hansen and Crutchley, 1990; McLaughlin et al., 1996; Fu, 2010; Gao and Ritter, 2010) find that seasoned equity issuers experience deteriorations in post-SEO operating performance compared with non-issuers. According to Loughran and Ritter (1997), opportunistic market timing motives for issuing SEOs account for the operating underperformance of seasoned equity issuers. If ex-ante cash holdings indicate overvaluation at the offering, the market timing theory predicts worse operating performance for cash-rich seasoned equity issuers than for non-cash-rich issuers.

We examine post-SEO operating performance following Deng et al.'s (2013) approach. Specifically, we regress the difference in the change in post-SEO operating performance between each equity issuer and a control firm on the difference in pre-SEO operating performance between each equity issuer and a control firm. We consider two operating performance variables, namely operating income before depreciation (*OIBD*) and earnings per share (*EPS*) (Loughran and Ritter, 1997; Fu, 2010; Dutordoir et al., 2018). The pre- and post-

SEO periods refer to two years before and after the SEO year.[14] The regression constant reflects the abnormal change in operating performance between pre- and post-SEO periods.

We use a nearest neighbor propensity score matching to select control firms.[15] We match each equity issuer in our sample to a Compustat non-issuer defined in Section 4.2. The matching variables are ex-ante excess cash holdings (*Excess cash*), leverage (*Debt ratio*), firm size (*Firm size*), asset tangibility (*Tangible assets*), market-to-book ratio (*MB*), and year dummies. Our matched samples show that the *p*-values of a likelihood ratio test for the joint significance of matching variables are below 0.05 and the Rubin's *B*s, the absolute standardized difference of the means of the linear index of the propensity score, are below 25, indicating a sufficient degree of balancing (Rubin, 2001).

Table 5, panels A and B report the results of changes in operating performance for seasoned equity issuers split by cash-richness. The dependent variable in panel A (B) is the difference in the change in post-SEO *OIBD* (*EPS*) between equity issuers and control firms. In both regressions, the constant in the subsample of cash-rich equity issuers is negative and significant at the 1% level, while the constant for the subsample of non-cash-rich equity issuers is insignificantly different from zero. The significant declines in post-SEO operating performance for cash-rich equity issuers is consistent with hypothesis H3.

Overall, the post-SEO long-term operating underperformance is confined to the cash-rich subsample. These results corroborate the findings of uses of proceeds indicating that cash-rich equity issuers are more overvalued and are less inclined to use SEO proceeds for value-creating purposes than their non-cash-rich counterparts.

[14] In unreported regressions, we change the pre- and post-SEO periods to one year (three years) before and after the SEO year for robustness and obtain consistent inferences.
[15] We match the propensity scores subject to a tolerance on the maximum distance of 0.001 to avoid poor matches. All matches impose a common support requirement and do not allow for replacement.

6. The impact of ex-ante cash holdings on short- and long-term stock price reactions to SEO announcements

This section examines hypotheses H4 and H5 regarding the impact of ex-ante cash holdings on stock market reactions to SEO announcements.

6.1 Short-term stock market reactions to SEO announcements

We measure cumulative abnormal stock returns (*CAR*) over three trading days around SEO announcement dates, (−1, 1), using a conventional event study methodology. We estimate market model regressions over the window (−300, −46) relative to the announcement date and use the CRSP equal-weighted return over the same window to proxy for the market return.

Table 6 reports univariate statistics for *CAR*(−1, 1). SEOs have a significantly negative *CAR* according to both *Z*- and non-parametric sign tests. The average value of stock market reactions to SEO announcements of U.S. industrial firms is −2.9%, similar to previous studies that find SEO announcement returns to be approximately −2% to −4% (e.g., Asquith and Mullins, 1986; Masulis and Korwar, 1986; Mikkelson and Partch, 1986; Hansen and Crutchley, 1990; Bayless and Chaplinsky, 1991; Jung et al., 1996; Lewis et al., 1999; Akhigbe and Whyte, 2015; Walker et al., 2016; Dutordoir et al., 2018). However, the last two columns show that the difference in *CAR*s between cash-rich and non-cash-rich SEOs is insignificant in both mean and median values, inconsistent with the prediction of a negative impact of cash holdings on SEO announcement returns. We turn to a multivariate analysis of the impact of ex-ante cash holdings on stock market reactions to SEO announcements.

To examine hypothesis H4, we use an ordinary least squares (OLS) regression with dependent variable *CAR*(−1, 1) and *Cash rich* as the key explanatory variable of interest, controlling for firm- and offer-specific characteristics.[16] Specifically, we predict that the

[16] We also use the CRSP value-weighted return, an estimation window over 200 trading days ending 60 days before the announcement date, and event windows of (0, 1) and (−1, 10) relative to the announcement in robustness tests. The results are unchanged.

market reacts more negatively to SEO announcements when it suspects overvaluation motives (*Stock runup*, *Issue size*, and *Secondary*).[17] We note that costs of issuing securities fall with issue size because of economies of scale in the sale of new issues (Hansen and Pinkerton, 1982; Bhagat et al., 1985) and therefore have no clear prediction for the impact of *Issue size* on the stock market reaction to SEOs. We predict firms with greater information asymmetry (*Shelf*, *Years listed*, and *Volatility*) suffer from more severe adverse selection problems and therefore experience more negative SEO announcement returns (Myers and Majluf, 1984). We furthermore predict stock market reactions to SEOs are less negative for firms that may face tax payments on cash repatriations (*Multinational*), higher debt-related financing costs (*ROA*, *Debt ratio*, *Taxes*, and *Tbill*), greater growth opportunities (*MB* and *Asset growth*), and stronger precautionary motives (*KZ* and *DivDummy*) because these firms are more likely to issue equity due to genuine financing needs, rather than market overvaluation motives (Keynes, 1936; Bayless and Chaplinsky, 1991; Cooney and Kalay, 1993; Jung et al., 1996; Gao and Mohamed, 2018). However, we note that to the extent that *MB* captures overvaluation, it could also negatively influence SEO announcement returns. We control for general financing cost variables, *Firm size* and *Tangible assets*, and have no clear prediction for these two variables because they capture both information asymmetry and debt capacity. Finally, we include year fixed effects to capture temporal trends in SEO announcement returns and use robust standard errors in all regressions.[18]

Table 7, model (1) reports the baseline regression results. Our regressions of stock market reactions to SEOs all have *R*-squares under 10%, consistent with regressions of SEO announcement returns typically having low explanatory power (Eckbo et al., 2007). Inconsistent with hypothesis H4, ex-ante cash holdings, captured by *Cash rich*, do not affect

[17] Different than the issuer characteristic analysis, we exclude *Post return* from our controls because it is not available to investors at the SEO announcement.
[18] Our results remain unchanged when including industry fixed effects defined by two-digit SIC codes.

stock market reactions to SEO announcements. Findings for control variables are consistent with our predictions. In particular, *Stock runup*, *Secondary*, *Shelf*, and *Tangible assets* have negative impacts on stock market reactions to SEO announcements, while *Firm size* has a positive impact. The positive effect of *Issue size* is inconsistent with the prediction of market timing motives, but it could indicate that economies of scale outweigh adverse selection costs associated with a larger issue size (Hansen and Pinkerton, 1982; Bhagat et al., 1985).

We conduct several tests to confirm the insignificant effect of ex-ante cash holdings on SEO announcement returns. A first set of tests examines the sensitivity of the insignificant impact to alternative cash measures. We first replicate previous studies (e.g., Jung et al., 1996; Lewis et al., 1999; Dutordoir and Hodrick, 2012; Dutordoir et al., 2014; Hao, 2014; Golubov et al., 2016; Dutordoir et al., 2018) using *Raw cash*. Table 7, model (2) shows that *Raw cash* does not affect stock price reactions to SEO announcements, consistent with these prior studies. Myers and Majluf (1984) argue that, in addition to cash, unused debt capacity provides slack for firms. Therefore, we construct a *Slack* variable defined as the sum of cash, liquid assets, and unused debt capacity (the maximum of zero and the difference between industry mean and a firm's debt ratio) (de Jong and Veld, 2001). Table 7, model (3) reports regression results using *Slack* instead of our *Cash rich* measure. The effect of *Slack* is insignificant. Additionally, we use several alternative measures of excess cash. We first replace *Cash rich* with its continuous equivalent *Excess cash*. We further calculate alternative excess cash measures using the regressions of Opler et al. (1999) (*OPSW cash*) and Dittmar and Mahrt-Smith (2007) (*DM cash*).[19, 20] Table 7, models (4)–(6) report regression results for *Excess cash*, *OSPW cash*, and *DM cash*, respectively. Ex-ante cash holdings show no impact on *CAR*, no matter which

[19] Dittmar and Mahrt-Smith (2007) exclude some of Opler et al.'s (1999) variables because of their potential endogenous relation with cash.

[20] Harford (1999) predicts the target level of cash using a regression approach. We do not use Harford's model in this paper because it uses forward-looking variables to estimate current cash holdings.

measure we use.[21] Coefficients of control variables are similar in magnitude and significance to model (1) except that *Taxes* has a significant positive impact and *Asset growth* has a marginally negative impact in the *DM cash* regression, while the negative impact of *Asset growth* is inconsistent with prediction. Overall, the results show that ex-ante cash holdings do not exacerbate the negative stock price reaction to SEOs, showing no evidence for hypothesis H4.

In a second test, we restrict the sample to multiple SEOs by issuers that are at different times cash rich and non-cash rich. Of 1,013 issuing firms, 627 made single SEOs, while 386 made multiple SEOs during our sample period. We focus on firms that issue at least one SEO while being cash rich and at least one SEO while being non-cash rich, resulting in 416 SEOs by 130 multiple issuing firms. The restricted sample of SEOs provides a clear understanding of the impact of ex-ante cash holdings on SEO announcement returns. Table 7, model (7) shows that *Cash rich* continues to have an insignificant impact on SEO announcement returns. In terms of control variables, only a few variables show significant effects. In particular, *Stock runup* and *Shelf* have negative impacts, consistent with predictions. The smaller number of significant control variables is unsurprising given that multiple SEOs are made by the same issuers and firm characteristics remain relatively stable.

The above analyses show that the stock market does not perceive ex-ante cash holdings as indicating overvaluation at the SEO announcement, inconsistent with the prediction of hypothesis H4.

[21] Jensen's (1986) free cash flow theory predicts that an increase in free cash flow intensifies agency problems, resulting in negative stock market reactions. Slightly different than cash holdings, free cash flow refers to cash flow in excess of all positive NPV projects (Bayless and Chaplinsky, 1991). In an unreported analysis, we replace *Cash rich* with measures of free cash flow. The results are unaltered.

6.2 Moderator analysis of short-term stock market reactions

We next examine moderators of the short-term impact of ex-ante cash holdings. This allows for the possibility that not all cash-rich firms may share the same motives for making equity issues and, therefore, that the stock price reactions to SEO announcements may be more (or less) negative for some cash-rich firms than for others. In particular, we test whether the impact of excess cash holdings is less negative for seasoned equity issuers with lower indicators of overvaluation, less information asymmetry, greater growth opportunities, and more financial constraints. We interact *Cash rich* with proxies for different moderators.[22] Table 8 shows the regression results.

First, as the above hypotheses hinge on the assumption that investors interpret excess cash holdings as indicating firm overvaluation, this effect may be amplified if a firm has high values of other observable overvaluation indicators. Table 8, models (1)–(3) examine the moderating effect of other signs of overvaluation. Model (1) includes interactions between *Cash rich* and overvaluation proxies already included as control variables (*Stock runup*, *Issue size*, and *Secondary*). Model (2) includes additional overvaluation variables as in Section 4.2, *Standardized MB* and *RRV*, and their interactions with *Cash rich*.[23] Model (3) controls for all overvaluation proxies and their interactions. Although model (1) shows that the impact of *Cash rich* is more negative for firms with a larger *Issue size*, when we include additional overvaluation proxies in model (3), *Cash rich* × *Issue size* loses its significance. The coefficients of interactions of additional proxies are insignificant, showing no moderating effect of overvaluation indicators.

Second, it is well known that higher information asymmetry amplifies adverse selection problems (Bayless and Chaplinsky, 1991). Investors may therefore place a more negative

[22] Our results for moderator effects remain unchanged in an unreported fully interacted model.
[23] Control variables in regressions containing *Standardized MB* exclude *MB* to control for potential multicollinearity. The results are unchanged if we keep *MB* in the control variables.

weight on excess cash holdings when information asymmetry is higher. Table 8, models (4)–(6) examine the moderating effect of information asymmetry. Model (4) includes interactions between *Cash rich* and information asymmetry proxies already included as control variables (*Shelf*, *Years listed*, and *Volatility*). We include three additional proxies for information asymmetry that are not available for the full sample. In particular, following Dutordoir et al. (2019), we consider the number of analysts following (*Analyst*), dispersion in analyst earnings-per-share forecasts (*Dispersion*), and bid-ask spread (*BAS*).[24] Model (5) includes these additional proxies and their interactions with *Cash rich*. Model (6) includes all variables from models (4) and (5). *Cash rich* × *Volatility* has an insignificant impact in model (4) and a positive impact in model (6), inconsistent with prediction. Additionally, we find insignificant effects of other interaction terms, showing no moderating effect of information asymmetry.

Third, an extension of Myers and Majluf's (1984) pecking order theory predicts that a firm's profitable growth opportunities can attenuate its adverse selection problems (Cooney and Kalay, 1993). If investors know that a firm has valuable growth options, they may view the presence of high ex-ante excess cash levels less negatively as they anticipate the firm will use the cash, along with the SEO proceeds, to finance profitable growth opportunities. Table 8, models (7) and (8) analyze the moderating effect of growth opportunities. Model (7) includes interactions of *MB* and *Asset growth* with *Cash rich*. However, as *MB* also captures overvaluation, model (8) only includes the interaction of *Asset growth*. The results show no effect of growth opportunities on the impact of ex-ante cash holdings on SEO announcement returns.

Finally, theories of the role of cash holdings frequently refer to a precautionary motive for holding cash, which can be traced back to Keynes (1936). The precautionary motive predicts

[24] We exclude these additional information asymmetry proxies from our original control variables because they reduce our sample size substantially.

that firms hold financial slack to meet future expenditures and invest in positive NPV projects when they are constrained in raising external financing. Financially constrained firms may find it more difficult to raise financing externally and are more likely to hoard cash for precautionary purposes (Harford, 1999; Opler et al., 1999; Almeida et al., 2004; Denis and Sibilkov, 2010; Pinkowitz et al., 2013; Gao and Mohamed, 2018). Therefore, the market is less likely to regard high cash holdings as indicating overvaluation for firms with more severe financial constraints. Table 8, model (9) examines the moderating effect of the precautionary motive. We use financial constraint proxies to capture precautionary motives, including *KZ* and *DivDummy*. Model (9) includes interactions of these variables with *Cash rich*. The results show that precautionary motives do not have a moderating effect on the impact of ex-ante cash holdings on SEO announcement returns.

Overall, we find no evidence for moderators of the impact of cash holdings on SEO announcement effects.

6.3 Long-term stock price performance

This section compares the long-term stock price performance of cash-rich and non-cash-rich seasoned equity issuers using a calendar-time portfolio approach (e.g., Fama, 1998). We construct equally weighted portfolios of seasoned equity issuers for each calendar month during the sample period. We examine the long-term stock price performance for 12, 24, and 36 months. The testing period starts the month immediately after the SEO.[25] We rebalance portfolios monthly and require at least six firms in a portfolio (Dutordoir et al., 2018). We regress the time-series portfolio excess returns using the Fama–French–Carhart four-factor model as the benchmark (Fama and French, 1993; Carhart, 1997). Finally, we use weighted least squares, with the weights calculated following Savor and Lu (2009).

[25] In an unreported analysis, we start the testing periods six months after the SEO to allow for noise in stock return responses (Autore et al., 2009). The results for the post-SEO long-term stock price performance remain similar.

Table 9, panel A shows the long-term abnormal stock price performance of equally weighted portfolios for the full sample of seasoned equity issuers. The alpha coefficients are insignificant. The results are consistent with Brav et al. (2000), Eckbo et al. (2000), and Dutordoir et al. (2018), who find that long-term abnormal stock returns following SEOs are insignificantly different from zero.

To examine whether long-term post-SEO stock price performance differs between cash-rich and non-cash-rich equity issuers, we construct portfolios and re-estimate the four-factor model separately for cash-rich and non-cash-rich subsamples. Table 9, panels B and C show results for the portfolios of cash-rich and non-cash-rich equity issuers, respectively. Panel B shows that portfolios of cash-rich seasoned equity issuers have negative abnormal returns for a 12-month holding period, showing weak evidence for the opportunistic motives for issuing. Panel C shows that non-cash-rich equity issuers have insignificant abnormal returns for all three holding periods.

To directly examine differences in post-SEO long-term stock price performance between cash-rich and non-cash-rich seasoned equity issuers, we construct a zero-cost portfolio that buys stocks of cash-rich issuers and sells stocks of non-cash-rich issuers. Table 9, panel D shows negative alphas for zero-cost portfolios over all holding periods, indicating that cash-rich seasoned equity issuers have worse long-term stock price performance than their non-cash-rich counterparts, consistent with hypothesis H5.[26]

In summary, the finding that cash-rich seasoned equity issuers have more negative long-term stock price performance than non-cash-rich issuers supports our earlier conjecture that cash-rich seasoned equity issuers are overvalued at the time of the offering announcement.

[26] Table 9 uses the single-type issuer sample of the uses of proceed analysis (1,667 firm–years). If we use the full SEO sample (1,699 firm–years), the finding that cash-rich seasoned equity issuers underperform in the long run persists.

7. Conclusion

This paper starts from the observation that a substantial proportion of seasoned equity issuers are cash-rich and would not have run out of funding had they not made an SEO. Cash-rich seasoned equity issuers are hard to reconcile with the image of the typical SEO firm emerging from corporate finance theory and previous empirical studies and are therefore an intriguing object of study. We are the first, to our knowledge, to conduct an in-depth analysis of issuing motives, uses of proceeds, operating performance, stock market reactions, and long-term post-SEO stock price performance of cash-rich seasoned equity issuers. Our three main findings are as follows.

First, we document that cash-richness is associated with market timing motives because cash-rich equity issuers are more overvalued than non-cash-rich issuers. This finding persists when we include advanced overvaluation measures, variables associated with corporate governance, and a non-issuer sample.

Second, we find that cash-rich seasoned equity issuers use SEO proceeds opportunistically, indicating value-destroying activities. Furthermore, cash-rich equity issuers have more negative long-term operating performance than their non-cash-rich counterparts. These results confirm cash-rich equity issuers' market timing motives for issuing.

Finally, we document that ex-ante cash-richness does not significantly affect SEO announcement returns. Nor do we find any moderating effects of proxies for firm overvaluation, information asymmetry, growth opportunities, or precautionary motives on the impact of ex-ante cash holdings on SEO announcement returns. But we observe worse long-term stock price performance for cash-rich equity issuers than non-cash-rich issuers, consistent with the market timing theory.

Overall, our findings suggest that ex-ante cash holdings should send an overvaluation signal when a firm announces an SEO. However, investors do not seem to be aware of this at

the SEO announcement, since various cash measures play no role in explaining cross-sectional differences in the stock market reception of SEOs. This is surprising, since some overvaluation proxies do have a significant negative impact on SEO announcement effect. Our findings have the practical implication that rational investors should place a negative value on high excess cash holdings in their assessment of an SEO announcement, since such holdings, on average, signal opportunistic, value-destroying uses of proceeds and post-SEO deteriorations in operating and stock price performance.

Appendix A. Variable definitions and sources

This appendix provides detailed definitions and sources of the variables in the paper. We measure variables at the fiscal year-end before the announcement (as classified in Section 3.1) unless noted otherwise. We specify the sources of all variables along with their definitions.

Variable	Definition and source
Analyst	Natural logarithm of 1 plus the number of analysts following the firm in the month before the SEO announcement. *Source*: Institutional Broker's Estimate System (I/B/E/S).
Asset growth	The book value of assets at the closest fiscal year-end before the SEO announcement minus the book value of assets at the fiscal year-end before the closest fiscal year-end, divided by the book value of assets at the fiscal year-end before the closest fiscal year-end before the SEO announcement. *Source*: Compustat.
BAS	Average daily bid–ask spread as a percentage of the stock price over the 180 trading days before the SEO announcement. *Source*: CRSP.
Blockholdings	The number of institutions that own at least 5% of the firms' outstanding shares in the quarter before the SEO announcement. *Source*: Thomson Reuters.
CAR(−1, 1)	Equally weighted *CAR*(−1, 1) based on the market model; estimation period (−300, −46). *Source*: Eventus.
Cash	Cash reserves. *Source*: Compustat.
Cash rich	An indicator equal to one if the firm is ranked in the top third of all Compustat firms for *Excess cash*. *Source*: Compustat.
DDS normal cash	The median cash ratio of firms in the same industry, tercile of total book assets, and tercile of market-to-book value of assets for the year in question. *Source*: Compustat.
Debt ratio	The ratio of long-term debt to total assets. *Source*: Compustat.
Dispersion	The variance of 1-year-ahead analyst earnings-per-share forecasts in the month before the SEO announcement divided by the mean estimate. *Source*: I/B/E/S.
DivDummy	A dummy variable equal to one if a firm pays dividends in the fiscal year before an SEO. *Source*: Compustat.
DM cash	Excess cash based on the regression of Dittmar and Mahrt-Smith (2007). $$Ln\left(\frac{Cash_{i,t}}{NA_{i,t}}\right) = \beta_0 + \beta_1 Ln(NA_{i,t}) + \beta_2 \frac{FCF_{i,t}}{NA_{i,t}} + \beta_3 \frac{NWC_{i,t}}{NA_{i,t}} + \beta_4 (Industry\ Sigma)_{i,t} + \beta_5 \left(\frac{\overline{MV_{i,t}}}{NA_{i,t}}\right) + \beta_6 \frac{RD_{i,t}}{NA_{i,t}} + YearDummies + Firm\ Fixed\ Effects + \varepsilon_{i,t}$$ $Cash_{i,t}$ is cash and equivalents at time *t*; $NA_{i,t}$ is net assets at time *t*; $FCF_{i,t}$ is operating income minus interest minus taxes over year *t*; $NWC_{i,t}$ is current assets minus current liabilities minus cash at time *t*; $IndustrySigma_{i,t}$ is the industry average of prior 10 years standard deviation of *FCF*/*NA*; $MV_{i,t}$ is the market value at time *t*;[27] and $RD_{i,t}$ is research and development expenditures in year *t*.[28] *DM cash* is the residual of the model. *Source*: Compustat.
EPS	Earnings per share. *Source*: Compustat.
Excess cash	The difference between the firm's *Raw cash* and *DDS normal cash*. *Source*: Compustat.
Firm size	The natural logarithm of the book value of total assets. *Source*: Compustat.

[27] Market value equals price times shares plus total liabilities. Market-to-book is instrumented using the past three-year sales growth.
[28] $RD_{i,t}$ is set to zero if missing.

InstOwn	The number of shares held by institutions divided by shares outstanding in the quarter before the SEO announcement, capped at 1. *Source*: Thomson Reuters.
*Invest*1	Sum of capital expenditure and research and development. *Source*: Compustat.
*Invest*2	Sum of inventory and plant, property, and equipment. *Source*: Compustat.
Issue size	The ratio of SEO proceeds to total assets in the fiscal year before the SEO announcement. *Source*: SDC, Compustat.
KZ	The financial constraint index of Kaplan and Zingales (1997). *Source*: Compustat.
LTD	Long-term debt. *Source*: Compustat.
MB	The ratio of the market value to book value of equity. *Source*: Compustat.
Multinational	A dummy variable equal to one if the firm reported foreign income in any of the years $t-3$ to t. *Source*: Compustat.
OIBD	The ratio of operating income before depreciation to total assets. *Source*: Compustat.
OPSW cash	Excess cash based on the regression of Opler et al. (1999). $$Ln(Cash) = \propto + \beta_1 MB + \beta_2 Size + \beta_3 CashFlow + \beta_4 NWC + \beta_5 RD + \beta_6 IndSigma + \beta_7 Leverage + \beta_8 Capex + \beta_9 Dividends + \varepsilon$$ *Cash* is cash and marketable securities divided by net assets; net assets are book value of assets less cash; *MB* is (market value of equity − book value of equity + book value of assets) /net assets; *Size* is the log of assets; *CashFlow* is (operating income before depreciation − interest − taxes − common dividends)/net assets; *NWC* is non-cash net working capital deflated by net assets; *RD* is research and development expenses deflated by sales; *IndSigma* is the median industry cash flow volatility for up to the prior 20 years; *Leverage* is the sum of short-term and long-term leverage divided by net assets; *Capex* is capital expenditure deflated by net assets; and *Dividends* is a dummy variable that equals one if the firm paid common dividends within the year. Following Opler et al. (1999), when *RD* is missing, we set it to zero. We measure the firm's current cash level using data in the prior two years. *OPSW Cash* is the residual of the model. *Source*: Compustat.
Other	The difference between the accumulation of all sources of funds since issuance and SEO proceeds. *Source*: Compustat, SDC.
Post return	Total daily stock return over the 36 months after the SEO announcement minus the average return of the CRSP equally weighted market index over the same window. *Source*: CRSP.
Pro forma Excess cash	*Pro forma Raw cash* minus *DDS normal cash*. *Source*: Compustat, SDC.
Pro forma Raw cash	The ratio of cash and short-term investments minus proceeds from the SEO in the year to total assets minus proceeds from the SEO in the year of the offering. *Source*: Compustat, SDC.
Proceeds	Proceeds raised from the issuance. *Source*: SDC.
Raw cash	The ratio of cash and short-term investment to total assets. *Source*: Compustat.
ROA	The ratio of earnings before extraordinary items to total assets. *Source*: Compustat.
RRV	An indicator of overvaluation equal to one if the sum of Rhodes-Kropf et al.'s (2005) firm-specific and time-series industry error exceeds zero. *Source*: Compustat.
Secondary	A dummy variable equal to one when an SEO includes a secondary offering. *Source*: SDC.
Shelf	A dummy variable equal to one when an SEO is shelf registered. *Source*: SDC.
Slack	Sum of cash and liquid assets and unused debt capacity. Unused debt capacity is the maximum of zero and the difference between industry mean and the firm's debt ratio. *Source*: Compustat.
Standardized MB	The firm's market-to-book ratio divided by the median market-to-book ratio of all industrial firms by year. *Source*: Compustat.

Stock runup	The total daily stock return over the window −76 to −2 before the SEO announcement, minus the average return of the CRSP equally weighted market index over the same window. *Source*: CRSP.
TA	Total assets. *Source*: Compustat.
Tangible assets	The ratio of plant, property and equipment to total assets. *Source*: Compustat.
Taxes	The ratio of total income tax to total assets. *Source*: Compustat.
Tbill	The 3-month Treasury Bill rate for the month immediately before the SEO announcement divided by the average 3-month Treasury Bill rate for three months before the SEO announcement. *Source*: CRSP.
Volatility	Raw stock return volatility over a 200-day period beginning 240 trading days before the SEO announcement. *Source*: CRSP.
WC	Working capital. *Source*: Compustat.
Years listed	The number of years listed, truncated at 20. *Source*: CRSP.

References

Akhigbe, A., Whyte, A.M., 2015. SEO announcement returns and internal capital market efficiency. *Journal of Corporate Finance*. 31, 271–283.

Almeida, H., Campello, M., Weisbach, M., S., 2004. The cash flow sensitivity of cash. *Journal of Finance*. 59, 1777–1804.

Asquith, P., Mullins, D.W., 1986. Equity issues and offering dilution. *Journal of Financial Economics*. 15, 61–89.

Autore, D.M., Bray, D.E., Peterson, D.R., 2009. Intended use of proceeds and the long-run performance of seasoned equity issuers. *Journal of Corporate Finance*. 15, 358–367.

Autore, D.M., Kumar, R., Shome, D.K., 2008. The revival of shelf-registered corporate equity offerings. *Journal of Corporate Finance*. 14, 32–50.

Baker, M., Wurgler, J., 2002. Market timing and capital structure. *Journal of Finance*. 57, 1–32.

Bates, T.W., Kahle, K.M., Stulz, R.M., 2009. Why do U.S. firms hold so much more cash than they used to? *Journal of Finance*. 64, 1985–2021.

Bayless, M., Chaplinsky, S., 1991. Expectations of security type and the information content of debt and equity offers. *Journal of Financial Intermediation*. 1, 195–214.

Bayless, M., Chaplinsky, S., 1996. Is there a window of opportunity for seasoned equity issuance? *Journal of Finance*. 51, 253–278.

Bhagat, S., Marr, M.W., Thompson, G.R., 1985. The Rule 415 experiment: equity markets. *Journal of Finance*. 40, 1385–1401.

Billett, M.T., Garfinkel, J.A., 2004. Financial flexibility and the cost of external finance for U.S. bank holding companies. *Journal of Money, Credit and Banking*. 36, 827–852.

Brav, A., Geczy, C., Gompers, P.A., 2000. Is the abnormal return following equity issuances anomalous? *Journal of Financial Economics*. 56, 209–249.

Carhart, M.M., 1997. On persistence in mutual fund performance. *Journal of Finance*. 52, 57–82.

Chava, S., Kumar, P., Warga, A., 2010. Managerial agency and bond covenants. *Review of Financial Studies*. 23, 1120–1148.

Cooney, J.W., Kalay, A., 1993. Positive information from equity issue announcements. *Journal of Financial Economics*. 33, 149–172.

de Jong, A., Veld, C., 2001. An empirical analysis of incremental capital structure decisions under managerial entrenchment. *Journal of Banking and Finance*. 25, 1857–1895.

DeAngelo, H., DeAngelo, L., Stulz, R.M., 2010. Seasoned equity offerings, market timing, and the corporate lifecycle. *Journal of Financial Economics*. 95, 275–295.

Dechow, P.M., Hutton, A.P., Meulbroek, L., Sloan, R.G., 2001. Short-sellers, fundamental analysis, and stock returns. *Journal of Financial Economics*. 61, 77–106.

Deng, X., Kang, J.-k., Low, B.S., 2013. Corporate social responsibility and stakeholder value maximization: evidence from mergers. *Journal of Financial Economics*. 110, 87–109.

Denis, D., J., 1991. Shelf registration and the market for seasoned equity offerings. *Journal of Business*. 64, 189–212.

Denis, D.J., 1994. Investment opportunities and the market reaction to equity offerings. *Journal of Financial and Quantitative Analysis*. 29, 159–177.

Denis, D.J., Sibilkov, V., 2010. Financial constraints, investment, and the value of cash holdings. *Review of Financial Studies*. 23, 247–269.

Diether, K.B., Lee, K.-H., Werner, I.M., 2009. Short-sale strategies and return predictability. *Review of Financial Studies*. 22, 575–607.

Dittmar, A., Mahrt-Smith, J., 2007. Corporate governance and the value of cash holdings. *Journal of Financial Economics*. 83, 599–634.

Dittmar, A., Mahrt-Smith, J., Servaes, H., 2003. International corporate governance and corporate cash holdings. *Journal of Financial and Quantitative Analysis*. 38, 111–133.

Duca, E., 2016. Do investors learn from the past? Evidence from follow-on equity issues. *Journal of Corporate Finance* 39, 36–52.

Duca, E., Dutordoir, M., Veld, C., Verwijmeren, P., 2012. Why are convertible bond announcements associated with increasingly negative issuer stock returns? An arbitrage-based explanation. *Journal of Banking and Finance*. 36, 2884–2899.

Duchin, R., 2010. Cash holdings and corporate diversification. *Journal of Finance*. 65, 955–992.

Dutordoir, M., Hodrick, L.S., 2012. Self-selection and stock returns around corporate security offering announcements, Working Paper.

Dutordoir, M., Li, H., Liu, F.H., Verwijmeren, P., 2016. Convertible bond announcement effects: why is Japan different? *Journal of Corporate Finance* 37, 76–92.

Dutordoir, M., Strong, N., Sun, P., 2019. Shelf versus traditional seasoned equity offerings: the impact of potential short selling. *Journal of Financial and Quantitative Analysis*. 54, 1285–1311.

Dutordoir, M., Strong, N., Ziegan, M.C., 2014. Does corporate governance influence convertible bond issuance? *Journal of Corporate Finance*. 24, 80–100.

Dutordoir, M., Strong, N.C., Sun, P., 2018. Corporate social responsibility and seasoned equity offerings. *Journal of Corporate Finance*. 50, 158–179.

Eckbo, B.E., Masulis, R.W., Norli, Ø., 2000. Seasoned public offerings: resolution of the 'new issues puzzle'. *Journal of Financial Economics*. 56, 251–291.

Eckbo, B.E., Masulis, R.W., Norli, Ø., 2007. Security offerings. Elsevier: North-Holland, Amsterdam.

Fama, E.F., 1998. Market efficiency, long-term returns, and behavioral finance. *Journal of Financial Economics*. 49, 283–306.

Fama, E.F., French, K.R., 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*. 33, 3–56.

Fama, E.F., Miller, M.H., 1972. The Theory of Finance. Dryden Press: Philadelphia.

Faulkender, M., Wang, R., 2006. Corporate financial policy and the value of cash. *Journal of Finance*. 61, 1957–1990.

Foley, C.F., Hartzell, J.C., Titman, S., Twite, G., 2007. Why do firms hold so much cash? A tax-based explanation. *Journal of Financial Economics*. 86, 579–607.

Frésard, L., Salva, C., 2010. The value of excess cash and corporate governance: evidence from US cross-listings. *Journal of Financial Economics*. 98, 359–384.

Fu, F., 2010. Overinvestment and the operating performance of SEO firms. *Financial Management*. 39, 249–272.

Gao, H., Harford, J., Li, K., 2013. Determinants of corporate cash policy: insights from private firms. *Journal of Financial Economics*. 109, 623–639.

Gao, N., Mohamed, A., 2018. Cash-rich acquirers do not always make bad acquisitions: new evidence. *Journal of Corporate Finance*. 50, 243–264.

Gao, X., Ritter, J.R., 2010. The marketing of seasoned equity offerings. *Journal of Financial Economics*. 97, 33–52.

Golubov, A., Petmezas, D., Travlos, N.G., 2016. Do stock-financed acquisitions destroy value? New methods and evidence. *Review of Finance*. 20, 161–200.

Hansen, R.S., Crutchley, C., 1990. Corporate earnings and financings: an empirical analysis. *Journal of Business*. 63, 347–371.

Hansen, R.S., Pinkerton, J.M., 1982. Direct equity financing: a resolution of a paradox. *Journal of Finance*. 37, 651–665.

Hao, G.Q., 2014. Institutional shareholder investment horizons and seasoned equity offerings. *Financial Management*. 43, 87–111.

Harford, J., 1999. Corporate cash reserves and acquisitions. *Journal of Finance*. 54, 1969–1997.

Harford, J., Mansi, S.A., Maxwell, W.F., 2008. Corporate governance and firm cash holdings in the US. *Journal of Financial Economics*. 87, 535–555.

Helwege, J., Liang, N., 1996. Is there a pecking order? Evidence from a panel of IPO firms. *Journal of Financial Economics*. 40, 429–458.

Hertzel, M.G., Li, Z., 2010. Behavioral and rational explanations of stock price performance around SEOs: evidence from a decomposition of market-to-book ratios. *Journal of Financial and Quantitative Analysis*. 45, 935–958.

Hirshleifer, D., Kewei, H., Teoh, S.H., Yinglei, Z., 2004. Do investors overvalue firms with bloated balance sheets? *Journal of Accounting and Economics*. 38, 297–331.

Hou, K., Xue, C., Zhang, L., 2015. Digesting anomalies: an investment approach. *Review of Financial Studies*. 28, 650–705.

Huang, R., Ritter, J.R., 2020. Corporate cash shortfalls and financing decisions. *Review of Financial Studies*. Forthcoming.

Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*. 76, 323–329.

Jung, K., Kim, Y.-C., Stulz, R., 1996. Timing, investment opportunities, managerial discretion, and the security issue decision. *Journal of Financial Economics*. 42, 159–185.

Kaplan, S.N., Zingales, L., 1997. Do investment-cash flow sensitivities provide useful measures of financing constraints? *Quarterly Journal of Economics*. 112, 169–215.

Keynes, J.M., 1936. The general theory of employment, interest, and money. McMillan: London.

Kim, C.-S., Mauer, D.C., Sherman, A.E., 1998. The determinants of corporate liquidity: theory and evidence. *Journal of Financial and Quantitative Analysis*. 33, 335–359.

Kim, E.H., Purnanandam, A., 2014. Seasoned equity offerings, corporate governance, and investments. *Review of Finance*. 18, 1023–1057.

Kim, W., Weisbach, M.S., 2008. Motivations for public equity offers: an international perspective. *Journal of Financial Economics*. 87, 281–307.

Klasa, S., Maxwell, W.F., Ortiz-Molina, H., 2009. The strategic use of corporate cash holdings in collective bargaining with labor unions. *Journal of Financial Economics*. 92, 421–442.

Krasker, W.S., 1986. Stock price movements in response to stock issues under asymmetric information. *Journal of Finance*. 41, 93–105.

Lee, G., Masulis, R.W., 2009. Seasoned equity offerings: quality of accounting information and expected flotation costs. *Journal of Financial Economics*. 92, 443–469.

Leland, H.E., Pyle, D.H., 1977. Informational asymmetries, financial structure, and financial intermediation. *Journal of Finance*. 32, 371–387.

Lemmon, M.L., Zender, J.F., 2010. Debt capacity and tests of capital structure theories. *Journal of Financial and Quantitative Analysis*. 45, 1161–1187.

Lewis, C.M., Rogalski, R.J., Seward, J.K., 1999. Is convertible debt a substitute for straight debt or for common equity? *Financial Management*. 28, 5–27.

Loughran, T., Ritter, J.R., 1995. The new issues puzzle. *Journal of Finance*. 50, 23–51.

Loughran, T., Ritter, J.R., 1997. The operating performance of firms conducting seasoned equity offerings. *Journal of Finance*. 52, 1823–1850.

Lucas, D., J., McDonald, R., L., 1990. Equity issues and stock price dynamics. *Journal of Finance*. 45, 1019–1043.

Masulis, R.W., Korwar, A.N., 1986. Seasoned equity offerings: an empirical investigation. *Journal of Financial Economics*. 15, 91–118.

McLaughlin, R., Safieddine, A., Vasudevan, G.K., 1996. The operating performance of seasoned equity issuers: free cash flow and post-issue performance. *Financial Management*. 25, 41–53.

McLean, R.D., 2011. Share issuance and cash savings. *Journal of Financial Economics*. 99, 693–715.

Mikkelson, W.H., Partch, M.M., 1986. Valuation effects of security offerings and the issuance process. *Journal of Financial Economics*. 15, 31–60.

Myers, S.C., Majluf, N.S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*. 13, 187–221.

Oler, D.K., 2008. Does acquirer cash level predict post-acquisition returns? *Review of accounting studies*. 13, 479–511.

Opler, T., Pinkowitz, L., Stulz, R., Williamson, R., 1999. The determinants and implications of corporate cash holdings. *Journal of Financial Economics*. 52, 3–46.

Ozkan, A., Ozkan, N., 2004. Corporate cash holdings: an empirical investigation of UK companies. *Journal of Banking and Finance*. 28, 2103–2134.

Palazzo, B., 2012. Cash holdings, risk, and expected returns. *Journal of Financial Economics*. 104, 162–185.

Pinkowitz, L., Stulz, R., Williamson, R., 2006. Does the contribution of corporate cash holdings and dividends to firm value depend on governance? A cross-country analysis. *Journal of Finance*. 61, 2725–2751.

Pinkowitz, L., Stulz, R.M., Williamson, R., 2013. Is there a US high cash holdings puzzle after the financial crisis? *Journal of Corporate Finance*. 23, 128–149.

Pinkowitz, L., Williamson, R., 2001. Bank power and cash holdings: evidence from Japan. *Review of Financial Studies*. 14, 1059–1082.

Rhodes-Kropf, M., Robinson, D.T., Viswanathan, S., 2005. Valuation waves and merger activity: the empirical evidence. *Journal of Financial Economics*. 77, 561–603.

Rubin, D.B., 2001. Using propensity scores to help design observational studies: application to the tobacco litigation. *Health Services and Outcomes Research Methodology*. 2, 169–188.

Savor, P.G., Lu, Q., 2009. Do stock mergers create value for acquirers? *Journal of Finance*. 64, 1061–1097.

Slovin, M.B., Sushka, M.E., Bendeck, Y.M., 1994. Seasoned common stock issuance following an IPO. *Journal of Banking and Finance*. 18, 207–226.

Stein, J.C., 1992. Convertible bonds as backdoor equity financing. *Journal of Financial Economics*. 32, 3–21.

Swanquist, Q.T., Whited, R.L., 2018. Out of control: the (over) use of controls in accounting research, Working Paper.

Veld, C., Verwijmeren, P., Zabolotnyuk, Y., 2020. Wealth effects of seasoned equity offerings: a meta-analysis. *International Review of Finance*. 20, 77–131.

Von Beschwitz, B., 2018. Cash windfalls and acquisitions. *Journal of Financial Economics*. 128, 287–319.

Walker, M.D., Yost, K., 2008. Seasoned equity offerings: What firms say, do, and how the market reacts. *Journal of Corporate Finance*. 14, 376–386.

Walker, M.D., Yost, K., Zhao, J., 2016. Credibility and multiple SEOs: what happens when firms return to the capital market? Credibility and multiple SEOs. *Financial Management*. 45, 675–703.

Yang, J., Guariglia, A., Guo, J., 2019. To what extent does corporate liquidity affect M&A decisions, method of payment and performance? Evidence from China. *Journal of Corporate Finance*. 54, 128–152.

Figure 1: Distribution of excess cash.
This figure shows the distribution of excess cash (*Excess cash*) for seasoned equity issuers (N = 1,699) and the population of Compustat non-issuing firms (N = 42,240) during 2000 to 2018. We exclude utility and financial firms (SIC codes 4900–4999 and 6000–6999). The blue bars represent the sample of seasoned equity issuers (N = 1,699); the red bars represent the sample of Compustat firms (N = 42,240). The population of non-issuing Compustat firms excludes seasoned equity issuers. N denotes the number of observations.

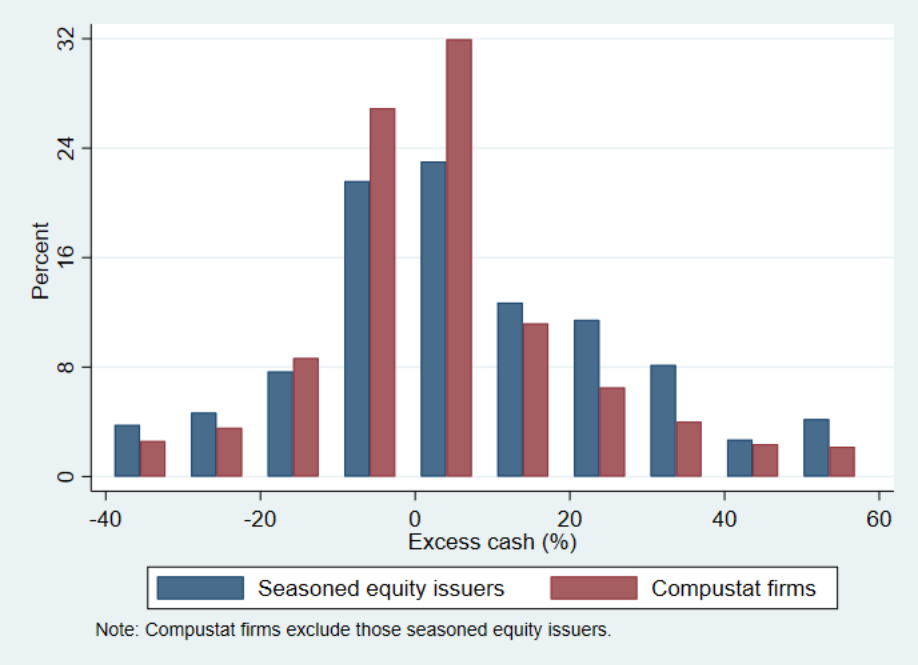

Table 1: Percentage of SEOs where firms would have run out of cash or held subnormal cash balances if they had not received SEO proceeds.
This table reports the percentage of SEOs (*N* = 1,699) where firms would have faced cash depletion if they had not raised SEO proceeds. Without the SEO proceeds, firms would have run out of cash if *Pro forma Raw cash* < 0, and firms would have held subnormal cash balances if *Pro forma Excess cash* < 0. Appendix A gives definitions and sources of all variables. The year of the offering refers to the fiscal year when the SEO occurs. ***, **, and * indicate significant mean differences between CR and non-CR seasoned equity issuer at the 1%, 5%, and 10% levels using two-tailed *t*-tests. CR denotes cash-rich (*Cash rich* = 1), and Non-CR denotes non-cash-rich (*Cash rich* = 0). *N* denotes the number of observations.

	SEO	CR	Non-CR
(1) Percentage of SEOs where firms would have run out of cash (*Pro forma Raw cash* < 0) in the year of the offering	38.90%	15.89%***	57.23%
(2) Percentage of SEOs where firms would have held subnormal cash balances (*Pro forma Excess cash* < 0) in the year of the offering	72.94%	50.20%***	91.06%
(3) Percentage of SEOs where firms would have run out of cash (*Pro forma Raw cash* < 0) in the year after the offering	41.55%	21.90%***	56.81%
(4) Percentage of SEOs where firms would have held subnormal cash balances (*Pro forma Excess cash* < 0) in the year after the offering	71.47%	51.06%***	87.32%

Table 2: Univariate comparison between cash-rich and non-cash-rich seasoned equity issuers.
This table reports the mean and median values of characteristics for the full sample, and for cash-rich and non-cash-rich seasoned equity issuers. The sample includes SEOs between 2000 and 2018 from the SDC database. Appendix A gives definitions and sources of all variables. We test mean (median) differences using two-tailed *t*-tests (Mann-Whitney tests). ***, **, and * indicate significance at the 1%, 5%, and 10% levels. CR denotes cash-rich (*Cash rich* = 1), and Non-CR denotes non-cash-rich (*Cash rich* = 0). *N* denotes the number of observations.

	Full sample		CR		Non-CR	
	Mean	Median	Mean	Median	Mean	Median
Excess cash	0.063	0.017	0.245***	0.218***	−0.083	−0.040
Stock runup	0.128	0.112	0.142	0.128	0.116	0.099
Post return	−0.493	−0.435	−0.558***	−0.546**	−0.441	−0.392
Issue size	0.535	0.345	0.721***	0.518***	0.386	0.225
Secondary	0.144		0.079***		0.195	
Shelf	0.534		0.569***		0.506	
Years listed	15.040	17.000	14.106***	15.000***	15.789	19.000
Volatility	0.044	0.039	0.048***	0.042***	0.041	0.036
Multinational	0.347		0.257***		0.419	
ROA	−0.260	−0.144	−0.407***	−0.363***	−0.142	−0.011
Debt ratio	0.183	0.075	0.115***	0.002***	0.237	0.184
Tbill	0.987	0.998	0.987	1.009	0.988	0.993
Taxes	0.005	0.000	0.002***	0.000***	0.007	0.002
Firm size ($Million)	776.5	144.455	376.221***	85.392***	1097.397	232.656
Tangible assets	0.208	0.102	0.117***	0.058***	0.281	0.166
MB	4.027	2.825	4.682***	3.516***	3.501	2.373
Asset growth	0.208	0.075	0.202	0.050	0.213	0.084
DivDummy	0.165		0.099***		0.218	
KZ	1.023	0.895	0.906***	0.711***	1.117	1.026
N	1,699		756		943	

Table 3: Logistic regression analysis of cash-rich and non-cash-rich seasoned equity issuers.
This table reports comparisons of cash-rich and non-cash-rich seasoned equity issuers (panel A) and of issuers and non-issuers (panel B) using logistic regression models. The dependent variable in panel A is an indicator denoting firms' cash-richness (*Cash rich*). The dependent variable in panel B equals one if a CR (non-CR) firm issues an SEO and zero if a firm does not issue an SEO. Appendix A gives definitions and sources of all variables. All regressions include year fixed effects. We report *t*-statistics based on robust standard errors in brackets. ***, **, * indicate significance at 1%, 5%, and 10% levels. CR denotes cash-rich (*Cash rich* = 1), Non-CR denotes non-cash-rich (*Cash rich* = 0), and Non-issuer indicate non-SEO issuers. *N* denotes the number of observations.

Panel A: Comparison of CR and non-CR seasoned equity issuers

	CR versus Non-CR		
	(1)	(2)	(3)
Standardized MB		0.029	0.054**
		[1.364]	[2.090]
RRV		0.308**	0.285*
		[2.169]	[1.716]
InstOwn			0.153
			[0.331]
Blockholdings			0.130**
			[2.119]
Stock runup	−0.081	−0.053	−0.036
	[−0.445]	[−0.287]	[−0.161]
Post return	−0.183***	−0.189***	−0.254***
	[−2.770]	[−2.783]	[−3.088]
Issue size	0.796***	0.693***	1.062***
	[4.811]	[4.184]	[5.275]
Secondary	−0.875***	−0.861***	−0.858***
	[−4.577]	[−4.384]	[−4.003]
Shelf	0.456***	0.470***	0.352*
	[2.931]	[2.919]	[1.840]
Years listed	−0.037***	−0.043***	−0.031**
	[−3.100]	[−3.589]	[−2.332]
Volatility	1.750	2.513	5.047
	[0.536]	[0.747]	[1.217]
Multinational	−0.393***	−0.399***	−0.228
	[−3.044]	[−2.965]	[−1.458]
ROA	−1.795***	−1.742***	−2.010***
	[−6.942]	[−6.630]	[−6.108]
Debt ratio	−0.484	−0.551	0.326
	[−1.065]	[−1.161]	[0.638]
Tbill	−0.077	−0.084	−0.077
	[−0.674]	[−0.726]	[−0.551]
Taxes	−2.125	−1.974	−1.951
	[−0.981]	[−0.904]	[−0.863]
Firm size	0.146**	0.095	0.046
	[2.521]	[1.559]	[0.549]
Tangible assets	−2.201***	−2.040***	−1.792***
	[−6.505]	[−5.997]	[−4.646]
MB	0.014		
	[1.328]		
Asset growth	0.107	0.030	0.034
	[0.950]	[0.254]	[0.234]
DivDummy	−0.812***	−0.804***	−0.926***
	[−3.812]	[−3.618]	[−3.714]
KZ	−0.354***	−0.381***	−0.604***
	[−3.655]	[−3.762]	[−5.532]
Constant	0.416	0.702	−0.294
	[0.630]	[1.065]	[−0.398]

Table 3, **panel A** (*continued*)

	CR versus Non-CR		
	(1)	(2)	(3)
Year dummies	Y	Y	Y
Pseudo *R*-squared	0.240	0.250	0.280
N	1,699	1,647	1,324

Panel B: Comparison of seasoned equity issuers and non-issuers

	CR versus Non-issuer	Non-CR versus Non-issuer
	(4)	(5)
Standardized MB	0.026**	0.003
	[2.319]	[0.316]
RRV	0.857***	0.101
	[8.473]	[1.025]
Years listed	−0.027***	−0.006
	[−3.781]	[−0.966]
Multinational	−0.660***	0.076
	[−6.431]	[0.934]
ROA	−1.970***	−0.438***
	[−18.589]	[−2.963]
Debt ratio	0.157	0.506*
	[0.575]	[1.711]
Taxes	−8.326***	−5.516***
	[−8.705]	[−5.558]
Firm size	−0.148***	−0.173***
	[−5.528]	[−6.940]
Tangible assets	−1.790***	1.072***
	[−5.525]	[6.406]
Asset growth	0.360***	0.534***
	[5.082]	[8.773]
DivDummy	−1.272***	−0.277***
	[−6.961]	[−2.798]
KZ	−0.145***	0.338***
	[−3.426]	[4.463]
Constant	1.433***	−0.649
	[3.403]	[−1.353]
Year dummies	Y	Y
Pseudo *R*-squared	0.232	0.082
N	40,499	40,670

Table 4: Uses of proceeds for seasoned equity issuers.

This table reports regression analyses of the impact of *Cash rich* on subsequent increases in investment and expenditure. Dependent variables based on balance sheet items are changes in each variable relative to its value in year −1, $V_t - V_{t-1}$, where V is the variable and t is the year. Dependent variables based on income statement and cash flow statement items are accumulations of the variables since issuance, $\sum_{i=0}^{t} V_i$. The independent variables include *Proceeds*, *Other*, *Cash rich*, *Proceeds* × *Cash rich*, and *Other* × *Cash rich*. We scale each variable by total assets in the year before issuance. We control for year fixed effects and *Firm size*, which we do not report in the table for brevity. Appendix A gives definitions and sources of all variables. We report *t*-statistics based on heteroscedasticity-consistent standard errors cluster by two-digit SIC codes (Kim and Weisbach, 2008). ***, **, * indicate significance at 1%, 5%, and 10% levels. *N* denotes the number of observations.

	t	*N*	*Proceeds*		*Other*		*Cash rich*		*Proceeds* × *Cash rich*		*Other* × *Cash rich*		*R*-sqr
			β_1	*t*-stat	β_2	*t*-stat	β_3	*t*-stat	β_4	*t*-stat	β_5	*t*-stat	
Δ*TA*	0	1,415	1.179***	36.082	0.396***	14.542	−0.046*	−1.754	0.081	1.661	−0.051	−1.257	0.718
	1	1,372	1.095***	17.129	0.436***	10.669	−0.006	−0.185	0.036	0.607	−0.052	−1.225	0.638
	2	1,171	1.155***	18.833	0.374***	4.455	−0.047	−1.157	0.044	0.614	0.007	0.095	0.602
Σ*Invest*1	0	1,140	0.214***	6.504	−0.059***	−3.621	0.103***	6.088	−0.056	−1.517	0.030	1.469	0.328
	1	1,104	0.525***	8.013	−0.018	−1.211	0.186***	5.824	−0.138**	−2.102	0.037	1.459	0.398
	2	933	0.747***	9.626	0.014	1.527	0.240***	7.471	−0.148**	−2.287	0.016	1.348	0.464
Δ*Invest*2	0	1,415	0.099	1.609	0.136	1.670	−0.005	−0.239	−0.042	−0.972	−0.113	−1.573	0.127
	1	1,372	0.204	1.596	0.202*	1.827	0.040	0.665	−0.089	−0.856	−0.168*	−1.795	0.210
	2	1,171	0.264*	1.680	0.191*	1.827	0.048	0.617	−0.079	−0.601	−0.138*	−1.851	0.233
Δ*Cash*	0	1,415	0.931***	11.190	0.138**	2.038	−0.087***	−4.332	0.241***	6.817	0.138***	3.210	0.750
	1	1,372	0.891***	12.829	0.121***	2.728	−0.061**	−2.063	0.150***	2.858	0.188***	8.967	0.654
	2	1,171	0.898***	7.805	0.109***	4.556	−0.054	−0.925	0.089	0.799	0.164***	11.550	0.593
Δ*WC*	0	1,415	0.902***	16.221	0.128**	2.021	−0.095***	−4.931	0.253***	9.297	0.153***	3.373	0.690
	1	1,370	0.926***	16.017	0.118**	2.160	−0.075***	−2.829	0.107**	2.369	0.182***	4.935	0.580
	2	1,169	0.934***	12.748	0.115***	3.803	−0.088*	−1.807	0.055	0.833	0.164***	9.075	0.536
Δ*LTD*	0	1,415	−0.074	−0.626	0.091	1.388	−0.015	−0.276	0.057	0.409	−0.052	−0.843	0.064
	1	1,372	0.140	0.879	0.199**	2.090	0.081	1.023	−0.104	−0.630	−0.135	−1.521	0.096
	2	1,170	0.316*	1.724	0.210**	2.442	0.107	1.023	−0.143	−0.704	−0.158**	−2.343	0.169

Table 5: Long-term operating performance of seasoned equity issuers.
This table reports the post-SEO long-term operating performance of cash-rich and non-cash-rich seasoned equity issuers. We match each issuer with a non-issuer control firm using a nearest neighbor approach. The matching variables are *Excess cash*, *Debt ratio*, *Firm size*, *Tangible assets*, *MB*, and year dummies. Appendix A gives definitions and sources of all variables. The dependent variable in panel A is the difference in the change in post-SEO operating income (*OIBD*) between the seasoned equity issuer and control firm. The dependent variable in panel B is the difference in the change in post-SEO earning per share (*EPS*) between the seasoned equity issuer and control firm. The pre- and post-SEO periods are two years before and after the SEO year. The constant of the regression measures the abnormal change in operating performance between the pre- and post-SEO periods. We divide the sample into CR and non-CR issuers according to *Cash rich*. We report *t*-statistics based on heteroscedasticity-consistent standard errors. ***, **, * indicate significance at 1%, 5%, and 10% levels. CR denotes cash-rich (*Cash rich* = 1), and Non-CR denotes non-cash-rich (*Cash rich* = 0). *N* denotes the number of observations.

	CR	Non-CR
Panel A: Dependent variable = Difference in the change in post-SEO *OIBD*		
Constant	−0.247***	0.018
	[−6.458]	[1.051]
Difference in pre-SEO *OIBD*	−0.745***	−0.592***
	[−2.976]	[−6.819]
R-squared	0.026	0.144
N	543	719
Panel B: Dependent variable = Difference in the change in post-SEO *EPS*		
Constant	−1.160***	−0.229
	[−7.459]	[−1.505]
Difference in pre-SEO *EPS*	−0.953***	−0.862***
	[−11.466]	[−11.063]
R-squared	0.491	0.180
N	543	720

Table 6: Short-term stock market reactions to SEO announcements.

This table reports mean and median values of cumulative abnormal stock returns (*CAR*) over the window (−1, 1) relative to the SEO announcement. The sample includes 1,699 SEOs between 2000 and 2018. We measure *CAR*(−1, 1) by estimating market model regressions over the window (−300, −46) relative to the announcement date and use the CRSP equal-weighted return over the same window to proxy for the market return. $^{+++}$, $^{++}$, and $^{+}$ indicate significance of parametric Z- and non-parametric sign tests of mean *CAR* (results from Eventus). We use *t*-tests to test for mean values and Wilcoxon rank-sum (Mann-Whitney) tests to test for median values. ***, **, and * indicate significant mean/median differences between two security types at the 1%, 5%, and 10% levels using two-tailed tests. Mean and median differences for the CR and Non-CR subsamples are insignificant in this table. CR denotes the cash-rich subsample (*Cash rich* = 1), and Non-CR denotes the non-cash-rich subsample (*Cash rich* = 0). *N* denotes the number of observations.

	SEO (*N* = 1,683)	CR (*N* =750)	Non-CR (*N* = 933)
CAR (mean)	−0.029^{+++}	−0.026	−0.031
CAR (median)	−0.032	−0.030	−0.033

Table 7: Effect of ex-ante cash holdings on short-term stock market reactions to SEO announcements. This table reports OLS results for SEO announcement returns. The dependent variable is *CAR*, measured over the window (−1, 1) relative to the SEO announcement using a market model estimated over the window (−300, −46) and using the CRSP equal-weighted return over the same window to proxy for the market return. Appendix A gives definitions and sources of all variables. All regressions include year fixed effects. We report *t*-statistics based on robust standard errors in brackets. ***, **, * indicate significance at 1%, 5%, and 10% levels. *N* denotes the number of observations.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Cash rich	−0.004						−0.005
	[−0.400]						[−0.171]
Raw cash		−0.004					
		[−0.191]					
Slack			−0.009				
			[−0.477]				
Excess cash				−0.004			
				[−0.182]			
OPSW cash					−0.002		
					[−0.656]		
DM cash						−0.000	
						[−0.281]	
Stock runup	−0.041**	−0.041**	−0.041**	−0.041**	−0.048***	−0.037**	−0.145***
	[−2.431]	[−2.429]	[−2.430]	[−2.430]	[−2.880]	[−2.427]	[−2.772]
Issue size	0.039***	0.039***	0.039***	0.039***	0.057***	0.047***	0.052
	[2.757]	[2.780]	[2.819]	[2.765]	[3.158]	[2.958]	[1.303]
Secondary	−0.023***	−0.023***	−0.023***	−0.022***	−0.028***	−0.026***	−0.026
	[−2.632]	[−2.673]	[−2.742]	[−2.593]	[−2.739]	[−2.748]	[−0.776]
Shelf	−0.025**	−0.025**	−0.024**	−0.025**	−0.025***	−0.021**	−0.076*
	[−2.271]	[−2.382]	[−2.362]	[−2.317]	[−2.675]	[−2.430]	[−1.832]
Years listed	−0.000	−0.000	−0.000	−0.000	−0.001	−0.000	0.002
	[−0.702]	[−0.686]	[−0.725]	[−0.683]	[−1.041]	[−0.361]	[0.718]
Volatility	−0.271	−0.273	−0.272	−0.272	−0.317	−0.408	−0.283
	[−1.215]	[−1.227]	[−1.219]	[−1.219]	[−1.192]	[−1.634]	[−0.348]
Multinational	−0.003	−0.003	−0.004	−0.003	0.008	0.003	−0.004
	[−0.480]	[−0.464]	[−0.520]	[−0.453]	[0.887]	[0.327]	[−0.169]
ROA	−0.010	−0.010	−0.011	−0.009	0.007	0.002	−0.034
	[−0.540]	[−0.488]	[−0.575]	[−0.519]	[0.368]	[0.090]	[−0.593]
Debt ratio	0.019	0.019	0.020	0.019	0.016	0.025	−0.003
	[0.867]	[0.881]	[0.925]	[0.883]	[0.742]	[1.138]	[−0.050]
Tbill	0.004	0.004	0.004	0.004	0.007	0.010	0.004
	[0.610]	[0.614]	[0.604]	[0.614]	[0.955]	[1.333]	[0.217]
Taxes	0.182	0.182	0.181	0.182	0.173	0.215**	−0.575
	[1.589]	[1.556]	[1.562]	[1.601]	[1.585]	[2.097]	[−0.779]
Firm size	0.008**	0.008***	0.008***	0.008**	0.008**	0.007**	0.009
	[2.517]	[2.591]	[2.604]	[2.497]	[2.413]	[2.024]	[0.827]
Tangible assets	−0.031**	−0.031**	−0.034**	−0.030**	−0.032**	−0.026*	−0.050
	[−2.536]	[−2.229]	[−2.362]	[−2.491]	[−2.088]	[−1.942]	[−1.614]
MB	0.000	0.000	0.000	0.000	0.001	0.001	−0.000
	[0.285]	[0.290]	[0.307]	[0.275]	[1.092]	[0.852]	[−0.337]
Asset growth	−0.009	−0.009	−0.009	−0.009	−0.012	−0.011*	−0.012
	[−1.252]	[−1.272]	[−1.265]	[−1.263]	[−1.637]	[−1.689]	[−0.593]
DivDummy	0.013	0.013	0.013	0.014	0.005	−0.001	0.075
	[0.755]	[0.799]	[0.765]	[0.776]	[0.474]	[−0.143]	[1.138]
KZ	−0.002	−0.002	−0.002	−0.002	0.000	−0.002	0.001
	[−0.606]	[−0.624]	[−0.658]	[−0.591]	[0.126]	[−0.456]	[0.094]
Constant	−0.078**	−0.079**	−0.076*	−0.080**	−0.057*	−0.082*	−0.089
	[−2.033]	[−1.997]	[−1.920]	[−2.053]	[−1.821]	[−1.652]	[−0.794]
Year dummies	Y	Y	Y	Y	Y	Y	Y

Table 7 (*continued*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
R-squared	0.041	0.041	0.041	0.041	0.066	0.055	0.106
N	1,683	1,683	1,683	1,683	1,221	1,348	416

Table 8: Analysis of potential moderators of the impact of ex-ante cash holdings on SEO announcement returns.
This table examines potential moderators, namely indicators of overvaluation, information asymmetry, growth opportunities, and precautionary motives, on the impact of ex-ante cash holdings on SEO announcement returns. The dependent variable is *CAR*, measured over the window (−1, 1) relative to the SEO announcement, using a market model estimated over the window (−300, −46) and using the CRSP equal-weighted return over the same window to proxy for the market return. We use the same control variables as in Table 7. Appendix A gives definitions and sources of all variables. For brevity, we present results only for the variables of interest. All regressions include year fixed effects. We report *t*-statistics based on robust standard errors in brackets. ***, **, * indicate significance at 1%, 5%, and 10% levels.

	Overvaluation			Information asymmetry			Growth		Precautionary
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cash rich	0.019*	0.001	0.019	−0.028	−0.012	−0.073	−0.006	0.002	−0.002
	[1.701]	[0.063]	[1.196]	[−0.817]	[−0.365]	[−1.333]	[−0.490]	[0.139]	[−0.150]
Cash rich × *Stock runup*	−0.006		−0.007						
	[−0.192]		[−0.215]						
Cash rich × *Issue size*	−0.041*		−0.037						
	[−1.661]		[−1.434]						
Cash rich × *Secondary*	−0.007		0.001						
	[−0.434]		[0.085]						
Cash rich × *Standardized MB*		−0.001	−0.000						
		[−0.480]	[−0.186]						
Cash rich × *RRV*		−0.006	−0.002						
		[−0.417]	[−0.145]						
Standardized MB		0.001	0.000						
		[0.495]	[0.210]						
RRV		0.005	0.001						
		[0.440]	[0.060]						
Cash rich × *Shelf*				−0.017		−0.001			
				[−0.898]		[−0.071]			
Cash rich × *Years listed*				0.001		0.001			
				[0.915]		[0.482]			
Cash rich × *Volatility*				0.279		1.091***			
				[0.721]		[2.644]			
Cash rich × *Analyst*					0.004	0.009			
					[0.317]	[0.686]			
Cash rich × *Dispersion*					−0.007	−0.010			
					[−0.621]	[−0.942]			
Cash rich × *BAS*					−0.817	−1.530			
					[−0.878]	[−1.459]			

Table 8 (*continued*)

	Overvaluation			Information asymmetry			Growth		Precautionary
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Analyst					−0.001	−0.003			
					[−0.080]	[−0.298]			
Dispersion					−0.009	−0.007			
					[−1.181]	[−0.876]			
BAS					0.556	0.835			
					[0.841]	[1.252]			
Cash rich × *Firm size*									
Cash rich × *MB*							−0.001		
							[−0.753]		
Cash rich × *Asset growth*							−0.009	−0.010	
							[−0.646]	[−0.707]	
Cash rich × *KZ*									−0.006
									[−1.065]
Cash rich × *DivDummy*									0.059
									[1.335]
Controls	Y	Y[a]	Y[a]	Y	Y	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y	Y	Y	Y	Y	Y
R-squared	0.046	0.041	0.045	0.043	0.065	0.071	0.042	0.041	0.047
N	1,683	1,633	1,633	1,683	1,152	1,152	1,683	1,683	1,683

[a] Controls exclude *MB* because we include *Standardized MB*.

Table 9: Calendar-time portfolio analysis of the post-SEO long-term stock price performance of seasoned equity issuers.

This table reports calendar-time portfolio regressions using the Fama–French–Carhart four-factor model. We construct equally weighted portfolios of seasoned equity issuers and keep the portfolios for 12-, 24-, and 36-month holdings periods starting in the month immediately after the SEO. We rebalance the portfolios monthly as firms enter and exit and require at least six firms in a portfolio. We use weighted least squares regressions with the weights given by the number of SEOs in the portfolio. Panel A reports alphas, *t*-statistic of alpha, adjusted *R*-square, and sample size for all seasoned equity issuers. Panels B and C report corresponding results for CR and non-CR seasoned equity issuers, respectively. Panel D reports the results of zero-cost portfolios buying stocks of CR seasoned equity issuers and selling stocks of non-CR seasoned equity issuers. ***, **, * indicate significance at 1%, 5%, and 10% levels. CR denotes cash-rich (*Cash rich* = 1), and Non-CR denotes non-cash-rich (*Cash rich* = 0). *N* denotes the number of observations.

	Months 1–12	Months 1–24	Months 1–36
Panel A: Portfolios of all seasoned equity issuers			
α	−0.003	−0.002	−0.001
t-stat	−1.42	−0.93	−0.65
Adj. *R*-sqr	0.849	0.871	0.880
N	1,667	1,667	1,667
Panel B: Portfolios of CR seasoned equity issuers			
α	−0.005*	−0.003	−0.002
t-stat	−1.67	−1.22	−0.78
Adj. *R*-sqr	0.764	0.773	0.787
N	752	752	752
Panel C: Portfolios of Non-CR seasoned equity issuers			
α	−0.002	−0.000	−0.000
t-stat	−0.71	−0.24	−0.28
Adj. *R*-sqr	0.844	0.870	0.891
N	915	915	915
Panel D: Zero-cost portfolios buying CR and selling Non-CR seasoned equity issuers			
α	−0.003**	−0.003**	−0.002*
t-stat	−2.16	−2.10	−1.69
Adj. *R*-sqr	0.068	0.067	0.092
N	1,667	1,667	1,667