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Seasoned equity offerings: What firms say, do, and how the market reacts ☆

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ABSTRACT

Using a sample of 438 firms that issued seasoned equity, we investigate the ex ante reasons stated by the firm for the use of capital, the actual ex post use of funds, and the market reaction to this information. We find that, regardless of the stated use of funds, firms increase capital expenditures and research and development following an SEO. In addition, firms increase their long term debt following an SEO, even when the stated reason for the capital is to pay down debt. The market reacts more favorably to the anticipated investment increases if the firm provides specific plans for the use of the soon-to-be-raised capital. The evidence is consistent with the view that agency issues are important factors in SEOs.

1. Introduction

Previous research has documented a negative market reaction to seasoned equity offerings (SEOs), the cause of which has been the subject of considerable debate in the literature.[2] The reasons offered for the value decline can be put into two broad, non-mutually exclusive categories. One view suggests that SEOs reveal negative information about the existing value of the firm. This negative information might be incorporated quickly, as described by Myers and Majluf (1984), or over several years, as some long run event studies suggest.[3] If the market incorporates the information slowly, then the firm can transfer wealth from new shareholders to the firm's existing shareholders by "timing" equity issues when the firm's stock is overvalued.[4] Another view argues that, due to agency problems, the capital is not utilized in a value maximizing manner.[5] If the firm does not appear to have valuable growth prospects, agency theory predicts that the firm is more likely to use the capital for agency spending, such as empire building.

In our study, we address three questions: (1) What do firms state they intend to do with the expected proceeds? (2) What do firms actually do with the capital they raise? (3) Is the market's reaction related to what firms say and/or what firms do? By

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[2] For evidence of negative abnormal returns associated with the announcement of an SEO, see Masulis and Korwar (1986), Denis (1994), Jung et al. (1996), Hauser et al. (2003), Lemmon and Zender (2004), and Chemmanur and Jiao (2005).

[3] For evidence of long run underperformance for stock returns following an SEO, see Loughran and Ritter (1995), Eberhart and Siddique (2002), and Woojin and Weisbach (2008). For a contrary view, see Brav et al. (2000), Eckbo et al. (2000), and Kim and Purnanandam (2006).

[4] See Welch (1996), Greenwood (2005), and Woojin and Weisbach (2008).

[5] See Jung et al. (1996) and Kim and Purnanandam (2006) for evidence that agency problems are important in the context of SEOs. See Berger et al. (1997) for evidence that equity is preferred to debt in firms with entrenched, rent-seeking managers.

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answering these questions, we better understand the motives of firms to issue seasoned equity and the information that is revealed to the market about the quality of the firm's subsequent uses of SEO capital. In doing so, we also further our understanding of the role of agency issues in SEOs.

An inherent difficulty in empirically addressing whether the newly-raised capital is utilized in a value maximizing way is measuring the quality of SEO firms' growth prospects at the time of the SEO. One approach is to use Tobin's *Q*, or a close substitute for *Q* (Denis, 1994; Jung et al., 1996). More recently, however, financial economists have argued that *Q* has multiple interpretations in addition to growth opportunities, including over- or under-valuation. Thus, interpreting the relation between *Q* and valuation changes is hazardous.[6]

We revisit and provide new evidence on whether SEO capital is used in a value increasing manner by focusing on management's stated intentions for the expected inflow of capital. Using firms' Securities and Exchange Commission equity registration filings, we document whether the expected use of funds is primarily for investment (INVEST firms), debt reduction (DEBT firms), or if the firm left the S-filing ambiguous by stating that the majority, or all, of the capital is to be used for general corporate purposes (GENERAL firms). Firms' stated intentions in their S-filings can reveal the quality of investments for which the capital is to be used. Firms can choose to be specific about their planned use of capital or can choose to be ambiguous. In general, we expect that firms that have valuable growth opportunities will be specific in their S-filings, and the market will view their anticipated investment favorably.[7]

We have three main findings. First, regardless of the stated use of funds, firms increase investment at economically meaningful rates, increasing working capital, capital expenditures, and research and development. Over the three-year period starting with the year prior to the SEO, for the firms in our sample, the median increase in investment is 89%, with all three subsets having significant increases.

Second, to fund their increased investment, firms in our sample do not appear to choose between equity and debt, but rather raise large amounts of both. Over the same three-year period, the median increase in the amount of their long term debt is over 96%. The median firm that states the reason for the equity issue is to raise capital to pay down debt actually increases its long term debt by over 56%. These increases in long term debt result in firms' leverage ratios after the SEO being similar to those before the SEO.

Third, what firms state regarding their use of funds and what firms choose to leave ambiguous effect how the market reacts to the announcement of the equity issue. Firms that provide specific information about the use of the soon-to-be-raised capital have a positive relation between abnormal announcement returns and the expected size of the investment program. The market has a less favorable view of the anticipated investment programs of firms that are not specific about their use of funds.

Our findings suggest a disconnection. Regardless of what they say, firms increase investment. However, the market reaction is affected by the firm's statements. One view that is consistent with these findings is that the market is concerned whether the newly raised, unencumbered capital will be used in a value increasing manner. The firm's stated intentions for the use of funds allow the market to assess the quality of the intended use of funds, which is consistent with the positive relation between anticipated firm investment and abnormal returns. The negative relation between anticipated firm investment and abnormal returns for firms that choose not to be specific about investment opportunities (GENERAL firms) implies that the market anticipates the capital will be used for value destroying projects.

Our findings do not necessarily preclude that timing may also be a factor in the choice to issue equity. One interpretation of market timing is that firms choose the least costly way of financing desired investment. We find that firms tend to finance their investment programs with both equity and debt, but it is possible that mis-valuations of the firm's securities are a partial determinant in the relative amounts of each that are issued.

A more strict interpretation of timing is that firms choose to issue equity at any time that it is over-valued (Greenwood, 2005). This view implies that the firm can transfer wealth from new shareholders to existing shareholders by using the newly raised equity capital to reduce debt or by temporarily parking the funds in working capital until the firm is revalued by the market. Rather than increasing working capital or reducing debt, our evidence suggests that, in aggregate, investments in fixed assets and research and development are the primary motives for issuing equity.

The rest of this paper is organized as follows. Section 2 provides a framework to motivate our multivariate tests. Section 3 introduces the data, presents univariate analyses of what firms say they intent to do with proceeds from the equity issues, and analyzes firm characteristics and how firms actually use the capital they raise following the SEO. We examine the market reaction to SEO announcements and the role of information provided by the firm regarding the expected use of funds in Section 4. We discuss our findings in Section 5 and conclude in Section 6.

2. The SEO announcement

At the time of the SEO announcement, the firm has the choice between revealing specifics or being ambiguous about a project in which it will invest. The firm may choose to be ambiguous for several reasons. The firm may bear a strategic cost of revealing, if the information is useful to rivals, or the firm may simply want to increase liquidity with an SEO in order to take advantage of

[6] Another approach has been to use ex post investment patterns and compare them to long run valuation changes (such as in Cheng, 1995). As Loughran and Ritter (1997) note, investment levels, since they are an ex post rather than ex ante measure, should be spuriously correlated with long run valuation changes.

[7] One of the few studies that provides evidence on this issue is Masulis and Korwar (1986), who find no difference in two-day cumulative abnormal returns among groups of firms with different stated intentions for the use of the issue proceeds.

valuable opportunities that may arise in the future. The firm may also choose not to reveal if the manager intends to engage in agency spending. By not revealing, a rent-seeking manager can pool with firms that do not reveal project specifics for strategic reasons.

Given that the firm can be ambiguous regarding the use of newly raised equity, why might a firm choose to provide specifics? If the project specifics allow the market to estimate the value of the project in an unbiased manner, and the project is more valuable than the market's perception of the average project available to the pooled firms, then the firm is motivated to reveal specifics. This is an important assertion that motivates our empirical work; that the market will be able to estimate the project's value after the project is revealed by the firm. This assumption follows Myers and Majluf (1984), who assume that the growth prospects of a firm are visible to the market and the market makes an unbiased estimation of their value.

To illustrate, suppose that some firms have only good projects available in which to invest and other firms have only bad projects available. To invest, a firm must raise capital, I. Good projects have a rate of return of R_H and bad projects have a rate of return of R_L, where $R_H > R_L$ and $R_H > 1$.

If no firm reveals any specifics, and α is the market's assessed probability that a firm has a good project given that no firms reveal, we expect that the change in value (ΔV) associated with firm j's intention to raise capital is:

$$\Delta V_j = [\alpha R_H + (1-\alpha)R_L - 1]I_j \tag{1}$$

Now, let us assume that the market can identify whether the project is good or bad if the firm reveals the specifics of the project. In addition, there are a subset of firms with good projects, but they cannot reveal the specifics for strategic reasons. In the case that the firm has a good project, the market will assign $\alpha = 1$ if the firm chooses to reveal. Therefore, for firms with good projects that choose to reveal:

$$\Delta V_j = [R_H - 1]I_j \tag{2}$$

Since Eq. (2) is greater than Eq. (1), firms with good projects will choose to reveal excepting the firms that cannot reveal for strategic reasons. Given that firms with good projects and no strategic issues will reveal, we expect that only firms with bad projects and firms that have good projects but have strategic reasons to avoid disclosing specifics will not reveal. If some firms reveal specifics, and δ is the market's assessed probability that a non-reveal firm has a good project (and a strategic cost to reveal) given that some firms reveal, firms that do not reveal will have the following return (ΔV):

$$\Delta V_j = [\delta R_H + (1-\delta)R_L - 1]I_j \tag{3}$$

If a firm with a bad project reveals, then Eq. (4) shows the return.

$$\Delta V_j = [R_L - 1]I_j \tag{4}$$

As long as $\delta > 0$, then Eq. (3) is greater than Eq. (4). Therefore, firms with bad projects will have a greater return by pooling with non-reveal firms.

This setup leads to our primary empirical predictions. Adapting Eqs. (2) and (3), we define abnormal return (AR). To measure percentage returns, we need to weight the return by the size of the firm (S), thus $AR = \Delta V/S$. We expect that the abnormal returns associated with the reveal firms are:

$$AR_j = [R_H - 1]\frac{I_j}{S_j} \tag{2'}$$

And the abnormal returns for non-reveal firms are:

$$AR_j = [\delta R_H + (1-\delta)R_L - 1]\frac{I_j}{S_j} \tag{3'}$$

In Section 4, we estimate $[R_H - 1]$ and $[\delta R_H + (1-\delta)R_L - 1]$ by measuring the abnormal returns at the announcement of the firm's intention to issue equity and regressing the abnormal returns on estimates of I/S separately for each group. In so doing, we are able to test two hypotheses.

First, we predict and find evidence that $[R_H - 1] > [\delta R_H + (1-\delta)R_L - 1]$. This is consistent with an information asymmetry story as described by Myers and Majluf (1984), but does not exclude the potential for agency issues.

Second, we predict and find evidence that $[\delta R_H + (1-\delta)R_L - 1] < 0$. If pooled firms are dominated by firms with rent-seeking managers that do not have valuable growth opportunities, i.e., where $R_L < 1$, then we expect a negative relation between the level of anticipated firm investment and the abnormal announcement returns for firms that choose ambiguity.

Our predictions hold as long as the manager receives a benefit from having the value of the firm higher in the short-run prior to when project specifics would be inevitably revealed at a later point in time. This view seems reasonable as the firm will be able to raise equity at a relatively higher share price and thus a lower cost of capital if we assume that managers prefer a higher valued firm to a lower valued firm as a second order concern to their desire for rent-seeking.

Our estimates that $[\delta R_H + (1-\delta)R_L - 1] < 0$ suggest that agency issues do contribute to the market's reaction to firms' intentions to issue equity.

3. What firms say and what firms do

Our sample of SEOs comes from Thomson Financial's Corporate New Issues database. We focus our analyses on those firms that issued new shares of common stock in 1997 and in 2000 in a primary or combined offering of seasoned equity. We require the SEO to have a primary component because we are interested in offerings where capital is being raised by the firm. A secondary offering involves only the sale of registered stock by insiders and does not raise capital for the firm. Since we examine firm behavior in the year of and two years following the SEO, our 1997 and 2000 samples do not overlap. We exclude firms that do not have the necessary data available on Compustat, have less than $5 million in assets in the year preceding the SEO, or are rights issues, which results in our sample of 438 SEOs.

3.1. The announcement

In this section, we describe our method for dividing SEO firms into subgroups based on ex ante uses of expected proceeds. We then provide descriptive statistics and comparisons across these subgroups. Finally, we provide statistics for the ex post use of funds.

For our sample of 438 SEOs, we document the firm's intended purpose for the proceeds, as stated in the firm's latest amendment to their Securities and Exchange Commission registration filings. We identify three specific uses: investment, debt repayment, and general corporate purposes. Investment includes any proceeds the firm intends to use for increasing the asset base of the firm, including the acquisition of other companies. We also include planned spending on research and development in this category. Debt repayment includes proceeds the firm intends to use to repay any outstanding debt, including revolving credit borrowings. Generally these firms state specific loans that will be paid off, or reduced, with the newly raised funds. The category of general corporate purposes is reserved for those firms that do not detail a more specific use of funds. In most cases of issues that we classify as GENERAL, the firm will use a phrase that includes “general corporate purposes” for its anticipated use of proceeds, with no other specification.

An example of an INVEST firm is Human Genome Sciences, Inc., which provided the following in the “use of funds” section of its S-filing, “The Company intends to utilize the net proceeds to accelerate its therapeutic protein research and preclinical development and to expand clinical development, and to fund the filing and prosecution of patents to protect its intellectual property.”

DEBT firms generally provide specific information about the obligations they intend to repay. For example, Samsonite Corporation states, “The Company will use such net proceeds as follows: (i) approximately $69.7 million will be used to prepay approximately $63.3 million principal amount of the Series B Notes at a redemption price of 110.125% of such principal amount (which includes an aggregate redemption premium of approximately $6.4 million); and (ii) approximately $46.6 million will be used to reduce borrowings under the Senior Credit Facility.”

GENERAL firms do not provide specific information regarding the intended use of funds for the majority (in most cases, all) of the soon-to-be-raised capital. Paul Harris Stores, for example, states, “The net proceeds to the Company from the Offering will be added to the Company's working capital and used for general corporate purposes.”

For the 318 firms that provide the exact dollar amount they intend to use for investment, debt repayment, or general corporate purposes, we indicate the primary use of proceeds to be the category which corresponds to the largest dollar amount. For firms that do not provide specific dollar amounts, we classify their primary use of proceeds as the category that is listed first in the use of proceeds section of the registration filing. Our classification results in 169 firms as INVEST, 140 as GENERAL, and 95 as DEBT. We are unable to classify 34 SEO firms.

3.2. Use of funds

Table 1 presents median firm characteristics from the year preceding the issue to two years following the issue. All statistics in Table 1 are denominated by the asset base of the firm in the year preceding the issue. By doing this, we focus on the use of funds relative to the firm's pre- issue size. In the interest of brevity, we do not report means; however, means provide similar inferences as medians.

The first category reports the growth in assets. Regardless of the stated use of funds, the median firm either doubles or nearly doubles its asset base subsequent to the SEO. This includes DEBT firms, whose stated primary motivation for the equity issue is to recapitalize the firm, not expand the firm. The median INVEST firm and the median GENERAL firm grow significantly more than the median DEBT firm over the two years subsequent to the issue.

We use INV/TA as our measure of investment, where INV is capital expenditures plus research and development expenses. All three subsets significantly increase their investment in capital expenditures and research and development in the year of the equity issue, and continue doing so through at least year +2. All three subgroups' investment levels significantly increase in years 0, +1, and +2, relative to year −1. The level of investment for the median INVEST firm and the median GENERAL firms are both significantly greater than for the median DEBT firm by year +2.

Long term debt (LTD) also increases significantly for all three subsets of SEO firms. The median INVEST and GENERAL firms increase their long term debt in year 0 and continue to increase their long term debt, at least through year +2. The median DEBT firm does not significantly change its debt level in year 0, contrary to the implications of its stated intention in its S-filing. Since capital is fungible, firms are able to follow their intentions in their S-filings by paying off specific debt contracts, while not being

precluded from raising capital from other sources in the debt market. The median DEBT firm significantly increases its LTD by year +1 and has over 56% more LTD in year +2 as it had in the year preceding the SEO. The evidence suggests that firms are not making a choice of equity versus debt, but rather these firms are raising capital from both sources, regardless of their stated intentions. Finally, all three subsets show large significant increases in their relative levels of working capital.

3.3. Ex post firm characteristics

Table 2 provides univariate statistics on capital structure, liquidity, and relative valuation. In contrast to Table 1, which shows increases in each statistic denominated by year −1 assets, the statistics in Table 2 document the composition of the firm's assets, liabilities, and valuation as they change over the two years subsequent to the SEO. As in Table 1, we only report median statistics. Mean statistics are substantively similar.

Leverage, as measured by LTD/TA, appears to return to the firm's pre-issue level by the end of the second year after the SEO. The evidence in Table 1 indicates that firms increase their LTD in absolute terms. Table 2 shows that in the year of the SEO, all three subsets of firms experience a significant decline in leverage reflecting the large inflow of equity. Over the next two years, however, all three subsets increase their median leverage, resulting in a similar use of debt in their capital structures, compared to the year before the issue. This, again, shows that DEBT firms are not recapitalizing, but replacing and increasing borrowing.

The ratio of working capital to total book assets (WC/TA) is our proxy for firm liquidity. The evidence in Table 1 shows an absolute increase in working capital. Table 2 indicates that all three subsets have a decline in the relative amount of working capital by the second year following the equity issue. The evidence in Table 2 that the ratio WC/TA declines by the second year following the issue indicates that, for our sample, investments in fixed assets are relatively larger than increases in working capital.

We measure operating cash flow as operating income before depreciation (OIBD) denominated by the firm's asset base. We report both raw and industry-adjusted statistics, which we calculate as the firm's OIBD/TA minus the industry median OIBD/TA, where the industry median is defined at the 3-digit SIC level. Operating cash flow generally declines for our sample, consistent with the previous empirical findings of Loughran and Ritter (1997). The decline for GENERAL firms is significantly worse than for both INVEST and DEBT firms. Industry effects appear to be important, though, as INVEST and DEBT firms exhibit an improvement in their industry-adjusted operating performance. In contrast, GENERAL firms do not exhibit an improvement in their industry-adjusted operating performance.

We estimate three measures of relative valuation. First, we include *Q*, as proxied by the firm's book value of assets minus the book value of equity plus the market value of equity, all divided by the book value of assets. Next, we report the median firm's *Q* in the same three-digit SIC (Ind. *Q*). Finally, we present the firm's industry-adjusted *Q* (Ind. Adj. *Q*), which we calculate as the firm's *Q* minus the industry median *Q*. *Q* and industry *Q* are both hypothesized to be correlated with the market's assessments of the firm's and industry's growth opportunities. Different forms of industry-adjusted *Q*, such as excess value, have been used as measures of relative firm performance.

Table 1
Use of funds

	[Variable (yr. N)/TA (yr. −1)]				Yr. 2 Comparisons	
	yr. −1	yr. 0	yr. 1	yr. 2	vs. Invest	vs. General
	(1)	(2)	(3)	(4)	(5)	(6)
TA						
All	1.000	1.787***	2.030***	2.187***		
Invest	1.000	2.110***	2.279***	2.554***		
General	1.000	1.902***	1.934***	2.194***	.413	
Debt	1.000	1.370***	1.619***	1.935***	.015	.098
INV						
All	.117	.213***	.248***	.221***		
Invest	.157	.274***	.353***	.305***		
General	.128	.229***	.266***	.257***	.112	
Debt	.065	.094***	.115***	.110***	.000	.000
LTD						
All	.102	.093**	.149***	.200***		
Invest	.044	.040*	.049***	.088***		
General	.045	.038	.074***	.146***	.586	
Debt	.256	.237	.348***	.400***	.002	.000
WC						
All	.309	.659***	.598***	.591***		
Invest	.361	.934***	.895***	.865***		
General	.397	.903***	.737***	.740***	.425	
Debt	.204	.341***	.357***	.347***	.000	.000

The sample is of firms that issued an SEO in 1997 or 2000 that meet data requirements. All statistics are standardized by total book assets in the year preceding the SEO. TA is total book assets. INV is capital expenditures+R&D. LTD is long term debt. WC is working capital=current assets−current liabilities. Median values are reported. Two-population Wilcoxon rank-sum (Mann–Whitney) tests are used to test the differences in medians. ***, **, and * denote significant differences between the statistic for years 0, +1, and +2 relative to year −1, at the 1%, 5%, and 10% confidence levels. The final 2 columns report *p*-values for comparisons across subsets of SEO firms for the year +2 statistics.

Table 2
Post SEO firm characteristics

	[Variable (yr. N)/TA (yr. −1)]				Yr. 2 Comparisons	
	yr. −1	yr. 0	yr. 1	yr. 2	vs. Invest	vs. General
	(1)	(2)	(3)	(4)	(5)	(6)
LTD/TA						
All	.102	−.007***	−.000*	.000		
Invest	.044	−.006***	−.000	.000		
General	.045	−.002***	.000*	.000	.609	
Debt	.256	−.060***	−.016	.000	.287	.830
WC/TA						
All	.309	.032***	−.014	−.027***		
Invest	.361	.045***	−.021	−.015		
General	.397	.023**	−.004	−.028**	.699	
Debt	.204	.028***	.001	−.032**	.687	.849
OIBD/TA						
All	.110	.002	−.017***	−.021		
Invest	.091	−.002	−.014**	−.020**		
General	.104	.002	−.029***	−.044***	.051	
Debt	.125	.013***	−.011**	−.012**	.755	.026
Ind. Adj. OIBD/TA						
All	.000	.000**	.000	.008***		
Invest	−.003	.000	.000	.016**		
General	.000	.001	−.002	.000	.142	
Debt	.004	.012***	.000	.010***	.706	.085
Q_{-1}						
All	2.536	−.232***	−.765***	−.789***		
Invest	3.739	−.761***	−1.693***	−1.333***		
General	3.291	−.461***	−1.249***	−1.158***	.767	
Debt	1.538	.063	−.370***	−.322***	.000	.000
Ind. Q_{-1}						
All	1.818	−.062***	−.286***	−.302***		
Invest	2.180	−.062***	−.352***	−.337***		
General	2.017	−.099***	−.352***	−.312***	.947	
Debt	1.495	−.011	−.246***	−.266***	.004	.077
Ind. Adj. Q						
All	.498	−.092***	−.387***	−.406***		
Invest	.974	−.443***	−.828***	−.805***		
General	1.076	−.252***	−.477***	−.793***	.976	
Debt	.000	.030*	.000	.000	.000	.000

The sample is of firms that issued an SEO in 1997 or 2000 that meet data requirements. TA is total book assets. INV is capital expenditures + R&D. LTD is long term debt. WC is working capital = current assets − current liabilities. OIBD is operating income before depreciation. Q = (market value of equity-book value of equity + book value of assets)/book value of assets. Ind. Q is the Q for the median firm in the same 3-digit SIC. Ind. Adj. indicates that the variable is industry-adjusted. All industry-adjusted variables equal firm variable − median industry variable, where median is defined at the 3-digit SIC level. Median values are reported. Two-population Wilcoxon rank-sum (Mann–Whitney) tests are used to test the differences in medians. ***, **, and * denote significant differences between the statistic for years 0, +1, and +2 relative to year −1, at the 1%, 5%, and 10% confidence levels. The final 2 columns report *p*-values for comparisons across subsets of SEO firms for the year +2 statistics.

INVEST and GENERAL firms experience large and significant relative value declines, as shown by the drop in all three valuation measures. While firm *Q*s and industry *Q*s decline, the SEO firm's decline in *Q* is greater than that of its industry, as shown by the industry-adjusted measure. On the other hand, DEBT firms do not experience relative value declines at any greater level than their industry peers, as shown by their industry-adjusted *Q*s.

The evidence in Tables 1 and 2 collectively suggests that, regardless of their stated intentions, firms are not using the equity market to recapitalize or increase liquidity, but are using capital from both the debt and equity markets to increase firm investment. In addition, while all subsets of firms increase investment following the SEO, INVEST and GENERAL firms do so to a significantly greater extent than DEBT firms and suffer significantly greater declines in relative valuation than DEBT firms.

4. The market's reaction to the SEO

4.1. Abnormal announcement returns

We turn our attention now to the market's interpretation of how effectively the capital will be utilized. We start by calculating two-day cumulative abnormal returns (CARs) for the day of and the day following the announcement of the SEO (day 0, day +1) using standard event study methodology. We use a one-factor market model, with the CRSP equally weighted portfolio as our proxy for the market. Our estimation period runs from days −250 to −50.

Table 3
Regressions on abnormal announcement returns

	(1)	(2)	(3)	(4)
CONSTANT	−4.069	−3.811	−6.057	−6.471
	0.144	0.191	0.004	0.003
(Stated INV)/TA_{-1}	2.243	2.331		
	0.011	0.008		
(Stated GEN)/TA_{-1}	1.641	1.286		
	0.358	0.566		
(Stated DEBT)/TA_{-1}	−1.359	−1.660		
	0.546	0.502		
$(INV_{+1}-INV_{-1})/TA_{-1}$*INVEST FIRM			2.960	3.213
			0.081	0.074
$(INV_{+1}-INV_{-1})/TA_{-1}$*GENERAL FIRM			−3.593	−4.755
			0.088	0.025
$(INV_{+1}-INV_{-1})/TA_{-1}$*DEBT FIRM			1.292	2.013
			0.499	0.300
$(LTD_{+1}-LTD_{-1})/TA_{-1}$			−0.522	−0.480
			0.134	0.155
$(WC_{+1}-WC_{-1})/TA_{-1}$			1.023	1.040
			0.016	0.014
INVEST FIRM		−0.462		0.427
		0.694		0.631
GENERAL FIRM		0.300		1.565
		0.852		0.100
Q_{-1}	−0.213	−0.207	−0.133	−0.148
	0.138	0.161	0.315	0.272
$OIBD_{-1}/TA_{-1}$	2.448	2.303	1.451	1.434
	0.433	0.467	0.618	0.624
LTD_{-1}/TA_{-1}	0.579	0.336	−1.224	−1.011
	0.795	0.890	0.474	0.554
WC_{-1}/TA_{-1}	2.106	2.092	2.162	1.908
	0.384	0.392	0.347	0.408
INV_{-1}/TA_{-1}	0.539	0.530	0.974	1.159
	0.870	0.872	0.709	0.660
PPE_{-1}/TA_{-1}	−0.921	−0.702	1.879	1.653
	0.689	0.767	0.307	0.372
LN(TA_{-1})	0.334	0.318	0.588	0.565
	0.392	0.416	0.027	0.036
RUNUP	−0.032	−0.032	−0.020	−0.021
	0.019	0.019	0.071	0.066
SECONDARY	−0.918	−0.922	−0.396	−0.309
	0.325	0.330	0.627	0.708
N	288	288	368	368
R-squared	0.084	0.085	0.081	0.087

The sample is of firms that issued an SEO in 1997 or 2000 that meet data requirements. The dependent variable is the cumulative abnormal returns from day 0 and day +1, where day 0 is the announcement day. Market Model CARs (Cumulative Abnormal Returns) is the cumulative daily return net of a market model. Market model parameters are estimated over days (−250, −50) using an equally weighted market index. Stated INV, GEN, and DEBT, are the amounts of capital to be used for investment, general corporate purposes, and debt repayment as listed in the SEO S-filing. TA is total book assets. INV is capital expenditures + R&D. LTD is long term debt. WC is working capital = current assets − current liabilities. INVEST FIRM and GENERAL FIRM are indicator variables equal to one if the firm is categorized as an INVEST firm or as a GENERAL firm, respectively; otherwise equal to 0. *Q* = (market value of equity − book value of equity + book value of assets)/book value of assets. OIBD is operating income before depreciation. PPE is plant, property and equipment. LN(TA) is the natural log of total assets. RUNUP is the market- adjusted abnormal returns from day −61 to −2, where day 0 is the announcement date. SECONDARY is an indicator that equals one if the SEO includes some secondary shares, otherwise equal to 0. All models use robust standard errors. *p*-values are reported below the coefficients.

We find the average two-day abnormal announcement return for the overall sample to be −2.76%, which is similar to previous findings on SEOs.[8] INVEST firms have the smallest negative reaction, at −2.18%. GENERAL and DEBT firms have two-day CARs of −3.20% and −3.26%, respectively. The market reaction to INVEST firms is not statistically different from GENERAL or DEBT firms.[9]

4.2. Multivariate regressions

In Table 3, we investigate the cross-section of the market reaction to the announcement of the firm's intention to have an SEO. Our central predictions as described in Section 2 are that the estimate of capital deployed for revealed plans will have a greater slope than for capital deployed for unstated purposes and that the slope estimate for the non-reveal firms are negative if agency firms dominate that group. We use two estimates for the size of the anticipated investment program, stated intentions for use of

[8] See Denis (1994), Jung et al. (1996), and Lemmon and Zender (2004).

[9] Standard errors for the two-day abnormal returns are 0.54 for INVEST firms, 0.73 for GENERAL firms, and 0.61 for DEBT firms. The median two-day abnormal return for the entire sample is −2.29%. The median two-day abnormal return for INVEST, GENERAL, and DEBT firms are −1.96%, −2.85%, and −1.91%, respectively. The differences in the medians between subgroups are all statistically insignificant at standard levels of confidence.

the proceeds and actual use of proceeds, and relate these to abnormal announcement returns. If the market anticipates that the capital is to be used in a value increasing manner, then we expect that larger anticipated investment programs will be associated with greater (or less negative) abnormal returns. If the market is concerned about the firm engaging in agency spending, then we expect a negative relation between the size of the anticipated investment program and abnormal announcement returns. It is important to note that in these tests, we are investigating the cross-section of returns and are not providing a full explanation for the aggregate negative abnormal returns.

The dependent variable in each of the models is the two-day CAR, as described earlier. The first and second models focus on the differences in capital intended for various purposes, as stated in the S-filings.[10] We include all SEO firms that report dollar amounts for the anticipated use of proceeds (for models 1 and 2). All models include the same variables that control for the firm's growth opportunities, liquidity, and financial condition.

In models 3 and 4, we consider our second proxy for the anticipated size of the firm's investment program, the actual use of funds by the firm. Using rational expectations in a manner similar to Pilotte (1992), Denis (1994), and Bates (2004), we include the change in investment (INV), long term debt (LTD), and working capital (WC) from year −1 to year +1, all standardized by the firm's book value of assets in year −1, as proxies for the market's expectation of the firm's actual use of funds.

In the first and the second models, the coefficients for (Stated INV)/TA_{-1}, the amount firms intend to use for investment, is positive and significant, while the coefficients for the other use of funds variables are insignificant. This suggests the market believes the firm will use the proceeds with declared purposes from the equity issue for valuable projects, rather than agency spending. The coefficients are statistically insignificant for the amount of capital stated for debt reduction and general corporate purposes.

In models 3 and 4, we interact our measure of anticipated investment with indicator variables for each subset of firms. INVEST firms have a significantly positive coefficient for change in investment [($INV_{+1}-INV_{-1}$)/TA_{-1}*INVEST FIRM]. This contrasts with GENERAL firms, which have a significantly negative coefficient for change in investment [($INV_{+1}-INV_{-1}$)/TA_{-1}* GENERAL FIRM]. The evidence implies that when firms state their predominant use of proceeds is specifically for investment, the market views the anticipated investment favorably. In contrast, when firms are not specific about the expected use of their new capital, the market views the expected investment unfavorably.

In models 3 and 4, the other uses of funds variables show that the relation between abnormal announcement returns and the anticipated change in debt levels has an insignificant relation. The relation between abnormal announcement returns and the anticipated change in working capital has a positively significant relation. The market favorably views equity issues that result in greater liquidity for the firm.

Q, as proxied by market-to-book, has multiple interpretations. *Q* is often viewed as a proxy for growth opportunities. Under this view, we expect the market to react more favorably to firms with higher *Q*s, as these firms have a greater ability to pursue their growth options or are less likely to engage in agency spending. *Q* has also been used as a proxy for over- or under-valuation. Given that this view presumes the market is inefficient, there is no clear prediction for the sign of the coefficient. Finally, *Q* can be viewed as being positively related to the level of asymmetric information about the firm's assets-in-place, as described in the pecking order theory (Myers and Majluf, 1984). The pecking order theory predicts a negative coefficient. We find negative coefficients that are not statistically significant. Lemmon and Zender (2004) document a negative relation between abnormal announcement returns and market-to-book ratios, contrasting earlier findings by Denis (1994) and Jung et al. (1996).

High cash flow reflects greater internal resources and less need for external capital, suggesting that the need for new capital could be interpreted as bad news. Alternatively, to the extent that operating cash flow measures reflect the quality of the firm's growth opportunities, we expect the coefficients to be positive, as discussed earlier for *Q*. The coefficients for $OIBD_{-1}/TA_{-1}$ are insignificantly positive in all four models. We also include LTD_{-1}/TA_{-1} and WC_{-1}/TA_{-1} as measures of leverage and liquidity and find insignificant coefficients for these variables in all four models. For our sample, the level of leverage or liquidity does not appear to impact the market's reaction to the announcement that the firm plans to raise new equity.

The pecking order theory predicts that firms with greater information asymmetry will suffer greater value loss. We include property, plant, and equipment, PPE/TA, as a measure of asset tangibility, as done in Lemmon and Zender (2004), though *Q* is arguably also a proxy for asset tangibility. To the extent that asset tangibility is inversely related to information asymmetry, we expect a positive coefficient for PPE_{-1}/TA_{-1} under the pecking order view. The coefficients for PPE_{-1}/TA_{-1} in all four models are insignificant. To the extent that larger firms have more information production, we expect that larger firms will suffer smaller value declines so we include the natural log of firm size. We find that the coefficients are consistently positive and are significant in models 3 and 4.

We also include a variable for recent returns (RUNUP), which are the residuals from a market model from 60 trading days prior to the announcement (days −61 to −2) in a manner similar to Denis (1994). In all models, the coefficients for the RUNUP variable are negative and significant. The greater the pre-announcement abnormal returns, the smaller the abnormal announcement returns.

Finally, we include SECONDARY as an indicator variable for SEOs that include a secondary component in the issue. Secondary equity sales from an insider can be interpreted as a negative signal about the firm's prospects (Leland and Pyle, 1977). As predicted, the coefficients are negative in all of the models, but not statistically significant.

For robustness in Table 3, we estimate the models in several alternative ways. We re-estimate each model including industry fixed effects. We do this since it is plausible that SEO activity is clustered by industry. For our sample, the results with industry fixed

[10] Some GENERAL firms declare that all funds will be used for general corporate purposes. For these firms, we categorize the total expected issue amount in the S-filing to be "general." Other firms provide specific dollar amounts for an investment activity or debt repayment, then state that the rest of the funds will be used for general corporate purposes. The amount of each activity is included for models 1 and 2. Firms that do not state the level of expected proceeds in the S-filing, and thus provide no way to estimate the level of expected funds for general corporate purposes, are not included in models 1 or 2.

effects are substantively similar to those reported and the coefficients for the anticipated increase in investment for the INVEST and GENERAL firms remain significant. We also include a 1997 indicator variable to test whether the difference in years influences the other coefficients. Our results are robust to the inclusion of the 1997 indicator variable. We estimate the models without the RUNUP variable, and this does not substantively influence the results. We include rights issues, and find that the rights issue firms also do not materially affect the results. We estimate size as total assets rather than the natural log of total assets and find no substantive change in the results.

Finally, we re-estimate the models including only those firms where 100% of the expected proceeds are intended for a single use of funds. The sample size declines to 273. The coefficients for the anticipated increase in investment remains positive for INVEST firms and the anticipated increase in investment remains negative for GENERAL firms, although significance is lost. All other coefficients that are significant also lose their significance under this specification except the anticipated increase in working capital, but the coefficients have the same sign and are not substantively different in their magnitude. For example, for the equivalent of model 4, the coefficients for the anticipated increase in investment for INVEST firms continue to be large and positive (2.946) and for the GENERAL firms the coefficients continue to be large and negative (−3.489).

4.3. Ex post firm performance

Our conjecture is that firms with more valuable projects will specify their investment plans as compared to firms that either have less valuable projects or are intending to engage in agency spending. This line of reasoning implies that firms that do not disclose specifics will exhibit a change in operating performance that will be below the SEO firms that provide specifics. We investigate changes in subsequent operating performance, for non-disclosure firms relative to other SEO firms and report the results in Eq. (5). We report the coefficients and [*p*-values] below the equation (where $n=340$ and adjusted R-squared = .021).

$$\Delta(\mathrm{OIBD/TA})_i = \alpha + \gamma_1 \mathrm{GENERAL\_FIRM}_i + \gamma_2 \mathrm{Net\ Expected/TA}(-1)_i + \upsilon_i \quad (5)$$

$$\begin{matrix} & -.036 & .007 \\ & [.017] & [.250] \end{matrix}$$

Where:

Δ(OIBD/TA) is the industry-adjusted change in operating cash flow denominated by assets from year −1 to year +2.
GENERAL_FIRM equals to one if the firm is categorized as a general firm, and equal to 0 otherwise.
Net expected/TA(−1) is the expected proceeds from the SEO denominated by assets.

The change in industry-adjusted operating cash flow is consistently lower for firms that do not provide specific plans for their use of funds. This finding is consistent with our findings in Table 3 as both imply that the quality of new projects is worse for the general firms. The market reacts negatively to the planned deployment of this capital and the operating performance of the firm suffers subsequently.

We investigate several variations of Eq. (5) for robustness. Using the change in operating cash flows from −1 to +1 rather than +2, we find a coefficient of −.027 for the general firm indicator (*p*-value of .059). In univariate tests, general firms have a significantly lower change in industry-adjusted operating performance from year −1 from year +2 (−.025, *p*-value of .043) and an insignificantly lower change in industry-adjusted operating performance from year −1 to year +1 (−.015, *p*-value of .181). In another estimation, we include OIBD/TA for year −1 as an explanatory variable to control for any potential mean reversion. The coefficients for the general firm indicator are −.028 and −.018 (*p*-values of .048 and .148) for the change to year +2 and the change to year +1, respectively.

We also estimate regression models that include industry-adjusted versions of the following independent variables: assets, leverage, percentage of tangible assets, working capital, and *Q*, in addition to the general firm indicator. The general firm indicator has a coefficient of −.032 (*p*-value of .038) and a coefficient of −.027 (*p*-value of .077) for the changes from year −1 to year +1 and the changes from year −1 to year +2 in these multi-variate models. Finally, we estimate an analogous regression to model 4 of Table 3, using Δ(OIBD/TA) from year −1 to year +2 instead of AAR as the dependent variable. The coefficient for [$(\mathrm{INV}_{+1}-\mathrm{INV}_{-1})/\mathrm{TA}_{-1}$*GENERAL FIRM] is negative and has a *p*-value of .023.

5. Discussion

Why do firms provide specific information in their S-filings, when a statement that the funds will be used for “general corporate purposes” provides the firm with greater flexibility? We argue that the evidence is consistent with the view that S-filing statements can credibly inform the market about the value of the firm's growth prospects, mitigating the cost of issuing equity. A similar interpretation is that a lack of specificity by firms without valuable growth opportunities simply reveals their rent-seeking intentions or at a minimum, in aggregate, reveals that their projects are relatively less valuable as compared to the firms with specificity in their S-filings. In fact, the negative coefficients for the anticipated change in investment for general firms in models 3 and 4 in Table 3 suggest that agency firms do dominate the non-disclosure group of firms.

Our evidence indicates that firms that receive unencumbered capital deploy that capital in investments, regardless of the stated use of funds in their S-filing. It seems reasonable that firms that are confident about the quality of their projects are more likely to

provide specific information about their use of funds. In this way, these firms bond themselves with the market that the capital will be utilized as described in the S-filing. Despite the fact that all S-filings provide legal flexibility for the firm to renege, our evidence suggests that these statements do matter to the market. Firms that choose not to provide information to the market do not seem to be given the benefit of the doubt regarding the quality of projects for which the capital will be used.

Is it possible to fool the market with the announcements associated with the intention to issue equity? In order for a firm to get the benefits of the positive relation between the size of the anticipated investment program and abnormal returns, the firm must provide specifics of a project the market assesses as valuable. Since we have a substantial number of firms that are classified as GENERAL, it appears that mimicking an INVEST firm is costly or impractical.

Previous evidence on the role of agency issues in SEOs is limited. Denis (1994) states that investment opportunities appear to play a small role in determining the market's reaction to SEO announcements. Using a sample of French SEOs, Gajewski et al. (2007) find that firms issuing warrants in conjunction with shares do not appear to do so to reduce agency costs. Jung et al. (1996) find more persuasive evidence that agency issues are important in SEOs. More recently, Kim and Purnanandam (2006) find evidence that corporate governance characteristics matter in determining the market's reaction to an SEO announcement.

By examining the firm's statements, this study adds to this literature by utilizing the information directly associated with the announcement to draw inferences about investment quality. Ex ante measures, such as market-to-book, provide an estimate of the market's assessment of the quality of growth opportunities prior to the announcement. These ex ante measures do not incorporate the presence of new information that could be revealed with the announced intention to issue equity. Additionally, other papers have argued that market-to-book may be viewed as a proxy for asset intangibility or over-valuation, and thus does not have a clear interpretation.

There is a voluminous literature dedicated to the choice that firms make between debt and equity to finance expansion. This paper shows that firms utilize both sources of capital when engaging in large investment programs. The evidence suggests that, when raising capital, firms tend to utilize debt and equity, rather than making a choice between the two.

We have argued that our findings provide support for the view that agency concerns are one important determinant in the market's reaction to an SEO announcement. The other broad, non-mutually exclusive explanation for value loss associated with SEOs is that SEOs signal that the firm is over-valued. According to the timing hypothesis, an SEO can transfer wealth from new shareholders to existing shareholders if the market under reacts to SEO announcements.[11]

The high *Q*s we observe at the time of the announcement are consistent with this view, but provide only weak evidence, given that true, intrinsic equity values are not observable. The coefficients for the RUNUP variable in Table 3 suggest that recent price increases are related to the market's reaction. One explanation is that the increase in value and the decision to raise capital are both based on the market's and management's changing beliefs about the quality of the firm's growth prospects. Alternatively, this can be interpreted as the firm timing an SEO for periods of high valuation.

The timing hypothesis suggests that firms are systematically trying to create a wealth transfer from new shareholders to existing shareholders. The most efficient method to do so, assuming that the market consistently under reacts to the news of an equity issue, is to recapitalize the firm when a security becomes over-valued. Since debt is easier to value, we expect that timing can be most readily achieved through equity issues.

In order to achieve a wealth transfer, the firm needs to maintain the market's misperception of the value of the firm's growth prospects. Thus, we expect the firm to announce its intention to invest, then actually recapitalize the firm. We find no evidence that firms "bait and switch," by announcing an intention to invest, then actually recapitalizing the firm. The firm could achieve the same result by holding the capital in liquid securities in order to buy back debt (or equity, after the market revalues) at a later point in time.[12] We do not find any evidence that SEO firms, in aggregate, hold excessive amounts of working capital subsequent to an SEO. Our findings show that high *Q* firms, such as INVEST and GENERAL firms, do not increase their relative amount of working capital by more than low *Q* DEBT firms. In fact, by year +2, there is no significant difference in the relative changes in net working capital among the three groups of firms. However, it is plausible that timing does play a role in agency spending, in that raising equity capital is most likely easier when valuations are high.

6. Conclusion

We provide new evidence on the role of information in SEOs by focusing on management's stated intentions for the expected inflow of capital. We asked three questions. First, what do firms state they intend to do with the expected proceeds? Second, what do firms actually do with the capital they raise? Third, is the market's reaction related to what firms say and/or what firms do? We find that most firms state specific plans to use the majority of their funds for either investment or debt reduction. However, a sizable minority of firms provide little or no information regarding the expected use of funds.

We find that, regardless of the ex ante stated intentions, firms engage in economically large investment programs, financed with increases in both debt and equity. This is true even for those firms that state that debt reduction is the primary motivation for

[11] Evidence consistent with the timing hypothesis includes Loughran and Ritter (1995), Baker and Wurgler (2002), Burch et al. (2004), and Clarke et al. (2004).

[12] Greenwood (2005) provides evidence that increasing levels of cash are associated with poor subsequent equity returns. He argues that this evidence suggests firms increase equity when the firm is over-valued regardless of growth opportunities, then hold the capital in liquid accounts if the firm does not have a valuable project currently available. Woojin and Weisbach (2008) find that high Q firms that engage in SEOs increase their holdings of liquid assets, suggesting these high *Q* firms are timing the market.

the SEO. We find that providing specific information matters. Firms that are specific about their investment plans have value increases at the announcement of the SEO directly related to the size of the anticipated investment program.

Conversely, firms that are deliberately vague have losses at the announcement of the SEO directly related to the size of the anticipated investment program. In summary, our evidence provides support for the view that agency issues are an important factor in SEOs.

References

Baker, M., Wurgler, J., 2002. Market timing and capital structure. Journal of Finance 57, 1–32.
Bates, T.W., 2004. Asset sales, investment opportunities, and the use of proceeds. Journal of Finance 60, 105–136.
Berger, P.G., Ofek, E., Yermack, D.L., 1997. Managerial entrenchment and capital structure decisions. Journal of Finance 52, 1411–1438.
Brav, A., Geczy, C., Gompers, P.A., 2000. Is the abnormal return following equity issuances anomalous? Journal of Financial Economics 56, 209–249.
Burch, T.R., Christie, W.G., Nanda, V., 2004. Do firms time equity offerings? Evidence from the 1930s and 1940s. Financial Management 33, 5–23.
Chemmanur, T.J., Jiao, Y., 2005. Seasoned equity issues with 'soft' information: theory and empirical evidence. Working paper. Boston College.
Cheng, L.-L., 1995. The motives, timing and subsequent performance of seasoned equity issues. Unpublished dissertation, Massachusetts Institute of Technology.
Clarke, J., Dunbar, C., Kahle, K., 2004. The long-run performance of seasoned equity issues: a test of the windows of opportunity hypothesis. Journal of Business 77, 575–603.
Denis, D.J., 1994. Investment opportunities and the market reaction to equity offerings. Journal of Financial and Quantitative Analysis 29, 159–177.
Eberhart, A.C., Siddique, A., 2002. The long-run performance of corporate bonds (and stocks) following seasoned equity offerings. Review of Financial Studies 15, 1385–1406.
Eckbo, B.E., Masulis, R.W., Norli, O., 2000. Seasoned public offerings: resolution of the 'new issues puzzle'. Journal of Financial Economics 56, 251–291.
Gajewski, J.-F., Ginglinger, E., Lasfer, M., 2007. Why do companies include warrants in seasoned equity offerings? Journal of Corporate Finance 13, 25–42.
Greenwood, R., 2005. Aggregate corporate liquidity and stock returns. Working paper. Harvard University.
Hauser, S., Kraizberg, E., Dahan, R., 2003. Price behavior and insider trading around seasoned equity offerings: the case of majority owned firms. Journal of Corporate Finance 9, 183–199.
Jung, K., Kim, Y.-C., Stulz, R.M., 1996. Timing, investment opportunities, managerial discretion and the security issue decision. Journal of Financial Economics 42, 159–185.
Kim, E. Han, Purnanandam, Amiyatosh, 2006. Why do investors react negatively to seasoned equity offerings? Working Paper. University of Michigan.
Leland, H.P., Pyle, D.H., 1977. Informational asymmetries, financial structure, and financial intermediation. Journal of Finance 32, 371–387.
Lemmon, M.L., Zender, J.F., 2004. Debt capacity and tests of capital structure theories. Working paper. University of Utah.
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.
Masulis, R.W., Korwar, A.N., 1986. Seasoned equity offerings: an empirical investigation. Journal of Financial Economics 15, 91–118.
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.
Pilotte, E., 1992. Growth opportunities and the stock price response to new financing. Journal of Business 65, 371–394.
Welch, I., 1996. Equity offerings following the IPO: theory and evidence. Journal of Corporate Finance 2, 227–259.
Woojin, K., Weisbach, M.S., 2008. Motivations for public equity offers: An international perspective. Journal of Financial Economics 87, 281–307.