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Frequent issuers' influence on long-run post-issuance returns ☆

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ABSTRACT

Prior studies conclude that firms' equity underperforms following many individual sorts of external financing. These conclusions naturally raise significant questions about market efficiency and/or about the techniques used to measure long-run "abnormal returns." Rather than concentrating on a single security type or issuance, we examine long-run performance following *any and all* sorts of security issuances. Initial financing events do not associate with underperformance; however, subsequent financings do. Our results suggest that negative post-issuance returns have nothing to do with the specific type of security issued, and everything to do with the number of types of securities issued.

1. Introduction

A substantial literature concludes that a firm's decision to raise external funds is followed by negative long-run abnormal stock returns. Published results include an estimated −5.4% mean annual abnormal return in the five years following a seasoned equity offering (Spiess and Affleck-Graves, 1995), −3.0% per year following public debt issues (Spiess and Affleck-Graves, 1999), −5% per year following a bank loan (Billett, Flannery, and Garfinkel, 2006), and −8.7% following a private equity placement (Hertzel, Lemmon, Linck, and Rees, 2002).[1] Initial public offerings (IPOs) were also followed by severe underperformance [nearly −9% per year for three years, according to Ritter (1991)], although this effect has disappeared from the more recent data (Ritter, 2003). These studies span most forms of external finance, including both public and private debt and public and private equity. Some researchers argue that overvaluation and market inefficiency may explain this phenomenon: if firms tend to issue securities when outsiders are inappropriately bullish on the firm, shares inevitably underperform. On the other hand, Fama (1998) concludes that the performance models generating these conclusions are flawed.

Here, we investigate a third possibility. Existing studies evaluate a *single* type of external claim issuance without controlling for the sample firms' *other* financing activities. For example, if a firm both issues seasoned equity and borrows from a bank within the analysis window, a researcher studying seasoned equity issues would fail to observe the bank loan while a researcher studying bank loans would not observe the seasoned-equity offering (SEO). The same firm thus affects both studies' conclusions, and a relatively small number of serial-issuers may

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[1] Ritter (2003) provides a nice summary.

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disproportionately influence the conclusions from several studies of individual security types. Moreover, additional financing events may reflect special features of the issuing firms, not the issuance of external claims, per se. Previous "security-specific" studies thus potentially suffer from an omitted variable problem because firms returning repeatedly to the market may be quite different from those that seek external finance infrequently. Indeed, we find that a subsample of frequent issuers causes a large amount of the underperformance following security issuances.

To isolate the effect of these frequent issuers, we evaluate firms' long-run equity performance following five types of external financing events investigated in the prior literature: IPOs, SEOs, public debt issues (PD), bank loans (BL), and private equity issues (PVEQ). Unlike previous studies, we control for both the issuing frequency and the number of claim types issued. We pay special attention to firm-event months that likely occur in multiple studies—firms that issue two or more different types of securities within a three-year period.

We use three distinct methodologies to compute expected long-run stock returns. First, we estimate Fama–MacBeth (1973) regressions for each (monthly) cross-section of realized returns, controlling for ex ante firm characteristics and securities issuance. Because some firm characteristics have been shown to predict security returns (Fama and French, 2008), we control for a wide variety of firm characteristics in our regressions assessing whether security issuers suffer negative long-run stock returns. Second, we assess the long-run returns to security issuers using the three-factor model of Fama and French (1993), augmented by Carhart's (1997) momentum factor. Finally, we identify a variety of "peer" firms for each issuing firm and evaluate the buy-and-hold abnormal returns (BHARs) associated with various types of securities issuance. All three methodologies yield similar conclusions.

We make several discoveries. First, multiple-type security issuances are not terribly rare events. This makes the omitted variable problem potentially important for previous studies of security issuance. Using a 36-month post-financing window, multiple-type issuers account for 34.3% of the firm-months following security issuance. In other words, a non-trivial fraction of economically important post-issuance firm-months have been overlooked by other studies.

Second, significant equity underperformance does not follow the issuance of any single security type when the regression controls for multiple issuances and ex ante firm characteristics. Indeed, public debt issuance is followed by small, positive abnormal returns: 19 basis points (bps) monthly (t=1.89). In other words, our results indicate that external finance is not bad, per se.

Finally, substantial underperformance follows the issuance of multiple security types. For example, a firm issuing three different security types (say IPO, bank loan, and SEO) within a 36-month window significantly underperforms by 42 bps per month (4.9% annually) over the subsequent three years. Four different security type issuances within 36 months elicits monthly underperformance of 153 bps (16.9% per year).

The remainder of the paper is organized as follows: Section 2 describes our data. We explain our variables for describing a firm's external financing activity in Section 3. Section 4 investigates the association between securities issuance and firm characteristics, where we see that firms issuing multiple types of securities exhibit different ex ante characteristics than other firms. Section 5 describes our long-run performance measurement techniques. Section 6 presents results on the relationship between financing and stock returns. The final section concludes.

2. Data

Our base sample begins with firms listed on both the Center for Research in Security Prices (CRSP) and Compustat. We include all firm-months for U.S. firms, excluding financials and utilities, with valid CRSP returns and positive book equity on Compustat at the preceding fiscal year-end. The resulting panel includes 1,007,902 firm-month observations between January 1983 and December 2005.

We augment this basic CRSP/Compustat sample with data about five distinct types of security issuances during the period 1980–2005. Securities Data Corporation's (SDC) new issues database provides information about seasoned equity offerings (SEO), private equity (PVEQ) offerings, and public debt offerings (PD).[2] Jay Ritter graciously provided access to his IPO database. We obtain a sample of bank loans (BL) from two sources. We begin with data from Billett, Flannery, and Garfinkel (1995), who collected bank loan announcements using a keyword search of news stories during the calendar years 1980 through 1989. The sample includes 1,468 announced loan agreements between nonfinancial borrowers and bank or non-bank lenders. We augment this sample with 16,686 additional loans contained in the Loan Pricing Corporation (LPC) database from 1988 through 2005.[3]

We include all IPOs in our final sample, regardless of their size. For other security types, we omit issuances that raised less than 5% of the prior fiscal year-end's market value of equity. This restriction is consistent with the prior literature examining long-run performance following external financing events. We aggregate all "same-vehicle" financings (e.g., all SEOs) in a month to ascertain whether that issue-month meets the 5% threshold.

Although our securities issuance data begin in 1980, we begin our analysis of post-issuance returns in January of 1983 to ensure that we have a complete three-year financing history. For example, an unobserved bank loan in 1979 might influence some of the 36 monthly returns following a 1980 SEO. Correspondingly, we end our returns analysis in 2005 because this is the last full year

[2] In our reported results, convertible debt issues are classified with other forms of "straight" public debt, but classifying convertible debt as equity yields similar overall results.

[3] LPC's DealScan distinguishes between a loan "facility" and a loan "deal," which may include multiple facilities. Each of our events is a "deal." Furthermore, some of these loan agreements may be negotiated with non-bank lenders. For brevity, we refer to all these transactions as "bank loans" (BL).

for which we have complete financing data.[4] We measure stock returns using CRSP's monthly returns January 1983 through December 2005 (276 months). Given the documented influence of various firm characteristics on realized returns (see, for example, Fama and French, 2008; Cooper, Gulen, and Schill, 2008) and the fact that we find significant differences in the characteristics of the firms that engage in multiple financings, we include a variety of firm variables as controls in our tests. These variables are defined in Section 4 below.

3. Measuring external financing patterns

The null hypothesis in all financing event studies is that an issuing firm's equity returns are not unusual in the months following its issuance event. We therefore construct dummy variables to identify the months following financing events (the "post-event window"). These dummies are designed to pick up the effect on returns of financing events. With isolated security issuances, these dummy variables are straightforward to construct. We define five separate dummy variables (*BL*, *IPO*, *SEO*, *PD*, and *PVEQ*) equal to unity for the 36 months following issuance of the indicated type of security. These dummies allow us to replicate the results from prior studies of post-issuance returns.

To identify firm-months related to multiple security issuances, we construct additional dummy variables indicating the *number of types* of securities issued and multiple issuances of the same type.[5] We employ two alternative methods to specify how the months following multiple security issuances might affect post-issuance returns. Our "fixed-length window" defines the post-financing window to be the 36 months following the financing, regardless of whether other financing occurs within that time period. For our "variable-length window," the post-financing window extends from the month following the financing until the *sooner* of 36 months or the occurrence of a subsequent financing event. Each approach offers a way to control for the overlap between two (or three or four) different financings' post-event 36-month windows. The fixed-length window is conducive to measuring the effect of subsequent financings on returns in a Fama/MacBeth methodology. The variable-length window is conducive to measuring these effects using the Fama/French and BHAR methods. We report results based on both approaches, which yield similar conclusions.

[4] In other words, if we study an SEO in 2005 and wish to measure returns into 2008, we risk not attributing some of those returns to a bank loan that occurs in 2006, which we have not observed.

[5] Although combining different types of financing into a smaller set of variables may conceal some relevant information, identifying all possible financing combinations would be very unwieldy. We did explore certain combinations and orderings (such as switches between debt and equity or between public and private issuances), but found no obvious distinction from our multiple "number of security types" categorizations.

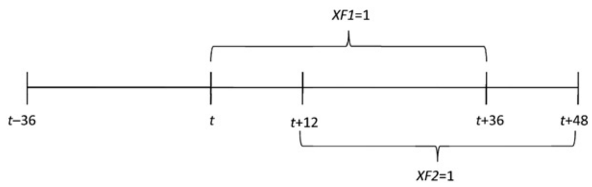

Fig. 1. The "fixed-length window" approach to defining issuance events. The timeline below runs from 36 months prior to the financing month through 48 months following the event month *t*. *XF1* and *XF2* are dummy variables. *XF1* equals one over the 36 months following the first financing event and zero otherwise. *XF2* equals one over the 36 months following the second financing event which occurs in month $t+12$. All "tick-marks" on the time line denote the end of the month.

3.1. Fixed-length windows

Fig. 1 illustrates the financing history for a firm that issues two types of securities, for example a bank loan during month *t*, and an SEO during month $t+12$. A fixed-length event window defines the post-event period to be the 36 months following a specific financing event, regardless of what additional financing events occur during that window. In this case, we define *XF1* (short for the eXternal Finance event #1) to equal unity for each of the 36 months following a firm's issuance of any single security type, provided that there was no other different type of external financing during the *preceding* 36 months. As shown in Fig. 1, *XF1* equals unity for the interval $[t+1, t+36]$. A second security type issued in month $[t+12]$ makes *XF2* (short for eXternal Financing event #2) equal to unity for each of the next 36 months, $[t+13, t+48]$. *XF2* thus indicates "a second type of security was issued within 36 months of the first type." *XF3* and *XF4* are defined analogously.[6]

The above variables account for the issuance of *multiple* security *types*. To account for repeat issuances of the *same* security type, we define *Repeat* equal to unity for each of the 36 months following a firm's second (third, etc.) issuance of the *same* security type, provided that (1) no different security type was issued in between, and (2) the second issuance was within 36 months of the first.[7] For example, if the second security issuance in Fig. 1 were also a bank loan, *Repeat* would equal unity for the interval $[t+13, t+48]$.

Defining fixed-length event windows has the advantage that all windows cover the same interval of equity returns, which conforms to the literature on post-financing event performance. Also, the fixed-length window allows us to see the economic effects of multi-type financing through the coefficients on dummies in the Fama/MacBeth regression tests, which simultaneously control for many firm characteristics known to influence ex post returns.

[6] If a third (fourth) different type of external finance was issued in month $t+15$ ($t+20$), *XF3* (*XF4*) would equal one between $t+16$ and $t+51$ ($t+21$ and $t+56$). There are no instances in our data of five different types of external finance issued by a firm within 36 months.

[7] Prior studies differ in their treatment of multiple issuances of the same security type: some authors include all issuances while others include only the first or last transaction within their measurement window.

On the other hand, this measurement scheme suffers from two related disadvantages. First, the indirect effect of the first financing (at *t*) may last quite a long time. In Fig. 1, the BL is specified to affect returns for 48 months (given its effect carries to *t*=48 via *XF2*). Had the bank loan preceded the SEO by a longer time (up to 35 months), the direct and indirect effects of the BL could have been specified to last up to 71 months.[8] Second, defining fixed-length event windows implies that a subsequent event's effect on equity returns is the same whether the second financing event was one month or 36 months after the first one. Yet an immediate return to capital markets seems to imply different conditions than a return after nearly three years. Econometrically, fixed-length windows can also complicate interpretation of some estimated coefficients. For example, the total effect of financing during the interval [*t*+13, *t*+36] equals the *sum* of the coefficients on *XF1* and *XF2*. Another concern with the fixed-length window is how to implement it for the portfolios required to test abnormal returns using the factor-based and buy-and-hold return calculations. In a given month, one firm might belong to two (or more) portfolios, as in the months between *t*+12 and *t*+36 in Fig. 1. Given these concerns, we also explore definitions of financing events based on a variable-length window approach.

3.2. Variable-length windows

We alternatively define dummy variables using a variable-length window from the month following a financing event to the earlier of either the month of the *next* financing event or 36 months. This variable-length window directly removes the effect of overlapping months (i.e., months that are within 36 months of multiple financing events) from the initial financing window and attributes the effect of these overlapping months to the subsequent financing window. This dummy variable definition is illustrated in Fig. 2, which is based on the same financing pattern as in Fig. 1: a BL at time t and an SEO at *t*+12. Between *t*+1 and *t*+12 (inclusive), the firm had only one sort of external financing within the past 36 months, so *XF1*=1 and all other dummy variables equal zero. Starting at the end of *t*+12, the firm had two different financing events within the past 36 months, so we set the dummy variable for this pattern (*XF2*) equal to unity and *XF1*=0. In other words, the 36-month windows following the two different financing events "overlap" for 24 months starting at *t*+13. At the end of month *t*+36, the bank borrowing date passes out of the trailing period. For the subsequent 12 months [*t*+37, *t*+48], the firm is again categorized as having only one type of financing during the prior 36-month period, so again *XF1*=1.[9]

With a variable-length window definition, no event affects abnormal returns for more than 36 months, even

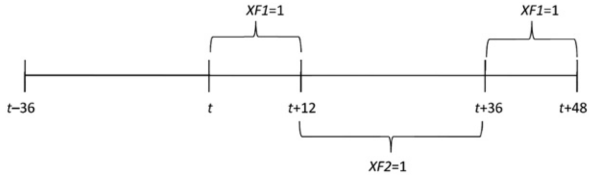

Fig. 2. The "variable-length window" approach to defining issuance events. The timeline below runs from 36 months prior to the financing month through 48 months following the event month *t*. *XF1* and *XF2* are dummy variables. *XF1* equals one over the 12 months following the first financing event and ending at the month of the second financing event. *XF2* then equals one over the 24 months following the month of the second financing event (*t*+12). After 36 months from the first financing event, *XF2* reverts to zero and *XF1* becomes 1. All "tick-marks" on the time line denote the end of the month.

indirectly. Moreover, a firm has only one financing dummy turned "on" at any point in time. The estimated coefficient on *XF1* therefore measures the ex post return effect of a *single type* of financing event within the preceding 36 months. *XF2* measures the effect of *two different financing types* during the window over which their post-event periods overlap.

In sum, the fixed-length and the variable-length definitions of return effects each offer some advantages. Fixed-length windows facilitate comparison with prior studies of security issuance, and provide a clear picture of the economic effect of subsequent financing. However, the indirect effect of the first of several types of security issuances can be protracted. The variable-length window approach limits all financing event effects to 36 months, and it categorizes each firm-month with a unique financing dummy, as required by the factor-based and BHAR methods. However, it reduces our comparability with previous studies, which all use a fixed-length window. Fortunately, the implications are very similar for both approaches.

3.3. Financing event statistics

Table 1 describes the incidence of different financing events. Panel A describes the number of different types of financings for the entire sample of firm-months. More than half of the firm-months (55.58%) are associated with no external financing activity within the preceding three years. The remaining 44.42% of firm-months are comprised as follows: 24.25% associate with a single financing event and 4.94% follow serial issues (two or more) of the same type of security. The next three rows in Panel A indicate that 15.22% of all firm-months follow the issuance of more than one security type within a 36-month period.[10] Put another way, more than one-third of all the post-financing months (15.22% out of 44.42%) follow multiple financing types, indicating that prior single-security studies of financing events have omitted potentially important information for a substantial portion of their sample.

[8] The direct effect would have been from [*t*, *t*+36], and the indirect effect from [*t*+36, *t*+71].

[9] If third and fourth different types of external finance were issued in months *t*+15 and *t*+20, the dummies would take the following forms: *XF1*=1 in [*t*+1, *t*+12], [*t*+52, *t*+56]; *XF2*=1 in [*t*+13, *t*+15], [*t*+49, *t*+51]; *XF3*=1 in [*t*+16, *t*+20], [*t*+37, *t*+48]; *XF4*=1 in [*t*+21, *t*+36].

[10] Only a small fraction of firm-months following external financings are associated with either three (*XF3*=1) or four (*XF4*=1) different types of finance. However, we shall see below that these events have large economic effects on computed ex post returns.

Table 1
Incidence of different forms of financing.

Percent of firm-months with dummy variable=1 for "number of different types of external finance." Dummy variables defined based on the fixed-length window definition as follows: No external financing equals one in all months that are bereft of any external financing within the prior 36 months. Dummy for single-category financing (*XF1*) equals one in each of 36 months following the first of any sequence of (one or more) different-type external financings. Two types (*XF2*) of external finance (dummy) equals one in each of 36 months following the second of any sequence of two or more different-type external financings. Three types (*XF3*) of external finance (dummy) equals one in each of 36 months following the third of any sequence of three or more different-type external financings. Four types (*XF4*) of external finance (dummy) equals one in each of 36 months following the fourth in the sequence of four different-type external financings.

Category	No. firms[a]	% of total firm-months	Number of firm-months
Panel A: Entire sample			
No external financing	3,494	55.58	560,221
Single-category financing (*XF1*=1)	3,715	24.25	244,457
Two or more similar securities (*Repeat*=1)	377	4.94	49,774
Two different types of external finance (*XF2*=1)	3,309	13.58	136,912
Three different types of external finance (*XF3*=1)	535	1.57	15,835
Four different types of external finance (*XF4*=1)	28	0.07	703
Total	11,458	100	1,007,902
Panel B: Security types of subsample using external finance			
BL	3,906	49.02	195,037
IPO	5,150	27.32	108,692
SEO	2,942	29.22	116,249
PD	1,215	15.44	61,426
PVEQ	206	1.63	6,473
Total		100.00	487,877

Category	% of firm-months	Number of firm-months
Panel C: Overlap among multiple-type security issuers		
Overlapping months within *XF2*=1	73.00	99,945
Overlap of BL, IPO	10.87	14,882
Overlap of BL, SEO	21.61	29,582
Overlap of BL, PD	14.38	19,684
Overlap of BL, PVEQ	0.69	945
Overlap of IPO, SEO	11.47	15,709
Overlap of IPO, PD	2.51	3,443
Overlap of IPO, PVEQ	0.29	402
Overlap of PD, SEO	9.67	13,238
Overlap of PD, PVEQ	0.50	683
Overlap of SEO, PVEQ	1.01	1,377
Three different types of external finance (*XF3*=1)	65.17	10,320
Overlap of BL, IPO, PD	4.01	635
Overlap of BL, IPO, SEO	19.70	3,119
Overlap of BL, IPO, PVEQ	0.28	44
Overlap of BL, PVEQ, PD	0.87	138
Overlap of BL, PVEQ, SEO	1.77	281
Overlap of BL, PD, SEO	30.64	4,852
Overlap of IPO, PD, PVEQ	0.09	15
Overlap of IPO, PD, SEO	6.23	987
Overlap of IPO, SEO, PVEQ	0.50	79
Overlap of PD, SEO, PVEQ	1.07	170
Four different types of external finance (*XF4*=1)	45.09	317
Overlap of IPO, SEO, PD, PVEQ	0.00	0
Overlap of BL, SEO, PD, PVEQ	3.70	26
Overlap of BL, IPO, SEO, PVEQ	2.42	17
Overlap of BL, IPO, PD, PVEQ	0.71	5
Overlap of BL, IPO, SEO, PD	38.26	269

[a] Firm total exceeds sample population because some firms issued multiple securities within a 36-month window.

Panel B examines the distribution of financing events across security types. Bank loans (BL) account for almost half of the firm-months in our post-financing sample. IPOs and SEOs account for 27% and 29%, respectively. Public debt issuance associates with 15% and the remaining 1.6% is attributable to private equity. Panel C provides further information about the potential importance of multiple financings for previous, single-security studies. Of the 136,912 firm-months where *XF2*=1, 99,945 (73%) occurred within 36 months of an initial financing event. A single-security study would not have controlled for the second issuance in these months. Similarly, we see 65% and 45% of the firm-months associated with *XF3*=1 and *XF4*=1 overlap with the initial issue's 36-month, post-finance window.

4. Financing events and firm characteristics

In assessing the long-run return effect of securities issuance, we need to control for firm characteristics that prior literature has shown to affect returns, but that may also be correlated with security issuances.[11] While most studies generally control for size and book-to-market (*B/M*), recent work also finds that growth, financial distress, earnings management, and other characteristics associate with future long-run returns (see more detailed discussion below). We therefore begin our analysis by assessing the extent to which a firm's ex ante characteristics correlate with its subsequent securities issuance. We rely heavily on Fama and French (2008) to identify firm characteristics that have been linked to abnormal long-run equity returns. We divide the Fama–French firm characteristics (and a few additional characteristics) into three groups: growth/investment, financial condition, and traditional firm characteristics.[12]

Our methodological approach is described in greater detail below (Section 4.4), but we summarize it here. For each individual firm characteristic, we regress that characteristic on dummy variables identifying the subsequent three years' financing behavior. The coefficients on these dummies illustrate whether *future* financing behavior is tied to current firm characteristics.

4.1. Traditional characteristics

Many previous studies have concluded that stock returns are reliably affected by:

Size: The natural log of the firm's equity market value (Compustat [data199 × data25]).

B/M: Book-to-market *equity* ratio: Book value of equity (Compustat [data60]), divided by its market value (Compustat [data199 × data25]).

Momentum: The cumulative raw return on the firm's stock over the 12 months of the firm's preceding fiscal year. Returns are from CRSP. (see Jegadeesh and Titman, 1993; Chopra, Lakonishok, and Ritter, 1992).

4.2. Growth and investment characteristics

Cooper, Gulen, and Schill (2008) conclude that asset growth is negatively related to subsequent equity returns. Titman, Wei, and Xie (2004) show that firms with surprisingly large capital expenditures subsequently underperform, consistent with their hypothesis that agency problems permit some managers to "empire-build" (see also Pontiff and Woodgate, 2008; Richardson and Sloan, 2003). Lower stock returns might also follow investments that constitute exercise of a real (growth) option: converting the option into a physical project de-levers the firm, which naturally lowers the expected stock return (Carlson, Fisher, and Giammarino, 2006). Eberhart, Maxwell, and Siddique (2004) take a complementary view of investment by arguing that research and development (R&D) spending generates growth options whose higher effective leverage causes the observed positive abnormal returns following R&D expansions.

To investigate whether a firm's investment behavior is correlated with its subsequent financing strategies, we collect the following firm growth and investment characteristics:

TA_g: Lagged growth in total assets, defined as Compustat [data6$(t-1)-$data6$(t-2)$]/data6$(t-2)$. This is exactly the calculation approach in Cooper, Gulen, and Schill. (2008).

CAPEX: Capital expenditures divided by total assets, defined as Compustat [data128/data6]. CAPEX is a component of Cooper, Gulen, and Schill (2008) aggregate growth measure. Although they conclude that the total asset growth variable is more informative than any of its components, we include it due to the findings of Titman, Wei, and Xie (2004).

CAPEX_g: The *forward* constructed percentage change in the ratio of capital expenditures to assets, defined as $CAPEX(t+1)/CAPEX(t)-1$. Note the timing of this variable is unique in that it is measured over the year following the fiscal year in question (year $t+1$). It is designed to pick up the de-levering of a growth option, in line with Carlson, Fisher, and Giammarino (2006). This will make it an important control in returns tests. Thus, we examine its link with financing here.

R&D: Defined as expenditures on research and development divided by total assets. Compustat [data46/data6]. Missing data46 values are set to zero.

Q: Tobin's *Q*, defined as total assets minus book equity plus market value of equity, all divided by total assets (Compustat [data6 − data60+(data25 × data199)]/data6).

[11] For example, security issuers may suffer from managerial tendencies to overinvest or they might more commonly issue overvalued securities.

[12] Fama and French's (2008) seven "anomalies" (size, value, profitability, growth, accruals, momentum, and net stock issues) all "seem to have unique information about future returns" (p. 1675). We include all of these variables as controls except for net stock issues, for which we control via our financing dummy variables. All characteristics for the overall sample of both issuers and non-issuers are windsorized at the 1st and 99th percentiles.

4.3. Financial condition characteristics

Some firms returning to external capital markets to issue a variety of security types may be financially distressed, which tends to predict lower subsequent equity returns. One measure of financial distress is the firm's Z-score (Denis and Mihov, 2003; Altman, 1977). High leverage, low cash flow, and low cash holdings are also potential indicators of financial distress. Discretionary accruals have been shown to explain anomalous post-issuance returns for IPOs and SEOs (Teoh, Welch, and Wong, 1998a, 1998b).[13] We represent potential financial distress with the following five variables:

Cash: Cash and marketable securities divided by total assets (Compustat [data1/data6]).

Leverage: Debt in current liabilities plus long-term debt, all divided by total assets (Compustat [data34+data9]/data6).

Low Z: An indicator variable equal to unity if the firm's Z-score is less than 1.81, which is a critical value for predicting failure.

Accruals: Discretionary accruals calculated using the modified Jones (1991) model of Dechow, Sloan, and Sweeney (1995).

OIBD: Operating income before depreciation divided by total assets (Compustat [data13/data6]).

4.4. Results

We regress each of the above fiscal-year-end characteristics on dummy variables describing the firm's external financing events over the subsequent 36 months[14]:

$$Z_{jt} = \alpha_0 + \sum_{k=1}^{4} \beta_k XF\_b_{k_j}.$$

Z_j is any one of firm j's characteristics listed above, measured at the end of any fiscal year t.[15]

The XF_b_{kj} dummies are similar to the fixed length *XF* dummies, but we attach a "*_b*" to reflect the following difference: they measure the total number (k) of different security types of external financings that occur over the 36 months following the end of year t. It is a simple count and either one, two, three, or four different financings can occur within 36 months of the characteristic date.

Table 2 presents the results. The dependent variables in Panel A are the firm's industry-adjusted characteristics (net of the two-digit SIC code median characteristic). Panel B presents regression results for the unadjusted firm characteristics. We discuss primarily the results from Panel A, although the results in Panel B are basically consistent.

Columns 1–5 report coefficient estimates (β_k) for growth-related variables. Cooper, Gulen, and Schill (2008) find that a firm's asset growth is negatively correlated with its subsequent stock returns. For the asset growth measure, *TA_g*, the coefficients on the future financing dummy variables are all negative and significant. This suggests that prior to financing, asset growth is abnormally low. Given that high asset growth has been shown to have a negative relation to future returns and that the issuers of multiple types of securities have lower *TA_g*, this asset growth channel seems unlikely to explain the underperformance of multiple issuers.

Despite their low rate of asset growth, multiple issuers' capital expenditures are not correspondingly low. In fact, *CAPEX* is significantly greater for firms that subsequently issue multiple security types. (The forward growth in CAPEX (*CAPEX_g*) is unrelated to subsequent financing.) Interestingly, when we look at investment opportunities, proxied by *Q*, we find future financing activity associates with lower ex ante *Q*, raising the possibility that multiple-type issuing firms were overinvesting (Titman, Wei, and Xie, 2004). The fifth column of Table 5 examines another sort of investment, *R&D* expenditures. Single-type issuers ($XF\_b_1=1$) exhibit greater R&D expense than non-issuers, but multiple claim-type issuers ($XF\_b_2=1$, $XF\_b_3=1$, $XF\_b_4=1$) spend less on *R&D*. As we move from two to four issue types, the coefficients become ever more negative, suggesting that *R&D* is less important for the multiple claim-type financing firms. Given that Eberhart, Maxwell, and Siddique (2004) find high returns following large R&D, these low levels of R&D could associate with lower future returns.

We next examine indicators of the firm's financial condition in columns 6–10. For the *Cash* specification, the ratio of cash-to-assets decreases as the diversity of future external finance activity increases, perhaps suggesting that low internal funds partially motivate the future issuances. *Leverage* is increasing in future external finance activity, consistent with a need to deleverage and/or a higher likelihood of financial distress. The *Low Z* tests are only conducted for Panel B, given it is constructed as a dummy variable ($Z<1.81$). It seems the multi-type issuers are more likely to be distressed than the single-type issuers. *Accruals* are, if anything, lower for firms that subsequently issue multiple securities, suggesting that they may have exhausted their ability to enhance reported income through discretionary accruals. Multi-type issuers have significantly higher cash flows (*OIBD*), suggesting a greater ability to at least meet debtholders' subsequent cash-flow requirements.

[13] Some firms use discretionary accounting accruals to enhance their reported earnings. Eventually, however, the firm runs out of positive accruals and reported income subsequently falls.

[14] Each regression is a panel regression adjusted with Rogers' standard errors to account for the residual dependence created by a firm-specific effect (see Petersen, 2009).

[15] The size and B/M variables require some timing assumptions to link the CRSP and Compustat data. We follow Fama and French (1992) in calculating the ex ante size as CRSP's market value of equity in June of year t, where returns are from July of year t through June of year $t+1$. For book value of equity, we use Compustat's fiscal year-end book equity [data60], and we ensure that it precedes the monthly stock return by at least six months (Fama and French, 1992). We scale that book equity by market equity from December of year $t-1$ (Fama and French, 1992). For IPO transactions, we have no "ex ante" market value. We therefore measure firm size for IPO financings as the firm's market value at the close of the first day of trading. Also for IPO firms, book-to-market equity uses the first available Compustat measure of book equity, which may either precede or follow the IPO date.

Table 2

Firm characteristics preceding external financing dummies (36-month window).

We regress firms' fiscal-year-end characteristics on dummy variables describing external financing events over the subsequent 36 months (similar to the fixed-length window definition): XF_b_k=unity when the firm issues k types of security over the subsequent 36 months; where k=1, 2, 3, or 4. Panel A expresses each firm characteristic net of the industry (two-digit SIC code) median value. Panel B uses raw firm characteristics. Firm characteristics are winsorized at the 1st and 99th percentiles. [a, b, c] indicate significance at 10%, 5%, 1% levels. *CAPEX*, *R&D* expenditures, and *Cash* are all relative to total assets. *TA_g* is Cooper, Gulen, and Schill's (2008) measure of asset growth. *CAPEX_g* is the percentage increase in the ratio of CAPEX-to-assets from the prior year. Tobin's *Q* is market-to-book assets. *Leverage* is long- plus short-term debt divided by assets. *OIBD* is operating income before depreciation scaled by assets. *Size* is the natural log of the market value of equity. *Momentum* is cumulative stock return over the preceding fiscal year. *Low Z* is a dummy equal to one if the *Z*-score is less than 1.81 (Denis and Mihov, 2003; Altman, 1977). *B/M* is book-to-market equity. *Accruals* are discretionary accruals calculated using the modified Jones method (see Jones, 1991; Dechow, Sloan, and Sweeney, 1995).

	Growth indicators					Financial condition indicators					Firm characteristics		
	TA_g 1	*CAPEX_g* 2	*CAPEX* 3	*Q* 4	*R&D* 5	*Cash* 6	*Leverage* 7	*Low Z (logit)* 8	*Accruals* 9	*OIBD* 10	*B/M* 11	*Size* 12	*Momentum* 13
Panel A: Dependent variable=firm characteristics, relative to industry median values													
Mean	0.0861	0.1907	0.0185	0.5871	0.0235	0.0602	0.0320	N/A	0.0382	−0.0485	0.5059	0.0842	0.1319
Std dev	0.9498	1.5676	0.0837	4.3199	0.1666	0.1952	0.1850	N/A	5.0761	0.4741	45.6636	2.0455	0.8732
Intercept	0.1015[c]	0.1875[c]	0.0153[c]	0.6281[c]	0.0231[c]	0.0685[c]	0.0226[c]	N/A	0.0372[a]	−0.0594[c]	0.6296[c]	−0.1344[c]	0.1120[c]
XF_b_1	−0.0531[c]	0.0111	0.0110[c]	−0.1433[c]	0.0031[b]	−0.0296[c]	0.0311[c]	N/A	0.0114	0.0441[c]	−0.5355[b]	0.8738[c]	0.0734[c]
XF_b_2	−0.1107[c]	0.0151	0.0208[c]	−0.3658[c]	−0.0017	−0.0548[c]	0.0696[c]	N/A	−0.0291	0.0463[b]	−0.6222[c]	1.4327[c]	0.1271[c]
XF_b_3	−0.0757a	0.0639	0.0267[c]	−0.4124[c]	−0.0171[c]	−0.0596[c]	0.0950[c]	N/A	−0.0242	0.0702[c]	−0.6372[c]	1.6259[c]	0.1516[c]
XF_b_4	−0.5025[c]	0.2434	0.0601[c]	−0.6941[c]	−0.0245[c]	−0.0904[c]	0.1980[c]	N/A	−0.0777[b]	0.0514[b]	−0.5722[b]	0.7449	0.0050
Panel B: Dependent variable=raw firm characteristics, with no industry adjustment													
	1	2	3	4	5	6	7	8	9	10	11	12	13
Mean	0.1868	0.1630	0.0740	1.7879	0.0441	0.1717	0.2255	0.1520	−0.2223	0.0529	0.6864	3.9131	−0.0160
Std dev	0.9641	1.5760	0.0820	1.7010	0.0931	0.2142	0.1956	0.3591	0.5597	0.2433	0.7030	2.5244	0.7017
Intercept	0.2020[c]	0.1584[c]	0.0703[c]	1.8392[c]	0.0445[c]	0.1840[c]	0.2118[c]	−1.6617[c]	−0.2031[c]	0.0405[c]	0.7303[c]	3.8082[c]	−0.0326[c]
XF_b_1	−0.0523[c]	0.0161[a]	0.0123[c]	−0.1574[c]	0.0015	−0.0425[c]	0.0439[c]	−0.3307[c]	−0.0637[c]	0.0470[c]	−0.1663[c]	0.4201[c]	0.0725[c]
XF_b_2	−0.1112[c]	0.0253	0.0265[c]	−0.4345[c]	−0.0142[c]	−0.0854[c]	0.1065[c]	0.0087	−0.1417[c]	0.0710[c]	−0.2436[c]	0.5271[c]	0.0563[c]
XF_b_3	−0.0768[a]	0.0743	0.0390[c]	−0.5689[c]	−0.0296[c]	−0.1013[c]	0.1496[c]	0.4213[c]	−0.1946[c]	0.0697[c]	−0.2717[c]	0.3029[a]	0.0139
XF_b_4	−0.5136[c]	0.2646	0.0756[c]	−1.1227[c]	−0.0433[c]	−0.1264[c]	0.2462[c]	0.5675	−0.4598[c]	0.0768[c]	−0.4481[c]	−2.3564[c]	−0.4578[c]

Columns 11–13 in Table 2 indicate how borrowing firms fit on the scale of three common return predictors: firm value (*B/M*), *Size*, and *Momentum*, which Fama and French (2008) conclude have positive, negative, and positive effects (respectively) on subsequent returns. The conclusion that issuing firms start with significantly lower *B/M* values indicates that these firms should experience lower subsequent returns, ceteris paribus. Single and multi-issuers' larger size should also lead to lower returns. Offsetting at least some of these effects is the tendency for multiple issuers to have relatively large stock price runups (as seen in the *Momentum* column).

In sum, numerous statistically significant differences exist in the characteristics of single- versus multi-issuers. Because many of these characteristics have been reported to associate with future returns, we control for all of these characteristics in two of our three types of post-financing return tests.[16]

5. Measuring long-run performance

The literature on measuring long-run stock performance following corporate events is extensive, primarily because accurately measuring "normal" expected returns over long periods of time has proven to be extremely challenging. We present results based on three methodologies for measuring "normal" long-run returns. Two of these methodologies derive from models of the underlying returns: the Fama–MacBeth (1973) method, and the Fama–French (1993) method augmented with Carhart's (1997) momentum factor. Given the "bad model" critique of long-run returns (Fama, 1998), we also compute buy-and-hold abnormal returns (BHARs) to assess robustness.

5.1. Fama–MacBeth (1973) methodology

Daniel and Titman (1997) argue that security returns reflect firm characteristics, specifically size and the book-to-market ratio of equity. In this view, abnormal returns manifest themselves as non-zero realized returns after controlling for firm characteristics.[17] For each month between January 1983 and December 2005, we estimate a Fama–MacBeth (1973) regression of the form[18]

$$(r_{jt}-VWRETD_t)=\alpha_0+\sum_{k=1}^{4}\alpha_k(XF_{jkt})+\gamma(Repeat_{jt})+\Sigma\beta_j Z_{j,t-1}+\tilde{\varepsilon}_{jt}, \tag{1}$$

where r_{jt} is the return to stock *j* in month *t*, measured in percentage points. $VWRETD_t$ is the return to the CRSP value-weighted index, for month *t*, measured in percentage points. XF_{jkt} is the set of external finance dummy variables defined above in Section 3. A dummy equals one if in month *t*, the *j*th firm had the *k*th pattern of external financing within the past relevant window. $XF_{jkt}=0$ otherwise. $Repeat_{jt}$ is a dummy equal to unity for each of the 36 months following a firm's second (third, etc.) issuance of the *same* security type, provided that (1) no different security type was issued in between, and (2) the first issuance was within 36 months of the second. $Z_{j,t-1}$ is a vector of the dependent variables in Table 2, which prior research has associated with future share returns. We measure these variables as of the fiscal year-end prior to the month.

Estimated coefficients on the issuance dummy variables (XF_{jkt} and $Repeat_{jt}$) measure the average contribution to market-adjusted returns during month *t*, across all firms for which the dummy variable was turned on. We then report the time-series average of the coefficients in (1), and *t*-statistics computed using the time-series standard deviation of coefficient estimates.

5.2. Fama–French (1993) methodology

Fama and French (1993) model equity returns as depending on the firm's exposure to non-diversifiable factor realizations, such as the market risk premium, the differential return to small vs. large firms, and the differential return to firms with high vs. low book-to-market ratios. Carhart (1997) shows that momentum provides an additional, significant factor. We use this four-factor model of returns to compute abnormal returns associated with securities issuance.

In each month, we form a portfolio of firms with similar recent financing patterns. We use the variable-length post-event window to determine the values for the external financing variables *XF1*, *XF2*, *XF3*, *XF4*, and *Repeat*.[19] Specifically, the portfolios are formed for each of the $XFk=1$ (where $k=1, 2, 3, 4$) and for $Repeat=1$. We then regress the time series of each portfolio's monthly excess returns on the four return factors:

$$(R_{pt}\text{-}R_{ft})=\alpha+\beta(VWRETD_t\text{-}R_{ft})+sSMB_t+hHML_t+mMOM_t+\varepsilon_t, \tag{2}$$

where R_{pt} is the return on the portfolio of sample firms in month *t*; R_{ft} is the three-month T-bill yield in month *t*; $VWRETD_t$ is the return on the value-weighted index of NYSE, Amex, and Nasdaq stocks in month *t*; SMB_t is the return on small firms minus the return on large firms in month *t*; and HML_t is the return on high book-to-market stocks minus the return on low book-to-market stocks in month *t*. MOM_t is Carhart's (1997) momentum factor realization for month *t*. A significant intercept term in (2)

[16] We control only for size, book-to-market equity, and momentum in our Fama/French factor portfolio tests.

[17] Daniel and Titman (1997) find that firms with similar characteristics but different loadings on the Fama and French (1993) factors exhibit similar returns, although Davis, Fama, and French (2000) contradict that evidence.

[18] Petersen (2009) shows that the Fama–MacBeth methodology works well when regression residuals in a given time period are correlated across firms.

[19] We cannot use fixed-window dummy variables, which often assign multi-issuing firms to more than one portfolio in the same month. The variable-length window controls for subsequent financing behavior by excluding the months associated with the "next" financing event in the "current" financing event's return window.

implies that abnormal returns are associated with the event used to assemble the portfolio.

Buy-and-hold abnormal return (BHAR) methodology

Starting with Ritter (1991), many authors have used peer-adjusted, buy-and-hold abnormal returns (BHARs) to measure long-run performance effects. For each security-issuing firm, a matching peer firm is chosen on the basis of a set of firm characteristics with the notable exception that the peer did not issue securities. Each individual firm's subsequent holding period return is then calculated as:

$$HPR_j = \left(\prod_{t=1}^{T_i} (1+R_{jt}) - 1 \right) \times 100\%,$$

where R_{jt} is the jth firm's stock return on the tth day, and T_j is the number of trading months in the variable-length (up to three-year) window. We use the variable-length window because we cannot include a dummy control for subsequent financings (as we need to do with a fixed-length window) when we are not running a cross-sectional regression. After calculating *HPR* for each sample firm and for its matching firm, the *difference* measures the stylized investor's buy-and-hold abnormal return (BHAR):

$$BHAR_j = HPR_j^{Event} - HPR_j^{Peer}$$

A positive mean return differential is consistent with the "Event" having a positive effect on the typical event firm's long-run returns.

The value of this approach depends on the quality of its matching process. At one level, the concept that a second firm is "otherwise equivalent" to an issuing firm seems oxymoronic: if two firms are so similar, why did only one raise external funds? Yet Barber and Lyon (1997) report that BHARs based on peer firms with similar market capitalization and equity's book-to-market ratio perform well in randomized samples. Lyon, Barber, and Tsai (1999) point out that BHAR test statistics may be biased if peer firms are not matched on the basis of all relevant characteristics (such as industry or pre-event returns). They suggest using a variety of alternative peer-choice criteria, to protect against inadvertent conclusions based on excluded, clustered firm characteristics.

Despite the potential shortcomings, an advantage of BHARs is that they do not rely on a specific model of security returns, obviating concerns about a "bad model problem." We therefore compute BHAR returns for a variety of peer definitions. Specifically, we identify a peer firm for each issuer based on size, *B/M*, and one other firm characteristic from among those listed in Table 2. For each issuing firm, we examine all non-issuing firms in the same size decile of the CRSP-Compustat universe and keep those with an equity market value within 25% of the issuer's.[20] We then sort these firms by their book-to-market equity ratio and the third matching characteristic (from among the dependent variables in Table 2). We examined all firms in the same decile of each of these two characteristics, and chose the one with the lowest sum of absolute percentage differences in size, *B/M*, and the third characteristic. For some events, our requirement that all three firm characteristics be in the same population decile made it impossible to find a suitable matching firm. The number of matches is reported for each set of matching criteria in Table 6 below.

6. Estimation results

6.1. Fama–MacBeth results

We start by replicating the previous literature's results using Fama–MacBeth regressions, variations of (1), that control for all the ex ante firm characteristics in Table 2 (except *Q*, which is omitted because of its high correlation with *B/M*).[21] Columns 1–5 in Table 3 report these regression results for each type of security issuance studied in the extant literature, without controlling for subsequent financing. Consistent with previous studies (which did not, however, control for so many firm characteristics), bank loans, SEOs, and private equity exhibit significantly negative abnormal annual returns of approximately -3% to -4% annually over the three years following an issuance event (Spiess and Affleck-Graves, 1995; Billett, Flannery, and Garfinkel, 2006; Hertzel, Lemmon, Linck, and Rees, 2002). IPOs exhibit negative, but statistically insignificant, long-run returns, consistent with the recent literature cited by Ritter (2003). Also consistent with the prior literature, we find no evidence of underperformance associated with public debt issuances.[22] The statistically significant control variables in Table 3 generally carry the coefficient signs previously shown in the literature: negative effects for size, momentum, and the growth indicators, and positive effects for *B/M*, R&D, OIBD.

We examine the impact of subsequent financing in Columns 6–15 of Table 3. First, in columns 6–10, we add dummy variables for multiple security issuances defined in the fixed-length window. These dummies capture the overlapping months between multiple security issuance windows. In columns 11–15 we repeat the analysis in columns 1–5, but we compute the issuance-type variables (*BL*, *IPO*, *SEO*, *PD*, and *PVEQ*) based on the variable-length window, which removes the effect of multiple financings on the initial security issuance.

The results are striking. Regardless of whether we control explicitly for subsequent financing variables (columns 6–10), or separate the first security issuance from the effects of subsequent issues (columns 11–15), we find controlling for subsequent financing eliminates any evidence of underperformance associated with any particular claim type. The coefficients on *BL*, *SEO,* and

[20] As in our primary sample approach, we exclude financial firms and regulated utilities from our sample of potential peer firms.

[21] Note that *CAPEX_g* is not a true conditioning variable because it measures investment (CAPEX) growth over the following year. We include this to control for the increased investment activity that likely follows the financings; however, our results with respect to the influence of the financing dummies are similar when this variable is excluded.

[22] Spiess and Affleck-Graves (1999) find that the mean abnormal performance following debt issues is insignificant, although the median performance is significantly negative.

Table 3

Security issuance and subsequent equity performance with and without controls for subsequent financing activity.

Table presents time-series averages (over 276 months, January 1983–December 2005) of the coefficients (in percentage points) from monthly cross-sectional regressions of the following form:

$$(r_{jt} - VWRETD_t) = \alpha_0 + \alpha_1 FirstFinance_{jt} + \sum_{k=2}^{4} \alpha_k (XF_{jkt}) + \gamma(Repeat_{jt}) + \sum \beta_j Z_{j,t-1} + \tilde{\varepsilon}_{jt}$$

where r_{jt} is the return to stock j in month t, measured in percentage points. $VWRETD_t$ is the return to the CRSP value-weighted index, for month t, measured in percentage points. *FirstFinance* is a set of dummy variables equal to one for the months following the first financing in at least 36 months. *BL*, *IPO*, *SEO*, *PD*, and *PVEQ* are the dummies when the *FirstFinance* is a bank loan, initial public offering, seasoned equity offering, public debt offering, or private equity offering. XF_{jkt} is the set of external finance dummy variables defined in Section 3. A dummy equals one if in month t, the jth firm had the kth pattern of external financing within the past relevant window. $XF_{jkt}=0$ otherwise. $Repeat_{jt}$ is a dummy equal to unity for each of the 36 months following a firm's second (third, etc.) issuance of the *same* security type, provided that (1) no different security type was issued in between, and (2) the first issuance was within 36 months of the second. $Z_{j,t-1}$ is a vector of ex ante firm characteristics that prior research has associated with future share returns. These variables are the dependent variables in Table 2, with the exception of momentum which is the prior six-month cumulative stock return. The statistical significance of each coefficient is based on the time-series standard deviation of its monthly estimated values. [a,b,c] indicate significance at 10%, 5%, 1% levels. Columns 6–10 uses financing dummy variables created according to the fixed-length window definition: *XF1* equals one, in each of 36 months following the first of any sequence of (one or more) different-type external financings. *Repeat* equals one, in each of 36 months following the second consecutive issue of a claim type, as long as the second issue occurred within 36 months of the first, and as long as there was no intervening different type of external finance issue. *XF2* equals one in each of 36 months following the second of any sequence of two or more different-type external financings. *XF3* equals one in each of 36 months following the third of any sequence of three or more different-type external financings. *XF4* equals one in each of 36 months following the fourth in the sequence of four different-type external financings. Columns 11–15 uses financing dummy variables created according to the Variable-length window definition: *XF1* equals one in each of the 36 months following an external finance, *as long as there is no other type of external finance within the prior (to this month) 36 months. Repeat* equals one, in each of 36 months following the second consecutive issue of a claim type, as long as the second issue occurred within 36 months of the first, and as long as there was no intervening different type of external finance issue. *XF2* equals one in months where there is overlap between two 36-month post-event windows following issuance of two different external finance vehicles. *XF3* equals one in months where there is overlap between 36-month post-event windows following issuance of three different external finance vehicles. *XF4* equals one in months where there is overlap between 36-month post-event windows following issuance of four different external finance vehicles. *CAPEX* and *R&D* expenditures, as well as *Cash*, are all relative to total assets. *TA_g* is Cooper, Gulen, and Schill. (2008) measure of asset growth. *CAPEX_g* is the percentage increase in the ratio of CAPEX-to-assets from the prior year. Tobin's *Q* is market-to-book assets. *Leverage* is long-plus short-term debt divided by assets. *OIBD* is operating income before depreciation scaled by assets. *Size* is the natural log of the market value of equity. *Momentum* is cumulative stock return over the preceding fiscal year. Low *Z* is a dummy equal to one if the *Z*-score is less than 1.81 (Denis and Mihov, 2003; Altman, 1977). *B/M* is book-to-market equity. *Accruals* are discretionary accruals calculated using the modified Jones method (see Jones, 1991; Dechow, Sloan, and Sweeney, 1995).

	No control for subsequent financings					Control for subsequent financings									
						Fixed-length window XF dummies capture overlap with subsequent financing months					Variable-length window Window ends at earlier of next financing or 36 months				
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
FirstFinance															
BL	−0.0024[c]					−0.0012					−0.0018				
IPO		−0.0017					−0.0012					−0.0017			
SEO			−0.0028[c]					−0.0017					−0.0021		
PD				0.0014					0.0019[a]					0.0010	
PVEQ					−0.0037[a]					−0.0027					−0.0043
Subsequent financing															
Repeat						−0.0008		−0.0039[c]	0.0025[b]	−0.0018					
XF2						−0.0018[a]	−0.0015[a]	−0.0010	−0.0023[c]	−0.0016[a]					
XF3						−0.0037[b]	−0.0042[c]	−0.0034[a]	−0.0051[c]	−0.0040[b]					
XF4						−0.0146[c]	−0.0150[c]	−0.0150[c]	−0.016[c]	−0.0142[c]					
Controls															
Constant	0.0100[c]	0.0102[c]	0.0100[c]	0.0104[c]	0.0102[c]	0.0098[c]	0.0099[c]	0.0098[c]	0.0102[c]	0.0099[c]	0.0108[c]	0.0109[c]	0.0108[c]	0.0109[c]	0.0109[c]
Size	−0.0012[b]	−0.0013[b]	−0.0012[b]	−0.0013[c]	−0.0012[b]	−0.0012[b]	−0.0012[b]	−0.0012[b]	−0.0013[b]	−0.0012[b]	−0.0014[c]	−0.0014	−0.0014[c]	−0.0014[c]	−0.0014[c]
B/M	0.0052[c]	0.0051[c]	0.0052[c]	0.0052[c]	0.0052[c]	0.0052[c]	0.0051[c]	0.0052[c]	0.0051[c]	0.0052[c]	0.0053[c]	0.0053[c]	0.0053[c]	0.0053[c]	0.0053[c]
TA_g	−0.0022[c]	−0.0022	−0.0021	−0.0022	−0.0022	−0.0021	−0.0021	−0.0020	−0.0021	−0.0021	−0.0022	−0.0022	−0.0022	−0.0022	−0.0022

Table 3 (*continued*)

Variable	No control for subsequent financings					Control for subsequent financings									
						Fixed-length window XF dummies capture overlap with subsequent financing months					Variable-length window Window ends at earlier of next financing or 36 months				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Momentum	−0.0095	−0.0095[c]	−0.0094[c]	−0.0094[c]	−0.0094[c]	−0.0096[c]	−0.0095[c]	−0.0095[c]	−0.0095[c]	−0.0095[c]	−0.0114[c]	−0.0114[c]	−0.0114[c]	−0.0114[c]	−0.0114[c]
CAPEX	−0.0146[c]	−0.0141[c]	−0.0137[c]	−0.0146[c]	−0.0145[c]	−0.0137[c]	−0.0135[c]	−0.0133[c]	−0.0136[c]	−0.0137[c]	−0.0145[c]	−0.0139[c]	−0.0142[c]	−0.0144[c]	−0.0143[c]
R&D	0.0362[c]	0.0362[c]	0.0365[c]	0.0361[c]	0.0364[c]	0.0362[c]	0.0361[c]	0.0366[c]	0.0363[c]	0.0363[c]	0.0376[c]	0.0377[c]	0.038[c]	0.0377[c]	0.0377[c]
Cash	0.0041[a]	0.0047[a]	0.0044[a]	0.0041	0.0041	0.0045[a]	0.0048[a]	0.0047[a]	0.0044[a]	0.0043[a]	0.0050[b]	0.0054[b]	0.0051[b]	0.0049[a]	0.0049[a]
Leverage	−0.0037[b]	−0.0039[b]	−0.0036[a]	−0.0041[b]	−0.0039[b]	−0.0034[a]	−0.0034[a]	−0.0033[a]	−0.0037[a]	−0.0033[a]	−0.0031	−0.0031	−0.003	−0.0033	−0.0031
OIBD	0.0143[c]	0.0147[c]	0.0143[c]	0.0145[c]	0.0142[c]	0.0143[c]	0.0145[c]	0.0143[c]	0.0146[c]	0.0142[c]	0.0152[c]	0.0156[c]	0.0152[c]	0.0153[c]	0.0152[c]
Low Z	0.0005	0.0005	0.0004	0.0004	0.0004	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003
Accruals	−0.0032[c]	−0.0033[c]	−0.0031[c]	−0.0033[c]	−0.0032[c]	−0.0032[c]	−0.0032[c]	−0.0031[c]	−0.0032[c]	−0.0031[c]	−0.0031[c]	−0.0031[c]	−0.0031[c]	−0.0031[c]	−0.0031[c]
CAPEX_g	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]	−0.0011[c]

PVEQ become insignificant once we control for subsequent financing. Specifically, we see in columns 6–10 that the estimated coefficients' values are also smaller than in corresponding columns 1–5, except for public debt's positive coefficient, which is slightly larger and marginally significant (t=1.89). *Repeat*ed bank loans or private equity issuances do not depress subsequent returns, but *Repeat*ed SEOs carry a significantly negative effect ($\sim -4.6\%$ annually). Notably, *Repeat*ed public debt issuances are followed by positive long-run returns of about 3% per year, perhaps because a firm with multiple debt issues is profitable, and can forestall further leverage increases by retaining earnings.

The detrimental return implications of issuing multiple security types is clearly identified by the significantly negative coefficients on *XF3* and *XF4*. (*XF2* demonstrates similar, but more muted effects.) Averaging across security types, a firm that issues three security types within 36 months suffers approximately -0.40% monthly long-run abnormal returns, or about -4.7% annually for three years. The relatively few firms that issue four different securities suffer about 1.5% monthly underperformance, or roughly 18% per year for three years.

Columns 11–15 of Table 3 control for subsequent financing by using the variable-length window approach, and confirm the important effect of repeated issuances on the long-run returns following security issuance. As in columns 6–10, the variable-length approach results indicate that a single security issuance is *never associated with significant long-run underperformance*.

We conclude from Table 3 that ignoring multiple security issuances substantially changes how one views a bank loan, SEO, or private equity issuance event. For these security types, no significant underperformance follows a single issuance. Rather, issuing more than one type of security within a short window reflects undiagnosed problems that show up in later returns.[23] Multiple security issuances apparently drive the statistical significance of ex post returns in columns 1–5 of Table 3, and the same is likely for previous studies that concentrated exclusively on a single type of security. Moreover, the effect of other issues is most pronounced for the small sample of firms with three or more different financing types, which means that those firms were likely included in three or more of the preceding studies that look at individual security-type issuances.

Table 4 aggregates financing events to examine the impact of initial vs. subsequent security issuances on long-run returns.[24] These results confirm the conclusions in Table 3. The first column indicates that a single security issuance is followed by small, but significant, long-run

[23] Given that multiple security issuances bode ill for a firm, it is natural to ask whether the order in which securities are issued has any long-run return implications. For example, does debt followed by equity carry different implications than equity followed by debt? Likewise, one might ask whether a public security issuance followed by a private one reflects worse information than the converse. In unreported results, test statistics fail to reject the null hypothesis that sequence does not matter.

[24] We omit reporting the control variables' coefficients from Table 4 in order to focus more directly on the financing coefficients. (The unreported coefficients are all similar to their values in Table 3.)

Table 4
Returns following initial and subsequent financings.

Table presents time-series averages (over 276 months, January 1983–December 2005) of the coefficients (in percentage points) from monthly cross-sectional regressions of the following form:

$$(r_{jt}-VWRETD_t)=\alpha_0+\sum_{k=1}^{4}\alpha_k(XF_{jkt})+\gamma(Repeat_{jt})+\sum\beta_j Z_{j,t-1}+\tilde{\varepsilon}_{jt} \quad (1)$$

where r_{jt} is the return to stock j in month t, measured in percentage points. $VWRETD_t$ is the return to the CRSP value-weighted index, for month t, measured in percentage points. XF_{jkt} is the set of external finance dummy variables defined in Section 3. A dummy equals one if in month t, the jth firm had the kth pattern of external financing within the past relevant window. $XF_{jkt}=0$ otherwise. $Repeat_{jt}$ is a dummy equal to unity for each of the 36 months following a firm's second (third, etc.) issuance of the *same* security type, provided that (1) no different security type was issued in between, and (2) the first issuance was within 36 months of the second. $Z_{j,t-1}$ is a vector of ex ante firm characteristics that prior research has associated with future share returns. These variables are the dependent variables in Table 2, with the exception of momentum which is the prior six-month cumulative stock return. The statistical significance of each coefficient is based on the time-series standard deviation of its monthly estimated values. [a,b,c] indicate significance at 10%, 5%, 1% levels. Unless otherwise noted the *XF* variables are defined on a fixed-length window. *XF1* equals one in each of 36 months following the first financing event in at least 36 months. *Repeat* equals one, in each of 36 months following the second consecutive issue of a claim type, as long as the second issue occurred within 36 months of the first, and as long as there was no intervening different type of external finance issue. *XF2* equals one in each of 36 months following the second of any sequence of two or more different-type external financings. *XF3* equals one in each of 36 months following the third of any sequence of three or more different-type external financings. *XF4* equals one in each of 36 months following the fourth in the sequence of four different-type external financings. For the variable-length window, *XF1* equals one in each month following the first financing event for 36 months or until the next financing event, whichever is sooner. In column 4, we remove all firm-months where any multiple financing dummy (*Repeat, XF2, XF3, or XF4*) is on (=1).

Variable	1	2	3	4
XF1	−0.0017[b]		−0.0011	−0.0012
	(−2.18)		(−1.48)	(−1.57)
XF1 (variable-length window)		−0.0010		
		(−1.62)		
Repeat			−0.0003	
			(−0.34)	
XF2			−0.0013[a]	
			(−1.86)	
XF3			−0.0042[c]	
			−2.40)	
XF4			−0.0153	
			(−2.53)[c]	
Includes controls from Table 3	Yes	Yes	Yes	Yes

underperformance even after controlling for the firm characteristics in Table 2. In column 2, we repeat the analysis of column 1 but with the overlapping months removed (i.e., *XF1* is now defined based on the variable-length window). As in columns 11–15 of Table 3, we see that removing the influence of months overlapping with subsequent financing activity eliminates the evidence of underperformance. Column 3 returns to the fixed-length window approach and includes the additional subsequent financing dummies. Controlling for *Repeat* and multiple security-type issuances (*XF2, XF3, XF4*) in the third column reduces the estimated effect of a single security issuance (from −0.17% monthly to −0.11%) and renders the estimate statistically indistinguishable from zero ($t=-1.48$). Unlike Table 3, a generic *Repeat* issuance has no significant effect. The multiple-type issuance dummies still carry large and significantly negative coefficients. In the last column of Table 4, we revert back to the fixed-length window approach for *XF1* and remove the overlapping months from the data set. The resulting coefficient on *XF1* is insignificant, suggesting this third approach also renders no evidence of underperformance following initial financings. The results of Tables 3 and 4 suggest that subsequent financings drive the evidence of underperformance following security offerings, regardless of claim type and especially when multiple types of claims are involved. We now examine a second model of expected returns.

6.2. Four-factor model results

The factor-model approach to detecting abnormal long-run returns (2) requires assembling a portfolio of firms that have recently issued similar types of securities. These tests perform best when the portfolios all include a large number of firms, which minimizes the effects of idiosyncratic risk. We form five portfolios based on *XF1*, *XF2*, *XF3*, *XF4*, and *Repeat*.[25] The firm-month return is included in a given portfolio if the corresponding dummy variable is equal to one under the variable-length window definition. We use the variable-length window definition because it assigns each firm-month to a unique portfolio. (In contrast, the fixed-length definition could assign the same firm-month return to multiple portfolios simultaneously. This would not allow us to control for or isolate the influence of subsequent financings.) We regress the monthly portfolio returns on the three Fama–French factors and Carhart's (1997) momentum factor. A nonzero intercept term implies an abnormal return to the set of firms with similar financing characteristics (i.e., *XF1*, *XF2*, *XF3*, *XF4,* and *Repeat*).

Most researchers have found that anomalous financial effects tend to be more apparent in equal-weighted (EW) portfolios than they are in value-weighted (VW) portfolios. (Presumably, small stocks are more difficult to arbitrage.) We therefore construct both EW and VW portfolios for each group of firms in each month. The results in Table 5 are somewhat unusual because the VW and EW portfolios yield quite similar conclusions, equally confirming the association between multiple security-type issuances and subsequent equity underperformance. For brevity, we limit our discussion to the VW results.

Panel A of Table 5 reports the estimated abnormal returns to portfolios of firms with various external financing patterns. The sample of firm-months with

[25] An alternative is to study specific security issuances (as in Table 3). However, forming portfolios on each combination of external financing types would yield numerous portfolios: BL and SEO, BL and PD, SEO and PD, IPO, SEO, and PD, etc. The portfolios for many combinations of security issuance would include only a small number of firms.

Table 5
Four-factor model results.

Results from estimating the Fama/French three-factor model for portfolios made up of firms with similar financing histories: $(R_{pt}-R_{ft})=\alpha+\beta(VWRETD_t-R_{ft})+sSMB_t+hHML_t+mMOM_t+\varepsilon$ where R_{pt} is the return on the portfolio of sample firms in month t; R_{ft} is the three-month T-bill yield in month t; $VWRETD_t$ is the return on the value-weighted index (*VWRETD*) or equal-weighted index (*EWRETD*) of NYSE, Amex, and Nasdaq stocks in month t; SMB_t is the return on small firms minus the return on large firms in month t; and HML_t is the return on high book-to-market stocks minus the return on low book-to-market stocks in month t. MOM_t is Carhart's (1997) momentum factor realization for month t. Portfolios of firms with similar funding were formed on both an equal-weighted (EW) and a value-weighted (VW) basis. Each portfolio's regression was estimated for the period January 1983 through December 2005. We form five portfolios based on *XF1*, *XF2*, *XF3*, and *XF4*. The firm-month return is included in a given portfolio if the corresponding dummy variable is equal to one under the variable-length window definition. The weighted regressions weight each observation by the square root of the N where N is the number of firms in the portfolio for that month. p-Value of difference ($Int-Int_{XF1}$) is the p-value of the test that the intercept is different from the intercept from *XF1* portfolio. [a,b,c] indicate significance at 10%, 5%, 1% levels.

	Value-weighted portfolios				Equal-weighted portfolios			
Portfolio	Intercept	p-Value of difference ($Int-Int_{XF1}$)	N	Adj. R^2	Intercept	p-Value of difference ($Int-Int_{XF1}$)	N	Adj. R^2
Panel A: Unweighted regressions								
XF1	0.0003		276	0.90	0.0021		276	0.92
Repeat	−0.0009	0.4264	276	0.85	−0.0011	0.0138	276	0.87
XF2	−0.0031[b]	0.0121	276	0.87	−0.0031[b]	0.0001	276	0.90
XF3	−0.0080[b]	0.0087	276	0.58	−0.0089[c]	0.0001	276	0.73
XF4	−0.0200[a]	0.0519	170	0.13	−0.0225[b]	0.0113	170	0.24
Panel B: Weighted regressions by square root of N								
XF1	0.0004		276	0.90	0.0024[a]		276	0.92
Repeat	−0.0004	0.7885	276	0.85	0.0005	0.0129	276	0.87
XF2	−0.0029[b]	0.0180	276	0.87	−0.0029[b]	0.0001	276	0.91
XF3	−0.0075[b]	0.0082	276	0.62	−0.0079[c]	0.0001	276	0.76
XF4	−0.0190[a]	0.0522	170	0.16	−0.0202[b]	0.0203	170	0.31

XF1=1 indicates an insignificant monthly excess return of 3 bps. *Repeat*edly issuing the same security type also has no significant long-run return effect. However, the estimated effects of issuing two, three, or four different security types are very large, with monthly underperformance of 31, 80, and 200 bps, respectively. Moreover, each of these coefficients differs reliably from the return to firms issuing a single security type. Subsequent financing activity associates with significantly different return performance than single issuances. The literature's inferences appear to be driven by previously unexamined effects of subsequent financing.

As noted, high idiosyncratic noise in those portfolios containing few firms may bias test statistics toward zero. The *XF1* and *XF2* portfolios in Panel A contain more than 100 firms for all 276 months (from January 1983–December 2005). The *Repeat* portfolios contain more than 100 firms in all but 40 of the 276 months, and always more than 60 observations in a month. The *other two* portfolios tend to be smaller: the *XF3* monthly portfolios include fewer than 51 (but more than ten) securities in 153 of the 276 sample months, and the *XF4* monthly portfolios never include more than ten individual securities. We therefore re-estimate the models in Panel A using weighted least squares where each observation's weight equals the square root of the number of firms in that month's portfolio. Although the estimated underperformance amounts associated with *XF2–XF4* are slightly reduced, they remain large, statistically significant, and reliably different from the return to firms issuing only one type of security (*XF1*). We conclude that the factor-model results in Table 5 closely conform to the Fama–MacBeth estimates in Tables 3 and 4.

6.3. *Buy-and-hold abnormal returns (BHARs)*

Evaluating the BHARs associated with various financing patterns provides a third method for testing whether security issuance is reliably followed by long-run underperformance. Given the importance of matching event firms with otherwise-similar, non-issuing firms, we report BHARs based on a variety of three-dimensional matching criteria. All matches were undertaken on the basis of size and equity's book-to-market value. The columns in Table 6 differ in the third characteristic on which matching firms were selected. The third factor was total asset growth in column 1, *CAPEX_g* in column 2, and so forth, giving nine sets of BHARs for each financing pattern (*XF1–XF4*). We report the event firms' mean return, the peer firms' mean return, the mean BHAR, and its statistical significance (compared to zero). Given that we are not conducting cross-sectional regressions, we cannot use the fixed-length window approach since we do not have dummy variables that will capture the influence of subsequent financing activity on returns. Thus, as in the Fama–French approach, we use the variable-length window in constructing the *XFi* variables to ensure that subsequent financing holding periods capture the months that would otherwise overlap with prior financing windows. That is, the *XF1* dummy is "on" only when the firm has issued a single type of security in the past 36 months, e.g., from [t, t+12] and [t+37, t+48] in Fig. 2.

The results indicate that the BHAR following a single security issuance is negative and significant only for one set of peer firms out of the nine. (This is the set based on a size, *B/M*, and R&D match.) For the other eight peer groupings, the BHARs for *XF1* are positive, and four of them differ reliably from zero. In other words, there is

Table 6
Buy and hold abnormal returns.

Mean buy-and-hold returns for financing firms (event firms) and non-issuers (Peer firms) and their difference (BHAR). Peer firms are matched on the basis of size, equity's market-to-book ratio, and the characteristic identified at the top of each column: *CAPEX* and *R&D* expenditures, as well as *Cash*, are all relative to total assets. *TA_g* is Cooper, Gulen, and Schill (2008) measure of asset growth. *CAPEX_g* is the percentage increase in the ratio of CAPEX-to-assets from the prior year. Tobin's *Q* is market-to-book assets. *Leverage* is long-plus short-term debt divided by assets. *OIBD* is operating income before depreciation scaled by assets. *Size* is the natural log of the market value of equity. *Momentum* is cumulative stock return over the preceding fiscal year. Low *Z* is a dummy equal to one if the *Z*-score is less than 1.81 (Denis and Mihov, 2003; Altman, 1977). *B/M* is book-to-market equity. *Accruals* are discretionary accruals calculated using the modified Jones method (see Jones, 1991; Dechow, Sloan, and Sweeney, 1995). The third factor was *TA_g* in column 1, *CAPEX_g*, and so forth. For each financing pattern (*XF1–XF4*), we report the event firm's mean cumulative return, the peer firms' mean cumulative return, and the difference between these two. The returns are computed using the variable-length window approach. [a,b,c] indicate significance at 10%, 5%, 1% levels.

	Growth indicators				Financial condition indicators				Stock performance
	TA_g	*CAPEX_g*	*CAPEX*	*R&D*	*CASH*	*Leverage*	*Accruals*	*OIBD*	*Momentum*
Matching criteria (in addition to size and book-to-market)									
XF1 = 1									
Event firms	0.2362	0.2100	0.2421	0.2644	0.2067	0.2116	0.2180	0.2423	0.2063
Peer firms	*0.1918*	*0.1840*	*0.2012*	*0.2998*	*0.1801*	*0.1893*	*0.1798*	*0.1940*	*0.1958*
BHAR	0.0444[b]	0.0260[a]	0.0408	−0.0354[b]	0.0266	0.0223	0.0382[b]	0.0482[c]	0.0105
N	8,106	8,170	8,282	10,860	8,423	7,671	7,874	8,610	9,142
XF2 = 1									
Event firms	0.0555	0.0414	0.0463	0.0612	0.0451	0.0375	0.0378	0.0481	0.0487
Peer firms	*0.0523*	*0.0833*	*0.0523*	*0.1082*	*0.0627*	*0.0691*	*0.0801*	*0.0787*	*0.0717*
BHAR	0.0032	−0.0419[c]	−0.0060	−0.0470[c]	−0.0175[b]	−0.0316[c]	−0.0423[c]	−0.0306[c]	−0.0229[b]
N	6,554	6,685	6,699	7,959	6,890	6,365	6,440	6,826	7,620
XF3 = 1									
Event firms	0.0058	−0.0029	−0.0067	0.0095	−0.0029	−0.0075	0.0229	−0.0068	0.0034
Peer firms	*0.0317*	*0.0515*	*0.0624*	*0.0625*	*0.0550*	*0.0668*	*0.0446*	*0.0712*	*0.0491*
BHAR	−0.0259	−0.0544[c]	−0.0691[c]	−0.0530[c]	−0.0578[c]	−0.0743[c]	−0.0217	−0.0780[c]	−0.0457[c]
N	940	978	969	1,192	1,002	926	943	992	1,137
XF4 = 1									
Event firms	−0.0529	0.0070	−0.0528	−0.0283	−0.0376	−0.0549	−0.0370	−0.0711	−0.0739
Peer firms	*0.0744*	*0.0407*	*−0.0079*	*0.0944*	*0.0704*	*0.0541*	*0.1016*	*0.0301*	*0.0546*
BHAR	−0.1273[b]	−0.0337	−0.0450	−0.1227[b]	−0.1080[b]	−0.1091[a]	−0.1385	−0.1012[b]	−0.1285[b]
N	41	49	49	55	43	31	39	43	53

little support for the hypothesis that issuing a single security type causes subsequent underperformance, consistent with our previous findings. All but one of the 27 BHARs associated with *XF2*, *XF3*, and *XF4* are negative, and most differ significantly from zero. Moreover, the extent of underperformance rises with the number of security types issued, averaging −2.63%, −5.33%, and −10.16% for *XF2*, *XF3*, and *XF4*, respectively, across the nine peer definitions. Overall, we conclude from Table 6 that our BHAR results confirm the conclusions from our Fama–MacBeth and four-factor model tests.

7. Conclusion

The existing literature indicates that the issuance of most external financial claims portends poor subsequent stock returns. Taken literally, these single-claim studies imply that raising external finance is associated with poor future performance. Could corporate governance or managerial incentives generally be so poor that this is true?

We examine financing choices in a comprehensive context, to see whether underperformance is associated with claim-type or rather the tendency to issue multiple claim-types. We find strong evidence supporting the latter. The estimated underperformance following issuances of single claim- types is highly dependent on whether one accounts for other financing events by the same issuer. Controlling for issuances of additional claim-types eliminates the estimated underperformance following bank loans, SEOs, and, to a lesser degree, private equity issuances.[26] We find that multiple financing patterns generate much worse performance than the single events evaluated previously in the literature. Taken together, our results suggest that external finance, per se, does not augur future underperformance; rather, underperformance is more a function of the variety and frequency of firms' issuance activities. Future research may determine why firms would engage in such issuance behavior, knowing that, on average, underperformance follows.

[26] While the coefficient on *PVEQ* becomes statistically insignificant, the economic magnitude remains large.

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