# The Puzzle of Frequent and Large Issues of Debt and Equity

Rongbing Huang and Jay R. Ritter*

This Draft: January 23, 2020

## ABSTRACT

More frequent, larger, and more recent debt and equity issues in the prior three fiscal years are followed by lower stock returns in the subsequent year. The intercept of a q-factor calendar-time regression for the value-weighted portfolio of firms with at least three large issues is -0.63% per month (t-statistic =-4.31). Purging the factor returns of recent issuers increases the magnitude of the estimated underperformance following frequent equity issues. A value-weighted Fama-MacBeth regression shows that firms with three equity issues underperform non-issuers by 0.65% per month (t-statistic =-2.65). Earnings announcement returns are low following frequent issues, especially equity issues.

Keywords: New issues puzzle, Seasoned Equity Offerings, Debt issues, Equity issues, Long-run performance, Market efficiency

JEL classifications: G14, G32

* Huang is from the Coles College of Business, Kennesaw State University, Kennesaw, GA 30144. Huang can be reached at rhuang1@kennesaw.edu. Ritter is from the Warrington College of Business Administration, University of Florida, Gainesville, FL 32611. Ritter can be reached at jay.ritter@warrington.ufl.edu. We thank an anonymous referee, Mark Flannery, Jon Garfinkel, Jason Karceski, Paul Malatesta (editor), Feng Zhang, Clara Qing Zhou, and the participants in seminars at Kennesaw State University, the University of Calgary, York University, and the 2016 FMA Annual Meeting and the 2017 FMA Asia/Pacific Conference for comments, Kenneth French for making the Fama-French factor returns available, and Lu Zhang for sharing the q-factor returns.

## I. Introduction

In this paper, we show that frequent and large issues of debt or equity in the prior three fiscal years are followed by low average stock returns in the subsequent year. The value-weighted (VW) averages of raw returns during the next year are 12.2% for firms with no significant external financing in the prior three fiscal years, 10.8% for firms that have issued debt or equity only once, and only 3.9% for firms that have issued debt or equity at least three times. For firms that have at least three large issues, the VW average raw return is even lower, at -1.2%.

We show, using the Hou, Xue, and Zhang (2015) q-factor model, that the larger the issue size and the more frequent the issuance, the greater the underperformance. Our results are similar if we use the Fama-French (2015) 5-factor model as the benchmark. The q-factor model time-series regression intercept during 1975–2018 decreases from 0.12% per month (t-statistic=2.88) in the subsequent year for the VW portfolio of firms with no external financing in the prior three years to -0.00%, -0.32%, and -0.63% per month (t-statistics= -0.08, -2.54, and -4.31), for the VW portfolios of firms with one debt or equity issue, three or more equity or debt issues, and at least three large issues, respectively. We call these patterns the puzzle of frequent and large issues of debt and equity.

We also find that more recent issues are followed by lower average stock returns than issues from several years ago. In other words, the abnormal returns decay over time. The VW portfolio of firms that issued equity in fiscal year t has a q-factor alpha of -0.37% per month (t-statistic=-3.11) in t+1, but the VW portfolio of firms that issued equity one or more times in the prior three years has an insignificant q-factor alpha of only -0.08% per month in the subsequent year, suggesting that the use of the 3-year post-event window in many existing studies is less able to detect abnormal returns than the use of the 1-year post-event window.

An economically important proportion of firms engage in substantial external financing activity over a three-year period. Over 10% of all firm-years are preceded by at least three issues of debt or equity in the prior three years, with a firm classified as an issuer of equity or debt in a (fiscal) year if the equity or debt issue exceeds 5% of assets and 3% of the market cap at the beginning of the year. Almost 6% of all firm-years are preceded by at least three large issues, with a large issue defined as exceeding 10% of assets and 3% of the market cap. We measure the issue size using Compustat Statements of Cash Flow information, and thus do not include debt acquired in acquisitions or stock issued in stock-financed acquisitions, but do include increases in bank loans as debt issues and Private Investments in Public Equity (PIPEs) as equity issues.

Equity issues on average are followed by lower raw returns than debt issues. Equity and debt issuers, however, have different characteristics. Although both invest heavily, debt issuers are much more likely to be profitable than equity issuers. Using Fama-MacBeth (1973) regressions that control for several characteristics, we show that equity issues are followed by lower abnormal returns than debt issues. A Fama-MacBeth regression using weighted least squares with value (market cap) weights shows that firms that issued equity in each of the prior three years underperform non-issuers by 0.65% per month (t-statistic=-2.65), in contrast to insignificant outperformance of 0.02% per month for firms with three debt issues. Our calendar-time q-factor regressions, however, provide mixed evidence on the relation between security type and subsequent abnormal stock returns.

Although we follow the practice in the literature of reporting the results of time-series factor regressions, factor regressions using the Hou, Xue, and Zhang (2015) or Fama and French (2015) factors have intercepts, which are the abnormal performance measure, that are biased towards zero in our context. The reason is that firms with low book-to-market, small size, low

profitability, and high investment are disproportionately equity issuers. Thus, to some degree the low returns on issuing firms are being used to explain the low returns on issuing firms. To remove this bias, following Loughran and Ritter (2000), we construct "purged q-factors" that include only stocks that have not issued debt or equity during the prior three years. Using these purged factors, we report q-factor model intercepts that are approximately 15 basis points per month more negative for frequent equity issuers, although the purging makes little difference for frequent debt issuers. For the VW portfolio of firms that issued equity in both of the two prior fiscal years, the q-factor regression intercept increases in magnitude from -0.61% per month (t-statistic=-3.42) before purging to -0.78% per month (t-statistic=-4.33) after purging.

Our paper is not the first to examine abnormal returns after multiple securities issues. Using a sample of U.S. firms issuing in 1980-2005, Billett, Flannery, and Garfinkel (2011) find that firms that issue multiple types of securities have lower long-run stock performance than those that issue just one type of security. We find that it is not the number of types of securities that are issued that matters, but the number of issues, and the recency and size of each issue.

Although there is widespread agreement among researchers that stock returns following equity issues tend to be low, there is conflicting evidence in the extant literature on whether, after controlling for the characteristics of issuing firms using time-series multifactor regressions, there are negative abnormal returns. Much of this literature focuses on including additional factors in factor regressions, but does not emphasize the importance of issue size, frequency, recency, or factor-purging. We provide strong evidence that the ability to detect abnormal returns following issuance depends on whether firms that only occasionally raise a small amount of capital are included in the issuer portfolio, how long issuers stay in the portfolio, and whether the factors are

purged of recent issuers. In other words, methodological choices affect the power to detect abnormal returns.

We form portfolios constructed at the end of the fourth month after the end of a firm's fiscal year using statements of cash flow information, with the delay motivated by the time that it takes for companies to make their financial statements public. We thus add these companies to the issuer portfolio ten months after the issuance, on average, assuming that issuance on average occurs in the middle of the fiscal year.

Ritter (2019) shows on his website that the low returns on stocks after initial public offerings (IPOs) and seasoned equity offerings (SEOs) do not start until about six months after issuance. Consistent with our finding on issue recency, he also shows that the low stock returns do not persist for much more than two years. Thus, if firms are added to a portfolio of issuers too quickly, or stay in the portfolio for too long, the quantitative magnitude, and statistical significance, of the average underperformance of the portfolio are reduced. As is also done in many other papers in the literature, Bessembinder and Zhang (2013) construct portfolios of IPOs and SEOs immediately after issuance and keep stocks in the portfolios for five years, with both of these timings moving their abnormal returns towards zero.

We do not directly address why there are negative abnormal returns on firms that are frequent, large, and recent issuers. We do provide strong evidence that more frequent and larger issues, especially equity issues, are associated with lower stock returns around the earnings announcements made in the subsequent year. Risk-based theories cannot easily explain the magnitude of the negative abnormal earnings announcement returns.

Hou, Xue, and Zhang (2019b) suggest that most of the 452 anomalies that they examine are driven by microcap stocks. Importantly, microcap stocks do not drive our major results.

Furthermore, the underperformance of frequent and large issuers has not weakened over time. For example, the q-factor regression intercepts for the VW portfolio of firms with at least three large issues are both -0.63% per month (t-statistics= -3.22 and -2.74, respectively) during 1975-1996 and 1997-2018.

The existing literature on long-run performance following external financing events has focused almost exclusively on which factors or characteristics to control for. We add four new findings to the literature. First, we find that, even after controlling for investment and profitability, frequent and large issuers underperform non-issuers by economically and statistically significant amounts. Our second finding is that the abnormal return is more negative in the first year after the fiscal year of the security issuance than in the second or third year. Our third finding is that purging the factors increases the magnitude of the estimated underperformance following frequent equity issues in calendar-time q-factor model regressions. Finally, we explain how methodological choices affect the ability of different studies in the existing literature to find abnormal returns following external financing events.

## II. Sample Construction and Distribution

Our sample starts with non-financial and non-utility firms with information from Compustat and CRSP. We require cash flow information over the three fiscal years from t-2 to t. All returns are from CRSP, and include capital gains, dividends, and other distributions. Because the cash flow information is available only from fiscal year 1971 and CRSP does not include returns on Nasdaq-listed stocks before December 1972, our final sample starts from fiscal year 1974. Since we examine stock returns from month 5 to month 16 after each fiscal year, our sample period ends at fiscal year 2017. We require net equity and net debt issue amounts in year t, t-1, and t-2, as well as the book value of assets and the market value of equity at the beginning

of each year.[1] We further drop firm-year observations for which the book value of equity at the end of year t or operating income before depreciation in year t has a missing value. Our final sample includes 141,064 firm-year observations from fiscal years 1974–2017.

A firm is defined to have an equity issue or a debt issue in a year if the net equity issue amount or the net debt issue amount in the year is at least 5% of the book value of assets and at least 3% of the market value of equity at the beginning of the year.[2] A firm is defined to have a large equity issue or a large debt issue in a year if the net equity issue amount or the net debt issue amount in the year is at least 10% of the book value of assets and at least 3% of the market value of equity at the beginning of the year. Because statements of cash flow are used, a firm making a large acquisition financed by issuing stock to the shareholders of the target firm would not necessarily be classified as an equity issue, nor would a firm that increases its book value of equity by retaining earnings. Our definition of debt issues includes both increases in bonds and increases in bank loans, although bank loans are technically not securities.

We use security issuance information in year t, t-1, and t-2 to assign a firm into an issuance category and examine its stock return in the subsequent year from the 5$^{th}$ month after the end of t. For example, assume that a firm has an equity issue in year t-2 and another equity issue in t, but no equity issue in t-1, t+1, and t+2. The firm will be defined as issuing equity two times for the three-year window ending at the end of year t, and one time for the three-year windows ending at the end of year t+1 and at the end of year t+2. If a firm has issued equity and debt in each of the past three years, it would be classified as having six issuances. Our approach is similar to the "variable-length" window approach in Billett, Flannery, and Garfinkel (2011),

[1] The requirement of the market value at the beginning of each year from t-2 to t excludes firms that have not been publicly listed for at least three years.
[2] The 3% of market value screen eliminates from the equity issuer category most companies with employee stock option exercises but no other equity issues.

although we aggregate all issue amounts of equity (or of debt) in a fiscal year to measure issuance activity.

Panel A of Table 1 reports the sample distribution by the total number of issues and the total number of large issues. In our sample, 57.7% of firm-years are preceded by at least one debt or equity issue in the prior three years. Multiple security issues over consecutive years are common. For 10.3% of firm-years, there are at least three issues in the prior three years. Many firms raise a large amount of external capital. 43.6% of firm years are preceded by at least one large issue in the prior three years. For 6.3% of firm-years, there are at least three large issues in the prior three years. Thus, an economically important percentage of firms does significant external financing.

Panel B of Table 1 reports the two-way distribution by the number of equity issues and the number of debt issues. The proportions of firm-years preceded by one, two, and three equity issues in a three-year window are 17.1%, 6.2%, and 2.3%, respectively, with the sum of 25.7% being the proportion with at least one equity issue. The 3,255 firm-years with three equity issues in the prior three years belong to 1,610 unique firms. The corresponding proportions of firm-years that are preceded by one, two, and three debt issues are 31.3%, 11.5%, and 2.6%, respectively, with the sum of 45.4% being the proportion with at least one debt issue. At least one debt issue and at least one equity issue precede 18,798 firm-years, or 13.3% of the sample observations. Panel C of Table 1 reports the two-way distribution of large equity and debt issues. In our sample, 9.0% of firm-years are preceded by at least one large debt issue and at least one large equity issue.

Many documented anomalies are driven by microcap stocks (Hou, Xue, and Zhang (2019b)). A microcap stock is defined as a stock with a market cap that places it in the bottom

20% of the distribution of NYSE stocks for that year. Non-microcaps account of 44.7% of our sample. Internet Appendix Table IA-3 reports the distribution of non-microcaps. Firms with frequent security issues are not overwhelmingly microcaps. Non-microcaps account for 38.7% of the firm-years with at least three security issues, a fraction that is only slightly below the 44.7% that would be expected if security issuance was uncorrelated with market cap.

## III. Average Firm Characteristics and Post-Issuance Buy-and-Hold Stock Returns

Table 2 reports the mean firm characteristics. Panel A reports the means categorized by the number of equity issues in the prior three years. Firms with more equity issues on average are smaller, and have a higher market-to-book ratio and much faster asset growth. More equity issues are also associated with much lower operating income before depreciation divided by the book value of total assets (OIBD÷Assets) and much lower return on equity (ROE). Although we only report means, DeAngelo, DeAngelo, and Stulz (2010, Table 2) document that there is a large amount of heterogeneity among firms conducting SEOs, confirmed in our Internet Appendix Table IA-1. Panel B reports the means categorized by the number of debt issues. More debt issues are associated with much larger investment, as measured by the asset growth rate. The number of debt issues is not strongly related to firm size, market-to-book, or profitability. Comparing Panels A and B of Table 2, although equity issuers and debt issuers are quite different in every other characteristic, they both invest heavily.

Panel C of Table 2 reports the average firm characteristics sorted by the total number of issues, from zero to a maximum of six. Also reported are the means conditional on at least three, or at least four, issues in the prior three years. The number of issues has a strong and positive relation with investment.

Panel D of Table 2 reports the average firm characteristics double-sorted by the number of equity issues and the number of debt issues. Conditional on the number of debt issues, the number of equity issues is positively related to the market-to-book ratio and investment, and negatively related to profitability. Conditional on the number of equity issues, the number of debt issues is positively related to investment. On average, firms with three equity issues and zero debt issues have the highest market-to-book ratio and are the smallest and the least profitable.

In the Internet Appendix, Table IA-4 reports the mean firm characteristics sorted by the number of large issues. Relative to security issuers in Table 2, large security issues in Table IA-4 are generally slightly smaller and less profitable, grow more rapidly, and have a higher market-to-book ratio. Other than that, the patterns in Table IA-4 are similar to the patterns in Table 2.

Table 3 reports mean post-issuance stock returns. Because microcaps have a large influence on equal-weighted (EW) averages while large caps have a large influence on value-weighted (VW) averages, we report both EW and VW averages. We also report both one-year and three-year buy-and-hold returns in the table, but will focus on one-year returns in the following discussions. We measure the returns starting at the end of four months after the end of fiscal year t (May 1 for a December 31 fiscal year) in order to allow the release of financial statements for year t before portfolios are formed.

Panel A of Table 3 reports the mean returns sorted by the number of equity issues in the previous three years. For firms with zero, one, two, and three equity issues in the prior three years, the EW mean one-year buy-and-hold returns in the following year are 18.0%, 11.3%, 2.3%, and -7.3%, respectively, a spread of 25.3% between non-issuers and three-time issuers of equity. The very large spread of 25.3% and the very low return of -7.3% per year for this last category are unlikely to be explained by risk-based theories. The negative correlation between

equity issuance frequency and subsequent stock returns is not limited to microcaps. The VW mean buy-and-hold returns in the following year have a spread of 16.1% between the non-issuers and three-time issuers of equity, suggesting that the pattern is weaker but also exists for non-microcaps. The corresponding EW and VW mean market-adjusted buy-and-hold returns in the following year have a spread of 22.9% and 13.4%, respectively, between the non-issuers and three-time issuers of equity. The 3-year spreads are even wider.[3]

Panel B of Table 3 reports the EW and VW mean buy-and-hold returns sorted by the number of debt issues. The EW results suggest that more frequent debt issues are followed by low stock returns. However, the VW results show only a weak negative relation between debt issuance frequency and subsequent stock returns.

Whether using EW or VW raw returns or market-adjusted returns, the spread in one-year subsequent returns between the most frequent issuers and non-issuers is more than twice as large when sorted on equity issuance as the spread when sorted by debt issuance. The similarity of the spreads when either raw returns or market-adjusted returns are used suggests that most of the action is due to abnormal returns rather than the ability to time general movements in debt and equity markets.

Panel C of Table 3 reports the EW and VW average buy-and-hold returns sorted by the number of issues, with frequent issuers generally having lower returns. Firms with no debt or equity issue in the previous three years have an EW average raw return of 18.8% and VW average raw return of 12.2% in the following year. In contrast, firms with six issues have an EW

[3] Approximately 77.7% of the 3,255 firm-years with three equity issues in the three prior years are followed by a negative three-year market-adjusted stock return. Of the 3,255 firm-years, 1,003 firm-years are of biotech firms. This industry concentration is not surprising, since most biotech firms have large funding needs. The EW average subsequent one-year market-adjusted return is -10.6% for the 1,003 biotech firm-years and -18.9% for the 2,252 non-biotech firm-years, showing that firms from other industries do even worse than biotechs.

mean raw return of -13.0% and VW mean raw return of -12.8% in the subsequent year.[4] The spread in the subsequent EW mean one-year raw returns between firms with zero and six issues is a stunning 31.8%. The spread in the EW mean 3-year buy-and-hold return for firms with zero and six issues is 73.2%! Panel D of Table 3 reports the average returns double-sorted by both the number of equity issues and the number of debt issues. Conditional on the number of debt issues, more equity issues are generally followed by lower stock returns. Conditional on the number of equity issues, more debt issues are generally followed by lower stock returns.

Panels E-H of Table 3 report the EW and VW mean returns following large issues, which are a subset of all issues. The patterns for large issues are often more extreme than those for all issues. Because large issuers are more likely to be small firms that are unprofitable (at least for the equity issuers) with aggressive investment, in the next section we will control for these characteristics in multifactor time-series regressions.

## IV. Calendar-Time Factor Regression Results

### *A. Stock Returns following Equity Issues*

Table 4 reports the monthly excess returns and calendar-time factor regression results for portfolios formed on the basis of the frequency of equity issues for all issues and for large issues, using monthly value-weighted (VW) and equal-weighted (EW) returns from January 1975 to December 2018.[5] We report the coefficients from Hou, Xue and Zhang's (2015) q-factor model and Fama and French's (2015) 5-factor model. The multifactor models allow us to test whether

[4] In Internet Appendix Table IA-1, we list the company names, characteristics, and subsequent returns for, respectively, firms conducting three equity issues, three debt issues, and six issues in total during fiscal years 2005-2007. Heavy industry concentrations are apparent, with biotech companies among frequent equity issuers, and oil & gas companies among frequent debt issuers. Issuers in other years have different industry concentrations. Industry concentrations could reflect time-variation in investor sentiment, investment opportunities, and profitability.

[5] We start from January 1975 and end in December 2018 because our Compustat sample period is from fiscal year 1974 to 2017, and we examine stock returns beginning four months after the fiscal year-end. Equal-weighting and value-weighting have relative strengths and weaknesses (Loughran and Ritter (2000)).

there are independent issuer effects after controlling for cross-sectional patterns related to size, value, investment, and profitability.[6]

Panel A of Table 4 reports monthly abnormal returns for portfolios sorted by the number of equity issues. Beginning in the 5th month after the end of its fiscal year, a firm is in a portfolio for 12 months or until its delisting date, if this date is earlier. For example, a retailer with a fiscal year-end in January 2012 would be in the portfolio from June 2012 through May 2013. A coefficient is highlighted in bold to signify that it is statistically different from the corresponding coefficient in the first column (no issuance) of the same subpanel at the 5% level.

Consistent with the results in Table 3, The VW and EW average monthly excess returns on portfolio p, $R_{pt} - R_{ft}$, decrease as the number of equity issues increases. The VW average excess return is 0.75% per month for the portfolio of firms with no equity issue in years t-2 to t and -0.23% per month for the portfolio of firms with three equity issues, a spread of nearly 1%. This spread is significantly different from zero at the 5% level. Correspondingly, the spread in the EW average monthly excess returns for the two portfolios is 1.80%.

For the VW portfolio of firms with no equity issuance in the past three years, the q-factor intercept is a significantly positive 0.07% per month, but the 5-factor intercept is indistinguishable from zero. For the EW portfolio of firms with no equity issuance, the q-factor and 5-factor intercepts are 0.45% and 0.28% per month, respectively.

For the VW or EW portfolio of firms that issued equity only once in the past three years, a category that represents 66.7% of firms that have issued equity one or more times, the q-factor model or 5-factor model intercept is close to zero, consistent with studies that find no abnormal

[6] Tables 4-8 rarely report 5-factor model results, and EW results are not reported in some of the tables. We report these results in our Internet Appendix Tables IA-5 through IA-9 instead, where we also report market model and Fama-French 3-factor model results.

returns for equity issuing firms in multifactor models or Fama-MacBeth regressions that control for important firm characteristics, such as Lyandres, Sun, and Zhang (2008), Bessembinder and Zhang (2013), and Bessembinder, Cooper, and Zhang (2019). However, the q-factor intercepts are -0.40% per month for the VW portfolio of firms with two or more equity issues and -0.46% per month for the VW portfolio of firms with three equity issues. The corresponding 5-factor intercepts are -0.49% and -0.74% per month, respectively. The spread in the intercepts between the VW portfolios of non-issuers and frequent equity issuers (≥2) is 0.47% in the q-factor model and 0.51% in the 5-factor model.

In both the q-factor and 5-factor models, the slope for the size factor is strongly positive for firms with one or more equity issues, consistent with our Table 2 results that equity issuers tend to be smaller than other firms. The slope for the value factor in the 5-factor model is negative for equity issuers, suggesting that equity issuers tend to be growth firms rather than value firms. The negative slopes (factor loadings) on the q-factor model's ROE factor, $b^{ROE}$, or on the 5-factor model's operating profitability factor, r, for equity issuers are consistent with our Table 2 findings of low profitability for equity issuers. The negative slopes on the investment factors, $b^{I/A}$ and c, suggest that equity issuers invest more than other firms. Surprisingly, the slope coefficients on the investment factors do not differ much between firms that issued equity once vs. two or more times in the past three years.

Motives for large equity issues could include large investment needs (including paying for R&D expenses) and market timing. Panel B of Table 4 reports the results of the q-factor model regressions for the portfolios sorted by the number of large equity issues. Results for the Fama-French 5-factor model are qualitatively similar, and are reported in Internet Appendix Table IA-5. The VW portfolio of firms with three large equity issues has a q-factor intercept of

-0.59%. Although the intercept of -0.32% for the EW portfolio of firms with three large equity issues is not statistically different from zero, the spread between the EW portfolios of firms with three large equity issues and firms with no large equity issue is a statistically significant -0.75% per month. For firms conducting two or more equity issues in the prior three years, the abnormal returns are generally more negative for large issues than for all issues.

Our results in Panels A and B of Table 4 show that firms with frequent and large equity issues have negative slope coefficients on the investment and ROE factors. As a result, the abnormal returns following frequent and large equity issues are less anomalous (closer to zero) once we control for the factors. We now address how much the recency of issuance matters.

Panel C of Table 4 reports the average monthly excess returns and q-factor regression results for the portfolios sorted by the frequency and recency of equity issues in year t, t-1, and t-2. The first column in Panel C, with no equity issues in the prior three years, is the same as the first column in Panel A. In the second to last column of Panel C, we also pool the firm-years with (1,1,0) with (1,1,1) to have a better diversified portfolio. These are the firms with equity issues in both of the last two years. As shown in Table IA-2 of the Internet Appendix, the pooled portfolio includes 6,189 firm-years, with an average of almost 141 stocks in the portfolio each month. In the second to last column, the VW and EW intercepts of the q-factor model are -0.61%, and -0.28% per month, respectively. More recent (e.g., (1,1,0) relative to (0,1,1)) equity issues are followed by lower returns in year t+1, indicating a gradual diminution of abnormal returns: the VW intercept of the q-factor model is -0.58% per month in the column of (1,1,0) and -0.26% in the column of (0,1,1). The last column shows that an equity issue in t is followed by a q-factor abnormal VW return of -0.37% per month in t+1 with a t-statistic of -3.11. In comparison, the q-factor VW intercept in Panel A for firms with at least one equity issue in the

prior three years is -0.08% per month with a t-statistic of only -0.83. Thus, the use of the 3-year post-event window in many existing studies has less power to detect abnormal returns than the use of the 1-year post-event window. These findings suggest that if low stock returns following equity issues reflect a low required rate of return, the low rate is only temporary.

*B. Stock Returns following Debt Issues*

Table 5 reports the results from calendar time factor regressions of VW and EW portfolio returns following debt issues. In Panel A, the average monthly excess return does not vary substantially across the columns sorted by the number of debt issues for the VW portfolios, although it substantially decreases with the number of debt issues for the EW portfolios. This pattern suggests that small firms, but not big firms, that issue debt have low subsequent returns. For the VW portfolio of firms with no debt issues, the intercepts of the q-factor model and the 5-factor model are reliably positive 0.12% and 0.07%, respectively. However, for the VW portfolio of firms with at least two debt issues, the q-factor and 5-factor intercepts are -0.12% and -0.20%, respectively, both of which are statistically different from the intercepts for the VW portfolio of firms with no debt issues. In comparison, the corresponding q-factor and 5-factor intercepts for frequent equity issuers in Table 4, Panel A are -0.40% and -0.49%. For the VW portfolios, the slopes on the operating profitability factor or the ROE factor are positive or close to zero for frequent debt issuers, in contrast to the negative slopes for frequent equity issuers. These findings are consistent with the Table 2 summary statistics, which show that equity issuers are less profitable than debt issuers, and are intuitively plausible: profitable firms find it much easier to borrow than money-losing firms.

Panel B of Table 5 reports the results of q-factor regressions sorted by the number of large debt issues, with 5-factor results reported in Internet Appendix Table IA-6. There is

evidence of reliable underperformance following frequent large debt issues. For the VW portfolio of firms with at least two large debt issues, the q-factor intercept is -0.29%. The intercept is a much lower -0.83% for the VW portfolio of firms with three large debt issues.

Panel C of Table 5 reports the q-factor results sorted by the frequency and recency of debt issues. There is weak evidence that more recent debt issues are associated with more negative abnormal stock returns. For example, the VW intercept of the q-factor model is -0.23% per month in the (1,1,0) column and -0.15% in the (0,1,1) column. The second to last column, which pools (1,1,0) and (1,1,1) firm-years, includes 9,143 firm-years, and reports q-factor VW and EW intercepts of -0.20% and -0.34%, respectively. For the VW portfolios, the slopes of the ROE factor, $b^{ROE}$, are slightly positive in most cases. The spread in the VW intercepts between columns (0,0,0) and the second to last column is 0.32%. As shown in the last column, a debt issue in t is followed by a q-factor abnormal return of -0.11% per month in t+1, with a t-statistic of -1.70. In comparison, the q-factor intercept of -0.06% in Panel A for firms that issued debt at least once in the prior three years has a t-statistic of only -1.18. These results again suggest that using a 1-year post-issuance window is better able to detect abnormal returns than using a 3-year post-issuance window.

Our Tables 4 (equity) and 5 (debt) results showing that the abnormal returns following issuance are lower, the more frequent, the larger, and the more recent are the issues, have implications for the power of various specifications to detect abnormal returns. Figure 1 provides a summary of the q-factor model intercepts for the portfolios sorted by issue frequency, size, and recency. In most of the analysis of Billett, Flannery, and Garfinkel (2011) (Henceforth, BFG), for example, the effect of an issue has been specified to last up to 71 months. Bessembinder and Zhang (2013, Panel E of Table 4) use portfolios composed of firms that conducted an event

within the prior 60 months. Their abnormal returns would presumably be stronger if they used a shorter window. These papers also do not address the importance of the size of each issue in explaining subsequent stock returns.

*C. Factor Contamination and Purging*

The intercepts in the multifactor models that we, and other authors, have used are biased towards zero because of what Loughran and Ritter (2000) refer to as factor contamination. As our Table 1 shows, almost 26% of all firm-years are preceded by at least one equity issue and over 45% of all firm-years are preceded by at least one debt issue. Our Table 2 shows that both debt and equity issuers on average invest heavily, and equity issuers on average have low profitability. Thus, the portfolio of firms with heavy investment and the portfolio of firms with low profitability are composed of many equity issuers. These portfolios are used to construct the investment and profitability factors.

To construct the purged q-factor series, we start with replicating Hou, Xue, and Zhang's (2015) q-factor series. From 1975–2018, the correlation between our replicated and their original size factor monthly series is 0.996, the correlation between the replicated and original ROE factor monthly series is 0.992, and the correlation between the replicated and original asset growth factor monthly series is 0.981. To facilitate comparison, Panel A of Table 6 reports non-purged VW results, and Panel B reports purged VW results, with EW results reported in Internet Appendix Table IA-7.

The purged q-factor model produces more negative intercepts with VW returns following equity issues than the non-purged q-factor model, suggesting that without purging the factors the intercepts are biased towards zero.[7] This is as expected, since without purging the factors of

[7] Furthermore, as Greenwood and Hanson (2012) suggest, event studies that compare issuers' performance to firms matched on characteristics will omit any returns coming from issuers' timing of those characteristics.

equity issuing firms, low returns on equity issuers are being used to explain low returns on equity issuers. For firms with at least two equity issues, the VW intercept is -0.40% per month (t-statistic=-2.85) for the q-factor model and -0.53% per month (t-statistic=-3.79) with the purged q-factor model. For firms with three equity issues, the VW intercept is -0.61% per month (t-statistic=-3.42) for the q-factor model and -0.78% per month (t-statistic=-4.33) with the purged q-factor model.

Unlike the equity issue regressions, the debt issues regressions in Table 6 show a much smaller difference between the q-factor and purged q-factor VW results. The lack of an effect for debt issues can be attributed to the low absolute values of factor loadings on all but the market factor for firms that do or do not issue debt. Because the slopes are close to zero, whether the factor returns are contaminated with the returns on debt issues has little effect on the intercepts.

*D. Stock Returns following Equity and Debt Issues*

So far we have examined equity (Table 4) and debt (Table 5) issues separately. Table 7 examines equity and debt issues together and evaluates the importance of the total number of issues. In Panels A and B of Table 7, we do not distinguish between equity and debt, and report both VW and EW results. In Panels C and D of Table 7, we distinguish between equity and debt, and, in order to save space, report only VW results.

Panel A of Table 7 reports the results sorted by the number of issues. For firms with no issues in the prior three years, the VW average excess return is 0.75% per month, while the EW average excess return is a much larger 1.36% per month. For firms with at least three issues in the prior three years, the VW and EW average excess returns are 0.43% and 0.31% per month, respectively. These results are generally consistent with the buy-and-hold results in Panel C of Table 3.

In Panel A of Table 7, there is robust evidence that more frequent security issues are followed by more negative abnormal stock returns. The q-factor intercepts are positive and statistically significant for both VW and EW portfolios of firms with no security issues. The intercepts are statistically insignificant for the VW portfolio of firms with one security issue or the VW portfolio of firms with two issues. For firms with at least three issues, the VW and EW intercepts are -0.32% and -0.34%, respectively. Firms with at least four issues do worse. For these firms, the VW and EW intercepts are -0.44% and -0.66%, respectively.

In Panel A of Table 7, the differences in the VW and EW average excess returns, respectively, between the first column (=0) and the last column (≥4) are 0.59% and 1.53% per month. In comparison, the differences in the VW and EW q-factor intercepts, respectively, between the first column (=0) and the last column (≥4) are 0.56% and 1.26% per month. There is a substantial spread in abnormal returns between non-issuers and those with at least four securities issues after controlling for the q-factors. Internet Appendix Table IA-8 reports the market model, 3-factor model, and 5-factor model results. Given the emphasis in the recent literature about using multifactor models to calculate abnormal returns, it is surprising how little difference the choice of model makes in our results.

Panel B of Table 7 reports the results for large issues. There is strong evidence that firms with more frequent large security issues have lower subsequent performance. As shown in Panel A of Table 1, 8,843 firm-years (6.3% of the sample) are preceded by at least three large security issues in the previous three years. For these firms, the VW and EW intercepts of the q-factor model are -0.63% and -0.53%, respectively.

BFG find that the number of different types of securities issued is related to post-issuance stock returns. For example, a firm that issues equity via both an IPO and an SEO, and issues debt

via both a debt issue and increasing its bank loans, would be deemed to have engaged in four external financings. In their Table 3, they report abnormal returns that are insignificantly different from zero if there has been only one external financing event in the prior 36 months, but reliably negative abnormal returns if there have been two or more different types of financing.

To see whether our finding on the number of issues is driven by the number of types of securities, in Panel C of Table 7 we distinguish between the number of issues and the number of types of securities. In Panel C1, we estimate time-series regressions for the VW portfolios sorted by the number of types of securities, regardless of the number of issues. The results in Panel C1 are generally consistent with those in BFG. Firms that issue more types of securities are associated with lower abnormal stock returns. In Panel C2, we examine the relation between the number of issues and stock returns, conditional on issuing only one type of security. In Panel C3, we examine the relation between the number of issues and stock returns, conditional on issuing both types of securities. There is some evidence of a negative relation between the number of issues and future stock returns, even after controlling for the number of types of securities.

The number of issues is two in both columns 5 and 7, but firms in column 5 issue one type of security (only debt or only equity) while firms in column 7 have one debt issue and one equity issue. Column 7 has a slightly higher q-factor intercept than column 5, suggesting that firms with one debt issue and one equity issue do not necessarily underperform those with only two debt issues or only two equity issues, inconsistent with BFG's conclusion. The number of issues is three in both columns 6 and 8, but firms in column 6 issue one type of security (only debt or only equity) while firms in column 8 issue both debt and equity. Consistent with BFG, column 8 shows a lower intercept than column 6.

After controlling for the number of types of securities, BFG find that security type is not reliably related to long-run performance. However, Baker and Wurgler (2000) and Lewis and Tan (2016) find that equity issues are followed by lower stock returns than debt issues. To shed light on the debate, Panel D of Table 7 examines the relation between security type and subsequent stock returns, after controlling for the total number of issues.

Panel D of Table 7 shows that the number of equity issues is negatively related to future VW average monthly excess stock returns after controlling for the total number of issues. However, when the q-factor model is used, the evidence on the relation between security type and VW abnormal stock returns is mixed. When the total number of issues equals one or two, there is generally a positive relation between the number of equity issues and the q-factor model intercepts for the VW portfolios. For example, the q-factor model intercept for the VW portfolio of firms with only two equity issues is +0.16%, which is higher than the intercept of 0.02% for the VW portfolio of firms with only two debt issues, although they are not statistically different.[8] However, when the total number of issues is three, there is generally a negative relation between the number of equity issues and abnormal returns.

*E. Stock Returns in Two Subperiods*

As is well-known, abnormal returns often become less anomalous after the publication of an anomaly (e.g., McLean and Pontiff (2016)). To understand whether our results continue to hold after the publications on negative abnormal returns following equity issues (e.g., Loughran and Ritter (1995) and Spiess and Affleck-Graves (1995)), we estimate the factor model

[8] In column 5 of Panel D, the q-factor intercept of +0.16 for firms with no debt issues but two equity issues is perplexing, given the year t+1 EW and VW average market-adjusted returns of -6.0% and -7.9%, respectively, reported in Panel D of Table 3 for this group of issuers (the sample size is 4,326 firm-years). These firms have strongly negative loadings on the profitability factor and the investment factor. Thus, the low returns for these firms are being attributed to the factor returns.

regressions separately for the subperiods of 1975–1996 and 1997–2018 (the calendar year of the stock return month). Table 8 reports the VW average excess returns and q-factor results, with results for other factor models and EW results reported in Internet Appendix Table IA-9. Frequent equity issues are generally associated with low subsequent year abnormal stock returns in both subperiods. For the portfolio of firms with at least three large issues (whether debt or equity), the q-factor intercepts are both -0.63% (t-statistics= -3.22 and -2.74, respectively) during 1975–1996 and during 1997–2018.

Our major results generally hold in both subperiods. Fu and Huang (2016, Table 1), who examine firms conducting SEOs rather than all equity issuers, report calendar-time regressions with value-weighted abnormal returns of -16.20% per year during 1980–2002 and -0.36% per year during 2003–2012. In Internet Appendix Tables IA-10 and IA-11, we confirm that the abnormal returns on frequent equity issuers were close to zero during the ten years from 2003–2012, but are generally similar to those for our overall sample period when either 2000–2002 or 2013–2018 is added to these ten years.

## V. Fama-MacBeth Regression Results of Monthly Stock Returns

In this section, we report Fama-MacBeth (1973) regression results using monthly returns. For each of the 528 months from January 1975 to December 2018, we estimate cross-sectional regressions of various model specifications using the return on a stock as the dependent variable. Table 9 reports the time-series averages of the coefficients from the monthly regressions and the Newey-West t-statistics, computed using the time-series standard deviations of the monthly coefficients. To check the robustness of the results, we report ordinary least squares (OLS) results in Panel A and weighted least squares (WLS) results in Panel B using market cap weights. In Internet Appendix Table IA-12, we also report OLS results after excluding microcaps

from the sample. The results excluding microcaps are generally in between the EW OLS and VW WLS results. The dependent variable is the firm's monthly stock return. In each model of Table 9, we also control for the market cap and the market-to-book ratio at the end of year t, asset growth in t, and Qtr. $ROE_{t+}$. Following Hou, Xue, and Zhang (2015), we define Qtr. $ROE_{t+}$ as the most recent quarterly earnings announced prior to the stock return month divided by beginning-of-quarter book value of equity. The other independent variables take on the values from fiscal year t, the firm's most recent fiscal year that ends at least four months prior to the stock return month.

Model 1 of Panel A, Table 9 does not include security issue dummy variables. The coefficients on the independent variables are consistent with the literature. In Model 2 of Panel A, we include four dummy variables for one, two, three, or at least four issues, without distinguishing between debt and equity. Consistent with the results in Table 7, more frequent issues are followed by lower stock returns. Firms with one, two, three, and at least four issues underperform non-issuers by 0.08%, 0.24%, 0.51%, and 0.78% per month, respectively.

BFG find that the more different types of securities that are issued, the lower are a firm's subsequent abnormal returns. Our Model 3 of Panel A, Table 9 shows that, conditional on the number of types of securities, there is a monotone relation between the number of issues and subsequent returns, consistent with the results in Model 2 of Panel A, Table 9 and Panel B of Table 7. However, there is mixed evidence on the number of types of securities issued. With two issues and just one type, the coefficient of -0.21 is higher than the coefficient of -0.31 with two issues and two types. With three issues and one type, the coefficient of -0.51 is the same as that with three issues and two types. Model 4 of Panel A, Table 9 includes the number of issues and the number of types of securities issued in t-2, t-1, and t, and the results suggest that more issues

are associated with lower returns, but more types are associated with slightly higher returns. Thus, our results do not confirm BFG's findings. Instead, our Models 3 and 4 results in Panel A of Table 9 suggest that the number of issues is more reliable than the number of types of securities in predicting returns.

Model 5 of Panel A, Table 9 shows that firms with at least one debt issue in the prior three years underperform non-issuers by 0.16% per month in the next year and firms with at least one an equity issue in the prior three years underperform non-issuers by 0.27% per month.

In their Table 3 Fama-MacBeth regressions, BFG find that, after controlling for the number of security types, the security type for the first financing event (IPO, SEO, private equity placement, public debt offering, or bank loan) in a 36-month window is not related to long-run returns. In Model 6 of Panel A, Table 9, we distinguish between debt and equity by including six dummy variables: three dummy variables that equal one if there is, respectively, one, two, or three debt issues in the previous three years; and three dummy variables for the frequency of equity issues. More frequent debt issues or more frequent equity issues are followed by lower stock returns in year t+1. Firms with one, two, and three debt issues underperform those with zero debt or equity issues by 0.11%, 0.26%, and 0.50% per month, respectively. Firms with one, two, and three equity issues underperform those with zero debt or equity issues by 0.19%, 0.39%, and 0.85% per month, respectively. Inconsistent with BFG, equity issues are followed by lower stock returns than debt issues after controlling for the number of equity issues and the number of debt issues.

The EW OLS results in Panel A of Table 9 could overstate the importance of microcaps (Hou, Xue, and Zhang (2019b)). To alleviate this concern, we also estimate VW WLS regressions. The WLS results in Panel B of Table 9 are qualitatively similar to the OLS results,

although the absolute values of the coefficients are generally smaller. We continue to find that more frequent issues are associated with lower subsequent stock returns. Firms with one, two, three, and at least four issues underperform non-issuers by 0.05%, 0.05%, 0.31%, and 0.39% per month, respectively. This pattern appears to be driven by the number of equity issues rather than the number of debt issues. We do not find a robust relation between the number of debt issues and subsequent stock returns, but find that more frequent equity issues are associated with lower subsequent stock returns. Firms with one, two, and three equity issues underperform those with zero debt or equity issues by 0.14%, 0.40%, and 0.65% per month, respectively.

There are potentially multiple reasons for the difference between BFG's results and ours. We highlight two of the reasons here. BFG focus on the type of the first security issue and the number of types of securities issued (see their Table 3), while our Model 6 of Table 9 considers the type of each security issue and focuses on the number of debt issues and the number of equity issues in a 36-month window. It is perhaps not surprising that BFG do not find the type of the first issue to be important for explaining the stock return in a month, because our paper finds that, other things being held equal, the abnormal return is more negative in the first two years after the fiscal year of the security issuance than in the third year.

BFG also distinguish between IPOs, SEOs, and PIPEs and distinguish between public debt and private debt offerings, while we do not.[9] If a firm issued several different types of equity in different years, they would classify the firm as issuing multiple types, whereas we would classify it as a frequent issuer of equity. Thus, the different classification schemes may account for some of the difference in conclusions.

[9] Billett, Floros, and Garfinkel (2019) document that "At-The-Market" (ATM) equity offerings, where shares are issued directly to secondary market investors, have become popular in recent years. We do not distinguish between ATMs and other types of equity offerings.

In Table IA-13 of the Internet Appendix, we estimate the regressions using an alternative set of control variables, including market cap, the market-to-book ratio, operating profitability, and asset growth. Our major results are qualitatively similar. In Table IA-14, we replicate Table 9 using large issues, study the importance of issue recency, and check the results for the subperiods of 1975–1996 and 1997–2018. The Fama-MacBeth results in Table IA-14 are generally consistent with our Tables 4-8 time-series regression results.

## VI. Fama-MacBeth Regression Results of Earnings Announcement Returns

The expectational error mispricing story in La Porta, Lakonishok, Shleifer, and Vishny (1997) predicts that a significant portion of mispricings is corrected at subsequent earnings announcements. If investors are overly optimistic about overvalued firms, they will probably be disappointed at the firms' subsequently announced earnings. Alternatively, as Wu, Zhang, and Zhang (2010), Liu and Zhang (2014), and Zhang (2017) suggest, the investment CAPM also predicts that a significant portion of anomalies should occur around earnings announcements. In this section, we examine stock returns around earnings announcement days.

We estimate regressions to evaluate the importance of issue frequency, size, and recency in explaining earnings announcement returns (EARs) after controlling for firm characteristics such as investment and profitability. The dependent variable is the average three-day buy-and-hold percentage return from one day before to one day after each earnings announcement made from 123 to 488 calendar days after the end of fiscal year t. We first estimate the cross-sectional regressions for each of the calendar years from 1975–2018. Table 10 reports the time-series averages of the annual coefficients and the corresponding Newey-West t-statistics. Overall, the results in this table cannot be easily explained by risk-based theories.

The model specifications in Table 10 are similar to those in Table 9. In Model 1 of Panel A, Table 10, the results on the control variables are generally consistent with those in Lewis and Tan (2016). The results in Model 2 of Panel A, Table 10 show that firms with more issues are associated with lower EARs. During the three days around the earnings announcement, firms with at least four issues in the three prior years on average underperform non-issuers by -1.00%. Since there are typically four earnings announcements per year, this three-day abnormal return translates into a cumulative 12-day abnormal return of -4.00% in year t+1. In Model 2 of Panel A, Table 9, the corresponding coefficient is -0.78% per month or -9.36% per year. Thus, on average, over 40% of the abnormal return in year t+1 occurs on the 5% of days around the four earnings announcements. The EAR results are consistent with the expectational error mispricing story but the magnitude of the EAR patterns cannot be easily explained by risk-based theories.

The results in Model 3 of Panel A, Table 10 show that, conditional on the number of types of securities, the number of issues is generally associated with lower EARs. However, conditional on the number of issues, there is mixed evidence on the relation between the number of security types and EARs. The results in Model 4 of Panel A, Table 10 suggest that the number of issues is negatively associated with EARs, but the number of types of securities is positively related to EARs.

In Model 5 of Panel A, the three-day EARs in the subsequent year of firms with at least one debt issue in t-2 to t are not statistically different from those without any issue, and the three-day EARs in the subsequent year of firms with at least one equity issue are 0.54% lower than those without any issue. Equity issues are followed by lower EARs than debt issues, consistent with the findings of Lewis and Tan (2016). The Model 6 results in Panel A of Table 10 show that more frequent debt issues or more frequent equity issues are followed by lower EARs.

Our major results on the relations between securities issuance and subsequent EARs are not driven by a large number of microcaps or a few firms with the largest market caps in the sample. The WLS results in Panel B of Table 10 and the OLS results after excluding microcaps in Internet Appendix Table IA-15 have similar patterns to the OLS results in Panel A of Table 10, although the statistical significance is typically lower and the absolute values of the coefficients are generally smaller.

In the Internet Appendix, Tables IA-16 shows that our major results are robust to alternative controls. Table IA-17 shows that larger, more frequent, and more recent issues are generally followed by more negative EARs, and our major results are mostly robust in the subperiods of 1975–1996 and 1997–2018.

## VII. Related Literature and the Importance of Issue Size, Frequency, and Recency

### *A. The Timing of Portfolio Construction*

We find that the abnormal return is lower in the first two years after the fiscal year of the security issuance than in the third year. This finding suggests that keeping issuers in the portfolio for less than three years after issuance could boost the power to detect abnormal returns, and helps reconcile different findings in the literature on post-issuance long-run performance.

A long list of papers use event data on securities issuance to examine stock returns during the three or five years after issuance.[10] For example, Panel E of Table 4 of Bessembinder and Zhang (2013) reports the results of a regression using monthly VW portfolio returns for firms

[10] See Ritter (1991) on initial public offerings (IPOs), Spiess and Affleck-Graves (1995) on seasoned equity offerings (SEOs), Spiess and Affleck-Graves (1999) on bond offerings, Hertzel et al. (2002) on private equity placements, Billett, Flannery, and Garfinkel (2006) on bank loans, and Bessembinder and Zhang (2013) on four corporate events. Loughran and Ritter (1995) categorize SEOs on the basis of whether the issue occurred within three years of the IPO. Lee and Loughran (1998) focus on convertible bonds and control for the effects of IPOs and SEOs. Billett, Flannery, and Garfinkel (2011) jointly examine multiple sources of financing.

that conducted one or more seasoned equity offerings (SEOs) during the prior 60 months. For a time-series regression from April 1980–December 2010 (369 months), they report an insignificant alpha of +0.09% per month using the Fama-French-Carhart 4-factor model.

In contrast to those that use event data, papers that use the change in split-adjusted shares outstanding from CRSP or information from Compustat to identify equity or debt issuance typically examine stock returns during a one-year window after the fiscal year of issuance. Table 4 of Hou, Xue, and Zhang (2015) reports a q-factor model alpha of -0.26 per month with a t-statistic of -1.75, using a sample period of January 1972–December 2012, for a VW long-short portfolio of net stock issuers. The long side is the top decile, and the short side is the bottom decile, of companies ranked by the percentage increase in shares outstanding (roughly speaking, large issuers minus repurchasers). The portfolios are formed at the end of every June.

Table 6 of Fama and French (2016) reports significantly negative 5-factor model intercepts for three out of five size (market cap)-sorted VW portfolios for companies in the top quintile (top 20%) of net equity issuers. They form portfolios once a year at the end of June. The average intercept of their five high net issue portfolios is -0.18% per month, and the average intercept of their five repurchasers portfolios is +0.04% per month, a difference of -0.22% per month. Their sample period is July 1963–December 2014.

Why do Fama and French (2016) find a lower abnormal return following equity issuance than Bessembinder and Zhang (2013)? Our finding on issue recency suggests that it is partly because the latter paper keeps the SEO firms in the portfolio much longer than the other three papers do, although different definitions of issuing firms and different sample periods may also explain some of the difference in abnormal returns.

On his web site, Ritter (2019) shows that, for both IPOs (from 1980-2017) and SEOs (from 1970-2011), there is no underperformance after controlling for market cap and book-to-market in the first six months after issuance, but there is a lot in the next 18 months. The conventional wisdom is that firms avoid negative earnings surprises shortly after an equity issue, both through the guidance of analysts and by earnings management. Ritter also shows that there is not much underperformance in years 3–5 after the IPO or SEO, consistent with our finding on issue recency. Thus, adding a stock immediately after issuance will move the estimated portfolio abnormal return towards zero, but waiting too long or keeping it in the portfolio too long (more than two years) will also move the abnormal return towards zero. In Bessembinder and Zhang (2013) and many other papers, issuers enter the portfolio too quickly, and stay too long, with both of these timings moving abnormal returns towards zero.

Both Hou, Xue, and Zhang (2015) and Fama and French (2016) form portfolios at the end of every June and define equity issuers using the change in split-adjusted shares outstanding over the fiscal year ending in the prior calendar year. In their papers, an issuer is first added to the issuer portfolio from 6 to 29 months after issuance. In the fastest case, they add a firm that has a fiscal year ending on December 31 of t-1 and issues equity on this same date to the portfolio on July 1 of t. In the slowest case, they add to the portfolio on July 1 of t a firm that has a fiscal year ending in January of t-1 and issues on February 1 of t-2. Thus, they miss some of the negative abnormal returns in the post-issue months 7-12 that we capture.

*B. Issue Size and Frequency*

Importantly, we show that large and frequent issues in the prior three years are followed by lower stock returns in the subsequent year than small and infrequent issues. Thus, another

reason for why some papers find no abnormal returns following debt or equity issuance is that their samples include many firms that occasionally raise a small amount of external capital.

Papers that use event data for issuance information typically ignore issue size, although some papers that use CRSP or Compustat for issuance information do distinguish between small and large issues. However, almost all papers on long-run performance after issuance ignore issue frequency. For example, both Hou, Xue, and Zhang (2015) and Fama and French (2016) examine equity issues on the basis of the change in split-adjusted shares outstanding in a one-year window rather than a three-year window. Our findings on issue size and frequency suggest that focusing on a sample of firms that raise a large amount of external capital with either one large issue or multiple regular-size issues during two or three years could boost the power to detect abnormal returns following debt or equity issuance.

## VIII. Conclusions

The literature on post-issuance stock returns almost always studies one type of security issuance without fully controlling for surrounding issuances of the same type of security and other types of securities. This practice makes inferences difficult, especially since frequent issuances are prevalent. For example, without adequately controlling for surrounding debt issues when studying long-run stock returns following SEOs, it is not clear how much of the results on SEOs are driven by debt issues. Billett, Flannery, and Garfinkel (2011) find that an increase in the number of types of securities issued is related to lower abnormal long-run stock returns. In comparison, we find that more frequent, larger, and more recent issues of debt and equity in the three years from t-2 to t are followed by lower abnormal stock returns in the 12 months starting from month 5 of year t+1, with the number of types of securities being relatively unimportant.

Frequent and large issues are followed by lower abnormal returns than infrequent and small issues. The intercept of the Hou-Xue-Zhang (2015) q-factor calendar-time regression for the value-weighted (VW) portfolio of firms with at least three large issues from t-2 to t is -0.63% per month (t-statistic=-4.31) in the subsequent year.

More recent issues (e.g., year t issues relative to year t-1 or t-2 issues) are also followed by lower average abnormal returns in t+1 than less recent issues. The VW portfolio of firms that did an equity issue in fiscal year t has a q-factor alpha of -0.37% per month (t-statistic=-3.11), but the VW portfolio of firms that did at least one equity issue in the prior three years has an insignificant 5-factor alpha in the subsequent year. A VW portfolio of firms that issued equity in both t-1 and t has a q-factor alpha of -0.61% per month (t-statistic=-3.42) in t+1.

Purging the q-factors by excluding firms with equity or debt issues in the prior three years in the construction of the q-factors increases the power to detect abnormal returns. For example, for the VW portfolio of firms that issued equity in both t and t-1, the purged q-factor regression intercept decreases to -0.78% per month (t-statistic=-4.33) from -0.61% per month.

Our findings suggest that studies that find no abnormal returns for issuing firms in multifactor models, such as Lyandres, Sun, and Zhang (2008) and Bessembinder and Zhang (2013), have low power to find abnormal returns for several reasons: 1) Abnormal returns following issuance do not start immediately after issuance, but then decay over time, and thus studies that add issuers to a portfolio too soon or too late or keep issuers in a portfolio for too long will move abnormal returns towards zero. 2) Unprofitable firms, firms with high investment, and firms with low book-to-market ratios are more likely to engage in external financing than other firms, and thus the short position of these factor returns is intensive in issuing firms. Consequently, the factor models to some degree are using the low returns on

issuing firms to explain the low returns on issuing firms, biasing the abnormal returns towards zero. In contrast, focusing on firms that raise a lot of capital boosts the power. We document that recent, frequent, and large issuers have reliably negative subsequent abnormal returns.

Equity issues on average are followed by lower raw returns than debt issues. Our Fama-MacBeth regressions show that equity issues are followed by lower abnormal returns than debt issues. However, our calendar-time multifactor regressions provide mixed evidence on the relation between security type and abnormal returns, partly because equity issuers have a negative loading while debt issuers have a slightly positive loading on the profitability factor.

If firms are unable to deliver anticipated earnings after debt and equity issuance, then investors are likely to be disappointed when the firms announce their actual earnings. We provide strong evidence that more frequent and larger issues, especially equity issues, are on average associated with lower earnings announcements returns.

To summarize, our calendar-time regressions confirm the findings in the recent literature that once other important determinants of cross-sectional returns on stocks are controlled for, there is no evidence that firms that occasionally do small amounts of external financing underperform during the subsequent three years. We show, however, that there is a negative abnormal return in months 5–16 following frequent and large issues of debt or equity in the prior three fiscal years, and the abnormal return following an external financing event is larger during this period than during later months. Many of the patterns that we document, whether using raw returns or abnormal returns, display a non-linear relation between returns and the amount of external financing. The evidence suggests that the market has consistently overestimated the prospects of firms that raise a large amount of external capital. Thus, there is a remaining puzzle regarding the low returns following frequent and large issues of debt and equity.

## REFERENCES


Baker, M., and J. Wurgler. "The Equity Share in New Issues and Aggregate Stock Returns." *Journal of Finance,* 55 (2000), 2219–2257.

Bessembinder, H., and F. Zhang. "Firm Characteristics and Long-Run Stock Returns after Corporate Events." *Journal of Financial Economics,* 109 (2013), 83–102.

Bessembinder, H..; M. J. Cooper; and F. Zhang. "Characteristics-based Expected Returns and Corporate Events." *Review of Financial Studies,* 32 (2019), 75–125.

Billett, M. T.; M. J. Flannery; and J. A. Garfinkel. "Are Bank Loans Special? Evidence on the Post-Announcement Performance of Bank Borrowers." *Journal of Financial and Quantitative Analysis,* 41 (2006), 733–751.

Billett, M. T.; M. J. Flannery; and J. A. Garfinkel. "Frequent Issuers' Influence on Long-Run Post-Issuance Returns." *Journal of Financial Economics,* 99 (2011), 349–364.

Billett, M. T.; I. V. Floros; and J. A. Garfinkel. "At-the-Market Offerings." *Journal of Financial and Quantitative Analysis*, 54 (2019), 1263–1283.

DeAngelo, H.; L. DeAngelo; and R. Stulz. "Seasoned Equity Offerings, Market Timing, and the Corporate Life Cycle." *Journal of Financial Economics,* 95 (2010), 275–295.

Fama, E. F., and K. R. French. "A Five-Factor Asset Pricing Model." *Journal of Financial Economics,* 116 (2015), 1–22.

Fama, E. F., and K. R. French. "Dissecting Anomalies with a Five-Factor Model." *Review of Financial Studies,* 29 (2016), 69–103.

Fama, E. F., and J. D. MacBeth. "Risk, Return, and Equilibrium: Empirical Tests." *Journal of Political Economy,* 81 (1973), 607–636.

Fu, F., and S. Huang. "The Persistence of Long-Run Abnormal Returns following Stock Repurchases and Offerings." *Management Science,* 62 (2016), 964–984.

Greenwood, R., and S. G. Hanson. "Share Issuance and Factor Timing." *Journal of Finance,* 67 (2012), 761–798.

Hertzel, M.; M. Lemmon; J. S. Linck; and L. Rees. "Long-Run Performance following Private Placements of Equity." *Journal of Finance,* 57 (2002), 2595–2617.

Hou, K.; C. Xue; and L. Zhang. "Digesting Anomalies: An Investment Approach." *Review of Financial Studies,* 28 (2015), 650–705.

Hou, K.; C. Xue; and L. Zhang. "Replicating Anomalies." *Review of Financial Studies*, Forthcoming (2018a).

Hou, K.; H. Mo; C. Xue; and L. Zhang. "$q^5$." Working Paper, SSRN (2018b).

Hou, K; H. Mo; C. Xue; and L. Zhang. "Which Factors?" *Review of Finance,* 23 (2019), 1–35.

La Porta, R.; J. Lakonishok; A. Shleifer; and R. Vishny. "Good News for Value Stocks: Further Evidence on Market Efficiency." *Journal of Finance,* 52 (1997), 859–874.

Lee, I., and T. Loughran. "Performance Following Convertible Bond Issuance." *Journal of Corporate Finance,* 4 (1998), 185–207.

Lewis, C. M., and Y. Tan. "Debt-Equity Choices, R&D Investment and Market Timing." *Journal of Financial Economics,* 119 (2016), 599–610.

Liu, L.X., and L. Zhang. "A Neoclassical Interpretation of Momentum." *Journal of Monetary Economics,* 67 (2014), 109–128.

Loughran, T., and J. R. Ritter. "The New Issues Puzzle." *Journal of Finance,* 50 (1995), 23–51.

Loughran, T., and J. R. Ritter. "Uniformly Least Powerful Test of Market Efficiency." *Journal of Financial Economics,* 55 (2000), 361–389.

Lyandres, E.; L. Sun; and L. Zhang. "The New Issues Puzzle: Testing the Investment-based Explanation." *Review of Financial Studies,* 21 (2008), 2825–2855.

McLean, R. D., and J. Pontiff. "Does Academic Research Destroy Return Predictability?" *Journal of Finance,* 71 (2016), 5–32.

Ritter, J. R. "The Long-Run Performance of Initial Public Offerings." *Journal of Finance,* 46 (1991), 3–27.

Spiess, D. K., and J. Affleck-Graves. "Underperformance in Long-Run Stock Returns following Seasoned Equity Offerings." *Journal of Financial Economics,* 38 (1995), 243–267.

Spiess, D. K., and J. Affleck-Graves. "The Long-Run Performance of Stock Returns following Debt Offerings." *Journal of Financial Economics,* 54 (1999), 45–73.

Wu, J.; L. Zhang; and X. F. Zhang., "The q-Theory Approach to Understanding the Accrual Anomaly." *Journal of Accounting Research,* 48 (2010), 177–223.

Zhang, L. "The Investment CAPM." *European Financial Management,* 23 (2017), 545–603.

## Appendix A. Variable Definitions

We set some Compustat items to zero when they are missing or their Compustat data codes indicate that they are a combined figure or an insignificant figure.

| Variable Name | Detailed Definition |
|---|---|
| ΔEquity | Sale of Common and Preferred Stock (SSTK) – Purchase of Common and Preferred Stock (PRSTKC). |
| ΔDebt | For firms reporting format codes 1 to 3, ΔDebt = Long-Term Debt Issuance (Compustat item DLTIS) – Long-Term Debt Reduction (DLTR) – Current Debt Changes (DLCCH). For firms reporting format code 7, ΔDebt = DLTIS – DLTR + DLCCH. |
| Equity issue | A firm is defined to have an equity issue in a year if ΔEquity in the year is at least 5% of the book value of assets and at least 3% of the market value of equity at the beginning of the year. |
| Large equity issue | A firm is defined to have a large equity issue in a year if ΔEquity in the year is at least 10% of the book value of assets and at least 3% of the market value of equity at the beginning of the year. |
| Debt issue | A firm is defined to have a debt issue in a year if ΔDebt in the year is at least 5% of the book value of assets and at least 3% of the market value of equity at the beginning of the year. |
| Large debt issue | A firm is defined to have a large debt issue in a year if ΔDebt in the year is at least 10% of the book value of assets and at least 3% of the market value of equity at the beginning of the year. |
| Ln(Market cap.) | The natural logarithm of the market value of equity (Common Shares Outstanding (CSHO) × Price Close Fiscal Year (PRCC_F)) from Compustat, measured in December 2018 dollars using the Consumer Price Index from the Bureau of Labor Statistics. |
| Market-to-book | The market value of equity (Common Shares Outstanding (CSHO) × Price Close Fiscal Year (PRCC_F)) divided by the book value of equity. The book value of equity is defined as the book value of assets (item AT) – Total liabilities (LT) – Liquidating Value of Preferred Stock (PSTKL) + Deferred Taxes and Investment Tax Credit (TXDITC). When PSTKL is missing, the redemption value (PSTKRV) is used. When PSTKRV is also missing, the carrying value (PSTK) is used. |
| Asset growth | The growth rate of end-of-year total assets (AT). |
| OIBD÷Assets | Operating income before depreciation (Compustat item OIBDP) ÷ beginning-of-year assets (item AT). |
| Qtr. ROE | Quarterly return on equity, defined as income before extraordinary items (Compustat quarterly item IBQ) divided by the beginning-of-quarter book value of equity, when the denominator is positive. As in Hou, Xue, and Zhang (2015, 2018a, 2018b, and 2019), the book value of equity is defined as shareholders' equity (SEQQ) + deferred taxes and investment tax credit (TXDITCQ) – the carrying value of preferred stock (PSTKQ). If TXDITCQ is missing, it is set to zero. If SEQQ is missing, shareholders' equity equals common equity (CEQQ) + the carrying value of preferred stock (PSTKQ) if available, or equals total assets (ATQ) – total liabilities (LTQ). |
| $\text{Return}_{t+1}$ | The total return on a stock in fiscal year t+1, measured from month 5 to month 16 after the end of fiscal year t so as to allow the release of fiscal year t's numbers before returns are measured and a firm is classified. If the stock gets delisted before 1 year, the return until delisting is used. |
| $\text{Return}_{t+1,\ t+3}$ | The total return on a stock from fiscal year t+1 to t+3, measured from month 5 to month 40. If the stock gets delisted before 3 years, the return until delisting is used. |
| Market adjusted $\text{return}_{t+1}$ | The total return on the firm's stock in fiscal year t+1, measured from month 5 to month 16 after the end of fiscal year t, minus the value-weighted return on the market in the same year. |
| Market adjusted $\text{return}_{t+1,\ t+3}$ | The total return on the firm's stock from fiscal year t+1 to fiscal year t+3, measured from month 5 to month 40, minus the value-weighted return on the market in the same 3 years. |

## Appendix B. Factor Models

This appendix lists the factor models for our calendar-time regressions. The time-series regressions use monthly value-weighted (VW) or equally weighted (EW) percentage excess returns as the dependent variable. A stock is allocated to a portfolio using its debt and equity issuance information during its fiscal years t-2, t-1, and t. The stock stays in the portfolio from the end of month 4 to the end of month 16 after the end of fiscal year t. The portfolios are updated monthly. For a VW portfolio, beginning-of-month market values from CRSP are used to compute the weight of each stock in the portfolio.

1. Fama-French (2015) 5-factor model and the purged 5-factor model:

$$R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + h_i HML_t + r_i RMW_t + c_i CMA_t + e_{it} \quad \text{(A1)}$$

Subscript i denotes portfolio i, and subscript t denotes month t. RMW denotes "robust minus weak", or the difference between the returns on diversified portfolios of stocks with robust and weak profitability. CMA denotes "conservative minus aggressive", or the difference between the returns on diversified portfolios of the stocks of low and high investment firms. We use the factor returns from the 2×3 sorts on Size and B/M, or Size and OP, or Size and Investment. See Fama and French (2015 and 2016a) for details. The factor return data are from Kenneth French's website.

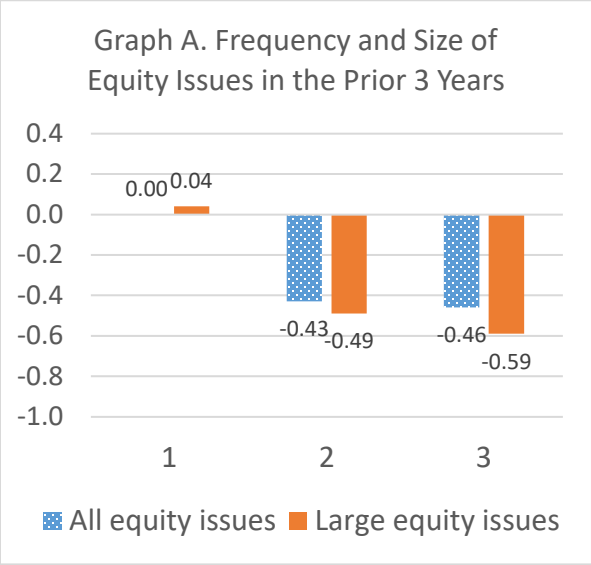
2. Hou, Xue and Zhang's (2015) q-factor model:

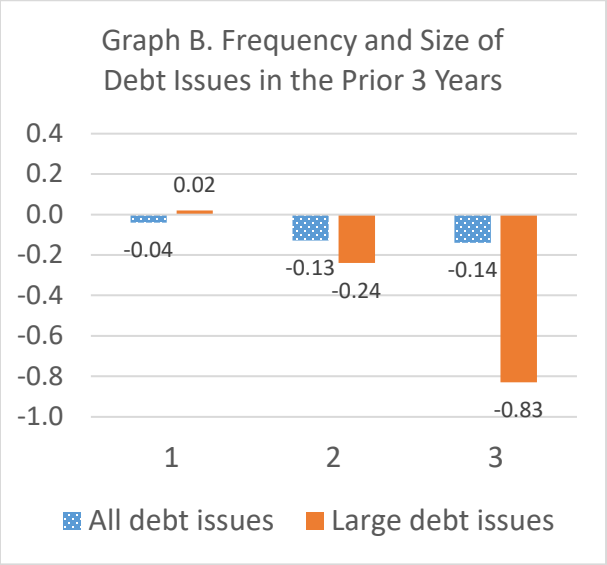
$$R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it} \quad \text{(A2)}$$

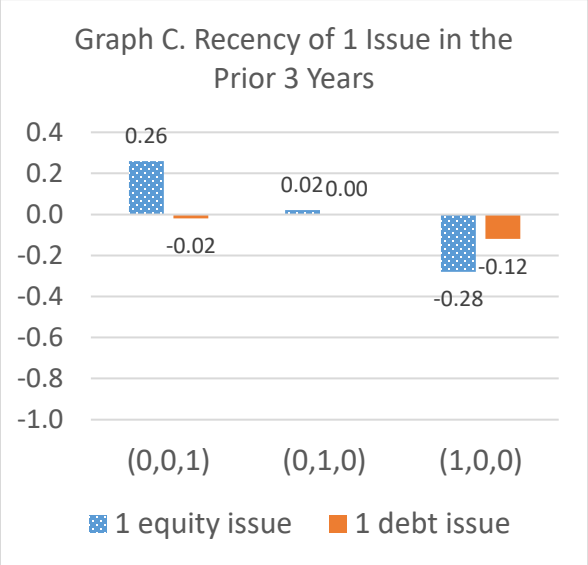
Subscript i denotes portfolio i, and subscript t denotes month t. $r^{ROE}$ denotes the difference between the returns on diversified portfolios of stocks of firms with high and low return on equity (ROE). $r^{I/A}$ denotes the difference between the returns on diversified portfolios of stocks of firms with low and high investment-to-assets (I/A, defined as the annual change in the book value of total assets divided by the book value of beginning-of-year total assets). See Hou, Xue, and Zhang (2015, 2018a, 2018b, and 2019) for details. Lu Zhang provided the q-factor return data.

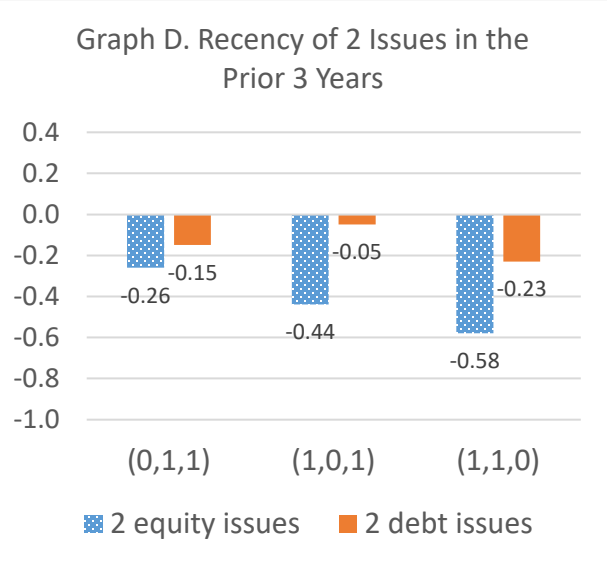
**FIGURE 1**
**Q-Factor Intercepts sorted by Issue Frequency, Size, and Recency, 1975–2018**

Figure 1 shows the intercepts (monthly percentage abnormal returns) of the q-factor model for the value weighted (VW) portfolios sorted by the firm's equity or debt issue frequency, size, and recency in the prior three years. A firm is defined to have an equity issue (a debt issue) in a year if ΔEquity (ΔDebt) in the year is at least 5% of the book value of beginning-of-year assets and at least 3% of the market value of beginning-of-year equity. A firm is defined to have a large equity (debt) issue using the same definitions except with 10% replacing 5%. In Graphs A and B, the number of equity (debt) issues on the horizontal axis equals the number of fiscal years with equity (debt) issues in fiscal years t-2, t-1, and t. In Graphs C and D, (0,0,1) for equity issues, for example, denotes that the firm had no equity issue in t and t-1 but had an equity issue in t-2.



## TABLE 1
## Sample Distribution, 1974–2017

Table 1 reports the sample distribution. A firm is defined to have an equity issue (a debt issue) in a year if ΔEquity (ΔDebt) in the year is at least 5% of the book value of beginning-of-year assets and at least 3% of the market value of beginning-of-year equity. A firm is defined to have a large equity issue (a large debt issue) in a year if ΔEquity (ΔDebt) in the year is at least 10% of the book value of beginning-of-year assets and at least 3% of the market value of beginning-of-year equity. No. of equity (debt) issues equals the number of fiscal years with equity (debt) issues in fiscal years t-2, t-1, and t. No. of issues equals the total number of equity or debt issues in fiscal years t-2, t-1, and t. No. of large equity (or large debt) issues equals the number of fiscal years with large equity (debt) issues in fiscal years t-2, t-1, and t. No. of large issues equals the total number of large equity or large debt issues in fiscal years t-2, t-1, and t. See Appendix A for the definitions of ΔEquity and ΔDebt.

Panel A: Sample Distribution by Number of Issues and Number of Large Issues, Independently

| All issues | | | Large issues | | |
|---|---|---|---|---|---|
| No. of issues | No. of firm-years | % of sample | No. of large issues | No. of firm-years | % of sample |
| =0 | 59,655 | 42.29 | =0 | 79,580 | 56.41 |
| =1 | 43,706 | 30.98 | =1 | 37,136 | 26.33 |
| =2 | 23,169 | 16.42 | =2 | 15,505 | 10.99 |
| =3 | 10,339 | 7.33 | =3 | 6,481 | 4.59 |
| =4 | 3,199 | 2.27 | =4 | 1,875 | 1.33 |
| =5 | 869 | 0.62 | =5 | 443 | 0.31 |
| =6 | 127 | 0.09 | =6 | 44 | 0.03 |
| All | 141,064 | 100.00 | All | 141,064 | 100.00 |

Panel B: Sample Distribution by Number of Equity Issues and Number of Debt Issues

| | | No. of observations | | | | | % of sample | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. of debt issues | | | | | No. of debt issues | | | | |
| | | =0 | =1 | =2 | =3 | All | =0 | =1 | =2 | =3 | All |
| No. of equity issues | =0 | 59,655 | 32,432 | 10,722 | 2,062 | 104,871 | 42.29 | 22.99 | 7.60 | 1.46 | 74.34 |
| | =1 | 11,274 | 8,121 | 3,772 | 973 | 24,140 | 7.99 | 5.76 | 2.67 | 0.69 | 17.11 |
| | =2 | 4,326 | 2,710 | 1,309 | 453 | 8,798 | 3.07 | 1.92 | 0.93 | 0.32 | 6.24 |
| | =3 | 1,795 | 917 | 416 | 127 | 3,255 | 1.27 | 0.65 | 0.29 | 0.09 | 2.31 |
| | All | 77,050 | 44,180 | 16,219 | 3,615 | 141,064 | 54.62 | 31.32 | 11.50 | 2.56 | 100.00 |

Panel C: Sample Distribution by Number of Large Equity Issues and Number of Large Debt Issues

| | | No. of observations | | | | | % of sample | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. of large debt issues | | | | | No. of large debt issues | | | | |
| | | =0 | =1 | =2 | =3 | All | =0 | =1 | =2 | =3 | All |
| No. of large equity issues | =0 | 79,580 | 26,168 | 5,161 | 760 | 111,669 | 56.41 | 18.55 | 3.66 | 0.54 | 79.16 |
| | =1 | 10,968 | 6,313 | 2,095 | 444 | 19,820 | 7.78 | 4.48 | 1.49 | 0.31 | 14.05 |
| | =2 | 4,031 | 1,968 | 784 | 216 | 6,999 | 2.86 | 1.40 | 0.56 | 0.15 | 4.96 |
| | =3 | 1,658 | 647 | 227 | 44 | 2,576 | 1.18 | 0.46 | 0.16 | 0.03 | 1.83 |
| | All | 96,237 | 35,096 | 8,267 | 1,464 | 141,064 | 68.22 | 24.88 | 5.86 | 1.04 | 100.00 |

## TABLE 2
## Average Firm Characteristics, 1974–2017

Table 2 reports the averages of several firm characteristics. See Appendix A and Table 1 for variable definitions. The top and bottom 1% values of the firm characteristics are winsorized.

Panel A: Average Characteristics by Number of Equity Issues

| No. of equity issues | Ln(Market Cap)$_t$ | Market-to-Book$_t$ (%) | Asset Growth$_t$ (%) | OIBD÷Assets$_t$ (%) | Qtr. ROE$_t$ (%) |
|---|---|---|---|---|---|
| =0 | 5.73 | 2.22 | 7.97 | 13.72 | 0.49 |
| =1 | 5.38 | 3.17 | 20.88 | 7.63 | -3.95 |
| =2 | 5.17 | 4.82 | 34.66 | -8.82 | -11.72 |
| =3 | 5.01 | 6.19 | 49.30 | -30.26 | -19.48 |
| All | 5.62 | 2.64 | 12.80 | 10.26 | -1.53 |

Panel B: Average Characteristics by Number of Debt Issues

| No. of debt issues | Ln(Market Cap)$_t$ | Market-to-Book$_t$ (%) | Asset Growth$_t$ (%) | OIBD÷Assets$_t$ (%) | Qtr. ROE$_t$ (%) |
|---|---|---|---|---|---|
| =0 | 5.64 | 2.70 | 8.21 | 9.37 | -1.00 |
| =1 | 5.62 | 2.56 | 14.97 | 11.01 | -1.83 |
| =2 | 5.53 | 2.50 | 23.73 | 11.86 | -2.81 |
| =3 | 5.67 | 2.69 | 35.02 | 12.71 | -3.51 |
| All | 5.62 | 2.64 | 12.80 | 10.26 | -1.53 |

Panel C: Average Characteristics by Number of Issues

| No. of issues | Ln(Market Cap)$_t$ | Market-to-Book$_t$ (%) | Asset Growth$_t$ (%) | OIBD÷Assets$_t$ (%) | Qtr. ROE$_t$ (%) |
|---|---|---|---|---|---|
| =0 | 5.77 | 2.26 | 4.48 | 13.65 | 0.98 |
| =1 | 5.61 | 2.49 | 11.41 | 11.48 | -0.87 |
| =2 | 5.42 | 3.07 | 21.05 | 6.40 | -4.18 |
| =3 | 5.29 | 3.81 | 33.34 | -1.25 | -8.80 |
| =4 | 5.37 | 4.32 | 45.36 | -2.04 | -11.49 |
| =5 | 5.71 | 4.04 | 61.03 | 1.29 | -11.62 |
| =6 | 6.29 | 4.06 | 68.92 | 4.36 | -8.58 |
| ≥3 | 5.34 | 3.94 | 37.95 | -1.22 | -9.55 |
| ≥4 | 5.47 | 4.25 | 49.32 | -1.16 | -11.43 |

Panel D: Average Characteristics by Number of Equity Issues and Number of Debt Issues

| No. of equity issues | No. of debt issues | Ln(Market Cap)$_t$ | Market-to-Book$_t$ (%) | Asset Growth$_t$ (%) | OIBD÷Assets$_t$ (%) | Qtr. ROE$_t$ (%) |
|---|---|---|---|---|---|---|
| =0 | =0 | 5.77 | 2.26 | 4.48 | 13.65 | 0.98 |
| =1 | =0 | 5.30 | 3.44 | 14.56 | 4.72 | -3.68 |
| =2 | =0 | 5.01 | 5.37 | 27.85 | -16.78 | -12.19 |
| =3 | =0 | 4.85 | 6.52 | 44.79 | -40.72 | -20.90 |
| =0 | =1 | 5.72 | 2.16 | 10.31 | 13.82 | 0.14 |
| =1 | =1 | 5.44 | 3.05 | 22.83 | 9.02 | -4.17 |
| =2 | =1 | 5.15 | 4.63 | 35.82 | -4.59 | -11.86 |
| =3 | =1 | 4.94 | 6.32 | 48.62 | -24.89 | -20.11 |
| =0 | =2 | 5.58 | 2.15 | 16.97 | 13.77 | -0.78 |
| =1 | =2 | 5.43 | 2.68 | 30.53 | 11.82 | -4.29 |
| =2 | =2 | 5.46 | 4.01 | 46.64 | 2.44 | -10.96 |
| =3 | =2 | 5.43 | 5.10 | 64.30 | -7.56 | -15.14 |
| =0 | =3 | 5.59 | 2.44 | 25.26 | 13.59 | -1.89 |
| =1 | =3 | 5.64 | 2.85 | 40.55 | 13.46 | -3.93 |
| =2 | =3 | 5.96 | 3.05 | 58.03 | 9.42 | -8.37 |
| =3 | =3 | 6.29 | 4.06 | 68.92 | 4.36 | -8.58 |

## TABLE 3

### Average Post-Issuance Percentage Buy-and-Hold Returns

Table 3 reports the equally weighted (EW) and value-weighted (VW) average post-issuance raw and market-adjusted three-year and one-year buy-and-hold returns (in percent), following fiscal years 1974–2017. Market-adjusted buy-and-hold returns are calculated by subtracting the compounded CRSP VW market return from the raw returns over identical holding periods. In this table, value weights are based on S&P 500-adjusted market cap, which is each firm's market cap as a fraction of the level of the S&P 500 Index at the market close on the same date. Returns are calculated starting 4 months after the end of the fiscal year. See Appendix A and Table 1 for variable definitions.

Panel A: EW and VW Average Returns by Number of Equity Issues

| No. of equity issues | $Return_{t+1, t+3}$ (%) | | $Return_{t+1}$ (%) | | Market adjusted return $_{t+1, t+3}$ (%) | | Market adjusted return $_{t+1}$ (%) | |
|---|---|---|---|---|---|---|---|---|
| | EW | VW | EW | VW | EW | VW | EW | VW |
| =0 | 53.4 | 37.1 | 18.0 | 11.6 | 18.6 | 1.5 | 6.6 | 0.4 |
| =1 | 30.9 | 33.2 | 11.3 | 8.7 | -3.8 | -5.6 | -0.5 | -2.9 |
| =2 | 5.5 | 16.9 | 2.3 | 0.4 | -25.2 | -19.0 | -8.0 | -10.1 |
| =3 | -12.4 | 10.2 | -7.3 | -4.5 | -38.2 | -17.6 | -16.3 | -13.0 |
| All | 45.0 | 36.4 | 15.3 | 11.1 | 10.7 | 0.5 | 3.9 | -0.1 |

Panel B: EW and VW Average Returns by Number of Debt Issues

| No. of debt issues | $Return_{t+1, t+3}$ (%) | | $Return_{t+1}$ (%) | | Market adjusted return $_{t+1, t+3}$ (%) | | Market adjusted return $_{t+1}$ (%) | |
|---|---|---|---|---|---|---|---|---|
| | EW | VW | EW | VW | EW | VW | EW | VW |
| =0 | 47.1 | 38.1 | 16.8 | 11.9 | 12.2 | 1.5 | 5.3 | 0.4 |
| =1 | 45.5 | 35.8 | 15.4 | 10.7 | 11.5 | 0.1 | 4.0 | -0.4 |
| =2 | 37.7 | 27.4 | 10.2 | 6.6 | 5.1 | -5.3 | -0.8 | -2.7 |
| =3 | 27.3 | 25.7 | 6.5 | 8.1 | -4.8 | -4.0 | -4.8 | -2.1 |

Panel C: EW and VW Average Returns by Number of Issues

| No. of issues | $Return_{t+1, t+3}$ (%) | | $Return_{t+1}$ (%) | | Market adjusted return $_{t+1, t+3}$ (%) | | Market adjusted return $_{t+1}$ (%) | |
|---|---|---|---|---|---|---|---|---|
| | EW | VW | EW | VW | EW | VW | EW | VW |
| =0 | 54.3 | 38.2 | 18.8 | 12.2 | 18.7 | 1.8 | 7.1 | 0.6 |
| =1 | 49.0 | 36.5 | 17.3 | 10.8 | 14.7 | 1.1 | 5.9 | -0.2 |
| =2 | 34.1 | 31.7 | 11.1 | 8.4 | 0.8 | -3.1 | 0.0 | -1.7 |
| =3 | 17.7 | 24.7 | 4.0 | 5.6 | -13.7 | -9.1 | -6.7 | -5.1 |
| =4 | 3.4 | 11.9 | -1.8 | 1.1 | -26.8 | -21.2 | -12.6 | -9.1 |
| =5 | -10.3 | 0.1 | -9.0 | -3.9 | -38.7 | -31.5 | -19.2 | -13.8 |
| =6 | -18.9 | -15.4 | -13.0 | -12.8 | -44.8 | -28.3 | -23.5 | -17.4 |
| ≥3 | 12.6 | 20.3 | 1.8 | 3.9 | -18.3 | -12.9 | -8.9 | -6.5 |
| ≥4 | -0.1 | 7.8 | -3.6 | -0.8 | -29.8 | -23.9 | -14.3 | -10.6 |

Panel D: Average Returns by Number of Equity Issues and Number of Debt Issues

| No. of equity issues | No. of debt issues | Return$_{t+1, t+3}$ (%) | | Return$_{t+1}$ (%) | | Market adjusted return $_{t+1, t+3}$ (%) | | Market adjusted return $_{t+1}$ (%) | |
|---|---|---|---|---|---|---|---|---|---|
| | | EW | VW | EW | VW | EW | VW | EW | VW |
| =0 | =0 | 54.3 | 38.2 | 18.8 | 12.2 | 18.7 | 1.8 | 7.1 | 0.6 |
| =1 | =0 | 34.4 | 36.7 | 14.6 | 9.2 | -0.2 | -1.7 | 2.9 | -2.0 |
| =2 | =0 | 5.2 | 28.2 | 4.2 | 2.8 | -25.6 | -9.5 | -6.0 | -7.9 |
| =3 | =0 | -10.5 | 51.6 | -6.6 | -0.8 | -35.4 | 21.2 | -15.0 | -9.4 |
| =0 | =1 | 54.1 | 36.5 | 18.2 | 11.0 | 19.9 | 1.6 | 6.9 | 0.1 |
| =1 | =1 | 30.4 | 34.8 | 10.6 | 10.9 | -4.9 | -5.7 | -1.4 | -1.7 |
| =2 | =1 | 7.8 | 18.4 | 3.7 | 0.1 | -23.4 | -19.8 | -6.9 | -10.7 |
| =3 | =1 | -12.2 | -7.9 | -7.3 | -8.7 | -38.8 | -34.8 | -16.7 | -16.5 |
| =0 | =2 | 48.4 | 30.6 | 14.3 | 7.7 | 15.7 | -1.4 | 3.6 | -1.2 |
| =1 | =2 | 25.2 | 20.5 | 4.7 | 2.9 | -9.0 | -16.0 | -6.8 | -7.9 |
| =2 | =2 | 4.3 | 2.7 | -2.4 | 0.3 | -25.5 | -29.7 | -13.2 | -10.4 |
| =3 | =2 | -19.4 | -7.0 | -8.5 | 1.2 | -47.2 | -42.0 | -19.1 | -10.8 |
| =0 | =3 | 41.5 | 29.9 | 12.2 | 12.0 | 9.2 | 1.1 | 1.1 | 1.3 |
| =1 | =3 | 16.7 | 29.4 | 4.2 | 5.1 | -17.3 | -6.6 | -7.9 | -5.1 |
| =2 | =3 | -1.8 | 3.8 | -9.5 | -6.7 | -30.7 | -25.9 | -19.4 | -15.4 |
| =3 | =3 | -18.9 | -15.4 | -13.0 | -12.8 | -44.8 | -28.3 | -23.5 | -17.4 |

Panel E: EW and VW Average Returns by Number of Large Equity Issues

| No. of equity issues | Return$_{t+1, t+3}$ (%) | | Return$_{t+1}$ (%) | | Market adjusted return $_{t+1, t+3}$ (%) | | Market adjusted return $_{t+1}$ (%) | |
|---|---|---|---|---|---|---|---|---|
| | EW | VW | EW | VW | EW | VW | EW | VW |
| =0 | 52.2 | 37.1 | 17.7 | 11.5 | 17.3 | 1.3 | 6.2 | 0.3 |
| =1 | 27.3 | 28.8 | 10.3 | 6.2 | -6.6 | -8.0 | -1.4 | -4.6 |
| =2 | 2.8 | 10.3 | 0.6 | -2.8 | -27.3 | -24.7 | -9.5 | -12.5 |
| =3 | -15.1 | 13.7 | -9.0 | -8.4 | -39.4 | -13.1 | -17.6 | -16.6 |

Panel F: EW and VW Average Returns by Number of Large Debt Issues

| No. of debt issues | Return$_{t+1, t+3}$ (%) | | Return$_{t+1}$ (%) | | Market adjusted return $_{t+1, t+3}$ (%) | | Market adjusted return $_{t+1}$ (%) | |
|---|---|---|---|---|---|---|---|---|
| | EW | VW | EW | VW | EW | VW | EW | VW |
| =0 | 47.4 | 37.3 | 16.8 | 11.5 | 12.3 | 0.7 | 5.2 | 0.0 |
| =1 | 43.2 | 35.8 | 13.7 | 10.7 | 10.3 | 1.6 | 2.7 | 0.1 |
| =2 | 29.7 | 20.8 | 7.1 | 4.9 | -1.5 | -7.7 | -3.7 | -3.4 |
| =3 | 16.4 | 11.1 | 1.6 | -1.8 | -14.1 | -19.0 | -9.7 | -10.7 |

Panel G: EW and VW Average Returns by Number of Large Issues

| No. of issues | $Return_{t+1, t+3}$ (%) | | $Return_{t+1}$ (%) | | Market adjusted return $_{t+1, t+3}$ (%) | | Market adjusted return $_{t+1}$ (%) | |
|---|---|---|---|---|---|---|---|---|
| | EW | VW | EW | VW | EW | VW | EW | VW |
| =0 | 53.0 | 37.4 | 18.3 | 11.7 | 17.3 | 0.9 | 6.6 | 0.2 |
| =1 | 46.2 | 37.3 | 16.1 | 10.8 | 12.7 | 3.0 | 4.9 | 0.2 |
| =2 | 25.4 | 24.7 | 8.1 | 5.9 | -6.8 | -7.1 | -2.7 | -3.2 |
| =3 | 7.4 | 22.4 | -1.3 | 0.6 | -21.9 | -13.0 | -11.6 | -10.4 |
| =4 | -6.1 | -6.4 | -5.5 | -0.5 | -34.3 | -37.2 | -15.9 | -10.0 |
| =5 | -21.0 | -12.4 | -13.8 | -16.8 | -46.5 | -37.2 | -23.4 | -23.6 |
| =6 | -31.8 | -55.2 | -18.3 | -26.6 | -55.9 | -47.6 | -29.3 | -26.1 |
| ≥3 | 2.9 | 12.2 | -2.9 | -1.2 | -26.0 | -20.8 | -13.2 | -11.4 |
| ≥4 | -9.4 | -10.0 | -7.3 | -5.1 | -37.0 | -37.7 | -17.5 | -13.6 |

Panel H: Average Returns by Number of Large Equity Issues and Number of Large Debt Issues

| No. of equity issues | No. of debt issues | $Return_{t+1, t+3}$ (%) | | $Return_{t+1}$ (%) | | Market adjusted return $_{t+1, t+3}$ (%) | | Market adjusted return $_{t+1}$ (%) | |
|---|---|---|---|---|---|---|---|---|---|
| | | EW | VW | EW | VW | EW | VW | EW | VW |
| =0 | =0 | 53.0 | 37.4 | 18.3 | 11.7 | 17.3 | 0.9 | 6.6 | 0.2 |
| =1 | =0 | 31.9 | 34.8 | 14.1 | 6.9 | -2.5 | -3.2 | 2.3 | -3.9 |
| =2 | =0 | 5.2 | 23.0 | 4.3 | -2.8 | -25.3 | -13.6 | -5.6 | -11.7 |
| =3 | =0 | -14.5 | 57.5 | -8.9 | -5.4 | -38.2 | 27.1 | -17.1 | -14.5 |
| =0 | =1 | 52.1 | 37.7 | 17.0 | 11.4 | 19.0 | 4.0 | 6.0 | 0.9 |
| =1 | =1 | 24.0 | 25.8 | 7.2 | 7.4 | -9.6 | -10.3 | -4.3 | -3.5 |
| =2 | =1 | 4.1 | 7.5 | -2.6 | -2.6 | -26.2 | -32.0 | -13.2 | -14.8 |
| =3 | =1 | -11.9 | -3.3 | -6.7 | -6.9 | -38.1 | -35.3 | -15.7 | -15.3 |
| =0 | =2 | 42.7 | 24.1 | 12.2 | 6.3 | 11.0 | -3.1 | 1.5 | -1.3 |
| =1 | =2 | 17.4 | 19.6 | 2.0 | 0.2 | -14.8 | -14.1 | -9.4 | -10.4 |
| =2 | =2 | -7.2 | -5.3 | -6.3 | 3.2 | -35.1 | -34.1 | -16.8 | -6.4 |
| =3 | =2 | -24.5 | -11.6 | -14.8 | -6.3 | -48.2 | -43.3 | -24.0 | -17.2 |
| =0 | =3 | 36.0 | 36.4 | 9.2 | 8.6 | 4.8 | 1.1 | -2.0 | -2.3 |
| =1 | =3 | 4.1 | -10.2 | -2.4 | -3.8 | -27.5 | -44.4 | -14.5 | -13.9 |
| =2 | =3 | -17.1 | -13.1 | -12.6 | -25.2 | -44.6 | -32.4 | -22.7 | -28.7 |
| =3 | =3 | -31.8 | -55.2 | -18.3 | -26.6 | -55.9 | -47.6 | -29.3 | -26.1 |

## TABLE 4

### Calendar-Time Factor Regression Results: Equity Issues, 1975-2018

See Appendices A and B and Table 1 for variable and factor model descriptions. The dependent variable is the portfolio monthly VW or EW percentage excess return from January 1975-December 2018, with equity issues beginning in fiscal 1971. If there are less than 10 stocks in the portfolio in a month, the corresponding observation is dropped. In Panel C, equity issues of (0,0,1), for example, denotes that the firm conducted no equity issue in t and t-1 but did an equity issue in t-2. *T*-statistics using a Newey-West correction with 3 lags are in parentheses, with *, **, and *** signifying statistical significance at the 10%, 5%, and 1% significance levels. A coefficient in bold is statistically different from the corresponding coefficient in the first column (no issuance) of the same panel (or subpanel, if available), at the 5% significance level.

Panel A: Frequency of Equity Issues, 1975–2018 (Number of Months = 528)

| | (A1) VW results | | | | | (A2) EW results | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | =0 | =1 | ≥1 | ≥2 | =3 | =0 | =1 | ≥1 | ≥2 | =3 |
| | | | | | Average monthly excess return on the portfolio | | | | | |
| $R - R_F$ | 0.75*** | 0.60** | 0.52* | **0.18** | **-0.23** | 1.27*** | **0.88**** | **0.70**** | **0.24** | **-0.53** |
| $t(R - R_F)$ | (3.89) | (2.17) | (1.87) | (0.62) | (-0.63) | (4.71) | (2.58) | (1.98) | (0.63) | (-1.17) |
| | q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | | | | | |
| α | 0.07** | -0.00 | -0.08 | **-0.40***** | **-0.46*** | 0.45*** | **0.22** | **0.12** | **-0.15** | **-0.47** |
| t(α) | (2.39) | (-0.02) | (-0.83) | (-2.85) | (-1.87) | (4.31) | (1.48) | (0.71) | (-0.68) | (-1.58) |
| b | 0.99*** | **1.14***** | **1.15***** | **1.16***** | 1.08*** | 0.96*** | **1.08***** | **1.08***** | **1.09***** | 1.01*** |
| t(b) | (109.56) | (40.56) | (41.65) | (28.39) | (13.65) | (31.33) | (27.61) | (26.09) | (19.67) | (14.72) |
| s | -0.08*** | **0.20***** | **0.24***** | **0.39***** | **0.35**** | 0.66*** | **0.81***** | **0.83***** | **0.87***** | 0.79*** |
| t(s) | (-6.52) | (4.64) | (6.69) | (7.59) | (2.49) | (8.84) | (11.05) | (13.23) | (13.44) | (9.41) |
| $b^{ROE}$ | 0.05*** | **-0.11**** | **-0.13***** | **-0.18*** | **-0.68***** | -0.25*** | **-0.58***** | **-0.67***** | **-0.82***** | **-1.17***** |
| $t(b^{ROE})$ | (3.10) | (-2.48) | (-2.81) | (-1.90) | (-6.20) | (-3.91) | (-6.58) | (-7.15) | (-6.33) | (-7.49) |
| $b^{I/A}$ | -0.02 | **-0.57***** | **-0.59***** | **-0.61***** | **-0.56***** | 0.24*** | **-0.14** | **-0.27**** | **-0.51***** | **-0.73***** |
| $t(b^{I/A})$ | (-1.00) | (-8.71) | (-9.05) | (-5.98) | (-3.88) | (2.75) | (-1.22) | (-2.31) | (-3.59) | (-3.83) |
| | 5-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + h_i HML_t + r_i RMW_t + c_i CMA_t + e_{it}$ | | | | | | | | | |
| α | 0.02 | -0.03 | -0.13 | **-0.49***** | **-0.74***** | 0.28*** | **-0.04** | **-0.14** | **-0.40**** | **-0.84***** |
| t(α) | (0.79) | (-0.35) | (-1.44) | (-3.54) | (-2.86) | (3.40) | (-0.30) | (-1.02) | (-2.22) | (-3.35) |
| b | 1.00*** | **1.11***** | **1.12***** | **1.13***** | 1.08*** | 0.99*** | **1.10***** | **1.09***** | **1.07***** | 1.03*** |
| t(b) | (121.54) | (43.80) | (44.38) | (31.77) | (12.57) | (36.86) | (27.57) | (26.35) | (21.76) | (14.57) |
| s | -0.04*** | **0.21***** | **0.27***** | **0.46***** | **0.51***** | 0.78*** | **0.94***** | **0.95***** | **0.95***** | **0.91***** |
| t(s) | (-2.91) | (4.93) | (6.59) | (7.45) | (4.23) | (17.01) | (11.61) | (12.09) | (12.20) | (8.38) |
| h | -0.10*** | -0.22*** | -0.22*** | **-0.28***** | -0.26** | 0.19*** | **-0.02** | **-0.09** | **-0.30**** | **-0.40**** |
| t(h) | (-6.01) | (-3.23) | (-3.25) | (-3.28) | (-2.02) | (3.29) | (-0.22) | (-0.86) | (-2.49) | (-2.58) |
| r | 0.11*** | **-0.27***** | **-0.25***** | **-0.20**** | **-0.43**** | 0.03 | **-0.36***** | **-0.50***** | **-0.75***** | **-0.94***** |
| t(r) | (6.84) | (-5.12) | (-4.96) | (-2.29) | (-2.20) | (0.53) | (-3.83) | (-5.74) | (-8.15) | (-7.41) |
| c | 0.10*** | **-0.24***** | **-0.26***** | **-0.24**** | -0.21 | 0.07 | 0.00 | -0.05 | -0.07 | -0.13 |
| t(c) | (3.86) | (-3.14) | (-3.37) | (-2.15) | (-1.06) | (0.80) | (0.03) | (-0.31) | (-0.41) | (-0.54) |

Panel B: Frequency of Large Equity Issues, 1975–2018 (Number of Months = 528)

| | (B1) VW results | | | | | (B2) EW results | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | =0 | =1 | ≥1 | ≥2 | =3 | =0 | =1 | ≥1 | ≥2 | =3 |
| | Average monthly excess return on the portfolio | | | | | | | | | |
| $R - R_F$ | 0.75*** | 0.60** | 0.50* | **-0.01** | **-0.36** | 1.25*** | **0.84**** | **0.64*** | **0.03** | **-0.42** |
| $t(R - R_F)$ | (3.82) | (2.09) | (1.71) | (-0.02) | (-0.86) | (4.59) | (2.37) | (1.77) | (0.09) | (-0.84) |
| | q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | | | | | |
| α | 0.06** | 0.04 | -0.06 | **-0.53***** | **-0.59*** | 0.43*** | **0.21** | **0.09** | **-0.29** | **-0.32** |
| t(α) | (1.99) | (0.35) | (-0.55) | (-3.56) | (-1.88) | (4.07) | (1.34) | (0.53) | (-1.22) | (-0.95) |
| b | 1.00*** | **1.12***** | **1.14***** | **1.20***** | 1.07*** | 0.97*** | **1.08***** | **1.08***** | **1.11***** | 0.97*** |
| t(b) | (110.74) | (36.06) | (37.87) | (26.61) | (12.76) | (31.72) | (26.60) | (24.97) | (18.65) | (12.61) |
| s | -0.07*** | **0.27***** | **0.31***** | **0.44***** | **0.37*** | 0.66*** | **0.84***** | **0.85***** | 0.86*** | **0.85***** |
| t(s) | (-5.85) | (5.39) | (7.62) | (6.44) | (1.79) | (8.95) | (10.97) | (13.00) | (11.97) | (8.82) |
| $b^{ROE}$ | 0.06*** | **-0.16**** | **-0.18***** | **-0.23**** | **-0.67***** | -0.26*** | **-0.63***** | **-0.71***** | **-0.85***** | **-1.28***** |
| $t(b^{ROE})$ | (3.44) | (-2.57) | (-2.98) | (-2.24) | (-5.07) | (-4.06) | (-6.89) | (-7.35) | (-6.13) | (-7.49) |
| $b^{I/A}$ | -0.03 | **-0.68***** | **-0.70***** | **-0.71***** | **-0.75***** | 0.23*** | **-0.20*** | **-0.33***** | **-0.56***** | **-0.77***** |
| $t(b^{I/A})$ | (-1.59) | (-8.85) | (-9.35) | (-6.14) | (-3.71) | (2.61) | (-1.81) | (-2.76) | (-3.48) | (-3.51) |

Panel C: Frequency and Recency of Equity Issues, 1975–2018 (Number of Months = 528)

| Equity issues (t,t-1,t-2) | (0,0,0) | (0,0,1) | (0,1,0) | (1,0,0) | (0,1,1) | (1,0,1) | (1,1,0) | (1,1,0) or (1,1,1) | (1,0,0), (1,0,1), (1,1,0) or (1,1,1) |
|---|---|---|---|---|---|---|---|---|---|
| | Average monthly excess return on the VW portfolio | | | | | | | | |
| $R - R_F$ | 0.75*** | 0.86*** | 0.62** | **0.35** | **0.18** | **0.18** | **-0.04** | **-0.11** | **0.26** |
| $t(R - R_F)$ | (3.89) | (2.83) | (2.19) | (1.33) | (0.51) | (0.53) | (-0.12) | (-0.33) | (0.95) |
| | VW results, q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | | | | |
| α | 0.07** | 0.26 | 0.02 | **-0.28**** | -0.26 | **-0.44**** | **-0.58***** | **-0.61***** | **-0.37***** |
| t(α) | (2.39) | (1.58) | (0.13) | (-2.09) | (-1.16) | (-2.00) | (-2.79) | (-3.42) | (-3.11) |
| b | 0.99*** | **1.16***** | 1.05*** | **1.15***** | 1.10*** | 1.11*** | **1.17***** | **1.18***** | **1.16***** |
| t(b) | (109.56) | (27.11) | (22.70) | (32.71) | (19.43) | (15.53) | (21.50) | (21.68) | (36.77) |
| s | -0.08*** | **0.17***** | **0.34***** | **0.25***** | **0.33***** | **0.71***** | **0.45***** | **0.45***** | **0.31***** |
| t(s) | (-6.52) | (2.67) | (3.60) | (4.31) | (4.00) | (5.68) | (6.25) | (5.55) | (6.21) |
| $b^{ROE}$ | 0.05*** | **-0.23***** | -0.07 | 0.04 | **-0.25**** | -0.14 | -0.17 | **-0.28***** | -0.05 |
| $t(b^{ROE})$ | (3.10) | (-3.12) | (-0.77) | (0.59) | (-1.97) | (-0.91) | (-1.45) | (-2.68) | (-0.96) |
| $b^{I/A}$ | -0.02 | **-0.42***** | **-0.64***** | **-0.59***** | **-0.52***** | **-0.50***** | **-0.77***** | **-0.66***** | **-0.61***** |
| $t(b^{I/A})$ | (-1.00) | (-3.42) | (-6.25) | (-5.77) | (-3.04) | (-3.23) | (-5.17) | (-5.56) | (-7.95) |
| | Average monthly return on the EW portfolio | | | | | | | | |
| $R - R_F$ | 1.27*** | 1.07*** | **0.92***** | **0.54** | **0.32** | **0.35** | **0.03** | **-0.08** | **0.35** |
| $t(R - R_F)$ | (4.71) | (3.01) | (2.73) | (1.64) | (0.76) | (0.84) | (0.07) | (-0.19) | (0.99) |
| | EW results, q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | | | | |
| α | 0.45*** | 0.38** | 0.27* | **-0.05** | 0.10 | **-0.07** | **-0.20** | **-0.28** | **-0.13** |
| t(α) | (4.31) | (2.34) | (1.90) | (-0.23) | (0.41) | (-0.27) | (-0.70) | (-1.06) | (-0.63) |
| b | 0.96*** | **1.05***** | **1.07***** | **1.09***** | 1.01*** | **1.09***** | **1.08***** | **1.10***** | **1.09***** |
| t(b) | (31.33) | (23.17) | (26.86) | (25.60) | (16.28) | (14.47) | (16.22) | (16.75) | (24.60) |
| s | 0.66*** | **0.84***** | **0.76***** | **0.79***** | 0.83*** | **0.92***** | **0.82***** | **0.85***** | **0.83***** |
| t(s) | (8.84) | (9.60) | (10.89) | (10.76) | (10.34) | (10.00) | (10.20) | (11.53) | (13.56) |
| $b^{ROE}$ | -0.25*** | **-0.62***** | **-0.55***** | **-0.49***** | **-0.94***** | **-0.70***** | **-0.78***** | **-0.87***** | **-0.67***** |
| $t(b^{ROE})$ | (-3.91) | (-6.15) | (-7.70) | (-3.94) | (-9.22) | (-4.68) | (-4.16) | (-5.08) | (-5.47) |
| $b^{I/A}$ | 0.24*** | **0.01** | **-0.18*** | **-0.27** | **-0.37***** | **-0.28**** | **-0.70***** | **-0.68***** | **-0.44***** |
| $t(b^{I/A})$ | (2.75) | (0.09) | (-1.85) | (-1.58) | (-3.05) | (-2.26) | (-3.09) | (-3.39) | (-2.82) |

## TABLE 5

### Calendar-Time Factor Regression Results: Debt Issues, 1975-2018

See Appendices A and B and Table 1 for variable and factor model descriptions. The dependent variable is the portfolio monthly VW or EW percentage excess return from January 1975-December 2018, with debt issues beginning in fiscal 1971. If there are less than 10 stocks in the portfolio in a month, the corresponding observation is dropped. In Panel C, debt issues of (0,0,1), for example, denotes that the firm conducted no debt issue in t and t-1 but did an debt issue in t-2. *T*-statistics using a Newey-West correction with 3 lags are in parentheses, with *, **, and *** signifying statistical significance at the 10%, 5%, and 1% significance levels. A coefficient in bold is statistically different from the corresponding coefficient in the first column of the same panel (or subpanel, if available), at the 5% significance level.

Panel A: Frequency of Debt Issues, 1975–2018 (Number of Months = 528)

| | (A1) VW results | | | | | (A2) EW results | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | =0 | =1 | ≥1 | ≥2 | =3 | =0 | =1 | ≥1 | ≥2 | =3 |
| | | | | | Average monthly excess return on the portfolio | | | | | |
| $R - R_F$ | 0.74*** | 0.71*** | 0.70*** | 0.67*** | 0.74** | 1.27*** | **1.09*** ** | **0.97*** ** | **0.69** ** | **0.33** |
| $t(R - R_F)$ | (3.84) | (3.37) | (3.20) | (2.61) | (2.29) | (4.44) | (3.74) | (3.24) | (2.19) | (0.95) |
| | q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | | | | | |
| α | 0.12*** | **-0.04** | **-0.06** | **-0.12** | -0.14 | 0.60*** | **0.29** ** | **0.15** | **-0.14** | **-0.46*** ** |
| t(α) | (2.86) | (-0.76) | (-1.18) | (-1.25) | (-0.80) | (5.08) | (2.50) | (1.25) | (-1.00) | (-2.64) |
| b | 0.97*** | **1.05*** ** | **1.07*** ** | **1.12*** ** | **1.25*** ** | 0.95*** | **1.01*** ** | **1.03*** ** | **1.08*** ** | **1.15*** ** |
| t(b) | (84.58) | (71.16) | (80.16) | (47.42) | (28.26) | (35.57) | (31.05) | (29.39) | (26.01) | (23.89) |
| s | -0.08*** | **-0.00** | **0.02** | **0.11*** | **0.24*** ** | 0.72*** | 0.70*** | 0.70*** | 0.70*** | 0.60*** |
| t(s) | (-4.89) | (-0.01) | (1.01) | (1.91) | (3.16) | (14.85) | (9.06) | (8.01) | (6.64) | (5.57) |
| $b^{ROE}$ | 0.00 | **0.10*** ** | **0.08*** ** | 0.02 | -0.08 | -0.43*** | -0.35*** | -0.35*** | -0.35*** | -0.43*** |
| $t(b^{ROE})$ | (0.15) | (3.32) | (3.12) | (0.47) | (-0.78) | (-6.02) | (-5.00) | (-4.78) | (-4.26) | (-4.54) |
| $b^{I/A}$ | -0.09*** | -0.08** | -0.09*** | -0.09 | -0.10 | 0.00 | **0.18*** | **0.17*** | **0.16** | 0.10 |
| $t(b^{I/A})$ | (-3.08) | (-2.16) | (-3.00) | (-1.16) | (-0.74) | (0.03) | (1.90) | (1.76) | (1.44) | (0.89) |
| | 5-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + h_i HML_t + r_i RMW_t + c_i CMA_t + e_{it}$ | | | | | | | | | |
| α | 0.07** | **-0.08** | **-0.10*** | **-0.20** ** | **-0.30*** | 0.42*** | **0.09** | **-0.06** | **-0.39*** ** | **-0.74*** ** |
| t(α) | (2.21) | (-1.41) | (-1.96) | (-2.08) | (-1.80) | (4.58) | (0.91) | (-0.61) | (-3.16) | (-4.60) |
| b | 0.97*** | **1.05*** ** | **1.07*** ** | **1.12*** ** | **1.26*** ** | 0.96*** | **1.04*** ** | **1.06*** ** | **1.10*** ** | **1.17*** ** |
| t(b) | (113.96) | (73.68) | (75.34) | (47.15) | (27.08) | (34.24) | (33.08) | (32.70) | (30.50) | (25.10) |
| s | -0.05*** | **0.04*** | **0.07*** ** | **0.17*** ** | **0.35*** ** | 0.81*** | 0.83*** | 0.84*** | **0.87*** ** | 0.78*** |
| t(s) | (-2.80) | (1.92) | (3.12) | (4.09) | (5.77) | (16.50) | (16.18) | (15.30) | (13.70) | (10.42) |
| h | -0.16*** | -0.12*** | **-0.07** ** | **0.08** | **0.10** | 0.01 | **0.18** ** | **0.22*** ** | **0.30*** ** | **0.28** ** |
| t(h) | (-6.64) | (-4.04) | (-2.48) | (1.64) | (0.97) | (0.20) | (2.56) | (2.82) | (3.17) | (2.42) |
| r | 0.02 | **0.14*** ** | **0.14*** ** | 0.12** | 0.16* | -0.27*** | **-0.06** | **-0.03** | **0.04** | **-0.04** |
| t(r) | (1.16) | (4.79) | (4.94) | (2.02) | (1.69) | (-4.51) | (-0.86) | (-0.34) | (0.41) | (-0.42) |
| c | 0.10** | 0.07* | 0.01 | **-0.16** ** | -0.17 | 0.08 | 0.02 | **-0.02** | **-0.11** | **-0.15** |
| t(c) | (2.55) | (1.77) | (0.18) | (-2.15) | (-1.18) | (0.68) | (0.23) | (-0.18) | (-0.94) | (-1.08) |

Panel B: Frequency of Large Debt Issues, 1975–2018 (Number of Months = 528)

| | (B1) VW results | | | | | (B2) EW results | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | =0 | =1 | ≥1 | ≥2 | =3 | =0 | =1 | ≥1 | ≥2 | =3 |
| Average monthly excess return on the portfolio | | | | | | | | | | |
| $R - R_F$ | 0.72*** | 0.78*** | 0.74*** | 0.50* | **-0.15** | 1.24*** | **1.01*** ** | **0.90*** ** | **0.47** | **-0.33** |
| $t(R - R_F)$ | (3.70) | (3.48) | (3.19) | (1.79) | (-0.38) | (4.39) | (3.34) | (2.90) | (1.40) | (-0.86) |
| q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | | | | | | |
| α | 0.07** | 0.02 | -0.02 | **-0.29**** | **-0.83***** | 0.54*** | **0.19** | **0.08** | **-0.32**** | **-0.92***** |
| t(α) | (2.05) | (0.33) | (-0.38) | (-2.34) | (-2.96) | (4.78) | (1.47) | (0.62) | (-2.10) | (-3.72) |
| b | 0.99*** | **1.06*** ** | **1.08*** ** | **1.15*** ** | **1.31*** ** | 0.96*** | **1.04*** ** | **1.05*** ** | **1.11*** ** | **1.19*** ** |
| t(b) | (98.70) | (61.76) | (62.80) | (35.20) | (17.70) | (35.83) | (29.36) | (28.39) | (24.67) | (18.26) |
| s | -0.08*** | **0.08*** ** | **0.09*** ** | **0.21*** ** | **0.25**** | 0.70*** | 0.74*** | 0.73*** | 0.71*** | 0.64*** |
| t(s) | (-5.77) | (3.99) | (4.46) | (3.01) | (2.23) | (13.71) | (8.43) | (7.77) | (6.24) | (5.15) |
| $b^{ROE}$ | 0.01 | **0.12*** ** | **0.11*** ** | 0.06 | -0.15 | -0.39*** | -0.35*** | -0.37*** | -0.41*** | -0.54*** |
| $t(b^{ROE})$ | (0.77) | (3.37) | (3.14) | (0.88) | (-0.86) | (-5.92) | (-4.64) | (-4.87) | (-5.08) | (-4.16) |
| $b^{I/A}$ | -0.05** | **-0.19*** ** | **-0.21*** ** | **-0.27*** ** | -0.32 | 0.06 | 0.15 | 0.13 | 0.07 | -0.06 |
| $t(b^{I/A})$ | (-2.17) | (-5.05) | (-5.67) | (-2.83) | (-1.44) | (0.64) | (1.45) | (1.30) | (0.64) | (-0.39) |

Panel C: Frequency and Recency of Debt Issues, 1975–2018 (Number of Months = 528)

| Debt issues (t,t-1,t-2) | (0,0,0) | (0,0,1) | (0,1,0) | (1,0,0) | (0,1,1) | (1,0,1) | (1,1,0) | (1,1,0) or (1,1,1) | (1,0,0), (1,0,1), (1,1,0) or (1,1,1) |
|---|---|---|---|---|---|---|---|---|---|
| Average monthly excess return on the VW portfolio | | | | | | | | | |
| $R - R_F$ | 0.74*** | 0.75*** | 0.77*** | 0.64*** | 0.68** | 0.66*** | 0.50** | 0.62** | 0.65*** |
| $t(R - R_F)$ | (3.84) | (3.39) | (3.48) | (2.99) | (2.46) | (2.62) | (2.00) | (2.34) | (2.92) |
| VW results, q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | | | | | |
| α | 0.12*** | -0.02 | 0.00 | **-0.12** | **-0.15** | -0.05 | **-0.23** | **-0.20** | **-0.11*** |
| t(α) | (2.86) | (-0.22) | (0.03) | (-1.47) | (-1.11) | (-0.45) | (-1.60) | (-1.55) | (-1.70) |
| b | 0.97*** | **1.05*** ** | **1.09*** ** | **1.04*** ** | **1.14*** ** | **1.10*** ** | **1.06*** ** | **1.13*** ** | **1.07*** ** |
| t(b) | (84.58) | (47.25) | (48.49) | (51.40) | (26.15) | (31.93) | (28.59) | (37.54) | (61.34) |
| s | -0.08*** | **0.08*** ** | 0.00 | -0.01 | **0.16**** | **0.11*** | 0.06 | **0.13*** | **0.03** |
| t(s) | (-4.89) | (2.60) | (0.05) | (-0.48) | (2.47) | (1.82) | (0.76) | (1.84) | (0.75) |
| $b^{ROE}$ | 0.00 | 0.09* | 0.05 | **0.17*** ** | 0.05 | -0.05 | 0.06 | 0.05 | **0.11*** ** |
| $t(b^{ROE})$ | (0.15) | (1.95) | (1.09) | (3.78) | (0.94) | (-0.73) | (0.89) | (0.76) | (3.15) |
| $b^{I/A}$ | -0.09*** | -0.09 | -0.02 | -0.11** | -0.04 | -0.15* | -0.07 | -0.11 | -0.12*** |
| $t(b^{I/A})$ | (-3.08) | (-1.40) | (-0.28) | (-2.41) | (-0.46) | (-1.80) | (-0.65) | (-1.03) | (-2.75) |
| Average monthly excess return on the EW portfolio | | | | | | | | | |
| α | 1.27*** | 1.24*** | **1.11*** ** | **0.93*** ** | **0.97*** ** | **0.73**** | **0.57*** | **0.47** | **0.76**** |
| t(α) | (4.44) | (4.12) | (3.83) | (3.18) | (2.98) | (2.30) | (1.82) | (1.46) | (2.50) |
| EW results, q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | | | | | |
| α | 0.60*** | **0.42*** ** | **0.31*** ** | **0.15** | **0.09** | **-0.10** | **-0.25** | **-0.34**** | **-0.04** |
| t(α) | (5.08) | (3.39) | (2.76) | (1.15) | (0.50) | (-0.71) | (-1.58) | (-2.31) | (-0.34) |
| b | 0.95*** | **1.02*** ** | **1.01*** ** | **1.02*** ** | **1.07*** ** | **1.07*** ** | **1.04*** ** | **1.08*** ** | **1.05*** ** |
| t(b) | (35.57) | (26.84) | (34.13) | (29.45) | (24.44) | (25.23) | (23.22) | (25.37) | (28.24) |
| s | 0.72*** | 0.72*** | 0.71*** | 0.66*** | 0.74*** | 0.71*** | 0.72*** | 0.67*** | 0.67*** |
| t(s) | (14.85) | (7.74) | (11.45) | (8.33) | (6.84) | (7.05) | (6.40) | (6.24) | (7.28) |
| $b^{ROE}$ | -0.43*** | -0.36*** | **-0.35*** ** | -0.34*** | -0.34*** | -0.33*** | -0.30*** | -0.36*** | -0.34*** |
| $t(b^{ROE})$ | (-6.02) | (-4.67) | (-5.76) | (-4.36) | (-3.47) | (-4.52) | (-3.25) | (-4.24) | (-4.52) |
| $b^{I/A}$ | 0.00 | **0.23**** | **0.18**** | **0.13** | **0.26**** | 0.10 | 0.12 | 0.11 | 0.12 |
| $t(b^{I/A})$ | (0.03) | (2.22) | (2.15) | (1.28) | (1.99) | (0.98) | (0.99) | (1.01) | (1.19) |

## TABLE 6

### Calendar-Time Factor Regression Value-Weighted Results: Purged Q-Factors, 1975–2018

Table 6 reports the VW results using purged q-factors. To construct the purged q-factor series, we start with replicating Hou, Xue, and Zhang's (2015, 2018a, 2018b, and 2019) q-factor series. The purged size, asset growth, and ROE factors used in columns (1)-(3) are computed after purging stocks of firms with one or more equity issues in years t-2 to t, and those in (4)-(6) are computed after purging stocks of firms with one or more debt issues in years t-2 to t. The market factor is not purged. The dependent variable is the monthly VW percentage portfolio return minus the risk free rate. If there are less than 10 stocks in the portfolio in a month, the corresponding observation is dropped. To facilitate comparison, Panel A reports the non-purged results. See Appendices A and B and Table 1 for variable and q-factor model descriptions. *T*-statistics using a Newey-West correction with 3 lags are in parentheses, with *, **, and *** signifying statistical significance at the 10%, 5%, and 1% significance levels.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| No. of issues | No. of equity issues=0 | No. of equity issues≥2 | Equity issues (1,1,0) or (1,1,1) | No. of debt issues=0 | No. of debt issues≥2 | Debt issues (1,1,0) or (1,1,1) |
| | | | Panel A. Non-Purged Results | | | |
| α | 0.07** | -0.40*** | -0.61*** | 0.12*** | -0.12 | -0.20 |
| t(α) | (2.39) | (-2.85) | (-3.42) | (2.86) | (-1.25) | (-1.55) |
| b | 0.99*** | 1.16*** | 1.18*** | 0.97*** | 1.12*** | 1.13*** |
| t(b) | (109.56) | (28.39) | (21.68) | (84.58) | (47.42) | (37.54) |
| s | -0.08*** | 0.39*** | 0.45*** | -0.08*** | 0.11* | 0.13* |
| t(s) | (-6.52) | (7.59) | (5.55) | (-4.89) | (1.91) | (1.84) |
| $b^{ROE}$ | 0.05*** | -0.18* | -0.28*** | 0.00 | 0.02 | 0.05 |
| $t(b^{ROE})$ | (3.10) | (-1.90) | (-2.68) | (0.15) | (0.47) | (0.76) |
| $b^{I/A}$ | -0.02 | -0.61*** | -0.66*** | -0.09*** | -0.09 | -0.11 |
| $t(b^{I/A})$ | (-1.00) | (-5.98) | (-5.56) | (-3.08) | (-1.16) | (-1.03) |
| | | | Panel B. Purged Results | | | |
| α | 0.07** | -0.53*** | -0.78*** | 0.13*** | -0.19** | -0.27** |
| t(α) | (2.42) | (-3.79) | (-4.33) | (3.02) | (-2.03) | (-2.36) |
| b | 1.00*** | 1.19*** | 1.21*** | 0.97*** | 1.14*** | 1.16*** |
| t(b) | (110.89) | (29.07) | (22.83) | (83.75) | (46.69) | (38.41) |
| s | -0.08*** | 0.39*** | 0.45*** | -0.08*** | 0.12** | 0.14** |
| t(s) | (-6.71) | (7.15) | (5.90) | (-5.49) | (2.49) | (2.39) |
| $b^{ROE}$ | 0.06*** | -0.14 | -0.22* | 0.01 | 0.05 | 0.06 |
| $t(b^{ROE})$ | (3.67) | (-1.47) | (-1.93) | (0.33) | (1.14) | (1.07) |
| $b^{I/A}$ | -0.00 | -0.47*** | -0.54*** | -0.09*** | 0.02 | 0.06 |
| $t(b^{I/A})$ | (-0.23) | (-5.77) | (-5.05) | (-4.68) | (0.49) | (0.90) |

## TABLE 7
## Calendar-Time Factor Regression Results: Equity and Debt Issues Combined, 1975–2018

See Appendices A and B and Table 1 for variable and factor model descriptions. See Table 1 for the definition of issuer or large issuer. The number of issues represents the number of the last three fiscal years in which a debt or equity issue occurred, with a maximum of 6 potential issues. The dependent variable is the monthly percentage VW or EW portfolio return minus the risk free rate. If there are less than 10 stocks in the portfolio in a month, the corresponding observation is dropped. *T*-statistics using a Newey-West correction with 3 lags are in parentheses, with *, **, and *** signifying statistical significance at the 10%, 5%, and 1% significance levels. A coefficient in bold is statistically different from the corresponding coefficient in the first column of the same subpanel at the 5% significance level.

Panel A: One-Way Sort by Number of Security Issues, 1975–2018 (Number of Months = 528)

| | (A1) VW results | | | | | (A2) EW results | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | =0 | =1 | =2 | ≥3 | ≥4 | =0 | =1 | =2 | ≥3 | ≥4 |
| | | | | | Average monthly excess return on the portfolio | | | | | |
| $R - R_F$ | 0.75*** | 0.73*** | 0.72*** | **0.43** | **0.16** | 1.36*** | **1.22*** ** | **0.91*** ** | **0.31** | **-0.17** |
| $t(R - R_F)$ | (4.03) | (3.45) | (2.77) | (1.52) | (0.49) | (5.18) | (4.16) | (2.85) | (0.87) | (-0.48) |
| | q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | | | | | |
| α | 0.12*** | **-0.00** | 0.01 | **-0.32**** | **-0.44**** | 0.60*** | **0.43*** ** | **0.16** | **-0.34**** | **-0.66*** ** |
| t(α) | (2.88) | (-0.08) | (0.06) | (-2.54) | (-2.49) | (5.74) | (4.10) | (1.13) | (-1.98) | (-3.49) |
| b | 0.96*** | **1.04*** ** | **1.14*** ** | **1.14*** ** | **1.17*** ** | 0.93*** | **1.00*** ** | **1.05*** ** | **1.12*** ** | **1.12*** ** |
| t(b) | (88.74) | (73.24) | (49.64) | (33.12) | (25.40) | (33.57) | (35.25) | (28.93) | (24.90) | (21.91) |
| s | -0.11*** | **0.03** | **0.11**** | **0.24*** ** | **0.32*** ** | 0.66*** | **0.72*** ** | **0.79*** ** | **0.75*** ** | 0.71*** |
| t(s) | (-7.56) | (1.47) | (2.46) | (3.60) | (3.03) | (11.08) | (10.44) | (10.92) | (8.54) | (7.36) |
| $b^{ROE}$ | 0.03 | 0.08** | -0.07 | 0.01 | -0.17* | -0.27*** | **-0.37*** ** | **-0.48*** ** | **-0.59*** ** | **-0.68*** ** |
| $t(b^{ROE})$ | (1.40) | (2.54) | (-1.20) | (0.07) | (-1.82) | (-4.27) | (-5.77) | (-5.80) | (-6.34) | (-6.79) |
| $b^{I/A}$ | -0.03 | -0.09** | **-0.18*** ** | **-0.39*** ** | **-0.48*** ** | 0.17* | 0.15* | **0.02** | **-0.18** | **-0.34*** ** |
| $t(b^{I/A})$ | (-1.22) | (-2.36) | (-3.45) | (-3.59) | (-3.83) | (1.96) | (1.79) | (0.19) | (-1.61) | (-2.94) |

Panel B: One-Way Sort by Number of Large Issues, 1975–2018 (Number of Months = 528)

| | (B1) VW results | | | | | (B2) EW results | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | =0 | =1 | =2 | ≥3 | ≥4 | =0 | =1 | =2 | ≥3 | ≥4 |
| | | | | | Average monthly excess return on the portfolio | | | | | |
| $R - R_F$ | 0.72*** | 0.82*** | 0.73** | **0.07** | **-0.16** | 1.31*** | 1.16*** | 0.79** | 0.03 | -0.65 |
| $t(R - R_F)$ | (3.81) | (3.63) | (2.54) | (0.21) | (-0.45) | (4.94) | (3.81) | (2.31) | (0.08) | (-1.62) |
| | q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | | | | | |
| α | 0.06* | 0.09 | 0.04 | **-0.63*** ** | **-0.69*** ** | 0.53*** | **0.37*** ** | **0.08** | **-0.53*** ** | **-0.93*** ** |
| t(α) | (1.91) | (1.41) | (0.33) | (-4.31) | (-3.02) | (5.10) | (3.17) | (0.53) | (-2.75) | (-3.94) |
| b | 0.99*** | **1.05*** ** | **1.16*** ** | **1.21*** ** | **1.21*** ** | 0.94*** | **1.03*** ** | **1.08*** ** | **1.14*** ** | **1.11*** ** |
| t(b) | (99.99) | (53.73) | (36.63) | (29.66) | (18.85) | (33.62) | (33.11) | (27.18) | (22.53) | (18.28) |
| s | -0.10*** | **0.12*** ** | **0.21*** ** | **0.33*** ** | **0.25*** | 0.65*** | **0.76*** ** | **0.82*** ** | **0.78*** ** | 0.67*** |
| t(s) | (-7.14) | (3.51) | (3.99) | (3.93) | (1.94) | (10.43) | (10.18) | (11.23) | (8.89) | (6.71) |
| $b^{ROE}$ | 0.04** | 0.07** | -0.04 | -0.06 | **-0.31**** | -0.27*** | **-0.39*** ** | **-0.53*** ** | **-0.70*** ** | **-0.87*** ** |
| $t(b^{ROE})$ | (1.98) | (2.04) | (-0.66) | (-0.67) | (-2.29) | (-4.30) | (-5.67) | (-6.72) | (-6.76) | (-7.03) |
| $b^{I/A}$ | -0.01 | **-0.21*** ** | **-0.45*** ** | **-0.58*** ** | -0.34** | 0.20** | **0.12** | **-0.11** | **-0.35*** ** | **-0.38*** ** |
| $t(b^{I/A})$ | (-0.39) | (-5.25) | (-6.98) | (-4.94) | (-2.02) | (2.36) | (1.21) | (-1.04) | (-2.71) | (-2.77) |

Panel C: Two-Way Sort by Number of Types of Securities and Number of Issues, 1975–2018 (528 Months)

| | (C1) | | | (C2) | | | (C3) | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| No. of types | 0 | 1 | 2 | | 1 | | | 2 | |
| No. of issues | 0 | 1-3 | 2-6 | 1 | 2 | 3 | 2 | 3 | ≥4 |
| | | | | Average monthly excess return on the VW portfolio | | | | | |
| $R - R_F$ | 0.75*** | 0.75*** | **0.44** | 0.73*** | 0.76*** | 0.65** | 0.72** | **0.26** | **0.16** |
| $t(R - R_F)$ | (4.03) | (3.40) | (1.58) | (3.45) | (2.89) | (2.23) | (2.56) | (0.89) | (0.49) |
| | | | | VW results, q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | |
| α | 0.12*** | 0.00 | **-0.23**** | -0.00 | 0.01 | -0.26 | 0.10 | **-0.49***** | **-0.44**** |
| t(α) | (2.88) | (0.09) | (-1.97) | (-0.08) | (0.10) | (-1.59) | (0.61) | (-3.17) | (-2.49) |
| b | 0.96*** | **1.06***** | **1.15***** | 1.04*** | **1.11***** | **1.20***** | 1.17*** | 1.10*** | 1.17*** |
| t(b) | (88.74) | (89.08) | (37.08) | (73.24) | (44.34) | (26.20) | (30.14) | (25.33) | (25.40) |
| s | -0.11*** | **0.05***** | **0.16***** | 0.03 | 0.14*** | **0.21***** | 0.05 | **0.31***** | **0.32***** |
| t(s) | (-7.56) | (2.99) | (2.75) | (1.47) | (2.92) | (2.79) | (0.74) | (4.54) | (3.03) |
| $b^{ROE}$ | 0.03 | 0.05* | -0.01 | 0.08** | **-0.08** | -0.00 | -0.07 | 0.10 | -0.17* |
| $t(b^{ROE})$ | (1.40) | (1.95) | (-0.23) | (2.54) | (-1.27) | (-0.02) | (-0.94) | (1.18) | (-1.82) |
| $b^{I/A}$ | -0.03 | -0.09*** | **-0.50***** | -0.09** | -0.04 | 0.13 | -0.54*** | -0.47*** | -0.48*** |
| $t(b^{I/A})$ | (-1.22) | (-3.18) | (-6.77) | (-2.36) | (-0.60) | (0.96) | (-5.93) | (-3.77) | (-3.83) |

Panel D: Two-Way sort by Number of Issues and Type of Security, 1975–2018 (528 Months)

| | (D1) | | (D2) | | | (D3) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| No. of issues | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| No. of equity issues | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 3 |
| | | | | Average monthly excess return on the VW portfolio | | | | | |
| $R - R_F$ | 0.75*** | 0.70** | 0.78*** | 0.72** | 0.44 | 0.79*** | **0.35** | **0.04** | **-0.14** |
| $t(R - R_F)$ | (3.67) | (2.29) | (3.01) | (2.56) | (1.16) | (2.62) | (1.15) | (0.12) | (-0.29) |
| | | | | VW results, q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | |
| α | -0.03 | 0.23 | 0.02 | 0.10 | 0.16 | -0.21 | -0.41** | -0.61*** | -0.45 |
| t(α) | (-0.54) | (1.55) | (0.14) | (0.61) | (0.61) | (-1.12) | (-2.36) | (-2.80) | (-1.32) |
| b | 1.03*** | 1.12*** | 1.11*** | 1.17*** | 1.14*** | 1.20*** | 1.10*** | 1.14*** | 1.01*** |
| t(b) | (69.02) | (23.38) | (37.37) | (30.14) | (15.40) | (22.18) | (23.50) | (17.21) | (9.24) |
| s | -0.02 | **0.34***** | 0.08 | 0.05 | **0.75***** | 0.18** | 0.27*** | **0.50***** | **0.81***** |
| t(s) | (-1.16) | (3.94) | (1.21) | (0.74) | (4.41) | (1.97) | (3.41) | (6.07) | (7.80) |
| $b^{ROE}$ | 0.13*** | **-0.35***** | -0.07 | -0.07 | **-0.45***** | 0.07 | 0.14 | -0.10 | **-0.70***** |
| $t(b^{ROE})$ | (3.84) | (-4.96) | (-0.88) | (-0.94) | (-3.40) | (0.52) | (1.60) | (-0.75) | (-3.66) |
| $b^{I/A}$ | 0.01 | **-0.67***** | 0.06 | **-0.54***** | **-1.03***** | 0.28* | **-0.45***** | **-0.43**** | **-0.91***** |
| $t(b^{I/A})$ | (0.31) | (-6.51) | (0.81) | (-5.93) | (-6.65) | (1.70) | (-3.24) | (-2.54) | (-4.19) |

## TABLE 8

## Calendar-Time Factor Regression Value-Weighted Results: Subperiod Analysis

See Appendices A and B and Table 1 for variable and factor model descriptions. The dependent variable is the monthly percentage value-weighted portfolio return minus the risk free rate. If there are less than 10 stocks in the portfolio in a month, the corresponding observation is dropped. *T*-statistics using a Newey-West correction with 3 lags are in parentheses, with *, **, and *** signifying statistical significance at the 10%, 5%, and 1% significance levels.

| | (1) 1975–1996 (Number of months = 264) | | | | | (2) 1997–2018 (Number of months = 264) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. of equity issues≥2 | No. of debt issues≥2 | Equity issues (1,1,0) or (1,1,1) | Debt issues (1,1,0) or (1,1,1) | No. of large issues≥3 | No. of equity issues≥2 | No. of debt issues≥2 | Equity issues (1,1,0) or (1,1,1) | Debt issues (1,1,0) or (1,1,1) | No. of large issues≥3 |
| | | | | Average monthly return on the VW portfolio | | | | | | |
| $R - R_F$ | 0.32 | 0.83** | 0.05 | 0.69* | 0.26 | 0.04 | 0.50 | -0.24 | 0.54 | -0.12 |
| $t(R - R_F)$ | (0.84) | (2.37) | (0.11) | (1.95) | (0.61) | (0.10) | (1.35) | (-0.51) | (1.38) | (-0.26) |
| | q-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + b_i^{ROE} r_t^{ROE} + b_i^{I/A} r_t^{I/A} + e_{it}$ | | | | | | | | | |
| α | -0.40* | 0.12 | -0.70* | -0.00 | -0.63*** | -0.50** | -0.20 | -0.77*** | -0.23 | -0.63*** |
| t(α) | (-1.84) | (0.95) | (-1.92) | (-0.02) | (-3.22) | (-2.53) | (-1.50) | (-3.88) | (-1.23) | (-2.74) |
| b | 1.17*** | 1.12*** | 1.15*** | 1.10*** | 1.19*** | 1.09*** | 1.12*** | 1.13*** | 1.16*** | 1.10*** |
| t(b) | (27.15) | (49.40) | (15.27) | (36.60) | (27.14) | (17.02) | (28.28) | (17.49) | (21.95) | (15.14) |
| s | 0.40*** | 0.19*** | 0.67*** | 0.24*** | 0.46*** | 0.36*** | 0.04 | 0.32*** | 0.05 | 0.20* |
| t(s) | (4.38) | (4.98) | (5.35) | (4.27) | (6.26) | (5.25) | (0.51) | (3.47) | (0.58) | (1.68) |
| $b^{ROE}$ | 0.06 | -0.10* | 0.07 | -0.10 | 0.21 | -0.36*** | 0.03 | -0.48*** | 0.10 | -0.37*** |
| $t(b^{ROE})$ | (0.36) | (-1.83) | (0.30) | (-1.34) | (1.63) | (-2.81) | (0.39) | (-4.40) | (1.07) | (-2.94) |
| $b^{I/A}$ | -0.55*** | -0.29*** | -0.35 | -0.33*** | -0.76*** | -0.60*** | -0.02 | -0.74*** | -0.02 | -0.43*** |
| $t(b^{I/A})$ | (-3.65) | (-4.25) | (-1.53) | (-3.88) | (-6.32) | (-4.14) | (-0.18) | (-5.27) | (-0.16) | (-2.64) |

**TABLE 9**

**Fama-MacBeth Regressions of Stock Returns (528 Months, 1975–2018)**

Cross-sectional regressions are estimated each month. The dependent variable is the monthly return (in percent) on a firm's stock. Panel A reports equally weighted ordinary least squares (OLS) results and Panel B reports weighted least squares (WLS) results using value (market cap) weights. The WLS results use the market value of equity (the number of shares outstanding × price per share from CRSP) as the weight. When there are multiple share classes, the market values of all classes of shares are added. The top and bottom 1% values of $\text{Ln(Market Cap)}_t$, $\text{Asset Growth}_t$, and $\text{Qtr. ROE}_{t+}$ are winsorized for each regression sample. $\text{Qtr. ROE}_{t+}$ equals the most recent quarterly earnings announced prior to the month of the regression divided by beginning-of-quarter book value of equity. To avoid stale earnings, it is also required that the fiscal quarter that corresponds to the announced earnings ends no more than six months prior to the month of the regression. The other control variables have values from fiscal year t ending at least four months prior to the month of the regression. This table reports the time-series averages of the monthly coefficients and the corresponding Newey-West t-statistics that correct the for first, second, and third order autocorrelations. See Appendix A and Table 1 for variable definitions.

Panel A. OLS (Equally Weighted) Results

| | (1) | (2) | (3) | | (4) | (5) | (6) |
|---|---|---|---|---|---|---|---|
| Intercept | 2.22*** | 2.36*** | 2.37*** | Intercept | 2.38*** | 2.40*** | 2.40*** |
| | (5.14) | (5.72) | (5.72) | | (5.76) | (5.78) | (5.79) |
| =1 if no. of issues = 1, | | -0.08** | | No. of issues | -0.20*** | | |
| =0 otherwise | | (-1.98) | | | (-5.11) | | |
| =1 if no. of issues = 2, | | -0.24*** | | No. of types | 0.07 | | |
| =0 otherwise | | (-3.35) | | | (1.56) | | |
| =1 if no. of issues = 3, | | -0.51*** | | =1 if no. of debt issues | | -0.16** | |
| =0 otherwise | | (-4.58) | | ≥1, =0 otherwise | | (-2.54) | |
| =1 if no. of issues ≥ 4, | | -0.78*** | | =1 if no. of equity issues | | -0.27*** | |
| =0 otherwise | | (-4.93) | | ≥1, =0 otherwise | | (-2.67) | |
| =1 if no. of types=1 and no. | | | -0.08** | =1 if no. of debt issues | | | -0.11* |
| of issues =1, =0 otherwise | | | (-1.98) | = 1, =0 otherwise | | | (-1.95) |
| =1 if no. of types=1 and no. | | | -0.21*** | =1 if no. of debt issues | | | -0.26*** |
| of issues =2, =0 otherwise | | | (-2.83) | = 2, =0 otherwise | | | (-3.01) |
| =1 if no. of types=1 and no. | | | -0.51*** | =1 if no. of debt issues | | | -0.50*** |
| of issues =3, =0 otherwise | | | (-4.08) | = 3, =0 otherwise | | | (-3.65) |
| =1 if no. of types=2 and no. | | | -0.31*** | =1 if no. of equity issues | | | -0.19** |
| of issues =2, =0 otherwise | | | (-3.30) | = 1, =0 otherwise | | | (-2.10) |
| =1 if no. of types=2 and no. | | | -0.51*** | =1 if no. of equity issues | | | -0.39*** |
| of issues =3, =0 otherwise | | | (-3.85) | = 2, =0 otherwise | | | (-2.64) |
| =1 if no. of types=2 and no. | | | -0.78*** | =1 if no. of equity issues | | | -0.85*** |
| of issues ≥4, =0 otherwise | | | (-4.92) | = 3,=0 otherwise | | | (-3.62) |
| $\text{Ln(Market Cap)}_t$ | -0.14*** | -0.15*** | -0.15*** | $\text{Ln(Market Cap)}_t$ | -0.15*** | -0.15*** | -0.15*** |
| | (-4.08) | (-4.24) | (-4.25) | | (-4.22) | (-4.30) | (-4.32) |
| $\text{Asset Growth}_t$ | -1.14*** | -0.99*** | -0.99*** | $\text{Asset Growth}_t$ | -0.99*** | -1.02*** | -0.97*** |
| | (-8.59) | (-7.49) | (-7.53) | | (-7.46) | (-7.82) | (-7.42) |
| $\text{Qtr. ROE}_{t+}$ | 5.78*** | 5.44*** | 5.43*** | $\text{Qtr. ROE}_{t+}$ | 5.43*** | 5.54*** | 5.41*** |
| | (6.72) | (6.43) | (6.41) | | (6.41) | (6.65) | (6.53) |
| Average Adjusted $R^2$ | 2.01% | 2.25% | 2.30% | Average Adjusted $R^2$ | 2.22% | 2.34% | 2.48% |

Panel B. WLS (Value-Weighted) Results

| | (1) | (2) | (3) | | (4) | (5) | (6) |
|---|---|---|---|---|---|---|---|
| Intercept | 1.92*** | 2.08*** | 2.09*** | Intercept | 2.08*** | 2.07*** | 2.13*** |
| | (3.76) | (4.24) | (4.24) | | (4.23) | (4.19) | (4.29) |
| =1 if no. of issues = 1, | | -0.05 | | No. of issues | -0.04 | | |
| =0 otherwise | | (-1.01) | | | (-0.56) | | |
| =1 if no. of issues = 2, | | -0.05 | | No. of types | -0.03 | | |
| =0 otherwise | | (-0.50) | | | (-0.39) | | |
| =1 if no. of issues = 3, | | -0.31** | | =1 if no. of debt issues | | -0.04 | |
| =0 otherwise | | (-2.43) | | ≥1, =0 otherwise | | (-0.74) | |
| =1 if no. of issues ≥ 4, | | -0.39* | | =1 if no. of equity issues | | -0.18* | |
| =0 otherwise | | (-1.79) | | ≥1, =0 otherwise | | (-1.95) | |
| =1 if no. of types=1 and no. | | | -0.05 | =1 if no. of debt issues | | | -0.04 |
| of issues =1, =0 otherwise | | | (-1.02) | = 1, =0 otherwise | | | (-0.78) |
| =1 if no. of types=1 and no. | | | -0.03 | =1 if no. of debt issues | | | -0.09 |
| of issues =2, =0 otherwise | | | (-0.27) | = 2, =0 otherwise | | | (-0.77) |
| =1 if no. of types=1 and no. | | | -0.21 | =1 if no. of debt issues | | | 0.02 |
| of issues =3, =0 otherwise | | | (-1.36) | = 3, =0 otherwise | | | (0.14) |
| =1 if no. of types=2 and no. | | | -0.10 | =1 if no. of equity issues | | | -0.14 |
| of issues =2, =0 otherwise | | | (-0.79) | = 1, =0 otherwise | | | (-1.54) |
| =1 if no. of types=2 and no. | | | -0.48*** | =1 if no. of equity issues | | | -0.40*** |
| of issues =3, =0 otherwise | | | (-3.29) | = 2, =0 otherwise | | | (-2.59) |
| =1 if no. of types=2 and no. | | | -0.39* | =1 if no. of equity issues | | | -0.65*** |
| of issues ≥4, =0 otherwise | | | (-1.80) | = 3,=0 otherwise | | | (-2.65) |
| $Ln(Market\ Cap)_t$ | -0.10** | -0.11*** | -0.11*** | $Ln(Market\ Cap)_t$ | -0.11*** | -0.11*** | -0.11*** |
| | (-2.34) | (-2.74) | (-2.75) | | (-2.69) | (-2.68) | (-2.81) |
| $Asset\ Growth_t$ | -0.54*** | -0.52*** | -0.52*** | $Asset\ Growth_t$ | -0.51*** | -0.51*** | -0.51*** |
| | (-2.97) | (-2.80) | (-2.81) | | (-2.80) | (-2.95) | (-2.81) |
| $Qtr.\ ROE_{t+}$ | 2.67** | 2.69** | 2.69** | $Qtr.\ ROE_{t+}$ | 2.58** | 2.72** | 2.63** |
| | (2.14) | (2.27) | (2.28) | | (2.13) | (2.29) | (2.28) |
| Average Adjusted $R^2$ | 4.56% | 5.75% | 6.15% | Average Adjusted $R^2$ | 5.34% | 5.44% | 6.21% |

## TABLE 10
## Fama-MacBeth Regressions of Earnings Announcement Returns (1975–2018)

The dependent variable is the average three-day buy-and-hold return (in percent) from one day before to one day after the quarterly earnings announcement date (Compustat item RDQ) for all earnings announcements made from 123 to 488 calendar days after the end of fiscal year t. We estimate cross-sectional regressions for each of the calendar years from 1975–2018, using observations with the fiscal year end date that falls into the prior calendar year. Panel A reports equally weighted ordinary least squares (OLS) results, and Panel B reports weighted least squares (WLS) results. The WLS results use the market value of equity at the end of fiscal year t from Compustat as the weight, adjusting for inflation within the year for firms with different fiscal year ends. The top and bottom 1% values of Ln(Market Cap)$_t$, Asset Growth$_t$, and Qtr. ROE$_t$ are winsorized for each regression sample. Qtr. ROE$_t$ equals earnings in the 4$^{th}$ quarter of fiscal year t divided by beginning-of-quarter book value of equity. This table reports the average of the annual coefficients and the corresponding Newey-West t-statistics that correct for first-order autocorrelation. See Appendix A and Table 1 for variable definitions.

Panel A. OLS (Equally Weighted) Results

| | (1) | (2) | (3) | | (4) | (5) | (6) |
|---|---|---|---|---|---|---|---|
| Intercept | 0.71*** | 0.83*** | 0.84*** | Intercept | 0.86*** | 0.89*** | 0.89*** |
| | (3.73) | (4.79) | (4.81) | | (4.90) | (5.36) | (5.41) |
| =1 if no. of issues = 1, | | -0.02 | | No. of issues | -0.28*** | | |
| =0 otherwise | | (-0.45) | | | (-5.25) | | |
| =1 if no. of issues = 2, | | -0.36*** | | No. of types | 0.16*** | | |
| =0 otherwise | | (-4.88) | | | (3.18) | | |
| =1 if no. of issues = 3, | | -0.55*** | | =1 if no. of debt issues | | 0.02 | |
| =0 otherwise | | (-3.79) | | ≥1, =0 otherwise | | (0.66) | |
| =1 if no. of issues ≥ 4, | | -1.00*** | | =1 if no. of equity issues | | -0.54*** | |
| =0 otherwise | | (-5.64) | | ≥1, =0 otherwise | | (-5.53) | |
| =1 if no. of types=1 and no. | | | -0.02 | =1 if no. of debt issues | | | 0.06* |
| of issues =1, =0 otherwise | | | (-0.45) | = 1, =0 otherwise | | | (1.71) |
| =1 if no. of types=1 and no. | | | -0.31*** | =1 if no. of debt issues | | | -0.05 |
| of issues =2, =0 otherwise | | | (-4.07) | = 2, =0 otherwise | | | (-0.89) |
| =1 if no. of types=1 and no. | | | -0.73*** | =1 if no. of debt issues | | | -0.46*** |
| of issues =3, =0 otherwise | | | (-4.02) | = 3, =0 otherwise | | | (-3.31) |
| =1 if no. of types=2 and no. | | | -0.44*** | =1 if no. of equity issues | | | -0.41*** |
| of issues =2, =0 otherwise | | | (-5.04) | = 1, =0 otherwise | | | (-5.49) |
| =1 if no. of types=2 and no. | | | -0.44*** | =1 if no. of equity issues | | | -0.77*** |
| of issues =3, =0 otherwise | | | (-2.89) | = 2, =0 otherwise | | | (-4.59) |
| =1 if no. of types=2 and no. | | | -1.01*** | =1 if no. of equity issues | | | -0.91*** |
| of issues ≥4, =0 otherwise | | | (-5.60) | = 3,=0 otherwise | | | (-3.43) |
| Ln(Market Cap)$_t$ | -0.07*** | -0.07*** | -0.07*** | Ln(Market Cap)$_t$ | -0.07*** | -0.08*** | -0.08*** |
| | (-2.87) | (-3.17) | (-3.19) | | (-3.12) | (-3.71) | (-3.74) |
| Asset Growth$_t$ | -0.62*** | -0.41*** | -0.41*** | Asset Growth$_t$ | -0.42*** | -0.46*** | -0.37*** |
| | (-8.63) | (-4.52) | (-4.52) | | (-4.54) | (-5.13) | (-3.89) |
| Qtr. ROE$_t$ | 0.86** | 0.42 | 0.41 | Qtr. ROE$_t$ | 0.44 | 0.46 | 0.23 |
| | (2.35) | (1.19) | (1.14) | | (1.21) | (1.33) | (0.64) |
| Average Adjusted $R^2$ | 0.70% | 0.93% | 0.95% | Average Adjusted $R^2$ | 0.89% | 0.94% | 1.07% |

Panel B. WLS (Value-Weighted) Results

| | (1) | (2) | (3) | | (4) | (5) | (6) |
|---|---|---|---|---|---|---|---|
| Intercept | 0.50** | 0.66** | 0.66*** | Intercept | 0.66*** | 0.66*** | 0.69*** |
| | (2.30) | (2.65) | (2.71) | | (2.74) | (2.72) | (2.95) |
| =1 if no. of issues = 1, | | -0.10 | | No. of issues | -0.04 | | |
| =0 otherwise | | (-1.56) | | | (-0.56) | | |
| =1 if no. of issues = 2, | | -0.11 | | No. of types | -0.05 | | |
| =0 otherwise | | (-1.32) | | | (-0.62) | | |
| =1 if no. of issues = 3, | | -0.12 | | =1 if no. of debt issues | | -0.04 | |
| =0 otherwise | | (-0.82) | | ≥1, =0 otherwise | | (-0.67) | |
| =1 if no. of issues ≥ 4, | | -0.41* | | =1 if no. of equity issues | | -0.25** | |
| =0 otherwise | | (-1.84) | | ≥1, =0 otherwise | | (-2.62) | |
| =1 if no. of types=1 and no. | | | -0.10 | =1 if no. of debt issues | | | -0.05 |
| of issues =1, =0 otherwise | | | (-1.57) | = 1, =0 otherwise | | | (-0.94) |
| =1 if no. of types=1 and no. | | | -0.08 | =1 if no. of debt issues | | | -0.04 |
| of issues =2, =0 otherwise | | | (-0.82) | = 2, =0 otherwise | | | (-0.40) |
| =1 if no. of types=1 and no. | | | -0.17 | =1 if no. of debt issues | | | -0.06 |
| of issues =3, =0 otherwise | | | (-0.93) | = 3, =0 otherwise | | | (-0.28) |
| =1 if no. of types=2 and no. | | | -0.16 | =1 if no. of equity issues | | | -0.23** |
| of issues =2, =0 otherwise | | | (-1.42) | = 1, =0 otherwise | | | (-2.22) |
| =1 if no. of types=2 and no. | | | -0.24 | =1 if no. of equity issues | | | -0.30* |
| of issues =3, =0 otherwise | | | (-1.16) | = 2, =0 otherwise | | | (-1.99) |
| =1 if no. of types=2 and no. | | | -0.40* | =1 if no. of equity issues | | | -0.49* |
| of issues ≥4, =0 otherwise | | | (-1.83) | = 3,=0 otherwise | | | (-1.91) |
| $Ln(Market\ Cap)_t$ | -0.03 | -0.04 | -0.04 | $Ln(Market\ Cap)_t$ | -0.04 | -0.04 | -0.04 |
| | (-1.15) | (-1.50) | (-1.53) | | (-1.48) | (-1.52) | (-1.65) |
| $Asset\ Growth_t$ | -0.22** | -0.20 | -0.22* | $Asset\ Growth_t$ | -0.18 | -0.17 | -0.17 |
| | (-2.11) | (-1.60) | (-1.72) | | (-1.43) | (-1.44) | (-1.32) |
| $Qtr.\ ROE_t$ | 0.70 | 0.59 | 0.58 | $Qtr.\ ROE_t$ | 0.53 | 0.53 | 0.44 |
| | (0.96) | (0.85) | (0.84) | | (0.76) | (0.75) | (0.63) |
| Average Adjusted $R^2$ | 1.33% | 2.19% | 2.57% | Average Adjusted $R^2$ | 1.94% | 1.95% | 2.53% |