Appendix for "Equity Issues and Return Volatility"

Abstract

This appendix contains robustness checks for the main results in "Equity Issues and Return Volatility". We consider alternatives for: (i) the definition of issuance activity, (ii) the definition of return volatility, (iii) holding horizons for firm and portfolio returns, (iv) portfolio sorts, and (v) the specification of return regressions and issuance regressions.

In this appendix we consider the robustness of the main results in "Equity Issues and Return Volatility" to different ways of measuring key variables. In particular, we explore variations along the following dimensions:

- **Issuance activity**

The main results are based on a **balance-sheet** measure of issuance that follows Kayhan and Titman (2007), and is also close to the definition in Fama and French (2005). Both are based on Compustat information. Also from Kayhan and Titman (2007), we compute a **cash-flow** measure that is based on the statement of cash flows from Compustat. As argued in the main text, this second measure may be good at capturing big issuance events such as SEOs, but it may miss other instances of issuance that do not involve a cash transaction. The precise lines from Compustat that we use to compute these measures of issuance are described in the main text. Following the issuance-return literature, we also compute a measure of issuance that is solely based on the number of shares outstanding (from Compustat). From Fama and French (2008), this third definition of issuance is the log-change in the split-adjusted shares outstanding between two consecutive years. This measure is not normalized by total assets of the firm. We call this **Fama-French** issuance. The definition of issuance in Pontiff and Woodgate (2008) is very similar to this last one.

- **Return volatility**

Throughout the main text we focus on **total volatility** of returns, i.e., the standard deviation of monthly returns for a given firm-year. In this appendix we also consider **residual volatility**, which, as explained in the main text, is a measure of return volatility that is orthogonal to other firm characteristics. In particular, this measure is the residual from a panel regression of return volatility on log-market capitalization, log-sales, the market-to book ratio, tangibility, ROA, leverage, cash-balances, dividends, the KZ index of financial constraints, and ROA volatility. Finally, we compute **idiosyncratic volatility** as the standard deviation of monthly market-adjusted returns for a given firm-year.

- **Returns for different holding horizons**

As most of the literature on the cross-section of returns we focus on **monthly** returns throughout the text. In this appendix we also report **quarterly** and **annual** returns. Following the timing convention for monthly returns, the four quarterly returns from July of year t to June of year $t+1$ are matched with the firm's issuance activity in year $t-1$. The same is done for the annual return from July of year t to June of year $t+1$. All the return regressions and return statistics are computed using non-overlapping returns. This reduces the number of observations, but avoids potential problems with inference in the case of overlapping observations. We also express all returns on a monthly basis to ease comparisons across different holding periods.

- **Portfolio sorts**

The portfolio tests in the main text are based on **6 issuance portfolios**. The first two portfolios have large and small repurchases (including zero issuance). The other four portfolios contain from small to large issues (quartiles computed within observations of positive issuance). In this appendix we consider two alternative sorts. Following Fama and French (2008), we create **8 issuance portfolios**, where the first two portfolios split in half the universe or firms repurchasing stock, the third portfolio contains firms with zero issuance, and the other five portfolios represent quintiles within the universe of firms issuing stock. Finally, we consider a simple sort into **4 issuance portfolios** representing the four quartiles of the entire universe of firms each year. This avoids looking at very extreme groups of firms on both ends of the issuance spectrum.

All volatility portfolios are size-balanced as explained in the main text. Following a similar methodology we also formed portfolios that are balanced in book-to-market. More specifically, every June we split the sample into five quintiles of the book-to-market (BM) ratio. Then, within each BM quintile we form a high and low group using the median of return volatility in that quintile. Finally, we put together the firms with high return volatility

from all BM quintiles into a single group and identically for firms with low return volatility. With this procedure both groups of return volatility represent a balanced sample of value and growth firms.

- **Regression specification**

We explore different specifications as those reported in the main text for return regressions and issuance regressions. We consider alternative measures of dependent and independent variables, and alternative control variables.

The rest of the appendix reviews the results of the robustness checks.

1 Portfolio sorts

In **Table A1** we study a total of 81 cases representing the multiple combinations of variable definitions, portfolio sorts, and holding periods just reviewed. For each case we report the average LRMLI (large-repurchases minus large-issues) spread for high and low volatility stocks, with its corresponding t-statistic. We report results for equal-weighted portfolios, with book-to-market and size adjusted returns as in Fama and French (2008). These numbers mirror those reported in **Panel C** of **Table 3** in the main text. In other words, we report the key numbers in Panel C of Table 3 for 81 different cases.

The average difference in the LRMLI spread between stocks of high and low volatility is 0.43% (t-stat of 2.72) for the 27 cases that consider the balance-sheet issuance measure.[1] In the case of cash-flow issuance this difference is on average 0.38% (t-stat of 2.11). In the case of Fama-French issuance this difference is on average 0.34% (t-stat of 2.41). While there is variation in the magnitude across cases, the average difference is close to the 44 basis points reported in the main text (Panel C of Table 3). In a majority of cases (67 out of 81, or 83%), the difference in the LRMLI spread between high and low volatility stocks is

[1] The average t-stat is an informal way of conveying the statistical significance across all the different cases that we examine. We do not mean it to represent a formal statistical test.

significant at least at the 10% level. Also, the LRMLI spread is consistently significant in the high volatility group, while it is rarely significant, and smaller in magnitude, in the low volatility group.

Table A2 presents portfolio alphas for the same 81 cases as in the previous table. Table A2 mirrors **Table 4** in the main text. The portfolio alpha is the constant from the Fama-French 3-factor model:

$$R_{pt} - R_{Ft} = \alpha_p + \beta_p(R_{mt} - R_{Ft}) + s_p SMB_t + h_p HML_t + \epsilon_{pt}, \tag{1}$$

The average difference in alphas between stocks of high and low volatility is 0.29% (t-stat of 1.98) for the 27 cases that consider the balance-sheet issuance measure. This implies that the average difference in alphas is marginally significant at the 5% level. In the case of cash-flow issuance the difference in alphas is on average 0.26% (t-stat of 1.60). In the case of Fama-French issuance the difference in alphas is on average 0.26% (t-stat of 1.94).

One pattern that emerges from Table A2 is that the difference in alphas tends to be more strongly significant when using only 4 issuance portfolios, although it is of about the same magnitude as in other cases. In fact, the average t-stat of the difference in alphas goes up to 2.35 when considering only the 27 cases that use 4 issuance portfolios. One possible explanation for the strengthening of the results when cutting up the sample less finely is that by looking at the extremes of 6 or 8 portfolios we end up selecting firms that load too differently on the market, SMB, or HML (e.g., all value stocks end up in one extreme and all growth stocks in the other extreme). In such case, the portfolio regression is not able to discriminate between the effect of volatility and the effect of the Fama-French factors. The results suggest that our effect is easier to identify by setting up only 4 issuance portfolios, probably because the extreme portfolios are not so clearly loading on the Fama-French factors.

In principle, Tables A1 and A2 are two very similar ways to get at the same basic phenomenon (see also Fama and French (2008), page 1658). In both cases we are estimating

spreads that cannot be explained by the three-factor model of Fama and French. However, statistical significance is stronger in the case of spreads in adjusted returns (Table A1) than in portfolio alphas (Table A2). The advantage of the adjusted returns is that the "correction" of returns is done at the firm level by picking a benchmark return for each firm, and not at the portfolio level. This, arguably, allows for more precise benchmarking and brings forth the unhedgeable elements of each stock return.

Table A3 replicates Table A1 for volatility portfolios that are balanced in book-to-market. This procedure creates two groups of volatility that are balanced in terms of containing both value and growth stocks. This is motivated by the evidence in Bali, Demirtas, and Hovakimian (2010) who show that the return spread between issuers and repurchasers is particularly pronounced if one considers the spread between growth (low book-to-market) issuers and value (high book-to-market) repurchasers. While their evidence is related to ours, since volatility and book-to-market are correlated (see Table 1 in the main text), the evidence in Table A3 is a way to check that the effect of volatility is present even after controlling for book-to-market.

As seen in Table A3, differences in LRMLI spreads decline in book-to-market balanced portfolios when compared to the size balanced portfolios of Table A1. The average difference is 0.25%, which is at least 10 basis points lower than the average difference in size balanced portfolios. Statistical significance is also lower, with an average t-stat of the difference that is barely significant at the 10% level. We see again that the results are statistically stronger, and the difference in spreads is larger, when considering only 4 issuance portfolios. A similar argument can be made in this case as in Table A2, namely that by jointly balancing on book-to-market and cutting the sample too finely into 6 or 8 portfolios we leave stocks in the extremes that are well approximated by the Fama-French benchmark, and therefore we make it harder to identify the effect of volatility.

Also in Table A3, we can see that the effects of volatility in cash-flow issuance portfolios is much weaker than when using other measures of issuance (particularly Fama-French is-

suance). We can interpret this evidence as suggesting that non-cash issuance is more strongly motivated by the level of volatility, while cash flow issuance (e.g., SEOs) can be understood through a book-to-market effect as in Bali, Demirtas, and Hovakimian (2010).

2 Cross-sectional return regressions

The basic panel regression for returns is of the following form:

$$R_{i,t} = a\ MC_{i,t-1} + b\ (B/M)_{i,t-1} + c\ MOM_{i,t-1} + d\ NEI_{i,t-1} + \boldsymbol{\delta}_t + \epsilon_{it} \tag{2}$$

We include standard control variables such as market capitalization (MC), the book-to-market ratio (B/M), and momentum (MOM). Our coefficient of interest is the effect of net equity issuance (NEI) on future returns (d). Moreover, we want to see how d changes across samples with different levels of return volatility.

In order to check for non-linearities in the effects of issuance we also explore regressions that use dummy variables for different levels of issuance, in particular:

$$R_{i,t} = a\ MC_{i,t-1} + b\ (B/M)_{i,t-1} + c\ MOM_{i,t-1} + d\ Top\ Issuer_{i,t-1} + \boldsymbol{\delta}_t + \epsilon_{it} \tag{3}$$

$$\begin{aligned} R_{i,t} \quad = \quad & a\ MC_{i,t-1} + b\ (B/M)_{i,t-1} + c\ MOM_{i,t-1} + \\ & d\ Low\ Issuer_{i,t-1} + e\ Mid\ Issuer_{i,t-1} + f\ Top\ Issuer_{i,t-1} + \boldsymbol{\delta}_t + \epsilon_{it} \end{aligned} \tag{4}$$

$Top\ Issuer$ is a dummy for the firm-year observations that correspond to the top portfolio in a sort of 4, 6, or 8 portfolios. $Low\ Issuer$ and $Mid\ Issuer$ are dummies for the observations below the top portfolio, arranged in a low and middle groups accordingly.

Table A4 follows **Table 5** in the main text. It reports results for these different specifications, with different issuance measures and return holding periods. We focus on the

difference in the issuance coefficients across volatility groups (i.e., the last row in Table 5).

Results are similar to the main text. First, the difference in the direct coefficient of net issuance is negative across volatility samples, meaning that issuance has a more negative effect on future returns among highly volatile stocks. However, this difference is not statistically significant (except for some regressions with annual returns). On the other hand, the difference in the coefficient of the top issuer dummy is consistently significant across the majority of cases. For example, the average t-stat for the difference in the top issuer dummy is 2.41 across the 27 cases reported in Table A4 (the t-stat is 2.51 when considering the regression that also includes the low and mid issuer dummies).

An interesting result, which attests to the non-linearity of the effect of issuance, is that the differences in the low and mid issuer dummies are almost never significant at conventional levels, and they even flip signs across the table. In other words, it is not the case that the differential impact of issuance grows slowly as we move from low to large issues; instead, it is concentrated among the really top issuers. For example, issuing, say, 5% more of assets and becoming a mid-issuer does not have a differential effect in future returns if the stock is more volatile. However, issuing the same 5% but becoming a top-issuer does have a larger effect if the stock is more volatile. This does not mean that the effect of issuance itself, as studied in Fama and French (2008) and Pontiff and Woodgate (2008), is necessarily non-linear. Our results only speak about the non-linearity of the *differential* impact of issuance across volatility groups.

References

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Table A1
Average Returns and *t*-statistics for Portfolios Sorted according to Issuance Activity and Volatility Measures

This table follows Table 3 in the main text. In each panel the measure of issuance activity is different: balance-sheet issuance, cash-flow issuance, or Fama-French issuance. Return volatility is measured in three different ways: total volatility, residual volatility (volatility net of other firm-level characteristics), and idiosyncratic volatility (volatility net of market movements). Returns are computed for three holding periods: monthly (m), quarterly (q), and annual (a). Returns are non-overlapping in the case of quarterly and annual frequency. Portfolio sorts are done into 4, 6, or 8 portfolios. The LRMLI (large-repurchases-minus-large-issues) spread is the return differential between extreme portfolios in each case. All portfolios are equal-weighted. All returns are adjusted by subtracting the return of a size and book-to-market benchmark portfolio as in Fama and French (2008). The high and low volatility groups are balanced in size.

A) Balance Sheet Issuance

			Return Volatility					
			Low	High	H-L	Low	High	H-L
Volatility	Holding	# Port	Average Returns (LRMLI portfolio)			*t-statistics*		
Total	m	6	-0.07	0.38	0.45	-0.49	2.85	3.24
Total	m	8	-0.07	0.37	0.44	-0.36	2.33	2.39
Total	m	4	0.08	0.49	0.42	0.73	3.87	3.62
Total	q	6	-0.06	0.43	0.49	-0.37	2.51	3.13
Total	q	8	-0.04	0.43	0.46	-0.15	2.34	2.24
Total	q	4	0.09	0.53	0.45	0.70	3.57	3.62
Total	a	6	-0.14	0.33	0.47	-0.49	1.11	2.05
Total	a	8	-0.15	0.32	0.47	-0.54	0.96	1.88
Total	a	4	-0.05	0.43	0.48	-0.36	1.68	2.44
Residual	m	6	-0.14	0.38	0.52	-0.84	2.47	3.85
Residual	m	8	-0.12	0.40	0.52	-0.64	2.15	3.17
Residual	m	4	-0.03	0.47	0.49	-0.20	3.23	4.33
Residual	q	6	-0.07	0.39	0.46	-0.34	1.96	2.72
Residual	q	8	-0.03	0.41	0.43	-0.11	1.86	2.23
Residual	q	4	0.01	0.48	0.47	0.09	2.76	3.38
Residual	a	6	-0.19	0.32	0.51	-0.61	0.99	3.25
Residual	a	8	-0.25	0.33	0.58	-0.66	0.92	3.32
Residual	a	4	-0.11	0.38	0.49	-0.50	1.40	3.35
Idiosyncratic	m	6	0.09	0.34	0.24	0.55	2.24	1.57
Idiosyncratic	m	8	-0.02	0.35	0.37	-0.11	2.18	1.97
Idiosyncratic	m	4	0.19	0.43	0.24	1.67	3.27	2.09
Idiosyncratic	q	6	0.08	0.39	0.32	0.37	2.26	2.01
Idiosyncratic	q	8	-0.01	0.41	0.42	-0.04	2.20	1.73
Idiosyncratic	q	4	0.20	0.47	0.27	1.46	3.02	2.44
Idiosyncratic	a	6	-0.08	0.31	0.39	-0.26	1.13	2.21
Idiosyncratic	a	8	-0.20	0.32	0.52	-0.63	1.03	2.62
Idiosyncratic	a	4	0.02	0.39	0.37	0.11	1.57	2.59
Average			-0.04	0.40	0.43	-0.07	2.14	2.72

Table A1
Average Returns and *t*-statistics for Portfolios Sorted according to Issuance Activity and Volatility Measures
(cont.)

B) Cash Flow Issuance

			Return Volatility					
			Low	High	H-L	Low	High	H-L
Volatility	Holding	# Port	Average Returns (LRMLI portfolio)			*t-statistics*		
Total	m	6	-0.10	0.38	0.47	-0.61	2.73	2.92
Total	m	8	-0.16	0.41	0.56	-0.79	2.58	2.72
Total	m	4	0.15	0.29	0.14	1.37	2.43	1.22
Total	q	6	-0.05	0.41	0.46	-0.31	2.66	2.77
Total	q	8	-0.10	0.47	0.56	-0.47	2.42	2.65
Total	q	4	0.18	0.31	0.13	1.51	2.28	1.06
Total	a	6	-0.27	0.39	0.66	-1.16	1.73	2.90
Total	a	8	-0.35	0.44	0.79	-1.00	1.64	2.65
Total	a	4	-0.05	0.29	0.34	-0.34	1.45	2.38
Residual	m	6	-0.09	0.38	0.47	-0.54	2.34	2.97
Residual	m	8	-0.04	0.45	0.49	-0.19	2.30	2.47
Residual	m	4	0.01	0.24	0.22	0.09	1.69	1.87
Residual	q	6	-0.01	0.41	0.42	-0.05	2.18	2.70
Residual	q	8	0.05	0.48	0.44	0.22	2.16	2.44
Residual	q	4	0.06	0.26	0.20	0.44	1.61	1.57
Residual	a	6	-0.18	0.40	0.58	-0.75	1.46	3.80
Residual	a	8	-0.09	0.46	0.55	-0.26	1.49	2.52
Residual	a	4	-0.10	0.22	0.31	-0.49	0.91	2.78
Idiosyncratic	m	6	0.15	0.33	0.18	0.91	2.33	1.13
Idiosyncratic	m	8	0.03	0.39	0.35	0.17	2.37	1.77
Idiosyncratic	m	4	0.25	0.27	0.02	2.24	2.18	0.18
Idiosyncratic	q	6	0.16	0.38	0.22	0.93	2.39	1.31
Idiosyncratic	q	8	0.07	0.45	0.38	0.34	2.35	1.92
Idiosyncratic	q	4	0.27	0.31	0.04	2.08	2.09	0.31
Idiosyncratic	a	6	-0.12	0.36	0.48	-0.44	1.64	2.32
Idiosyncratic	a	8	-0.22	0.44	0.66	-0.59	1.73	2.32
Idiosyncratic	a	4	0.06	0.26	0.20	0.39	1.18	1.26
	Average		-0.02	0.37	0.38	0.10	2.01	2.11

Table A1
Average Returns and *t*-statistics for Portfolios Sorted according to Issuance Activity and Volatility Measures
(cont.)

C) Fama-French Issuance

			Return Volatility					
			Low	High	H-L	Low	High	H-L
Volatility	Holding	# Port	Average Returns (LRMLI portfolio)			*t-statistics*		
Total	m	6	0.20	0.46	0.26	1.60	3.16	2.03
Total	m	8	0.30	0.58	0.28	2.03	3.62	1.77
Total	m	4	0.18	0.55	0.37	1.68	4.50	3.46
Total	q	6	0.22	0.49	0.27	1.65	3.05	2.05
Total	q	8	0.32	0.58	0.27	2.09	3.23	1.66
Total	q	4	0.19	0.56	0.37	1.64	4.12	3.36
Total	a	6	0.07	0.45	0.37	0.46	1.72	1.77
Total	a	8	0.19	0.44	0.25	1.09	1.73	0.98
Total	a	4	0.03	0.56	0.53	0.27	2.97	3.63
Residual	m	6	0.04	0.45	0.41	0.29	2.75	2.82
Residual	m	8	0.21	0.62	0.42	1.19	3.46	2.45
Residual	m	4	0.09	0.46	0.37	0.69	3.28	3.16
Residual	q	6	0.11	0.48	0.37	0.72	2.58	2.43
Residual	q	8	0.26	0.64	0.38	1.47	3.15	2.24
Residual	q	4	0.14	0.47	0.34	0.91	2.99	2.58
Residual	a	6	0.02	0.39	0.37	0.10	1.36	2.37
Residual	a	8	0.17	0.48	0.30	0.82	1.66	1.73
Residual	a	4	0.00	0.45	0.45	0.01	2.21	3.45
Idiosyncratic	m	6	0.30	0.46	0.16	2.32	2.97	1.27
Idiosyncratic	m	8	0.35	0.61	0.26	2.40	3.55	1.65
Idiosyncratic	m	4	0.22	0.54	0.32	2.06	4.20	3.07
Idiosyncratic	q	6	0.30	0.50	0.20	2.09	2.95	1.51
Idiosyncratic	q	8	0.34	0.63	0.28	2.19	3.30	1.74
Idiosyncratic	q	4	0.22	0.56	0.34	1.85	3.95	3.38
Idiosyncratic	a	6	0.12	0.47	0.34	0.68	1.97	2.51
Idiosyncratic	a	8	0.21	0.50	0.30	1.22	2.05	1.39
Idiosyncratic	a	4	0.05	0.56	0.51	0.35	3.13	4.66
Average			0.18	0.52	0.34	1.25	2.95	2.41

Table A2
Time-Series Regressions of Portfolio Returns Sorted according to Issuance Activity and Return Volatility

This table follows Table 4 in the main text. In each panel the measure of issuance activity is different: balance-sheet issuance, cash-flow issuance, or Fama-French issuance. Return volatility is measured in three different ways: total volatility, residual volatility (volatility net of other firm-level characteristics), and idiosyncratic volatility (volatility net of market movements). Returns are computed for three holding periods: monthly (m), quarterly (q), and annual (a). Returns are non-overlapping in the case of quarterly and annual frequency. Portfolio sorts are done into 4, 6, or 8 portfolios. The LRMLI (large-repurchases-minus-large-issues) spread is the return differential between extreme portfolios in each case. All portfolios are equal-weighted. The table reports the alpha from a regression of the LRMLI portfolio return on the market return, SMB, and HML. The high and low volatility groups are balanced in size.

A) Balance Sheet Issuance

			Return Volatility					
			Low	High	H-L	Low	High	H-L
Volatility	Holding	# Port	Alpha (LRMLI portfolio)			*t-statistics*		
Total	m	6	0.32	0.60	0.28	2.39	4.55	2.08
Total	m	8	0.37	0.62	0.25	2.32	4.39	1.57
Total	m	4	0.35	0.68	0.32	3.67	5.90	3.15
Total	q	6	0.27	0.59	0.32	1.70	3.70	2.17
Total	q	8	0.36	0.62	0.26	1.71	3.64	1.41
Total	q	4	0.33	0.67	0.34	2.76	4.66	2.79
Total	a	6	0.00	0.30	0.30	0.02	1.14	1.45
Total	a	8	0.00	0.30	0.30	0.00	1.03	1.35
Total	a	4	0.21	0.49	0.28	1.26	2.05	1.97
Residual	m	6	0.29	0.62	0.33	1.87	4.28	2.45
Residual	m	8	0.35	0.67	0.32	2.01	4.25	2.10
Residual	m	4	0.32	0.64	0.32	2.60	5.11	2.91
Residual	q	6	0.26	0.58	0.32	1.32	3.24	2.01
Residual	q	8	0.34	0.63	0.29	1.50	3.27	1.62
Residual	q	4	0.29	0.63	0.34	1.79	3.79	2.46
Residual	a	6	-0.09	0.20	0.29	-0.27	0.72	1.78
Residual	a	8	-0.17	0.22	0.40	-0.44	0.73	1.96
Residual	a	4	0.05	0.39	0.33	0.20	1.57	2.23
Idiosyncratic	m	6	0.45	0.58	0.13	2.96	4.39	0.94
Idiosyncratic	m	8	0.43	0.62	0.20	2.39	4.37	1.18
Idiosyncratic	m	4	0.45	0.63	0.18	4.50	5.30	1.74
Idiosyncratic	q	6	0.34	0.58	0.25	1.81	3.67	1.59
Idiosyncratic	q	8	0.33	0.64	0.31	1.33	3.73	1.40
Idiosyncratic	q	4	0.39	0.65	0.26	3.13	4.34	2.31
Idiosyncratic	a	6	-0.04	0.31	0.34	-0.12	1.30	2.07
Idiosyncratic	a	8	-0.09	0.31	0.40	-0.28	1.17	2.37
Idiosyncratic	a	4	0.19	0.47	0.28	0.97	2.03	2.40
	Average		0.23	0.53	0.29	1.60	3.27	1.98

Table A2
Time-Series Regressions of Portfolio Returns Sorted according to Issuance Activity and Return Volatility
(cont.)

B) Cash Flow Issuance

			Return Volatility					
			Low	High	H-L	Low	High	H-L
Volatility	Holding	# Port	Alpha (LRMLI portfolio)			*t-statistics*		
Total	m	6	0.35	0.70	0.35	2.51	5.33	2.44
Total	m	8	0.44	0.79	0.35	2.45	5.10	1.96
Total	m	4	0.36	0.58	0.22	3.90	5.37	2.26
Total	q	6	0.36	0.65	0.29	2.35	4.21	1.83
Total	q	8	0.43	0.76	0.33	2.19	3.89	1.67
Total	q	4	0.36	0.55	0.19	3.33	4.02	1.70
Total	a	6	-0.05	0.39	0.44	-0.19	1.70	2.03
Total	a	8	-0.16	0.51	0.66	-0.46	1.68	2.33
Total	a	4	0.03	0.43	0.40	0.20	1.99	3.17
Residual	m	6	0.40	0.70	0.30	2.55	4.89	1.99
Residual	m	8	0.59	0.76	0.17	3.18	4.36	0.93
Residual	m	4	0.34	0.53	0.19	2.93	4.42	1.69
Residual	q	6	0.37	0.66	0.29	2.11	3.76	1.88
Residual	q	8	0.53	0.72	0.19	2.44	3.30	1.06
Residual	q	4	0.32	0.52	0.20	2.26	3.33	1.56
Residual	a	6	-0.11	0.18	0.29	-0.40	0.72	1.79
Residual	a	8	-0.01	0.22	0.22	-0.02	0.66	0.89
Residual	a	4	-0.02	0.21	0.23	-0.11	0.84	1.99
Idiosyncratic	m	6	0.56	0.65	0.10	3.74	5.00	0.68
Idiosyncratic	m	8	0.62	0.76	0.14	3.36	4.90	0.80
Idiosyncratic	m	4	0.45	0.56	0.10	4.78	5.04	1.06
Idiosyncratic	q	6	0.49	0.64	0.15	2.96	4.11	0.94
Idiosyncratic	q	8	0.54	0.76	0.22	2.61	3.93	1.17
Idiosyncratic	q	4	0.42	0.55	0.13	3.76	3.88	1.09
Idiosyncratic	a	6	0.08	0.33	0.25	0.32	1.43	1.21
Idiosyncratic	a	8	-0.04	0.48	0.53	-0.12	1.66	1.98
Idiosyncratic	a	4	0.17	0.34	0.17	1.02	1.48	1.15
Average			0.29	0.55	0.26	1.99	3.37	1.60

Table A2
Time-Series Regressions of Portfolio Returns Sorted according to Issuance Activity and Return Volatility
(cont.)

C) Fama-French Issuance

			Return Volatility					
			Low	High	H-L	Low	High	H-L
Volatility	Holding	# Port	Alpha (LRMLI portfolio)			*t-statistics*		
Total	m	6	0.52	0.74	0.22	4.87	5.73	1.85
Total	m	8	0.65	0.92	0.27	5.10	6.31	1.83
Total	m	4	0.44	0.77	0.32	5.24	7.18	3.25
Total	q	6	0.54	0.74	0.20	4.61	4.89	1.46
Total	q	8	0.68	0.93	0.25	4.85	5.36	1.55
Total	q	4	0.45	0.76	0.31	4.66	5.87	2.71
Total	a	6	0.34	0.54	0.20	2.02	2.28	1.01
Total	a	8	0.59	0.75	0.16	3.10	3.16	0.73
Total	a	4	0.27	0.66	0.39	2.01	3.73	3.16
Residual	m	6	0.40	0.72	0.32	3.10	5.38	2.36
Residual	m	8	0.59	0.94	0.34	3.95	6.26	2.18
Residual	m	4	0.42	0.69	0.27	3.82	5.99	2.44
Residual	q	6	0.41	0.72	0.31	2.77	4.30	1.98
Residual	q	8	0.61	0.61	0.35	3.59	3.59	2.04
Residual	q	4	0.40	0.69	0.29	3.00	4.84	2.14
Residual	a	6	0.15	0.34	0.20	0.63	1.41	1.28
Residual	a	8	0.43	0.64	0.21	1.78	2.50	1.25
Residual	a	4	0.09	0.48	0.39	0.41	2.80	2.75
Idiosyncratic	m	6	0.61	0.72	0.11	5.86	5.41	0.89
Idiosyncratic	m	8	0.71	0.91	0.20	5.75	6.12	1.37
Idiosyncratic	m	4	0.49	0.76	0.27	5.78	6.90	2.75
Idiosyncratic	q	6	0.59	0.76	0.17	4.93	4.89	1.24
Idiosyncratic	q	8	0.69	0.97	0.28	4.90	5.48	1.77
Idiosyncratic	q	4	0.46	0.77	0.31	4.68	5.93	3.01
Idiosyncratic	a	6	0.38	0.53	0.14	2.03	2.50	1.04
Idiosyncratic	a	8	0.62	0.75	0.14	3.36	3.44	0.82
Idiosyncratic	a	4	0.27	0.64	0.37	1.75	3.82	3.54
	Average		0.47	0.72	0.26	3.65	4.67	1.94

Table A3

Average Returns and *t*-statistics for Portfolios Sorted according to Issuance Activity and Volatility Measures: book-to-market balanced portfolios

This table follows Table 3 in the main text. In each panel the measure of issuance activity is different: balance-sheet issuance, cash-flow issuance, or Fama-French issuance. Return volatility is measured as total volatility. Returns are computed for three holding periods: monthly (m), quarterly (q), and annual (a). Returns are non-overlapping in the case of quarterly and annual frequency. Portfolio sorts are done into 4, 6, or 8 portfolios. The LRMLI (large-repurchases-minus-large-issues) spread is the return differential between extreme portfolios in each case. All portfolios are equal-weighted. All returns are adjusted by subtracting the return of a size and book-to-market benchmark portfolio as in Fama and French (2008). The high and low volatility groups are balanced in book-to-market.

			Return Volatility					
			Low	High	H-L	Low	High	H-L
Issuance	Holding	# Port	Average Returns (LRMLI portfolio)			*t-statistics*		
Balance Sheet	m	6	0.11	0.40	0.29	0.71	2.62	1.94
Balance Sheet	m	8	0.19	0.37	0.18	1.07	2.26	1.01
Balance Sheet	m	4	0.14	0.50	0.35	1.25	3.76	3.12
Balance Sheet	q	6	0.10	0.44	0.34	0.59	2.59	2.33
Balance Sheet	q	8	0.20	0.42	0.22	1.00	2.28	1.24
Balance Sheet	q	4	0.14	0.53	0.39	1.09	3.41	3.27
Balance Sheet	a	6	0.02	0.31	0.29	0.11	1.05	1.80
Balance Sheet	a	8	0.02	0.30	0.29	0.08	0.91	1.46
Balance Sheet	a	4	0.10	0.37	0.27	0.78	1.48	1.53
Cash Flow	m	6	0.23	0.40	0.16	1.51	2.77	1.02
Cash Flow	m	8	0.26	0.39	0.13	1.40	2.43	0.68
Cash Flow	m	4	0.23	0.32	0.09	2.05	2.56	0.77
Cash Flow	q	6	0.24	0.44	0.20	1.58	2.86	1.30
Cash Flow	q	8	0.28	0.46	0.17	1.40	2.42	0.89
Cash Flow	q	4	0.24	0.36	0.12	2.12	2.48	0.97
Cash Flow	a	6	0.10	0.40	0.30	0.63	1.70	1.57
Cash Flow	a	8	0.18	0.37	0.19	0.72	1.32	0.80
Cash Flow	a	4	0.11	0.30	0.19	0.98	1.30	1.07
Fama-French	m	6	0.30	0.54	0.24	2.43	3.54	1.91
Fama-French	m	8	0.41	0.65	0.24	3.00	3.91	1.61
Fama-French	m	4	0.25	0.59	0.34	2.20	4.57	3.09
Fama-French	q	6	0.30	0.57	0.26	2.46	3.45	2.11
Fama-French	q	8	0.43	0.65	0.22	3.19	3.49	1.52
Fama-French	q	4	0.24	0.60	0.35	2.13	4.11	2.96
Fama-French	a	6	0.27	0.49	0.22	1.91	1.87	1.03
Fama-French	a	8	0.38	0.52	0.14	2.44	2.05	0.58
Fama-French	a	4	0.15	0.57	0.42	1.24	2.91	2.76
Average			0.21	0.45	0.25	1.48	2.60	1.64

Table A4
Cross-Sectional Regressions of Stock Returns by Groups of Return Volatility

This table follows Table 5 in the main text. The table reports coefficients and *t*-statistics from panel regressions of firm-level stock returns on past variables. The returns to predict are from July of year *t* to June of year *t+1*. The explanatory variables in the regressions are as follows. *MC* is market capitalization computed in June of year *t*. *B/M* is the book-to-market ratio of equity computed in December of year *t-1*. *Mom* (momentum) for month *j* is the cumulative return from month *j-12* to month *j-2*. *Net issues* (net equity issues over total assets) are computed with data for year *t-1*. There are three measures of issuance activity: balance-sheet issuance, cash-flow issuance, and Fama-French issuance. The dummy *Top Issuer* has a value of 1 when the stock belongs to the large issues portfolio according to a sort into 6 or 8 portfolios, and 0 otherwise. The dummies *Low Issuer* and *Mid Issuer* take stocks in groups below the top portfolio in each case. Stocks are sorted into groups with high and low return volatility. For this sort we first split the sample in five quintiles of market capitalization in June of year *t*. Then, in each size quintile we form a high and low group using the median of return volatility within the size quintile. Finally, we pull together the firms with high return volatility from all size quintiles into a single group (identically for firms with low return volatility). The table reports the difference in a given coefficient across the two groups of return volatility. The table reports only coefficients related to issuance activity. All regressions include month fixed effects. All t-statistics are robust and clustered by month. The *t*-statistic on the difference of coefficients between groups of high and low return volatility corresponds to the *t*-statistic of the interaction between the variable of interest and a dummy representing the high group in a regression that pools both groups. Returns are computed for three holding periods: monthly (m), quarterly (q), and annual (a). Returns are non-overlapping in the case of quarterly and annual frequency. The three types of regressions referred to in table are:

$$(1)\quad R_{it} = aMC_{i,t-1} + bB/M_{i,t-1} + cMom_{i,t-1} + dNet\ Issues_{i,t-1} + \delta_t + \varepsilon_{it.}$$

$$(2)\quad R_{it} = aMC_{i,t-1} + bB/M_{i,t-1} + cMom_{i,t-1} + dTop\ Issuer_{i,t-1} + \delta_t + \varepsilon_{it.}$$

$$(3)\quad R_{it} = aMC_{i,t-1} + bB/M_{i,t-1} + cMom_{i,t-1} + dLow\ Issuer_{i,t-1} + eMid\ Issuer_{i,t-1} + fTop\ Issuer_{i,t-1} + \delta_t + \varepsilon_{it.}$$

(SEE NEXT PAGE)

		Difference in Coefficient between Samples of High and Low Total Volatility										
		Regression (1)		Regression (2)		Regression (3)						
		Net Issues		Top Issuer Dummy		Low Issuer Dummy		Mid Issuer Dummy		Top Issuer Dummy		Top Issuer
Issuance	Holding	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	is Portfolio #
Balance Sheet	m	-0.390	(-1.04)	-0.242	(-2.16)	-0.023	(-0.33)	0.012	(0.13)	-0.263	(-2.15)	6
Balance Sheet	m			-0.186	(-1.42)	-0.071	(-0.97)	0.007	(0.08)	-0.222	(-1.59)	8
Balance Sheet	m			-0.209	(-2.25)	0.083	(1.03)	-0.141	(-1.76)	-0.227	(-2.22)	4
Balance Sheet	q	-0.251	(-0.58)	-0.236	(-1.69)	-0.015	(-0.21)	0.043	(0.51)	-0.247	(-1.74)	6
Balance Sheet	q			-0.152	(-1.01)	-0.049	(-0.64)	0.009	(0.13)	-0.180	(-1.13)	8
Balance Sheet	q			-0.149	(-1.70)	-0.065	(-0.90)	-0.011	(-0.11)	-0.199	(-2.06)	4
Balance Sheet	a	-0.822	(-1.38)	-0.436	(-2.32)	0.098	(0.91)	0.045	(0.39)	-0.403	(-2.22)	6
Balance Sheet	a			-0.350	(-1.94)	0.070	(0.69)	0.016	(0.16)	-0.342	(-1.79)	8
Balance Sheet	a			-0.301	(-3.79)	0.022	(0.23)	-0.147	(-1.79)	-0.357	(-3.78)	4
Cash Flow	m	-0.795	(-1.75)	-0.338	(-2.79)	-0.061	(-0.91)	0.060	(0.59)	-0.383	(-3.01)	6
Cash Flow	m			-0.441	(-2.97)	-0.092	(-1.28)	0.019	(0.22)	-0.492	(-3.20)	8
Cash Flow	m			-0.216	(-1.89)	0.103	(1.26)	-0.127	(-1.40)	-0.223	(-1.94)	4
Cash Flow	q	-0.824	(-1.61)	-0.340	(-2.38)	-0.038	(-0.52)	0.090	(0.81)	-0.372	(-2.52)	6
Cash Flow	q			-0.453	(-2.67)	-0.080	(-1.00)	0.056	(0.57)	-0.488	(-2.79)	8
Cash Flow	q			-0.143	(-1.40)	-0.041	(-0.51)	0.013	(0.12)	-0.175	(-1.55)	4
Cash Flow	a	-1.739	(-2.37)	-0.594	(-3.05)	0.002	(0.02)	-0.130	(-1.07)	-0.664	(-3.50)	6
Cash Flow	a			-0.725	(-2.88)	-0.050	(-0.51)	-0.088	(-0.89)	-0.803	(-3.32)	8
Cash Flow	a			-0.324	(-3.53)	0.069	(0.64)	-0.109	(-1.16)	-0.346	(-3.27)	4
Fama-French	m	-0.250	(-0.96)	-0.186	(-1.96)	0.018	(0.22)	-0.165	(-1.66)	-0.251	(-2.40)	6
Fama-French	m			-0.216	(-1.92)	-0.031	(-0.39)	-0.077	(-0.83)	-0.282	(-2.33)	8
Fama-French	m			-0.390	(-3.06)	0.133	(1.16)	0.012	(0.10)	-0.347	(-2.38)	4
Fama-French	q	-0.241	(-0.98)	-0.232	(-2.16)	0.031	(0.37)	-0.122	(-1.07)	-0.278	(-2.48)	6
Fama-French	q			-0.256	(-2.18)	-0.019	(-0.21)	-0.053	(-0.52)	-0.308	(-2.43)	8
Fama-French	q			-0.443	(-3.79)	-0.006	(-0.05)	0.084	(0.63)	-0.448	(-3.65)	4
Fama-French	a	-0.672	(-2.65)	-0.452	(-3.10)	0.072	(0.62)	-0.216	(-1.52)	-0.512	(-3.12)	6
Fama-French	a			-0.377	(-2.68)	0.036	(0.34)	-0.168	(-1.27)	-0.461	(-2.58)	8
Fama-French	a			-0.575	(-4.19)	0.095	(0.61)	-0.114	(-1.15)	-0.591	(-4.81)	4
	Average	-0.665	(-1.48)	-0.323	(-2.41)	0.004	(-0.04)	-0.042	(-0.41)	-0.357	(-2.51)	