

Internet Appendix to Pre-Trade Hedging: Evidence from the Issuance of Retail Structured Products

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1. Introduction

This Internet Appendix provides additional information about the sample SEPs and additional empirical results that supplement those in the main text. Section 2 contains additional information about the sample SEPs. Section 3 provides additional results regarding the pricing date market-adjusted returns and abnormal large buys for the full sample of large SEP issues, and also reports the full set of results for Tables 4 and 5 of the main text that do not report the coefficient estimates on all of the control variables. Section 4 includes additional results for the STRIDES. Section 5 reports the results of an analysis of the pricing date market-adjusted return and abnormal large buys of the other popular brands. Section 6 provides the full set of results for Tables 8 and 9 of the main text that do not report the coefficient estimates on all of the control variables.

2. Additional information about the sample SEP issues

Internet Appendix Table 1 presents the number of issues and proceeds of large-size SEPs (those with proceeds of at least \$10 million) by issuers and pricing method. Most of the large

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issues (1,824 out of 2,197) are based on closing stock prices, while 373 are based on nonclosing stock prices, either VWAP or the average hedge execution price. Some issuers such as Bank of America, Barclays, HSBC, Lehman Brothers, Merrill Lynch, Royal Bank of Canada, and others issue SEPs based on both closing and nonclosing prices. Others such as Morgan Stanley and Goldman Sachs focus on issues priced based on the pricing date closing stock price.

Approximately 70% of the large SEPs based on nonclosing prices are based on VWAP. The Barclays/Lehman Brothers YEELDS comprise most of the issues based on the average hedge execution price.

SEPs are not issued at a uniform rate throughout the month, but rather tend to be issued toward the end of the month. Internet Appendix Figure 1 shows the distribution of pricing dates relative to the last trading date of the month. In the figure, date 0 is the last trading date of a month, and date $-n$ is the date n trade dates before the last trading date. The figure shows that the last trading date of the month is not a particularly popular pricing date—just over 5% of the large issues used in our analysis (and a smaller fraction of the full sample) are priced on the last day of the month, only slightly greater than the approximately $1/21$ of issues that would be observed if the distribution of pricing dates was uniform across days of the month. Similarly, the day before the month-end (date -1) also is not a particularly popular pricing date. However, the figure shows that SEPs tend to be issued near the end of the month, as considerably more than $1/21$ of the large issues are priced on each of dates -5 , -4 , and -2 .¹ Also, there are relatively few issues near the beginning of the month on dates -21 through -16 . The tendency to issue SEPs near the end of the month is relevant for the analysis of the frequency of large buy trades, because the frequency of large trades on days near the end of the month may differ from the frequency on earlier dates due to the manipulation by hedge fund managers documented by Ben-David, Franzoni, Landier, and Moussawi (2013). As a result, the benchmarking we use to estimate the abnormal frequency of large buys takes account of the distance (in trade dates) between the pricing date and the last trading day of the month.

¹ About 20% of the issues in the full sample (which includes the many small issues that are not used in our analysis) are priced on date -3 .

2. Additional results regarding pricing date market-adjusted returns and abnormal large buys for the full sample of large SEP issues

Table 2 of the main text presents market-adjusted returns during seven-day windows centered on the SEPs pricing dates. Internet Appendix Table 2 provides additional details underlying those results. Specifically, it presents the raw and market-adjusted returns of the SEPs' underlying stocks during eleven-day windows covering the period from five trading days before to five trading days after the pricing dates, where the market adjustment is done using the CRSP value-weighted index. The dates shown are in event time relative to the pricing dates, i.e. date 0 is the pricing date and date t is the trading day t days after (or before if $t < 0$) the pricing date. The first two rows in Panel A show the average returns of the underlying stocks for the subsample of SEPs based on the pricing date closing stock price and t -statistics for tests of the hypotheses that the average returns are equal to zero. The next two rows present the average market-adjusted returns on the underlying stocks and the associated t -statistics for tests of the hypotheses that the average market-adjusted returns are equal to zero.

The pricing date average raw and market-adjusted returns in Panel A are 39 and 29 basis points and significantly different from zero, with t -statistics of 6.65 and 5.75, respectively. The pricing date returns are by far the largest in the eleven-day window. The first trading date after the pricing date (day 1) shows a striking, though not complete, reversal: the average raw and market-adjusted returns are -21 and -20 basis points, with t -statistics of -3.65 and -3.98 , respectively.

Panel B presents the corresponding results for the subsample of SEPs based on nonclosing prices (either VWAP or the average hedge execution price). The pricing date raw and market-adjusted returns to the stocks that underlie SEPs based on nonclosing prices (Panel B) are smaller in magnitude than those that underlie SEPs based on closing prices (Panel A). The average pricing date raw and market-adjusted returns are 12 and 8 basis points, respectively, and not statistically different from zero. Returns on the first trading date after the pricing date (date 1) exhibit small reversals that also are statistically insignificant. Panel C presents tests of whether the returns for the subsamples in Panel A and Panel B differ, and shows that the differences in the pricing date average returns are statistically significant.

We also investigate whether the price impacts differ across issuers. We do this by estimating cross-sectional regressions similar to equation (2) in the main text that include issuer

fixed effects, interaction terms between the issuer fixed effects and the *ClosingPrice* dummy variable, and all of the control variables except *OrderImblance*. The interaction terms are not included for ABN AMRO, Bear Stearns, Eksportfinans, Goldman Sachs, Morgan Stanley, UBS, Wachovia, and Wells Fargo because these issuers issued only closing-price based SEPs. We exclude the *ClosingPrice* dummy variable because it is collinear with the interactions between the issuer fixed effects and *ClosingPrice*, and exclude *OrderImbalance* because aggressive trading is a mechanism by which issuers can impact underlying stock prices. As a result, the *OrderImbalance* variable might subsume the impact of some or all of the issuer fixed effects.

Internet Appendix Table 3 reports the results. The left-hand part of the table presents the coefficient estimates on the control variables, while the right-hand part shows the estimates of the issuer fixed effects and their interaction terms with the *ClosingPrice* dummy variable. Eight of the issuers issued only closing priced SEPs, four of which (Goldman Sachs, Morgan Stanley, UBS, and Wachovia) have statistically significant positive issuer fixed effects. Two of the eight (ABN AMRO and Wells Fargo) issued small number of SEPs and have large point estimates that are not statistically significant, and the last two (Eksportfinans and Bear Stearns) issued small numbers of SEPs and have estimates that are negative and insignificant. Thus, of these eight issuers that issued only closing-price based SEPs, the only issuers that do not have statistically significant positive fixed effects are ones that issued small numbers of SEPs.

For the issuers that issued both closing and nonclosing price based SEPs we are primarily interested in the interaction terms formed from the issuer fixed effects and *ClosingPrice*. The estimates on this term are positive, large, and statistically significant for Lehman Brothers and Merrill Lynch, and positive, large, and significant at the 10% level for Barclays. The point estimates are large (50 to 77 basis points) for Bank of America, Citigroup, Credit Suisse, and Deutsche Bank, though not statistically significant. For three issuers, JP Morgan, Royal Bank of Canada, and Svensk Exportkredit the estimates on the interaction terms are small and insignificant, with the point estimate for Svensk Exportkredit being negative. Thus, ten of the eleven point estimates of the interaction term are positive, and eight of these point estimates are at least 50 basis points. These results, together with the estimates of the fixed effects for the eight issuers that did not sell any nonclosing price-based SEPs, are consistent with the previous results showing that the closing price-based SEPs were associated with a larger price impacts. The differences between the point estimates for different issuers, while generally not statistically

significant, also suggest that there are differences in the extent to which the issuers attempt to alter underlying stock prices when they issue closing-price-based SEPs.

Table 4 of the main text reports the results of regression analyses of pricing date abnormal large buys. That table does not report the coefficient estimates for all of the control variables. Internet Appendix Table 4 reports all of the coefficient estimates.

Table 5 of the main text reports the results of regression analyses of pricing date market-adjusted returns that include a measure of abnormal large buys as an explanatory variable, but does not report the coefficient estimates for all of the control variables. Internet Appendix Table 5 includes all of the coefficient estimates.

3. Additional results for the STRIDES

Table 7 of the main text presents the market-adjusted returns during seven-day windows centered on the STRIDES' pricing dates. Internet Appendix Table 6 provides additional detail underlying those results. In particular, it presents both the raw and market-adjusted returns of the STRIDES' underlying stocks during eleven-day windows covering the period from five trading days before to five trading days after the pricing dates, where the market adjustment is done using the CRSP value-weighted index. The dates shown are in event time relative to the pricing dates. The first two rows in Panel A show the average returns of the underlying stocks for the subsample of SEPs based on the pricing date closing stock price and t -statistics for tests of the hypotheses that the average returns are equal to zero. The next two rows present the average market-adjusted returns on the underlying stocks and the associated t -statistics for tests of the hypotheses that the average market-adjusted returns are equal to zero.

The pricing date average raw and market-adjusted returns in Panel A are 291 and 276 basis points and significantly different from zero, with t -statistics of 3.76 and 4.21, respectively. The pricing date returns are by far the largest in the eleven-day window. The first trading date after the pricing date (day 1) shows a large, though not complete, reversal: the average raw and market-adjusted returns are -158 and -157 basis points, with t -statistics of -2.50 and -2.95 , respectively.

Panel B presents the corresponding results for the subsample of SEPs based on VWAP. The pricing date raw and market-adjusted returns to the stocks that underlie SEPs based on nonclosing prices (Panel B) are smaller in magnitude than those that underlie SEPs based on closing prices (Panel A). The average pricing date raw and market-adjusted returns are 33 and 9

basis points, respectively, and not statistically different from zero. Returns on the first trading date after the pricing date (date 1) exhibit small reversals that are also statistically insignificant. Panel C tests whether the returns for the subsamples in Panel A and Panel B differ, and shows that the differences in the pricing date average returns are statistically significant.

Figure 1 of the main text shows the cumulative intraday returns and order imbalances of the STRIDES' underlying stocks on their pricing dates. The several panels in Internet Appendix Figure 2 also show the cumulative intraday returns and order imbalances of the STRIDES' underlying stocks on the day before the pricing date and the two days after the pricing date.

4. Detailed analysis of other popular brands

Here we present analyses of the pricing date market-adjusted returns and frequency of large buys for the other popular brands of SEPs, where a brand consists of a set of issues with the same product name and a similar payoff formula, and a brand is considered to be popular if there are at least 20 issues in our sample of large issues. Internet Appendix Table 7 reports the results in two panels. Panel A includes 19 brands priced based on closing prices, listed in descending order by number of issues: Contingent Income Auto-Callable Securities, ELKS, SPARQS, Yield Optimization Notes with Contingent Protection, Exchangeable Notes, Mandatory Exchangeable Notes/Securities, Trigger Phoenix Autocallable Optimization, Reverse Exchangeable Notes/Securities, Trigger Yield Optimization Notes, Reverse Convertible Notes/Securities, Airbag Autocallable Yield Optimization Notes, Medium-Term Notes, Trigger Autocallable Optimization Notes, Auto Callable Contingent Coupon/Interest Notes, Equity Linked Notes, Enhanced Yield Securities, Contingent Absolute Return Autocallable Optimization Securities, PERQS, and Autocallable Optimization Securities with contingent protection. The first eight of these brands were issued 65 or more times. Of these eight, seven had a significantly positive abnormal frequency of large buys during either the last 30 minutes or last 10 minutes of trading, or both. For all but one (two) of the 19 closing price-based brands the point estimate of abnormal large buys during the last 10 (30) minutes of trading was positive, though the estimates were generally insignificant for the brands issued fewer than 65 times. Turning to the pricing date returns, 17 of the 19 closing price-based brands in Panel A had positive point estimates of the average pricing date market-adjusted return, though most of the estimates are insignificant due to the combination of small sample sizes and the variability of returns.

Panel B reports the results for the five popular nonclosing price-based based brands: Step Income Securities, YEELDS, Coupon Bearing Notes, Strategic Accelerated Redemption Notes, and Accelerated Return Notes. In contrast with the brands in Panel A, for these brands the issuers had limited or no incentive to alter the pricing date closing prices of the underlying stocks. Consistent with this, none of the five brands priced based on nonclosing prices shows evidence of an elevated frequency large buys near the close of trading, and for three of the five brands the point estimates are negative during both the last 30 and last 10 minutes of trading. We also find no significant pricing date price impacts. The average pricing date market-adjusted returns of the YEELDS, Coupon Bearing Notes, and Strategic Accelerated Redemption Notes are negative or close to zero, -0.14% , 0.07% , and 0.06% , respectively. The average market-adjusted returns of the Step Income Notes and Accelerated Return Notes are positive, but statistically insignificant.

5. Additional results for groups of issuers

Section 5.2 of the main text explores whether the pre-trade hedging practices vary across groups of issuers based on their past histories of misconduct and includes Tables 10 and 11 reporting the results cross-sectional regressions that explain pricing date market-adjusted returns and abnormal large buys, respectively. These two tables do not report the estimated coefficients on all of the control variables. For completeness, Internet Appendix Tables 8 and 9 report all of the coefficient estimates from those regressions.

Reference

Ben-David, I., Franzoni, F., Moussawi, R., 2013. Do hedge funds manipulate stock prices? *Journal of Finance* 68, 2383–2434.

Internet Appendix Table 1

Issues and proceeds for subsample of large-size SEPs by issuer and pricing method

Issues and proceeds (in million \$) for subsample of SEPs having proceeds of at least \$10 million, categorized by issuer and by pricing method. Sample observations come from data extracted from pricing supplements of structured equity products downloaded from the SEC's EDGAR database as described in Section 2.2 of the main text. Using information extracted from the pricing supplements, we identify the pricing method for each SEP as based on either the pricing date closing price, the pricing date VWAP, or the average hedge execution price. Issues priced based on the pricing date VWAP or average hedge execution price are included together as nonclosing price-based SEPs.

Issuers	Closing-price based SEPs		Nonclosing-price based SEPs	
	Number of Issues	Total proceeds	Number of issues	Total proceeds
ABN AMRO	34	761	0	0
Bank of America	14	621	86	2,519
Barclays	165	2,676	98	3,174
Bears Stearns	2	57	0	0
Citigroup	302	15,382	1	350
Credit Suisse	29	983	6	118
Deutsche Bank	60	1,087	11	315
Eksportfinans	38	884	0	0
Goldman Sachs	184	4,518	0	0
HSBC	44	865	34	840
JP Morgan	184	3,218	8	387
Lehman	61	2,581	49	2,958
Merrill Lynch	52	3,478	29	1,335
Morgan Stanley	348	10,319	0	0
Royal Bank of Canada	73	1,234	36	952
Svensk Exportkredit	3	45	15	527
UBS	189	3,803	0	0
Wachovia	29	693	0	0
Wells Fargo	13	519	0	0
All	1,824	53,724	373	13,475

Internet Appendix Table 2

Returns around SEPs pricing dates

Average raw and market-adjusted returns of the underlying common stocks on and around the pricing dates of the SEPs, categorized by pricing method. Panels A and B present the average returns for two subsamples of SEPs priced based on the closing stock price (Panel A) and either the Volume-Weighted Average Price (VWAP) or the average hedge execution price (Panel B). Dates are relative to the pricing dates, e.g., date 0 is the pricing date, and date t is the date t days after (or before if $t < 0$) the pricing date. The market-adjusted returns use returns on the CRSP value-weighted index. Panel C reports differences in means tests for raw and market-adjusted returns for the subsamples in Panels A and B and their t -statistics. The sample consists of SEPs based on individual stocks or ADRs with proceeds of at least \$10 million issued during the period running from 1994 through 2016.

Panel A: SEPs priced based on the closing price of the underlying stock (1,824 observations)

Day relative to pricing date	-5	-4	-3	-2	-1	0	1	2	3	4	5
Raw return	-0.0005	0.0001	0.0015	-0.0010	0.0008	0.0039	-0.0021	-0.0009	0.0014	0.0004	0.0003
t -statistic	(-0.81)	(0.19)	(2.58)	(-1.61)	(1.39)	(6.65)	(-3.65)	(-1.69)	(2.48)	(0.63)	(0.50)
Market-adjusted return	-0.0008	-0.0003	0.0008	-0.0010	0.0001	0.0029	-0.0020	-0.0012	0.0007	0.0001	-0.0003
t -statistic	(-1.55)	(-0.59)	(1.69)	(-1.91)	(0.24)	(5.75)	(-3.98)	(-2.56)	(1.62)	(0.26)	(-0.60)

Panel B: SEPs priced based on VWAP or the average hedge execution price (373 observations)

Day relative to pricing date	-5	-4	-3	-2	-1	0	1	2	3	4	5
Raw return	-0.0010	0.0014	0.0000	0.0009	0.0002	0.0012	-0.0009	-0.0019	0.0019	-0.0005	-0.0002
t -statistic	(-1.03)	(1.35)	(-0.01)	(0.80)	(0.24)	(1.27)	(-0.86)	(-1.59)	(1.85)	(-0.44)	(-0.17)
Market-adjusted return	-0.0004	0.0007	-0.0005	0.0002	0.0001	0.0008	-0.0012	-0.0015	0.0007	-0.0005	-0.0002
t -statistic	(-0.47)	(0.84)	(-0.63)	(0.18)	(0.16)	(1.05)	(-1.48)	(-1.61)	(0.87)	(-0.58)	(-0.12)

Panel C: Differences between the subsamples in Panels A and B

Day relative to pricing date	-5	-4	-3	-2	-1	0	1	2	3	4	5
Difference, raw return	0.0005	-0.0013	0.0015	-0.0019	0.0006	0.0027	-0.0012	0.0010	-0.0005	0.0009	0.0005
t -statistic	(0.42)	(-1.26)	(1.62)	(-1.02)	(0.05)	(2.43)	(-0.70)	(0.64)	(-0.11)	(0.69)	(0.11)
Difference, market-adjusted return	-0.0004	-0.0010	0.0013	-0.0012	0.0000	0.0021	-0.0007	0.0004	0.0001	0.0007	-0.0001
t -statistic	(-0.46)	(-1.12)	(1.25)	(-1.46)	(0.49)	(2.45)	(-1.05)	(0.75)	(0.44)	(0.69)	(-0.34)

Internet Appendix Table 3

Estimates of issuer fixed effects

Coefficient estimates and t -statistics from regressions of the pricing date market-adjusted returns of the SEPs' underlying stocks on issuer fixed effects, their interactions with a dummy variable for the pricing method, and other control variables as defined in Table 4. For each stock-pricing date pair, the dependent variable is the pricing date market-adjusted return of the underlying stock, where the market-adjusted return is computed using the CRSP value-weighted Index. The sample consists of SEPs based on individual stocks or ADRs with proceeds of at least \$10 million issued during the period running from 1994 through 2016.

Coefficient estimates on control variables		Issuer fixed effects and their interactions with the <i>ClosingPrice</i> indicator variable			
<i>PreAnnounced</i>	-0.0027 (-1.93)	<i>ABN AMRO</i>	0.0053 (1.49)		
<i>RelativeIssueSize</i>	-0.1682 (-3.02)	<i>Bank of America</i>	0.0048 (2.08)	× <i>ClosingPrice</i>	0.0050 (0.87)
<i>AbnormalVolume</i>	0.0017 (0.04)	<i>Barclays</i>	0.0005 (0.24)	× <i>ClosingPrice</i>	0.0049 (1.81)
<i>AverageVolume</i>	0.0105 (0.45)	<i>BearStearns</i>	-0.0032 (-0.22)		
<i>FirmSize</i>	-0.0020 (-2.18)	<i>Citigroup</i>	-0.0052 (-0.26)	× <i>ClosingPrice</i>	0.0077 (0.38)
<i>EndofMonth</i>	-0.0039 (-2.02)	<i>Credit Suisse</i>	-0.0011 (-0.13)	× <i>ClosingPrice</i>	0.0065 (0.72)
		<i>Deutsche Bank</i>	-0.0020 (-0.32)	× <i>ClosingPrice</i>	0.0055 (0.83)
		<i>Eksportfinans</i>	-0.0011 (-0.33)		
		<i>Goldman Sachs</i>	0.0038 (2.40)		
		<i>HSBC</i>	0.0027 (0.77)	× <i>ClosingPrice</i>	0.0074 (1.54)
		<i>JP Morgan</i>	0.0020 (0.28)	× <i>ClosingPrice</i>	0.0013 (0.18)
		<i>Lehman Brothers</i>	-0.0008 (-0.28)	× <i>ClosingPrice</i>	0.0127 (3.27)
		<i>Merrill Lynch</i>	0.0006 (0.17)	× <i>ClosingPrice</i>	0.0185 (3.93)
		<i>Morgan Stanley</i>	0.0046 (3.51)		
		<i>Royal Bank of Canada</i>	0.0045 (1.32)	× <i>ClosingPrice</i>	-0.0003 (-0.06)
		<i>Svensk Exportkredit</i>	0.0039 (0.73)	× <i>ClosingPrice</i>	0.0008 (0.06)
		<i>UBS</i>	0.0045 (2.21)		
		<i>Wachovia</i>	0.0185 (4.86)		
		<i>Wells Fargo</i>	0.0057 (1.02)		
Number of obs.	2,197	R^2	0.06		

Internet Appendix Table 4

Regression analysis of pricing date abnormal large buys

Coefficient estimates and t -statistics from regressions of the pricing date abnormal large buys

(*AbnormalLargeBuys*) of the SEPs' underlying stocks on a dummy variable for the pricing method, a dummy variable indicating whether the issue was pre-announced in a preliminary pricing supplement or free writing prospectus, and proxies for the size of the hedge trade and the liquidity of the underlying stock. This is the full version of Table 4 in the main text. For each stock-pricing date pair, the dependent variable is the pricing date *AbnormalLargeBuys* of the underlying stock, which is defined in the legend of Table 4 of the main text. The other covariates are those used in Table 3 of the main text. The sample consists of SEPs based on individual stocks and ADRs with proceeds of at least \$10 million during the period running from 2000 through 2016.

Dependent variable: <i>AbnormalLargeBuys</i>	Regression model					
	(1)	(2)	(3)	(4)	(5)	(6)
	Last hour	Last hour	Last 30 minutes	Last 30 minutes	Last 10 minutes	Last 10 minutes
<i>ClosingPrice</i>	0.0350 (2.01)	0.0467 (2.13)	0.0416 (2.38)	0.0516 (2.48)	0.0435 (2.18)	0.0648 (2.78)
<i>PreAnnounced</i>	-0.0007 (-0.05)	-0.0007 (-0.05)	-0.0007 (-0.05)	-0.0008 (-0.06)	-0.0086 (-0.52)	-0.0086 (-0.52)
<i>RelativeIssueSize</i>	1.9410 (2.86)	1.9259 (2.84)	1.9256 (2.85)	1.9126 (2.83)	2.3094 (2.96)	2.2926 (2.93)
<i>AbnormalVolume</i>	1.0823 (2.45)	1.0910 (2.47)	1.2518 (2.84)	1.2593 (2.86)	1.5805 (3.10)	1.5904 (3.12)
<i>AverageVolume</i>	-0.1008 (-0.40)	-0.1077 (-0.43)	-0.0270 (-0.11)	-0.0331 (-0.13)	-0.0611 (-0.21)	-0.0721 (-0.25)
<i>FirmSize</i>	-0.0471 (-4.81)	-0.0140 (-0.68)	-0.0422 (-4.32)	-0.0128 (-0.63)	-0.0459 (-4.08)	-0.0129 (-0.61)
× <i>ClosingPrice</i>		-0.0390 (-1.87)		-0.0346 (-1.66)		-0.0402 (-1.85)
<i>EndofMonth</i>	-0.0010 (-0.05)	0.0001 (0.01)	0.0034 (0.16)	0.0043 (0.21)	-0.0036 (-0.15)	-0.0023 (-0.1)
<i>OrderImbalance</i>	0.0032 (4.95)	0.0031 (4.91)	0.0031 (4.93)	0.0031 (4.90)	0.0033 (4.52)	0.0033 (4.48)
Issuer fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Day-of-week fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,115	2,115	2,115	2,115	2,115	2,115
R^2	0.09	0.09	0.09	0.09	0.09	0.09

Internet Appendix Table 5

Regression analysis of pricing date market-adjusted returns including a measure of abnormal large buys. Coefficient estimates and t -statistics from regressions of the pricing date market-adjusted returns computed using the CRSP value-weighted index of the SEPs' underlying stocks on a dummy variable for the pricing method, a dummy variable indicating whether the issue was pre-announced in a preliminary pricing supplement or free writing prospectus, a measure of abnormal large buys toward the close of trading, and other variables. This is the full version of Table 5 in the main text. *AbnormalLargeBuys* is defined in the legend of Table 4 of the main text. The other covariates are those used in Table 3 of the main text. Columns (1), (3), and (5) use the abnormal large buys ratio during the last trading hour, last 30 minutes, and last 10 minutes of trading, respectively. The columns (2), (4), and (6) repeat the analysis but the interaction terms *FirmSize* \times *ClosingPrice* and *AbnormalLargeBuys* \times *ClosingPrice*. The sample consists of SEPs based on individual stocks or ADRs with proceeds of at least \$10 million issued during the period running from 2000 through 2016.

Dependent variable: Market-adjusted return	Regression model					
	(1)	(2)	(3)	(4)	(5)	(6)
	<i>AbnormalLargeBuys</i> computed using data from:					
	Last hour	Last hour	Last 30 minutes	Last 30 minutes	Last 10 minutes	Last 10 minutes
<i>ClosingPrice</i>	0.0077 (4.97)	0.0096 (5.02)	0.0075 (4.86)	0.0097 (5.03)	0.0075 (4.87)	0.0099 (5.13)
<i>PreAnnounced</i>	-0.0032 (-2.58)	-0.0032 (-2.57)	-0.0032 (-2.57)	-0.0032 (-2.55)	-0.0031 (-2.52)	-0.0031 (-2.50)
<i>RelativeIssueSize</i>	-0.2330 (-3.91)	-0.2376 (-3.99)	-0.2312 (-3.87)	-0.2371 (-3.97)	-0.2322 (-3.89)	-0.2374 (-3.99)
<i>AbnormalVolume</i>	-0.0027 (-0.07)	-0.0022 (-0.06)	-0.0018 (-0.05)	-0.0023 (-0.06)	-0.0018 (-0.05)	-0.0018 (-0.05)
<i>AverageVolume</i>	-0.0252 (-1.14)	-0.0258 (-1.17)	-0.0257 (-1.16)	-0.0266 (-1.20)	-0.0257 (-1.16)	-0.0269 (-1.22)
<i>FirmSize</i>	-0.0023 (-2.68)	0.0006 (0.28)	-0.0023 (-2.68)	0.0007 (0.36)	-0.0024 (-2.78)	0.0008 (0.41)
\times <i>ClosingPrice</i>		-0.0035 (-1.59)		-0.0037 (-1.67)		-0.0039 (-1.79)
<i>AbnormalLargeBuys</i>	0.00376 (1.96)	-0.0075 (-1.50)	0.0037 (1.91)	-0.0079 (-1.54)	0.0033 (1.95)	-0.0056 (-1.32)
\times <i>ClosingPrice</i>		0.0131 (2.42)		0.0134 (2.43)		0.0103 (2.22)
<i>EndOfMonth</i>	-0.0035 (-1.92)	-0.0034 (-1.86)	-0.0035 (-1.94)	-0.0034 (-1.87)	-0.0035 (-1.93)	-0.0034 (-1.85)
<i>OrderImbalance</i>	0.0004 (7.48)	0.0004 (7.35)	0.0004 (7.46)	0.0004 (7.35)	0.0004 (7.48)	0.0004 (7.40)
Issuer fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Day-of-week fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,115	2,115	2,115	2,115	2,115	2,115
R^2	0.09	0.10	0.09	0.10	0.09	0.10

Internet Appendix Table 6

Average returns around pricing dates, Callable STRIDES only

Average raw and market-adjusted returns of the underlying common stocks on and around the pricing dates of the Callable STRIDES, categorized by pricing method: Panel A includes closing price-based Callable STRIDES and Panel B includes VWAP-based Callable STRIDES. Dates are relative to the pricing dates, e.g., date 0 is the pricing date and date t is the date t days after (or before if $t < 0$) the pricing date. Market-adjusted returns are computed using the return on the CRSP value-weighted index. Panel C reports the differences in the average returns of the subsamples in Panels A and B and the associated t -statistics. The samples in Panels A and B consist of 27 closing-price-based Callable STRIDES issued during the period running from October 2001 through August 2003 and 23 VWAP-based Callable STRIDES issued during the period running from October 2003 through August 2008, respectively.

Panel A: STRIDES priced using the closing price of the underlying stock, $\geq \$10$ million (27 observations)

Day relative to pricing date	-5	-4	-3	-2	-1	0	1	2	3	4	5
Raw return	0.0054	-0.0023	0.0130	0.0039	-0.0080	0.0291	-0.0158	-0.0047	0.0015	0.0026	-0.0029
t -statistic	(0.76)	(-0.37)	(2.03)	(0.69)	(-1.20)	(3.76)	(-2.50)	(-1.14)	(0.27)	(0.33)	(-0.55)
Market-adjusted return	0.0046	-0.0027	0.0095	0.0037	-0.0056	0.0276	-0.0157	-0.0046	0.0007	0.0035	-0.0037
t -statistic	(0.76)	(-0.49)	(1.87)	(0.79)	(-0.98)	(4.21)	(-2.95)	(-1.55)	(0.16)	(0.52)	(-0.99)

Panel B: STRIDES priced using VWAP, $\geq \$10$ million (23 observations)

Day relative to pricing date	-5	-4	-3	-2	-1	0	1	2	3	4	5
Raw return	-0.0049	0.0107	0.0026	-0.0009	-0.0053	0.0033	-0.0061	0.0010	-0.0025	-0.0028	0.0042
t -statistic	(-1.19)	(2.37)	(0.67)	(-0.31)	(-1.26)	(0.71)	(-1.31)	(0.16)	(-0.58)	(-0.48)	(1.19)
Market-adjusted return	-0.0046	0.0074	0.0004	-0.0022	-0.0033	0.0009	-0.0041	0.0002	-0.0028	-0.0039	0.0035
t -statistic	(-1.38)	(1.88)	(0.18)	(-0.90)	(-1.05)	(0.24)	(-1.29)	(0.03)	(-0.61)	(-0.89)	(1.17)

Panel C: Difference between the subsamples in Panels A and B

Day relative to pricing date	-5	-4	-3	-2	-1	0	1	2	3	4	5
Difference, raw return	0.0046	-0.0125	0.0090	0.0065	-0.0027	0.0257	-0.0014	-0.0041	-0.0009	-0.0035	-0.0066
t -statistic	(0.52)	(-1.57)	(1.15)	(0.99)	(-0.34)	(2.82)	(-0.16)	(-0.55)	(-0.12)	(-0.34)	(-1.00)
Difference, market-adjusted return	0.0065	-0.0101	0.0081	0.0063	-0.0026	0.0265	-0.0052	-0.0012	-0.0013	-0.0007	-0.0074
t -statistic	(0.86)	(-1.54)	(1.30)	(1.17)	(-0.31)	(3.64)	(-0.77)	(-0.05)	(-0.19)	(-0.11)	(-1.57)

Internet Appendix Table 7

Detailed analysis by brands

Market-adjusted returns computed using the return on the CRSP value-weighted index during the three days around the SEPs pricing date and the abnormal large buy ratio on the pricing date at the brand level. We define a SEPs brand as those products having the same name and a similar payoff formula. We present statistics for brands with greater than or equal to 20 issues in our sample of large issues. Panel A reports results for the brands priced based on closing prices and Panel B reports results for those based on nonclosing prices. We present market-adjusted returns for the three days centered on the event date where the pricing date as day 0, the day before the pricing date is day -1, and the day after the pricing date is day 1. *LargeBuys* and *AbnormalLargeBuys* are defined in the legend of Table 4 of the main text. The sample consists of SEPs based on individual stocks or ADRs with proceeds of at least \$10 million issued during the period running from 2000 through 2016.

Panel A: Closing price based SEPs

Brand name	Market-adjusted returns around pricing date			Abnormal large buys near end of pricing date			
	Day -1	Day 0	Day 1	All trading hours	Last 1 hour	Last 30 minutes	Last 10 minutes
Contingent Income Auto-Callable Securities (307 observations)							
Average	0.0008	0.0005	-0.0005	0.0066	0.0224	0.0281	0.0396
<i>t</i> - statistic	(0.88)	(0.55)	(-0.48)	(1.28)	(2.53)	(2.81)	(3.25)
ELKS (231 observations)							
Average	-0.0010	0.0022	-0.0015	0.032	0.0583	0.0609	0.0723
<i>t</i> - statistic	(-0.73)	(1.48)	(-1.04)	(4.43)	(5.71)	(5.49)	(5.13)
SPARQS (100 observations)							
Average	0.0038	0.0079	-0.0065	0.0285	0.0679	0.084	0.1052
<i>t</i> - statistic	(1.76)	(4.22)	(-3.29)	(2.34)	(3.74)	(4.18)	(4.06)
Yield Optimization Notes with Contingent Protection (96 observations)							
Average	-0.0057	0.0007	0.0037	0.015	0.0298	0.0259	0.0342
<i>t</i> -statistics	(-3.04)	(0.41)	(1.80)	(2.20)	(2.47)	(1.79)	(2.00)
Trigger Phoenix Autocallable Optimization Notes (82 observations)							
Average	0.0014	0.0015	0.0004	0.0094	-0.014	-0.0198	-0.0044
<i>t</i> - statistic	(0.99)	(1.04)	(0.27)	(1.42)	(-0.90)	(-1.04)	(-0.22)
Mandatory Exchangeable Notes/Securities (79 observations)							
Average	-0.0010	0.0014	-0.0028	0.0665	0.0598	0.0617	0.0766
<i>t</i> - statistic	(-0.25)	(0.53)	(-1.09)	(3.22)	(2.14)	(2.17)	(2.07)
Exchangeable Notes (67 observations)							
Average	0.0010	0.0068	-0.0010	0.0431	0.0671	0.089	0.0805
<i>t</i> - statistic	(0.37)	(2.29)	(-0.53)	(2.19)	(2.50)	(2.71)	(1.93)
Reverse Exchangeable Notes/Securities (65 observations)							
Average	0.0011	0.0013	-0.0007	0.0309	0.0312	0.0449	0.0449
<i>t</i> - statistic	(0.45)	(0.56)	(-0.31)	(1.93)	(1.83)	(2.32)	(1.70)

Internet Appendix Table 7 (continued)

Panel A: Closing price based SEPs (continued)

Brand name	Market-adjusted returns around pricing date			Abnormal large buys near end of pricing date			
	Day -1	Day 0	Day 1	All trading hours	Last 1 hour	Last 30 minutes	Last 10 minutes
Trigger Yield Optimization Notes (62 observations)							
Average	0.0033	0.0033	-0.0016	0.0044	0.0035	0.0035	0.0068
<i>t</i> - statistic	(1.42)	(1.80)	(-0.87)	(0.51)	(0.25)	(0.20)	(0.30)
Reverse Convertible Notes/Securities (56 observations)							
Average	0.0040	-0.0029	-0.0035	0.0173	-0.0025	0.0087	0.0084
<i>t</i> - statistic	(1.24)	(-1.09)	(-1.15)	(1.19)	(-0.12)	(0.45)	(0.38)
Airbag Autocallable Yield Optimization Notes (50 observations)							
Average	-0.0041	-0.0029	-0.0062	0.0307	0.0451	0.0533	0.0722
<i>t</i> - statistic	(-1.69)	(-1.11)	(-2.63)	(1.96)	(1.54)	(1.63)	(1.85)
Medium-Term Notes (44 observations)							
Average	-0.0014	0.0029	-0.0003	-0.0015	0.0155	0.0096	0.0004
<i>t</i> - statistic	(-0.68)	(0.83)	(-0.19)	(-0.18)	(1.78)	(0.92)	(0.03)
Trigger Autocallable Optimization Notes (39 observations)							
Average	-0.0052	0.0032	-0.0010	0.0162	0.0194	0.0261	0.0260
<i>t</i> - statistic	(-1.86)	(1.07)	(-0.26)	(1.17)	(1.27)	(1.59)	(1.14)
Auto Callable Contingent Coupon/Interest Notes (33 observations)							
Average	-0.0049	0.0021	-0.0004	0.0188	0.0426	0.0347	0.0415
<i>t</i> - statistic	(-2.18)	(0.82)	(-0.17)	(0.87)	(1.79)	(1.23)	(1.29)
Equity Linked Notes (34 observations)							
Average	0.0029	0.0102	-0.0106	0.0142	-0.0067	-0.0041	0.0272
<i>t</i> - statistic	(1.41)	(3.91)	(-2.25)	(1.68)	(-0.67)	(-0.38)	(2.14)
Enhanced Yield Securities (32 observations)							
Average	0.0069	0.0071	0.0039	0.0203	0.0321	0.0433	0.0679
<i>t</i> - statistic	(1.49)	(1.85)	(1.04)	(1.45)	(1.14)	(1.3)	(1.64)
Contingent Absolute Return Autocallable Optimization Securities (26 observations)							
Average	-0.0004	0.0003	-0.0008	0.0493	0.072	0.0797	0.0676
<i>t</i> - statistic	(-0.09)	(0.08)	(-0.29)	(1.81)	(1.75)	(1.72)	(1.27)
PERQS (24 observations)							
Average	0.0054	0.0012	-0.0086	0.0365	0.1047	0.1072	0.1034
<i>t</i> - statistic	(0.82)	(0.18)	(-1.17)	(0.8)	(1.97)	(1.78)	(1.51)
Autocallable Optimization Securities with contingent protection (23 observations)							
Average	0.0065	0.0058	0.0031	0.0027	0.0164	0.0121	0.0007
<i>t</i> - statistic	(2.04)	(1.64)	(0.56)	(0.27)	(0.92)	(0.60)	(0.03)

Internet Appendix Table 7 (continued)

Panel B: Nonclosing-price based SEPs

Brand name	Market-adjusted returns around pricing date			Abnormal large buys near end of pricing date			
	Day -1	Day 0	Day 1	All trading hours	Last 1 hour	Last 30 minutes	Last 10 minutes
<i>Step Income Securities (174 observations)</i>							
Average	0.0012	0.0018	-0.0017	-0.0015	-0.0087	-0.0171	-0.0177
<i>t</i> - statistic	(0.92)	(1.40)	(-1.33)	(-0.25)	(-0.84)	(-1.36)	(-1.11)
<i>YEELDS (69 observations)</i>							
Average	-0.0043	-0.0014	-0.0017	0.0174	0.0282	0.0161	0.0180
<i>t</i> - statistic	(-1.79)	(-0.68)	(-0.75)	(1.01)	(1.59)	(0.81)	(0.69)
<i>Coupon Bearing Notes (29 observations)</i>							
Average estimates	0.0004	0.0007	0.0053	0.0185	0.0068	-0.0147	-0.0332
<i>t</i> - statistic	(0.16)	(0.37)	(1.76)	(1.27)	(0.38)	(-0.82)	(-1.19)
<i>Strategic Accelerated Redemption Notes (27 observations)</i>							
Average	0.0001	0.0006	-0.0023	0.0143	-0.0038	-0.0103	0.0001
<i>t</i> - statistic	(0.09)	(0.37)	(-1.53)	(1.21)	(-0.15)	(-0.30)	(0.00)
<i>Accelerated Return Notes (20 observations)</i>							
Average	-0.0025	0.0031	-0.0024	0.0645	-0.0087	0.0002	-0.0348
<i>t</i> - statistic	(-0.91)	(1.12)	(-1.03)	(2.06)	(-0.29)	(0.01)	(-0.93)

Internet Appendix Table 8

Regression analysis relating pricing date abnormal large buys to issuers' misconduct

Coefficient estimates and *t*-statistics from regressions of the pricing date *AbnormalLargeBuys* of the SEPs' underlying stocks on a dummy variable for the pricing method, a dummy variable indicating whether the issue was pre-announced in a preliminary pricing supplement or free writing prospectus, a dummy variable indicating whether the issuer was frequently fined, and additional covariates. For each stock-pricing date pair, the dependent variable is the pricing date *AbnormalLargeBuys* of the underlying stock, which is defined in the legend of Table 4 of the main text. The dummy variable *Fines* is equal to one if issuer's frequency of SEC fines is above median of the sample and zero otherwise. The other covariates are defined in the legend of Table 3 of the main text. The sample consists of SEPs based on individual stocks or ADRs with proceeds of at least \$10 million issued during the period running from 2000 through 2016.

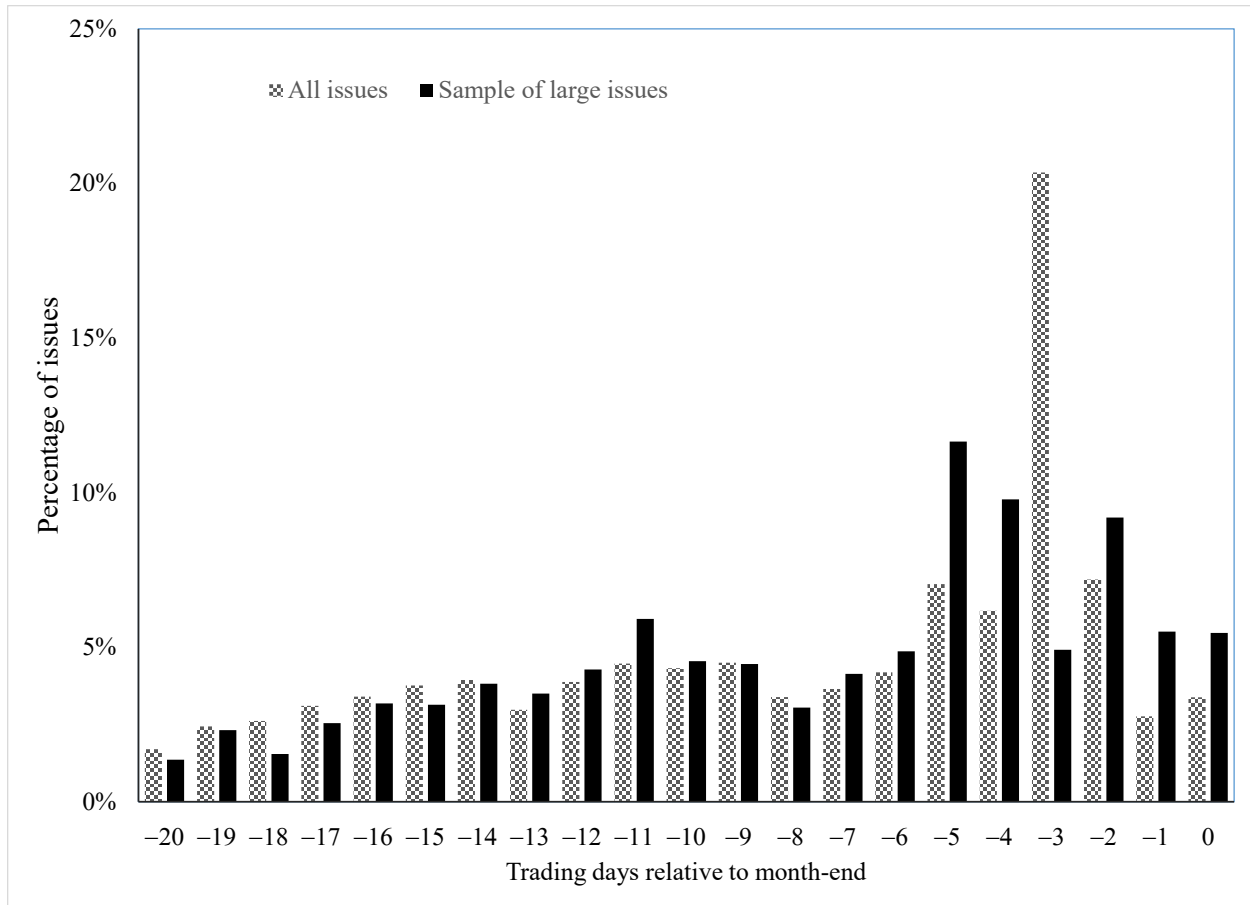
Dependent variable: <i>AbnormalLargeBuys</i>	Regression model					
	(1)	(2)	(3)	(4)	(5)	(6)
	Last 1 hour	Last 1 hour	Last 30 minutes	Last 30 minutes	Last 10 minutes	Last 10 minutes
<i>ClosingPrice</i>	0.0504 (3.58)	0.0342 (1.69)	0.0604 (4.29)	0.0470 (2.33)	0.0758 (4.66)	0.0595 (2.51)
<i>PreAnnounced</i>	-0.0106 (-0.94)	-0.0071 (-0.63)	-0.0106 (-0.94)	-0.0097 (-0.85)	-0.0177 (-1.34)	-0.0161 (-1.21)
<i>RelativeIssueSize</i>	1.8937 (2.8)	1.9138 (2.82)	1.8937 (2.8)	1.8854 (2.78)	2.2578 (2.89)	2.2526 (2.88)
<i>AbnormalVolume</i>	1.1281 (2.56)	0.9813 (2.22)	-0.0341 (-0.14)	-0.0324 (-0.13)	-0.0500 (-0.17)	-0.0473 (-0.16)
<i>AverageVolume</i>	-0.0341 (-0.14)	-0.1182 (-0.47)	1.1281 (2.56)	1.1258 (2.55)	1.4567 (2.86)	1.4561 (2.86)
<i>FirmSize</i>	-0.0397 (-4.12)	-0.0446 (-4.61)	-0.0397 (-4.12)	-0.0400 (-4.15)	-0.0532 (-4.78)	-0.0535 (-4.81)
<i>EndofMonth</i>	0.0037 (0.18)	0.0005 (0.03)	0.0037 (0.18)	0.0047 (0.23)	-0.0029 (-0.12)	-0.0014 (-0.06)
<i>OrderImbalance</i>	0.0031 (4.85)	0.00314 (4.92)	0.0031 (4.85)	0.0031 (4.86)	0.0032 (4.38)	0.0032 (4.40)
<i>Fines</i>	0.0255 (2.39)	0.0003 (0.01)	0.0255 (2.39)	0.0007 (0.03)	0.0225 (1.80)	-0.0042 (-0.21)
<i>× ClosingPrice</i>		0.0362 (1.79)		0.0305 (1.32)		0.0350 (1.70)
Day-of-week fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.0104 (-0.59)	0.0053 (0.26)	-0.0104 (-0.59)	-0.0011 (-0.05)	-0.0068 (-0.33)	0.0042 (0.18)
Number of observations	2,115	2,115	2,115	2,115	2,115	2,115
<i>R</i> ²	0.05	0.05	0.05	0.05	0.05	0.05

Internet Appendix Table 9

Regression analysis relating pricing date market-adjusted returns to issuer misconduct

Coefficient estimates and *t*-statistics from regressions of the pricing date market-adjusted return computed using the return of the CRSP value-weighted index of the SEPs' underlying stocks on a dummy variable for the pricing method, a dummy variable indicating whether the issue was pre-announced in a preliminary pricing supplement or free writing prospectus, a dummy variable indicating whether the issuer was frequently fined, and additional covariates. In columns (2) – (4), the *Fines* dummy variable is equal to one if issuer's frequency of SEC fines is above the median in the sample and zero otherwise. The next three columns repeat columns (2)–(4) but with the *Fines* dummy variable defined using both SEC and DOJ fines. *AbnormalLargeBuys* is defined in the legend of Table 4 of the main text. The other covariates are defined in the legend of Table 3 of the main text. The sample consists of SEPs based on individual stocks with proceeds of at least \$10 million issued during the period running from 2000 through 2016.

Dependent variable: Market-adjusted return	Regression model						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Using SEC fines			Using SEC and DOJ fines			
<i>ClosingPrice</i>	0.0033 (2.72)	0.0032 (2.60)	0.0035 (1.95)	0.0035 (1.93)	0.0036 (2.90)	0.0045 (2.45)	0.0045 (2.46)
<i>PreAnnounced</i>	-0.0020 (-2.03)	-0.0020 (-1.98)	-0.0020 (-1.99)	-0.0020 (-1.99)	-0.0022 (-2.20)	-0.0023 (-2.26)	-0.0023 (-2.28)
<i>RelativeIssueSize</i>	-0.2205 (-3.68)	-0.2208 (-3.68)	-0.2207 (-3.68)	-0.2203 (-3.67)	-0.2192 (-3.66)	-0.2191 (-3.66)	-0.2205 (-3.67)
<i>AbnormalVolume</i>	0.0007 (0.02)	0.0006 (0.01)	0.0006 (0.01)	0.0006 (0.01)	0.0015 (0.04)	0.0014 (0.04)	0.0024 (0.06)
<i>AverageVolume</i>	-0.0236 (-1.07)	-0.0235 (-1.06)	-0.0235 (-1.06)	-0.0235 (-1.06)	-0.0245 (-1.11)	-0.0246 (-1.11)	-0.0252 (-1.14)
<i>FirmSize</i>	-0.0026 (-2.99)	-0.0026 (-3.00)	-0.0026 (-2.99)	-0.0026 (-2.99)	-0.0025 (-2.94)	-0.0025 (-2.92)	-0.0025 (-2.92)
<i>AbnormalLargeBuys</i>	-0.0075 (-1.50)	-0.0076 (-1.50)	-0.0076 (-1.51)	-0.0065 (-0.89)	-0.0075 (-1.49)	-0.0075 (-1.50)	-0.0063 (-0.87)
× <i>ClosingPrice</i>	0.0126 (2.33)	0.0126 (2.33)	0.0127 (2.33)	0.0119 (1.41)	0.0126 (2.33)	0.0127 (2.34)	0.0092 (1.07)
<i>Fines</i>		0.0002 (0.17)	0.0005 (0.25)	0.0005 (0.24)	-0.0011 (-1.10)	0.0000 (0.01)	0.0000 (0.00)
× <i>ClosingPrice</i>			-0.0004 (-0.20)	-0.0004 (-0.18)		-0.0014 (-0.63)	-0.0015 (-0.64)
× <i>AbnormalLargeBuys</i>				-0.0021 (-0.21)			-0.0024 (-0.23)
× <i>ClosingPrice x AbnormalLargeBuys</i>				0.0017 (0.15)			0.0052 (0.46)
<i>EndofMonth</i>	-0.0028 (-1.52)	-0.0028 (-1.52)	-0.0028 (-1.53)	-0.0028 (-1.53)	-0.0028 (-1.56)	-0.0029 (-1.6)	-0.0030 (-1.62)
<i>OrderImbalance</i>	0.0004 (7.68)	0.0004 (7.68)	0.0004 (7.67)	0.0004 (7.66)	0.0004 (7.67)	0.0004 (7.65)	0.0004 (7.62)
Day-of-week fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.0005 (0.36)	0.0005 (0.30)	0.0003 (0.16)	0.0003 (0.18)	0.0011 (0.67)	0.0005 (0.27)	0.0005 (0.29)
Number of observations	2,115	2,115	2,115	2,115	2,115	2,115	2,115
<i>R</i> ²	0.05	0.05	0.05	0.05	0.05	0.05	0.05

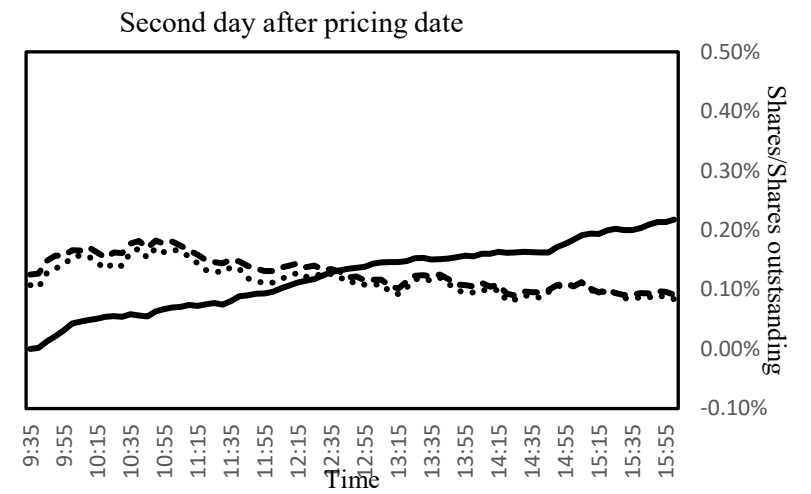
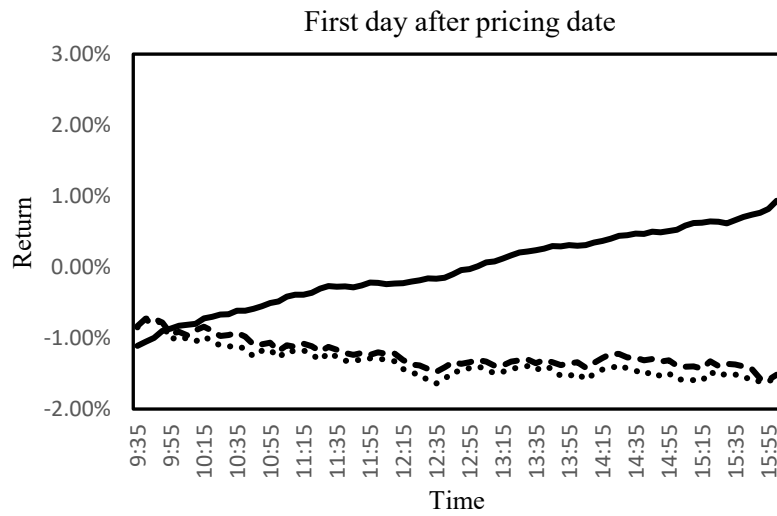
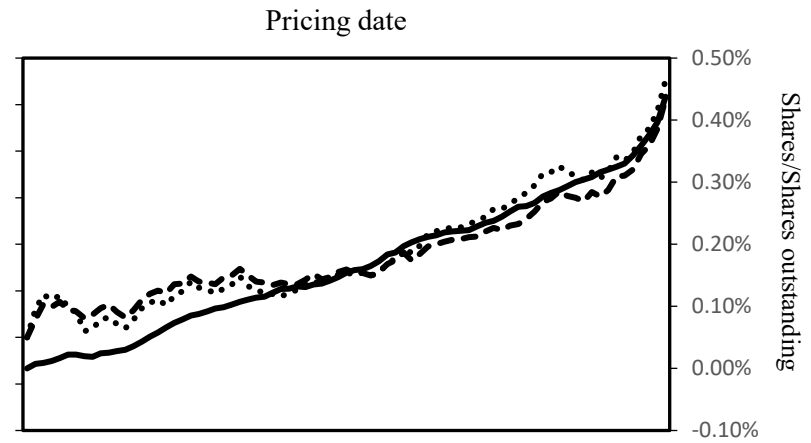
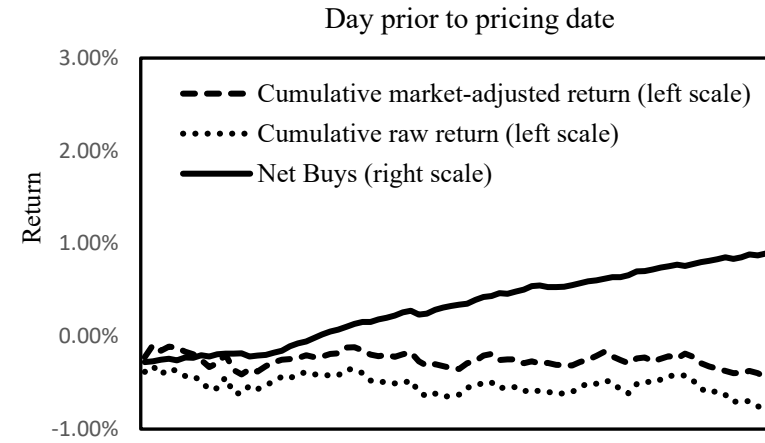


Internet Appendix Fig. 1

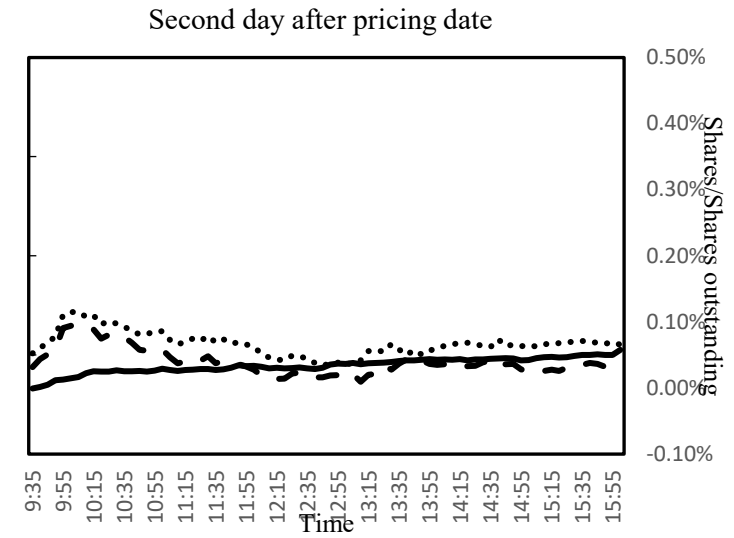
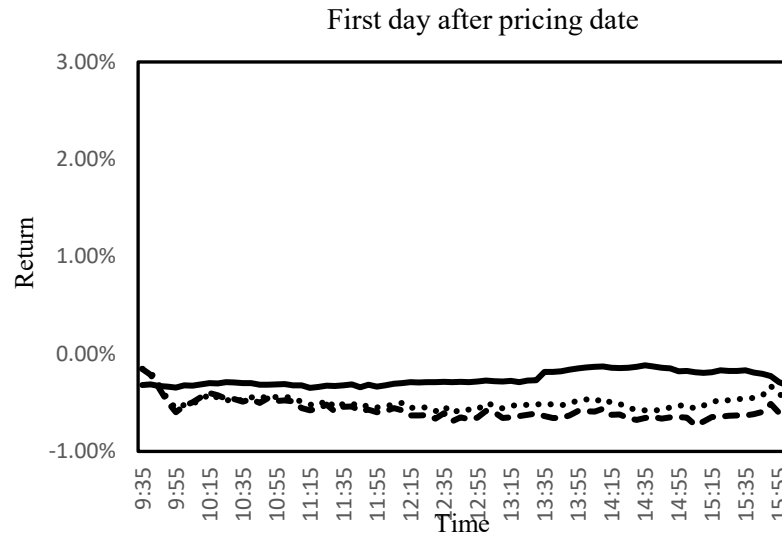
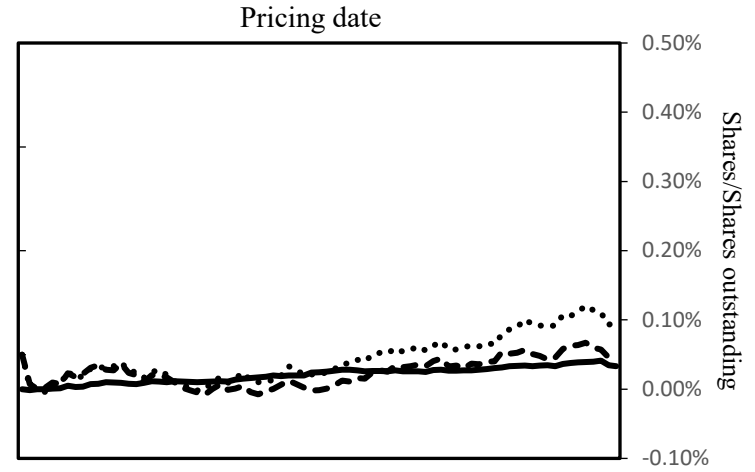
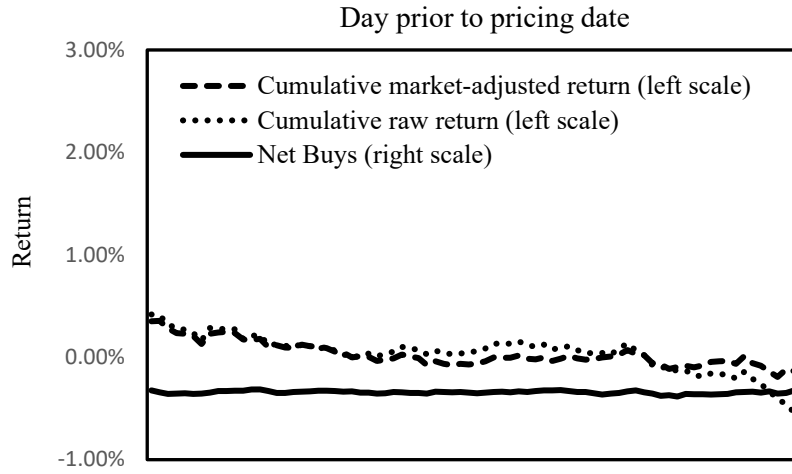
Distribution of SEPs pricing dates relative to the month-end

Distribution of the SEPs pricing dates relative to the last trading date of the month, where date 0 is the last trading date in a month, date -1 is the trading date one day before the last trading date, etc. The patterned bars show the distribution for all issues and the solid black bars show the distribution of the sample of large issues with proceeds greater than or equal to \$10 million used in the analyses. The sample of all issues consists of SEPs based on individual stocks or ADRs issued during the period running from 1994 through 2016. The sample of large issues consists of issues with proceeds of at least \$10 million.

Panel A: Closing price-based STRIDES (27 issues)



Panel B: VWAP-based STRIDES (23 issues)



Internet Appendix Fig. 2

STRIDES' cumulative intraday returns and order imbalances around pricing dates

Average intraday cumulative market-adjusted returns (left scale) and order imbalance (right scale) for the STRIDES' underlying stocks during 5-minute intervals on the pricing date. The market-adjusted returns are computed relative to the return on the S&P Depository Receipts (SPDRs, ticker symbol SPY). For each five-minute interval, the return on the underlying stock is computed from (i) the price of a transaction that has a time stamp that falls within the interval and is at or closest to the end of the interval, and (ii) the closing price from the previous day. The SPDRs' returns are computed similarly. Order imbalance is estimated by classifying each trade as either a buy or sell. Trades that occur at or above (below) the prevailing ask (bid) price are classified as buy (sell) trades. Trades inside the quotes are classified according to the tick test. The net buying volume for each five-minute interval is the sum of the buy and sell orders that have time stamps that fall within the interval, treating a sell as a negative buy, and the cumulative net buying volume is the sum of the net buying volume for the current interval and all previous intervals. The order imbalance is normalized by shares outstanding. The samples in Panels A and B consist of 27 closing-price-based Callable STRIDES issued during the period running from October 2001 through August 2003 and 23 VWAP-based Callable STRIDES issued during the period running from October 2003 through August 2008, respectively.