Internet Appendix for
"Short Selling and Earnings Management: A Controlled Experiment"

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In Section I of this appendix we examine whether short sellers do indeed track firms' discretionary accruals and whether they help predict financial misreporting. In Section II we report several additional robustness tests that supplement the tests reported in the paper. In Section III we discuss the industry controls and secular changes in one of our earnings management measures, namely, performance-matched discretionary accruals. Definitions of variables used in this Internet Appendix are described in Table IA.XI at the end of this Appendix.

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I. Short Selling, Earnings Management, and Fraud Revelation

This section reports results showing that two findings established in prior studies also appear in our sample. The first result is that short sellers track firms' discretionary accruals (e.g., Desai, Krishnamurthy, and Venkataraman (2006), Cao et al. (2007), Karpoff and Lou (2010), Hirshleifer, Teoh, and Yu (2011)), and the second result is that short sellers help predict financial misreporting (e.g., Karpoff and Lou (2010)).

In our first analysis, we examine whether short selling is positively related to pilot firms' discretionary accruals during the pilot period. We obtain monthly short interest from the Compustat Supplemental Short Interest Files. We then regress monthly short interest in a given pilot firm on its discretionary accruals as well as a list of controls similar to those in Karpoff and Lou (2010), including *SIZE*, *MB*, *MOMENTUM*, and *IO*. Monthly short interest is scaled by the shares outstanding at the end of the month and denoted as *SI*. We also measure monthly executed short sales for each pilot stock by summing up the high frequency short-sale trades published on the SEC's website during the pilot program. We then scale monthly short sales by the total trading volume in the month or the shares outstanding at the end of the month, and denote the resulting variables as *SS1* and *SS2*.

The regression results are reported in Table IA.I. On the left side of the table, we include the four controls directly. We find that *Discretionary accruals* has significantly positive coefficient estimates in all columns, indicating a positive relation between short interest (or short sales) and discretionary accruals. On the right side of the table, to account for the possibility that the effect of *SIZE*, *MB*, and *MOMENTUM* on short selling might be non-monotonic (as shown in Karpoff and Lou (2010)), we include dummy variables to indicate the middle and lowest terciles of these controls. The results are similar. These results demonstrate that the finding from prior studies that short selling is positively related to discretionary accruals also holds among pilot firms during the pilot period.

In our second analysis, we examine whether short selling predicts future SEC enforcement actions. Evidence in support of this premise would support prior studies showing that short sellers can detect fraud before its public revelation (e.g., Dechow, Sloan, and Sweeney (1996), Christophe, Ferri, and

Angel (2004), Efendi, Kinney, and Swanson (2005), Desai, Krishnamurthy, and Venkataraman (2006), and Karpoff and Lou (2010)).

Closely following the methodology in Karpoff and Lou (2010, Table 6, p. 1899), we are able to replicate their findings in our sample period. Specifically, we classify firms along two dimensions in each month. Firms with short interest at the 95th percentile or higher of all firms' short interest in a month are labeled "high short interest firms," with the rest labeled "low short interest firms." If a firm is subsequently identified as having misrepresented its financial statements in that month, we further denote it as "violation firm-month"; all other firm-months are denoted as "nonviolation firm-months." The resulting 2×2 matrix is reported in Table IA.II. Consistent with Karpoff and Lou (2010), we find that high short interest firm-months tend to coincide with violation firm-months. Specifically, among the high short interest firm-months, 3.23% are in the violation category while only 1.55% of all firm-months are in the violation category. A Chi-squared test rejects the null hypothesis that the short interest and violation categories are unrelated ($\chi^2 = 502.78$, p-value < 0.01).

Table IA.I
Discretionary Accruals, Short Interest, and Short Sales

This table reports the OLS regression results on the relation between pilot firms' discretionary accruals and short selling. The data consist of monthly observations from pilot firms during the pilot period (i.e., 2005 to 2007) and contain firms that have data available to calculate firm characteristics and discretionary accruals over the entire sample period (i.e., 2001 to 2003 and 2005 to 2010). On the left side of the table, we estimate the following model: $SI\ (SS1, SS2)_{i,m} = \beta_0 + \beta_1 Discretionary\ accruals_{i,m} + \beta_2 SIZE_{i,m} + \beta_3 MB_{i,m} + \beta_4 MOMENTUM_{i,m} + \beta_5 IO_{i,m} + \varepsilon_{i,m}$. On the right side of the table, we replace *SIZE*, *BM*, and *MOMENTUM* with their tercile ranks. Variables with the postfix *_T1* (*_T2*) equal one if a firm's given characteristic (i.e., *SIZE*, *MB*, and *MOMENTUM*) is in the lowest (middle) tercile of the sample and zero otherwise. Definitions of all other variables are provided in the Appendix of the published article and in Table IA.XI at the end of this Internet Appendix. Standard errors clustered by year and firm are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	SI_m	$SS1_m$	$SS2_m$	SI_m	$SS1_m$	$SS2_m$
	(1)	(2)	(3)	(4)	(5)	(6)
Discretionary accruals$_m$	0.010*	0.013*	0.017**	0.009*	0.012*	0.015**
	(0.006)	(0.007)	(0.008)	(0.006)	(0.006)	(0.007)
SIZE$_m$	-0.011***	-0.003	-0.002**			
	(0.001)	(0.004)	(0.001)			
MB$_m$	0.000	-0.000	0.000			
	(0.000)	(0.000)	(0.000)			
MOMENTUM$_m$	-0.005	0.008	0.016**			
	(0.005)	(0.006)	(0.007)			
SIZE_T1$_m$				0.037***	0.002	0.000
				(0.005)	(0.015)	(0.003)
SIZE_T2$_m$				0.020***	0.016*	-0.003
				(0.005)	(0.008)	(0.003)
MB_T1$_m$				-0.002	0.001	-0.004*
				(0.004)	(0.003)	(0.002)
MB_T2$_m$				-0.004*	0.006*	-0.001
				(0.002)	(0.003)	(0.002)
MOMENTUM_T1$_m$				0.009**	-0.003	-0.006
				(0.004)	(0.005)	(0.005)
MOMENTUM_T2$_m$				-0.006**	-0.009*	-0.017***
				(0.003)	(0.006)	(0.005)
IO$_m$	0.119***	0.044***	0.072***	0.118***	0.036***	0.073***
	(0.011)	(0.006)	(0.006)	(0.010)	(0.006)	(0.005)
INTERCEPT	0.043***	0.207***	-0.002	-0.050***	0.187***	0.001
	(0.009)	(0.033)	(0.005)	(0.009)	(0.012)	(0.005)
# of obs.	13,648	11,527	11,527	13,648	11,527	11,527
Adjusted R^2	27.80%	2.30%	15.50%	28.8%	3.10%	16.30%

Table IA.II
Short Interest and the Presence or Absence of Financial Misconduct

This table reports the frequency of firm-months based on a two-way classification: (i) whether the amount of abnormal short interest (*ABSI*) is high or low, and (ii) whether the firm is subsequently identified as having misrepresented its financial statements in that month. A firm-month is assigned to the "*High ABSI*" group if the firm's abnormal short interest in that month is above the 95th percentile of *ABSI* in the entire cross-section of firms for that month, and to the "*Low ABSI*" group otherwise. *ABSI* is calculated as the monthly short interest (*SI*) minus the expected short interest (*E*(SI)). We obtain *E*(*SI*) using a cross-sectional regression that is estimated for each month: $SI_{i,m} = \sum_{g=low}^{medium} s_{g,m} MV_{i,g,m} + \sum_{g=low}^{medium} b_{g,m} BM_{i,g,m} + \sum_{g=low}^{medium} m_{g,m} Momentum_{i,g,m} + \sum_{k=1}^{K} \phi_{k,m} Ind_{i,k,m} + u_{i,m}$, where the first three sets of independent variables are dummy variables that jointly define the 27 size-, book-to-market-, and momentum- based portfolios, and *Ind* are industry dummy variables. In each month, each firm is assigned to one of the 27 portfolios constructed by independently sorting firms by size, book-to-market, and momentum into terciles, all measured at the end of the prior month. Each monthly regression uses all firms that are not in the SEC enforcement action sample and for which data on short interest, market cap, book-to-market, and momentum are available. Definitions of all other variables are provided in Table IA.XI at the end of this Internet Appendix. The sample reported below includes all firms that are in the intersection of CRSP, Compustat, and the short interest data set from 2001 through 2010.

		All Firm-Months		
		"*High ABSI*" = 1 if *ABSI* $\geqslant$ 95th Percentile		
		No Violation	Violation	Total
Low ABSI	Frequency	483,065	7,150	490,215
	% of All Firm-Months	93.62	1.39	95.01
	% of Row Total	98.54	1.46	
	% of Column Total	95.10	89.59	
High ABSI	Frequency	24,914	831	25,745
	% of All Firm-Months	4.83	0.16	4.99
	% of Row Total	96.77	3.23	
	% of Column Total	4.90	10.41	
Total	Frequency	507,949	7,981	
	% of Column Total	98.45	1.55	
Chi-squared		502.78	*p*-value	<0.01

II. Additional Robustness Tests

This section reports several additional robustness tests that supplement the tests in the main paper. We summarize the content of the tables as follows:

Table IA.III:	Multivariate difference-in-differences (DiD) tests redefining pilot-related variables
Table IA.IV:	Multivariate DiD tests including 2004
Table IA.V:	Multivariate DiD tests using three alternative discretionary accrual measures
Table IA.VI:	Multivariate DiD tests with firm's likelihood of beating earnings targets including quarter fixed effects
Table IA.VII:	Multivariate DiD tests with capital expenditure/investment as dependent variables
Table IA.VIII:	Univariate DiD tests with market attention measures
Table IA.IX:	Multivariate DiD tests controlling for market attention measures

Table IA.III
Multivariate DiD Tests Redefining Pilot-Related Variables

This table reports OLS regression results on differences in pilot and nonpilot firms' discretionary accruals for the periods before, during, and after Regulation SHO's pilot program, using a balanced panel sample. The sample comes from the 2004 Russell 3000 index and contains firms that have data available to calculate firm characteristics and discretionary accruals over the entire sample period (i.e., May 2001 to June 2003, May 2005 to June 2007, and May 2008 to June 2010). A firm is classified into the treatment group if its stock is designated as a pilot stock during the program and into the control group otherwise. We estimate the following model: $Discretionary\ accruals_{i,t} = \beta_0 + \beta_1 PILOT_i \times DURING\_MayJune_t + \beta_2 PILOT_i \times POST\_MayJune_t + \beta_3 PILOT_i + \beta_4 DURING\_MayJune_t + \beta_5 POST\_MayJune_t + \varepsilon_{i,t}$ in column (1). We augment the model by including *SIZE*, *MB*, *ROA*, and *LEV* in column (2) and by further including year fixed effects from 2002 to 2003 and from 2005 to 2010 in column (3). We omit *PILOT* and *POST_MayJune* in column (3) to avoid multicollinearity. Variable definitions are provided in the Appendix of the published article and in Table IA.XI at the end of this Internet Appendix. Standard errors clustered by year and firm are displayed in parentheses. For brevity, coefficient estimates on year fixed effects in column (3) are not reported. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	Discretionary accruals$_t$		
	(1)	(2)	(3)
PILOT×*DURING_MayJune*$_t$	-0.008*	-0.008*	-0.008*
	(0.004)	(0.004)	(0.004)
PILOT×*POST_MayJune*$_t$	0.002	0.002	0.001
	(0.005)	(0.005)	(0.005)
PILOT	-0.001	-0.001	-0.001
	(0.004)	(0.004)	(0.004)
DURING_MayJune$_t$	-0.000	-0.001	
	(0.003)	(0.003)	
POST_MayJune$_t$	-0.001	-0.002	
	(0.007)	(0.007)	
SIZE$_t$		0.002	0.002
		(0.001)	(0.001)
MB$_t$		-0.000	-0.000
		(0.001)	(0.001)
ROA$_t$		-0.029*	-0.028*
		(0.017)	(0.017)
LEV$_t$		-0.014	-0.014
		(0.011)	(0.011)
INTERCEPT	-0.004	-0.008	-0.007
	(0.002)	(0.009)	(0.008)
Year fixed effects			Included
# of obs.	6,910	6,910	6,910
Adjusted R^2	0.04%	0.20%	0.30%

Table IA.IV
Multivariate DiD Tests Including 2004

Panel A: Including the entire year of 2004 in the pre-pilot period

This panel reports OLS regression results on differences in pilot and nonpilot firms' discretionary accruals for the periods before, during, and after Regulation SHO's pilot program, using a balanced panel sample. The sample comes from the 2004 Russell 3000 index and contains firms that have data available to calculate firm characteristics and discretionary accruals over the entire sample period including 2004 (i.e., 2001 to 2010). A firm-year is classified as pre-pilot if the firm's fiscal year-end falls between January 1, 2001 and December 31, 2004 and zero otherwise. A firm is classified into the treatment group if its stock is designated as a pilot stock during the program and into the control group otherwise. We estimate the following model: $Discretionary\ accruals_{i,t} = \beta_0 + \beta_1 PILOT_i \times DURING_t + \beta_2 PILOT_i \times POST_t + \beta_3 PILOT_i + \beta_4 DURING_t + \beta_5 POST_t + \varepsilon_{i,t}$ in column (1). We augment the model by including *SIZE*, *MB*, *ROA*, and *LEV* in column (2). Variable definitions are provided in the Appendix of the published article. Standard errors clustered by year and firm are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	Discretionary accruals$_t$	
	(1)	(2)
PILOT×*DURING*$_t$	-0.014***	-0.014***
	(0.003)	(0.003)
PILOT×*POST*$_t$	0.001	0.001
	(0.005)	(0.005)
PILOT	0.003	0.004
	(0.004)	(0.004)
DURING$_t$	-0.000	-0.000
	(0.001)	(0.000)
POST$_t$	-0.000	-0.002
	(0.005)	(0.005)
SIZE$_t$		0.002
		(0.001)
MB$_t$		-0.000
		(0.001)
ROA$_t$		-0.048***
		(0.018)
LEV$_t$		-0.012
		(0.008)
INTERCEPT	-0.004**	-0.004
	(0.002)	(0.008)
# of obs.	10,770	10,770
Adjusted R^2	0.10%	0.40%

Table IA.IV (continued)

Panel B: Including Q1-Q3 of 2004 in the pre-pilot period and Q4 in the during-pilot period

This panel reports OLS regression results on differences in pilot and nonpilot firms' discretionary accruals for the periods before, during, and after Regulation SHO's pilot program, using a balanced panel sample. The sample comes from the 2004 Russell 3000 index and contains firms that have data available to calculate firm characteristics and discretionary accruals over the entire sample period including 2004 (i.e., 2001 to 2010). A firm-year is classified as pre-pilot if the firm's fiscal year end falls between January 1, 2001 and September 30, 2004 and zero otherwise. A firm is classified into the treatment group if its stock is designated as a pilot stock during the program and into the control group otherwise. We estimate the following model: $Discretionary\ accruals_{i,t} = \beta_0 + \beta_1 PILOT_i \times DURING\_alt_t + \beta_2 PILOT_i \times POST_t + \beta_3 PILOT_i + \beta_4 DURING\_alt_t + \beta_5 POST_t + \varepsilon_{i,t}$ in column (1). We then augment the model by including *SIZE*, *MB*, *ROA*, and *LEV* in column (2). Variable definitions are provided in the Appendix of the published article and Table IA.XI at the end of this Internet Appendix. Standard errors clustered by year and firm are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	Discretionary accruals$_t$	
	(1)	(2)
PILOT×*DURING_alt*$_t$	-0.011***	-0.011***
	(0.004)	(0.004)
PILOT×*POST*$_t$	0.001	0.001
	(0.005)	(0.005)
PILOT	0.003	0.003
	(0.004)	(0.004)
DURING_alt$_t$	0.000	0.000
	(0.001)	(0.001)
POST$_t$	0.000	-0.001
	(0.005)	(0.005)
SIZE$_t$		0.002
		(0.001)
MB$_t$		-0.000
		(0.001)
ROA$_t$		-0.048***
		(0.018)
LEV$_t$		-0.012
		(0.008)
INTERCEPT	-0.004**	-0.004
	(0.002)	(0.008)
# of obs.	10,770	10,770
Adjusted R^2	0.10%	0.40%

Table IA.V
Multivariate DiD Tests Using Three Alternative Discretionary Accrual Measures

This table reports OLS regression results on differences in pilot and nonpilot firms' discretionary accruals for the periods before, during, and after Regulation SHO's pilot program, using a balanced panel sample. The sample comes from the 2004 Russell 3000 index and contains firms that have data available to calculate firm characteristics and discretionary accruals over the entire sample period (i.e., 2001 to 2003 and 2005 to 2010). A firm is classified into the treatment group if its stock is designated as a pilot stock during the program and into the control group otherwise. We estimate the following model: $Discretionary\ accruals\_alt[1,2,3]_{i,t} = \beta_0 + \beta_1 PILOT_i \times DURING_t + \beta_2 PILOT_i \times POST_t + \beta_3 PILOT_i + \beta_4 DURING_t + \beta_5 POST_t + \varepsilon_{i,t}$ in columns (1), (3), and (5). We augment the model by including *SIZE*, *MB*, *ROA*, and *LEV* in columns (2), (4), and (6). Variable definitions are provided in the Appendix of the published article and Table IA.XI at the end of this Internet Appendix. Standard errors clustered by year and firm are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	Discretionary accruals_alt1$_t$		*Discretionary accruals_alt2$_t$*		*Discretionary accruals_alt3$_t$*	
	(1)	(2)	(3)	(4)	(5)	(6)
PILOT×DURING$_t$	-0.010**	-0.010**	-0.011**	-0.011**	-0.011**	-0.012**
	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
PILOT×POST$_t$	0.004	0.004	0.003	0.003	0.004	0.003
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
PILOT	-0.001	-0.001	0.002	0.002	0.001	0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
DURING$_t$	-0.001	-0.001	0.001	0.000	0.000	-0.000
	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
POST$_t$	-0.000	-0.002	0.003	0.002	0.002	0.001
	(0.005)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)
SIZE$_t$		0.002*		0.001		0.001
		(0.001)		(0.001)		(0.001)
MB$_t$		-0.001		-0.001		-0.001
		(0.001)		(0.001)		(0.001)
ROA$_t$		-0.037**		0.001		0.004
		(0.016)		(0.015)		(0.015)
LEV$_t$		-0.013		-0.006		-0.006
		(0.008)		(0.009)		(0.009)
INTERCEPT	-0.003*	-0.005	-0.007***	-0.010	-0.007***	-0.009
	(0.002)	(0.007)	(0.001)	(0.007)	(0.001)	(0.008)
# of obs.	9,873	9,873	9,873	9,873	9,873	9,873
Adjusted R^2	0.10%	0.30%	0.10%	0.20%	0.10%	0.20%

Table IA.VI

Multivariate DiD Tests with Firm's Likelihood of Beating Earnings Targets Including Quarter Fixed Effects

This table reports probit regression results on differences in pilot and nonpilot firms' likelihood of meeting or marginally beating the quarterly analyst consensus forecast (or the reported earnings of the same quarter of the prior year) for the periods before, during, and after Regulation SHO's pilot program. The sample comes from the 2004 Russell 3000 index and contains firms that have data available for analyst forecast related variables (or reported EPS of the same quarter of the prior year) and controls during the sample period (i.e., 2001 to 2003 and 2005 to 2010). A firm is classified into the treatment group if its stock is designated as a pilot stock during the program and into the control group otherwise. We estimate the following model: $BEAT\_ALY\ (BEAT\_EPS)_{i,q} = \beta_0 + \beta_1 PILOT_i \times DURING_q + \beta_2 PILOT_i \times POST_q + \beta_3 PILOT_i + \beta_4 DURING_q + \beta_5 POST_q + \varepsilon_{i,q}$ in column (1) (column (3)). We augment the model by including controls in columns (2) and (4). Variables definitions are provided in the Appendix of the published article. Standard errors clustered by quarter-end and firm are displayed in parentheses. We drop the first quarter fixed effect in each of the periods represented by *DURING* and *POST*. For brevity, coefficient estimates on quarter-end fixed effects are not reported. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	$BEAT\_ALY_q$		$BEAT\_EPS_q$	
	(1)	(2)	(3)	(4)
$PILOT \times DURING_q$	-0.081**	-0.079**	-0.077*	-0.078*
	(0.040)	(0.040)	(0.043)	(0.044)
$PILOT \times POST_q$	0.019	0.016	0.005	0.001
	(0.043)	(0.042)	(0.032)	(0.032)
$PILOT$	0.025	0.019	0.041*	0.046*
	(0.027)	(0.028)	(0.023)	(0.023)
$DURING_q$	0.240***	0.249***	-0.128	-0.114
	(0.039)	(0.050)	(0.173)	(0.188)
$POST_q$	-0.002	-0.109	0.138	-0.040
	(0.163)	(0.129)	(0.215)	(0.257)
MV_q		-0.002		-0.065***
		(0.010)		(0.007)
MB_q		0.018***		0.006**
		(0.003)		(0.003)
ROA_q		-0.407		1.393***
		(0.426)		(0.315)
ALY_N_q		0.000		
		(0.022)		
$ALY\_HORIZON_q$		-0.034**		
		(0.015)		
ALY_DISP_q		-0.196***		
		(0.040)		
$\Delta R\&D_{q\text{-}4\ to\ q}$		-1.802**		-0.255
		(0.896)		(0.454)
$\Delta CAPEX_{q\text{-}4\ to\ q}$		0.133		0.373
		(0.916)		(0.389)
$INTERCEPT$	-0.741***	-0.693***	-1.530***	-0.872***
	(0.013)	(0.067)	(0.214)	(0.271)
Quarter fixed effects	Included	Included	Included	Included
# of obs.	28,626	28,341	59,830	59,573
Pseudo R^2	3.40%	3.40%	0.99%	1.46%

Table IA.VII
Multivariate DiD Tests with Capital Expenditure/Investment as Dependent Variables

This table reports OLS regression results on differences in pilot and nonpilot firms' capital expenditure and investment for the periods before, during, and after Regulation SHO's pilot program, using a balanced panel sample. The sample comes from the 2004 Russell 3000 index and contains firms that have data available to calculate firm characteristics and discretionary accruals over the entire sample period (i.e., 2001 to 2003 and 2005 to 2010). A firm is classified into the treatment group if its stock is designated as a pilot stock during the program and into the control group otherwise. We estimate the following model: $CAPEX$ ($INVESTMENT$)$_{i,t} = \beta_0 + \beta_1 PILOT_i \times DURING_t + \beta_2 PILOT_i \times POST_t + \beta_3 PILOT_i + \beta_4 DURING_t + \beta_5 POST_t + \beta_6 AGE_{i,t} + \beta_7 ROA_{i,t} + \beta_8 MV_{i,t} + \beta_9 Q_{i,t} + \beta_{10} CASH_{i,t} + \beta_{11} RETEARN_{i,t} + \beta_{12} LEV_{i,t} + \varepsilon_{i,t}$. Variable definitions are provided in the Appendix of the published article and Table IA.XI at the end of this Internet Appendix. Standard errors clustered by year and firm are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	$CAPEX_t$	$INVESTMENT_t$
	(1)	(2)
$PILOT \times DURING_t$	-0.367***	0.108
	(0.127)	(0.089)
$PILOT \times POST_t$	-0.413*	-0.131
	(0.231)	(0.183)
$PILOT$	-0.001	-0.303
	(0.365)	(0.462)
$DURING_t$	1.945**	0.577
	(0.818)	(0.854)
$POST_t$	2.231*	0.704
	(1.166)	(1.581)
AGE_t	-0.554***	-0.260
	(0.172)	(0.193)
ROA_t	4.881**	-2.838
	(2.375)	(2.252)
MV_t	0.192	0.143
	(0.122)	(0.139)
Q_t	0.055	1.575***
	(0.110)	(0.258)
$CASH_t$	-1.050**	3.632***
	(0.472)	(1.062)
$RETEARN_t$	-0.486***	-1.190***
	(0.167)	(0.327)
LEV_t	-0.003	-0.031***
	(0.004)	(0.007)
$INTERCEPT$	32.911***	20.663**
	(8.689)	(9.646)
# of obs.	9,849	9,873
Adjusted R^2	0.042	0.154

Table IA.VIII
Univariate DiD Tests with Market Attention Measures

Panel A: Market attention within 2004

The top half of this panel reports summary statistics of the three market attention measures for the balanced panel sample of the treatment and control groups for the periods within 2004 before and after the announcement of the pilot program and the differences in means. The bottom half of this panel reports the time-series estimators as well as the univariate results of DiD tests, with standard errors reported in parentheses below the DiD estimators. The sample comes from the 2004 Russell 3000 index and contains firms that have data available to calculate firm characteristics and discretionary accruals over the entire sample period (i.e., 2001 to 2003 and 2005 to 2010). A firm is classified into the treatment group if its stock is designated as a pilot stock during the program and into the control group otherwise. Variable definitions are provided in the Appendix of the published article and Table IA.XI at the end of this Internet Appendix. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	Treatment Group (*PILOT = 1)*		Control Group (*PILOT = 0)*		Cross-sectional estimator: Difference in Mean	
	N	Mean	N	Mean		
Google Trend(SVI)						
1st Half (01/01/2004-07/28/2004)	383	28.330	703	28.094		0.236
2nd Half (07/29/2004-12/31/2004)	383	28.745	703	28.558		0.187
# of Analyst Revisions(#AR)						
1st Half (01/01/2004-07/28/2004)	388	10.139	709	9.906		0.234
2nd Half (07/29/2004-12/31/2004)	388	10.997	709	11.169		0.172
Total Trading Volume(TV)						
1st Half (01/01/2004-07/28/2004)	388	1.106	709	1.189		-0.084
2nd Half (07/29/2004-12/31/2004)	388	1.087	709	1.135		-0.048
Univariate DiD test	N	Time-series estimator	N	Time-series estimator	DiD estimator	t-statistic
ΔGoogle Trend(SVI)						
2nd Half – 1st Half	383	0.414	703	0.464	0.050 (0.448)	0.11
Δ # of Analyst Revisions(#AR)						
2nd Half – 1st Half	388	0.858***	709	1.264***	-0.406 (0.295)	1.38
ΔTotal Trading Volume(TV)						
2nd Half – 1st Half	388	-0.019	709	-0.054*	0.035 (0.047)	-0.74

Table IA.VIII (continued)

Panel B: Market attention during the three-year pre-, during-, and post-pilot periods

The top half of this panel reports summary statistics of the three market attention measures for the balanced panel sample of the treatment and control groups for the periods before, during, and after Regulation SHO's pilot program, and the differences in means. The bottom half of this panel reports the time-series estimators as well as the univariate results of DiD tests, with standard errors reported in parentheses below the DiD estimators. We define *PRE*, *DURING*, and *POST* as in the main article when using the number of analyst revisions and total trading volume as the measures of market attention. We define these three variables more finely (i.e., *PRE* from January 2004 to June 2004, *DURING* from May 2005 to July 2007, and *POST* from January 2008 to December 2010) when using Search Volume Index (*SVI*) on Google as the proxy for market attention. We do so to preserve data because *SVI* data are at a monthly frequency but only date back to 2004. The sample comes from the 2004 Russell 3000 index and contains firms that have data available to calculate firm characteristics and discretionary accruals over the entire sample period (i.e., 2001 to 2003 and 2005 to 2010). A firm is classified into the treatment group if its stock is designated as a pilot stock during the program and into the control group otherwise. Variable definitions are provided in the Appendix of the published article and Table IA.XI at the end of this Internet Appendix. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	Treatment Group (*PILOT = 1)*		Control Group (*PILOT = 0)*		Cross-sectional estimator: Difference in Mean	
	N	Mean	N	Mean		
Google Trend(SVI)						
PRE (01/2004-06/2004)	383	28.173	703	28.089	0.084	
DURING (05/2005-07/2007)	383	36.781	703	36.010	0.770	
POST (01/2008-12/2010)	383	40.631	703	41.530	-0.899	
# of Analyst Revisions(#AR)						
PRE (2001-2003)	381	17.690	692	17.555	0.135	
DURING (2005-2007)	381	23.681	692	23.375	0.305	
POST (2008-2010)	381	29.090	692	30.133	-1.044	
Total Trading Volume(TV)						
PRE (2001-2003)	381	1.975	692	2.114	-0.139	
DURING (2005-2007)	381	2.542	692	2.590	-0.048	
POST (2008-2010)	381	3.051	692	3.199	-0.148	
Univariate DiD test	N	Time-series estimator	N	Time-series estimator	DiD estimator	t-statistic
ΔGoogle Trend(SVI)						
DURING − PRE	383	8.608***	703	7.921***	0.687 (1.093)	0.63
POST − DURING	383	3.850***	703	5.520***	-1.670 (1.004)	1.66**
POST − PRE	383	12.458***	703	13.441***	-0.983 (1.415)	0.69
Δ # of Analyst Revisions (#AR)						
DURING − PRE	381	5.991***	692	5.820***	0.171 (0.725)	0.24
POST − DURING	381	5.409***	692	6.758***	-1.349 (0.724)	1.86*
POST − PRE	381	11.400***	692	12.578***	-1.179 (1.121)	1.05
ΔTotal Trading Volume(TV)						
DURING − PRE	381	0.567***	692	0.476***	0.091 (0.114)	0.80

POST − DURING	381	0.509***	692	0.609***	-0.100	1.04
					(0.096)	
POST − PRE	381	1.076***	692	1.090***	0.015	0.10
					(0.149)	

Table IA.IX
Multivariate DiD Tests Controlling for Market Attention Measures

This table reports OLS regression results on differences in pilot and nonpilot firms' discretionary accruals for the periods before, during, and after Regulation SHO's pilot program, using a balanced panel sample. The sample comes from the 2004 Russell 3000 index and contains firms that have data available to calculate firm characteristics and discretionary accruals over the entire sample period (i.e., 2001 to 2003 and 2005 to 2010). A firm is classified into the treatment group if its stock is designated as a pilot stock during the program and into the control group otherwise. We estimate the following model: $Discretionary\ accruals_{i,t} = \beta_0 + \beta_1 PILOT_i \times DURING_t + \beta_2 PILOT_i \times POST_t + \beta_3 PILOT_i + \beta_4 DURING_t + \beta_5 POST_t + \beta_6 \#AR_t + \varepsilon_{i,t}$ in column (1). We then augment the model by including *SIZE*, *MB*, *ROA*, and *LEV* in column (2), by including *TV* in column (3), and by including all these additional variables in column (4). Variable definitions are provided in the Appendix of the published article and Table IA.XI at the end of this Internet Appendix. Standard errors clustered by year and firm are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	Discretionary accruals$_t$			
	(1)	(2)	(3)	(4)
$PILOT \times DURING_t$	-0.009**	-0.010**	-0.009**	-0.009**
	(0.004)	(0.004)	(0.004)	(0.004)
$PILOT \times POST_t$	0.004	0.003	0.003	0.003
	(0.004)	(0.004)	(0.004)	(0.004)
PILOT	0.000	0.000	-0.000	-0.000
	(0.002)	(0.003)	(0.002)	(0.003)
$DURING_t$	-0.001	-0.001	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.002)
$POST_t$	0.000	-0.001	0.003	0.002
	(0.006)	(0.005)	(0.005)	(0.004)
$\#AR_t$	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
TV_t			-0.003***	-0.003***
			(0.001)	(0.001)
$SIZE_t$		0.002		0.002
		(0.001)		(0.002)
MB_t		-0.001		-0.001
		(0.001)		(0.001)
ROA_t		-0.039**		-0.039**
		(0.016)		(0.016)
LEV_t		-0.013		-0.013
		(0.010)		(0.009)
INTERCEPT	-0.003	-0.007	0.003	-0.000
	(0.002)	(0.008)	(0.002)	(0.009)
# of obs.	9,726	9,726	9,718	9,718
Adjusted R^2	0.10%	0.30%	0.30%	0.60%

III. Secular Changes in Discretionary Accruals

A concern about one of our earnings management measures, performance-matched discretionary accruals, is that it is industry adjusted, in which case our finding that pilot firms' discretionary accruals decreased during the pilot program and reverted to pre-program levels could reflect changes in the accruals of nonpilot firms rather than those of pilot firms. This possibility is especially relevant during the post-program period, as the SEC repealed price tests on short sales for all firms at the end of the pilot program in July 2007 (and restored them in a modified version in early 2010). Such a widespread reduction in short-selling costs could have led to a general decrease in earnings management across nonpilot firms, suggesting that the reverting pattern we observe may reflect a decrease in nonpilot firms' accruals rather than an increase in pilot firms' accruals.

To examine this possibility, we calculate a time-series estimator that compares nonpilot firms' total accruals from the three years during the pilot program to the three years after the program. As shown in Table IA.X, Panel A, the time-series estimator is negative and significant at the 1% level, indicating that nonpilot firms decreased their accruals after the pilot program. It is important to note that total accruals are more likely to capture investment and growth than performance-matched discretionary accruals. To control for this investment bias and gauge the sensitivity of this result, we conduct a multivariate analysis for the subsample of nonpilot firms for the six years during and after the pilot program, regressing total accruals on the time dummy *POST*, firm controls used in our baseline specifications, as well as investment variables. The results are reported in Table IA.X, Panel B. The coefficient on *POST* remains negatively significant. This suggests that the convergence in pilot and non-pilot firms' discretionary accruals after the pilot program reflects, at least in part, a decrease in accruals among nonpilot firms.

Two other changes also likely affected accruals at both pilot and nonpilot firms. The first is a component of Regulation SHO that restricted the practice of naked short selling by imposing locate and close-out standards starting in January 2005, toward the beginning of the pilot period. This restriction

may have raised the cost of selling short for both pilot and nonpilot firms. The second is the financial crisis that occurred after the pilot period ended as firms might have written down asset values during the crisis, lowering their accruals. The DiD experimental design is uniquely suited to control for such common time trends affecting both groups of firms, and allows us to draw the inference that earnings management at pilot and nonpilot firms diverged when the cost of short selling in these two groups diverged, and converged only when the cost of short selling in these two groups converged – exactly as predicted by Hypothesis 1.

Table IA.X
Total Accruals for Nonpilot Firms

Panel A: The level of total accruals for nonpilot firms during and after the pilot program

The top half of this panel reports summary statistics on the level of total accruals for nonpilot firms for the three-year period during and the three-year period after Regulation SHO's pilot program. The bottom half of this panel reports the change in total accruals for nonpilot firms from the three-year period during the pilot program to the three-year period after the pilot program. The sample comes from the 2004 Russell 3000 index and contains firms that have data available to calculate firm characteristics and discretionary accruals over the entire sample period (i.e., 2001 to 2003 and 2005 to 2010) and that are not designated as pilot firms during the program. Variable definitions are provided in the Appendix of the published article. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	Control Group (*PILOT = 0)*		
	N	Mean	Median
TA			
DURING (2005-2007)	709	-0.055	-0.050
POST (2008-2010)	709	-0.078	-0.067
ΔTA	N	Time-series estimator	
POST – DURING	709	-0.024***	

Table IA.X (continued)

Panel B: Multivariate tests of nonpilot firms' total accruals around the pilot program

This panel reports OLS regression results on changes in nonpilot firms' total accruals from the three-year period during to the three-year period after Regulation SHO's pilot program. The sample comes from the 2004 Russell 3000 index and contains firms that have data available to calculate firm characteristics and discretionary accruals over the entire sample period (i.e., 2001 to 2003 and 2005 to 2010) and that are not designated as pilot firms during the program. The sample period is 2005 to 2010. We estimate the following model: $TA_{i,t} = \beta_0 + \beta_1 POST_t + \beta_2 SIZE_{i,t} + \beta_3 MB_{i,t} + \beta_4 ROA_{i,t} + \beta_5 LEV_{i,t} + \varepsilon_{i,t}$ in column (1). We further include *INVESTMENT* and *EQUITYISSUE* in column (2). Variable definitions are provided in the Appendix of the published article and in Table IA.XI at the end of this Internet Appendix. Standard errors clustered by year and firm are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels using two-tailed tests.

	TA_t	
	(1)	(2)
$POST_t$	-0.022***	-0.024***
	(0.008)	(0.009)
$SIZE_t$	0.005***	0.003*
	(0.002)	(0.002)
MB_t	-0.000	0.000
	(0.001)	(0.001)
ROA_t	0.036	0.042*
	(0.028)	(0.023)
LEV_t	-0.038***	-0.040***
	(0.011)	(0.011)
$INVESTMENT_t$		-0.002***
		(0.000)
$EQUITYISSUE_t$		0.001***
		(0.000)
INTERCEPT	-0.083***	-0.052***
	(0.015)	(0.016)
# of obs.	4,252	4,140
Adjusted R^2	4.60%	10.80%

Table IA.XI
Definition of Variables Used in This Internet Appendix

This table describes the calculation of variables used in this Internet Appendix. Variables also used in the core analyses are described in the Appendix of the published article.

Variable Name	Definition
Variables used in the short selling, earnings management, fraud discovery relation analysis	
SI_m	Short interest during month *m* scaled by shares outstanding at the end of the month.
$SS1_m$	The sum of the short sales volume during month *m* scaled by the total trading volume of the month.
$SS2_m$	The sum of the short sales volume during month *m* scaled by shares outstanding at the end of the month.
$SIZE_m$	The natural logarithm of total assets (*AT*) at the end of the most recent fiscal year.
MB_m	The market-to-book ratio at the end of the most recent fiscal year, calculated as the market value of equity (*PRCC_F*×*CSHO*) divided by the book value of equity (*CEQ*).
MV_m	The natural logarithm of the firm's market value of equity (*PRC*×*SHROUT*) prior to month *m*.
BM_m	The book-to-market ratio prior to month *m*, calculated as the most recent book value of equity (*CEQ*) divided by market value of equity (*PRC*×*SHROUT*).
$MOMENTUM_m$	The buy-and-hold return, measured over the 12 months prior to month *m*.
IO_m	Shares held by all institutional investors at the end of the most recent quarter divided by the total shares outstanding from the CRSP monthly files (adjusted for stock splits and other distributions).
Alternative measures of pilot-related variables	
$DURING\_alt_t$	A dummy variable that equals one if a firm's fiscal year-end falls between October 1, 2004 and December 31, 2007 and zero otherwise.
$PRE\_MayJune_t$	A dummy variable that equals one if the end of a firm's fiscal year *t* falls between May 1, 2001 and June 30, 2003 and zero otherwise.
$DURING\_MayJune_t$	A dummy variable that equals one if the end of a firm's fiscal year *t* falls between May 1, 2005 and June 30, 2007 and zero otherwise.
$POST\_MayJune_t$	A dummy variable that equals one if the end of a firm's fiscal year *t* falls between May 1, 2008 and June 30, 2010 and zero otherwise.
Alternative measures of accruals related earnings management proxy	
Discretionary acccruals_alt1$_t$	Performance-matched discretionary accruals, calculated as a firm's discretionary accruals minus the corresponding discretionary accruals of a matched firm from the same fiscal year and the same Fama-French 48 industry with the closest return on assets. A firm's discretionary accruals are defined as the difference between its total accruals and the fitted normal accruals derived from a modified Jones model (Jones (1991)). The modified Jones model is specified as $\frac{TA_{i,t}}{ASSET_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{ASSET_{i,t-1}} + \beta_2 \frac{(\Delta REV_{i,t} - \Delta AR_{i,t})}{ASSET_{i,t-1}} + \beta_3 \frac{PPE_{i,t}}{ASSET_{i,t-1}} + \varepsilon_{i,t}$. Total accruals $TA_{i,t}$ are defined as earnings before extraordinary items and discontinued operations (*IBC*) minus operating cash flows (*OANCF−XIDOC*), $ASSET_{i,t-1}$ is total assets at the beginning of fiscal year *t* (*AT*), $\Delta REV_{i,t}$ is the change in sales revenue (*SALE*) from the preceding fiscal year, and $PPE_{i,t}$ is gross property, plant, and equipment (*PPEGT*). The fitted normal accruals are computed as $NA_{i,t} = \widehat{\beta_0} + \widehat{\beta_1} \frac{1}{ASSET_{i,t-1}} + \widehat{\beta_2} \frac{(\Delta REV_{i,t} - \Delta AR_{i,t})}{ASSET_{i,t-1}} + \widehat{\beta_3} \frac{PPE_{i,t}}{ASSET_{i,t-1}}$. Firm-year-specific discretionary accruals are calculated as $DA_{i,t} = (TA_{i,t} / ASSET_{i,t-1}) - NA_{i,t}$.
Discretionary acccruals_alt2$_t$	Similar to *Discretionary acccruals_alt1*, except that the modified Jones model is specified without intercept as $\frac{TA_{i,t}}{ASSET_{i,t-1}} = \beta_1 \frac{1}{ASSET_{i,t-1}} + \beta_2 \frac{\Delta REV_{i,t}}{ASSET_{i,t-1}} + \beta_3 \frac{PPE_{i,t}}{ASSET_{i,t-1}} + \varepsilon_{i,t}$ and the fitted normal accruals are computed as $NA_{i,t} = \widehat{\beta_1} \frac{1}{ASSET_{i,t-1}} +$

	$\widehat{\beta_2}\frac{(\Delta REV_{i,t}-\Delta AR_{i,t})}{ASSET_{i,t-1}}+\widehat{\beta_3}\frac{PPE_{i,t}}{ASSET_{i,t-1}}$.
Discretionary acccruals_alt3$_t$	Similar to *Discretionary acccruals_alt1*, except that the modified Jones model is specified without intercept as $\frac{TA_{i,t}}{ASSET_{i,t-1}}=\beta_1\frac{1}{ASSET_{i,t-1}}+\beta_2\frac{(\Delta REV_{i,t}-\Delta AR_{i,t})}{ASSET_{i,t-1}}+\beta_3\frac{PPE_{i,t}}{ASSET_{i,t-1}}+\varepsilon_{i,t}$ and the fitted normal accruals are computed as $NA_{i,t}=\widehat{\beta_1}\frac{1}{ASSET_{i,t-1}}+\widehat{\beta_2}\frac{(\Delta REV_{i,t}-\Delta AR_{i,t})}{ASSET_{i,t-1}}+\widehat{\beta_3}\frac{PPE_{i,t}}{ASSET_{i,t-1}}$.
Firm characteristics	
AGE$_t$	Number of years since the firm's first appearance on Compustat.
MV$_t$	The natural logarithm of the firm's market value of equity (*PRCC_F*×*CSHO*).
Q$_t$	The market value of equity (*PRCC_F*×*CSHO*) plus the book value of debt (*DLTT*+*DLC*) and preferred stocks (*PSTKL*) minus deferred taxes (*TXDITC*), all divided by the book value of assets at the end of the year.
RETEARN$_t$	Retained earnings (*RE*) at the end of the year scaled by the total assets at the beginning of the year.
EQUITYISSUE$_t$	Equity issuance (*SSTK*) scaled by total assets at the beginning of the year, set to zero if missing.
Additional variables used in the market attention analysis	
SVI$_m$	The average Google search trend of the firm during the month.
#AR$_t$	The number of analyst annual earnings forecast revisions of the firm during the year.
TV$_t$	The total trading volume (*VOL*) of the firm during the year scaled by the firm's shares outstanding (*SHROUT*) at the end of the year.

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