

Online Appendix

Number Processing Constraints and Earnings News

Stephen A. Karolyi

Thomas G. Ruchti

Phong Truong

In this online appendix, we consider two alternative measures of standardized earnings surprise: $SUE^{Analyst}$ (raw earnings surprise scaled by the standard deviation of analyst forecasts) and $SUE^{Price2Days}$ (raw earnings surprise scaled by stock price two days before the EA). We find that our main results are robust to using these two alternative measures of earnings news. The table of content of this online appendix is listed below.

- **Table OA.1**

In this table, we provide the descriptive statistics of $SUE^{Analyst}$ and $SUE^{LaggedPrice}$ in the main sample and in the stock split sample.

- **Table OA.2.**

In this table, we repeat the analysis of Table 2 using $SUE^{Analyst}$, which investigates the effects of number processing constraints on market reaction to earnings news.

- **Table OA.3**

In this table, we repeat the analysis of Table 3 using $SUE^{Analyst}$, which assesses the robustness of the number-processing-constraints effects using various functional forms of $abs(EPS)$ and stock price.

- **Table OA.4**

In this table, we repeat the analysis of Table 6 using $SUE^{Analyst}$, which investigates the effects of number processing constraints on post EA drift.

- **Table OA.5**

In this table, we repeat the analysis of Table 8 using $SUE^{Analyst}$, which investigates the effects of stock splits on market reaction to earnings news.

- **Table OA.6**

In this table, we repeat the analysis of Table 9 using $SUE^{Analyst}$, which investigates the effects of stock splits on post EA drift.

- **Table OA.7**

In this table, we repeat the analysis of Table 2 using $SUE^{Price2Days}$, which investigates the effects of number processing constraints on market reaction to earnings news.

- **Table OA.8**

In this table, we repeat the analysis of Table 3 using $SUE^{Price2Days}$, which assesses the robustness of the number-processing-constraints effects using various functional forms of $abs(EPS)$ and stock price.

- **Table OA.9**

In this table, we repeat the analysis of Table 6 using $SUE^{Price2Days}$, which investigates the effects of number processing constraints on post EA drift.

- **Table OA.10**

In this table, we repeat the analysis of Table 8 using $SUE^{Price2Days}$, which investigates the effects of stock splits on market reaction to earnings news.

- **Table OA.11**

In this table, we repeat the analysis of Table 9 using $SUE^{Price2Days}$, which investigates the effects of stock splits on post EA drift.

- **Table OA.12**

In this table, we repeat the analysis of Table 4 using continuous abs(EPS), which investigate the effects of number processing constraints while controlling for limited attention measures.

- **Table OA.13**

In this table, we repeat the analysis of Table 5 using continuous abs(EPS), which investigate the underlying economic mechanisms of investor sophistication and robot presence.

- **Table OA.14**

In this table, we repeat the analysis of Table 6 using continuous abs(EPS), which investigate the effects of number processing constraints on post EA drift.

- **Figure OA.1**

Similar to Figure 2, this figure shows the S-shaped relationship between $SUE^{Analyst}$ and CAR.

- **Figure OA.2**

Similar to Figure 5, this figure shows the dynamic effects of stock splits when $SUE^{Analyst}$ is used.

- **Figure OA.3**

Similar to Figure 2, this figure shows the S-shaped relationship between $SUE^{Price2Days}$ and CAR.

- **Figure OA.4**

Similar to Figure 5, this figure shows the dynamic effects of stock splits when $SUE^{Price2Days}$ is used.

Table OA.1: Descriptive Statistics

Panel A of this table provides the descriptive statistics of two alternative measures of standardized earnings surprise used in our main sample. Panel B of this table provides the descriptive statistics of two alternative measures of standardized earnings surprise used in our main sample. Observations are at the stock-year-quarter level.

Panel A. Main Sample

	Mean	SD	P25	P50	P75
$SUE^{Analyst}$	0.608	3.782	-0.707	0.531	1.937
$SUE^{Lagged\ Price}$	-0.001	0.014	-0.001	0.000	0.002

Panel B. Stock Split Sample

	Mean	SD	P25	P50	P75
$SUE^{Analyst}$	0.789	3.600	-0.436	0.691	2.029
$SUE^{Lagged\ Price}$	0.000	0.007	0.000	0.000	0.001

Table OA.2: Number Processing Constraints – Underreaction to Earnings News with High EPS magnitudes
(Table 2 with $SUE^{Analyst}$)

This table reports coefficient estimates from OLS regressions estimating the effect of number processing constraints on the market reaction to earnings news. The dependent variable is $CAR[-1,1]$, the 3-day cumulative abnormal returns around a stock's EA. $SUE^{Analyst}$ is earnings surprise scaled by the standard deviation of analyst forecasts. The magnitude of actual reported earnings is $abs(EPS)$. The independent variable of interest is $Decile_SUE \times Decile_absEPS$. Controls include *Size*, *BM*, *ROA*, *Leverage*, *Growth*, *Investment*, *MOM*, *IO*, *Number of Analysts*, *Illiquidity*, and *Lagged Price*. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: CAR[-1,1]</i>	
	(1)	(2)
$Decile_SUE^{Analyst} \times Decile_absEPS$	-0.0159*** (0.0030)	-0.0158*** (0.0030)
$Decile_SUE^{Analyst}$	1.1553*** (0.0336)	1.1595*** (0.0336)
$Decile_absEPS$	0.0576*** (0.0150)	0.0615*** (0.0150)
<i>Controls</i>	Yes	Yes
$Controls \times Decile_SUE^{Analyst}$	Yes	Yes
Stock FE	Yes	Yes
Year-Quarter FE	No	Yes
Adj. R-sq	0.124	0.127
Obs.	229,944	229,944

Table OA.3: Main Results with the Price Level Effect (Table 3 with $SUE^{Analyst}$)

This table reports coefficient estimates of the effect of number processing constraints on the market reaction to earnings news as well as the price level effect using various functional forms of the level of EPS and the firm's stock price level. The dependent variable is $CAR[-1,1]$, the 3-day cumulative abnormal returns around a stock's EA. $SUE^{Analyst}$ is earnings surprise scaled by the standard deviation of analyst forecasts. The magnitude of actual reported earnings is $abs(EPS)$ and $\ln(absEPS)$ is the natural log of $abs(EPS)$. *Lagged Price* is the stock price two days before the EA and $\ln(Lagged Price)$ is the natural log of *Lagged Price*. In Columns (1), (2), and (3), the independent variable of interest is $Decile_SUE^{Analyst} \times Decile_absEPS$, and we control for *Lagged Price*, $\ln(Lagged Price)$, and *Decile Lagged Price*, as well as their respective interactions with $Decile_SUE^{Analyst}$. In Columns (4), (5), and (6), the independent variable of interest is $Decile_SUE^{Analyst} \times absEPS$, and we control for *Lagged Price*, $\ln(Lagged Price)$, and *Decile Lagged Price*, as well as their respective interactions with $Decile_SUE^{Analyst}$. In Columns (7), (8), and (9), the independent variable of interest is $Decile_SUE^{Analyst} \times \ln(absEPS)$, and we control for *Lagged Price*, $\ln(Lagged Price)$, and *Decile Lagged Price*, as well as their respective interactions with $Decile_SUE^{Analyst}$. We include all lower order terms as controls. Other controls include *Size*, *BM*, *ROA*, *Leverage*, *Growth*, *Investment*, *MOM*, *IO*, *Number of Analysts*, and *Illiquidity*. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: CAR[-1,1]</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$Decile_SUE^{Analyst}$	1.1595*** (0.0336)	1.3825*** (0.0427)	1.2654*** (0.0348)	1.1456*** (0.0341)	1.3791*** (0.0440)	1.2507*** (0.0357)	1.2228*** (0.0360)	1.4127*** (0.0401)	1.2827*** (0.0352)
$Decile_SUE^{Analyst} \times Decile_absEPS$	-0.0158*** (0.0030)	-0.0071** (0.0032)	-0.0031 (0.0032)						
$Decile_SUE^{Analyst} \times absEPS$				-0.0005*** (0.0002)	-0.0003** (0.0002)	-0.0003** (0.0001)			
$Decile_SUE^{Analyst} \times \ln(absEPS)$							-0.0384*** (0.0076)	-0.0173** (0.0080)	-0.0121 (0.0079)
$Decile_SUE^{Analyst} \times Lagged Price$	-0.0018*** (0.0004)			-0.0021*** (0.0004)			-0.0018*** (0.0004)		
$Decile_SUE^{Analyst} \times \ln(Lagged Price)$		-0.1137*** (0.0145)			-0.1173*** (0.0138)			-0.1145*** (0.0143)	
$Decile_SUE^{Analyst} \times Decile Lagged Price$			-0.0427*** (0.0044)			-0.0413*** (0.0040)			-0.0416*** (0.0043)
<i>Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Controls</i> $\times Decile_SUE^{Analyst}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stock FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-sq	0.127	0.128	0.129	0.127	0.128	0.129	0.127	0.128	0.129
<i>Obs.</i>	229,944	229,944	229,944	229,944	229,944	229,944	229,944	229,944	229,944

Table OA.4: Number Processing Constraints – Large Drift for Earnings News with High EPS magnitudes
(Table 6 with $SUE^{Analyst}$)

This table reports coefficient estimates from OLS regressions estimating the effect of number processing constraints on post EA drift. The dependent variable is $CAR[2,60]$, the 59-day cumulative abnormal returns following a stock's EA. The magnitude of actual reported earnings is $abs(EPS)$. $SUE^{Analyst}$ is earnings surprised scaled by standard deviation of analyst forecasts. The independent variable of interest is $Decile_SUE^{Analyst} \times Decile_absEPS$. Controls include *Size*, *BM*, *ROA*, *Leverage*, *Growth*, *Investment*, *MOM*, *IO*, *Number of Analysts*, *Illiquidity*, and *Lagged Price*. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: CAR[2,60]</i>	
	(1)	(2)
$Decile_SUE^{Analyst} \times Decile_absEPS$	0.0235*** (0.0067)	0.0236*** (0.0066)
$Decile_SUE^{Analyst}$	0.5464*** (0.0713)	0.5202*** (0.0701)
$Decile_absEPS$	-0.0301 (0.0366)	0.0249 (0.0362)
<i>Controls</i>	Yes	Yes
$Controls \times Decile_SUE^{Analyst}$	Yes	Yes
Stock FE	Yes	Yes
Year-Quarter FE	No	Yes
Adj. R-sq	0.052	0.085
Obs.	229,944	229,944

Table OA.5: Stock Splits – Underreaction to Earnings News with High EPS magnitudes(Table 8 with $SUE^{Analyst}$)

This table reports coefficient estimates from difference-in-differences regressions estimating the effect of stock splits on the market reaction to EAs. The dependent variable is $CAR[-1,1]$, the 3-day cumulative abnormal returns around a stock's EA. $Post$ is an indicator equal to one in and after the year-quarter that a stock split occurs, and zero otherwise. $SUE^{Analyst}$ is earnings surprised scaled by standard deviation of analyst forecasts. In all specifications, the independent variable of interest is $Decile_SUE^{Analyst} \times Post$. Controls include *Size*, *BM*, *ROA*, *Leverage*, *Growth*, *Investment*, *MOM*, *IO*, *Number of Analysts*, *Illiquidity*, and *Lagged Price*. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: CAR[-1,1]</i>	
	(1)	(2)
$Decile_SUE^{Analyst} \times Post$	0.0692*** (0.0227)	0.0752*** (0.0222)
$Decile_SUE^{Analyst}$	0.8866*** (0.0979)	0.8963*** (0.0944)
$Post$	-1.3158*** (0.1256)	-1.3595*** (0.1241)
<i>Controls</i>	Yes	Yes
$Controls \times Decile_SUE^{Analyst}$	Yes	Yes
Stock FE	Yes	Yes
Year-Quarter FE	No	Yes
Adj. R-sq	0.130	0.136
Obs.	53,911	53,911

Table OA.6: Stock Splits – Large Drift for Earnings News with High EPS magnitudes(Table 9 with $SUE^{Analyst}$)

This table reports coefficient estimates from difference-in-differences regressions estimating the effect of stock splits on post EA drift. The dependent variable is $CAR[2,60]$, the 59-day cumulative abnormal returns following a stock's EA. $Post$ is an indicator equal to one in and after the year-quarter that a stock split occurs, and 0 otherwise. $SUE^{Analyst}$ is earnings surprised scaled by standard deviation of analyst forecasts. In all specifications, the independent variable of interest is $Decile_SUE^{Analyst} \times Post$. Controls include *Size*, *BM*, *ROA*, *Leverage*, *Growth*, *Investment*, *MOM*, *IO*, *Number of Analysts*, *Illiquidity*, and *Lagged Price*. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: CAR[2,60]</i>	
	(1)	(2)
$Decile_SUE^{Analyst} \times Post$	-0.2395*** (0.0669)	-0.2228*** (0.0648)
$Decile_SUE^{Analyst}$	1.1361*** (0.2402)	1.0834*** (0.2299)
$Post$	-4.0106*** (0.3929)	-3.9638*** (0.3836)
<i>Controls</i>	Yes	Yes
$Controls \times Decile_SUE^{Analyst}$	Yes	Yes
Stock FE	Yes	Yes
Year-Quarter FE	No	Yes
Adj. R-sq	0.109	0.139
Obs.	53,911	53,911

Table OA.7: Number Processing Constraints – Underreaction to Earnings News with High EPS magnitudes
(Table 2 with $SUE^{Price2Days}$)

This table reports coefficient estimates from OLS regressions estimating the effect of number processing constraints on the market reaction to earnings news. The dependent variable is $CAR[-1,1]$, the 3-day cumulative abnormal returns around a stock's EA. $SUE^{Price2Days}$ is earnings surprise scaled by stock price two days before the EA. The magnitude of actual reported earnings is $abs(EPS)$. The independent variable of interest is $Decile_SUE^{Price2Days} \times Decile_absEPS$. Controls include *Size*, *BM*, *ROA*, *Leverage*, *Growth*, *Investment*, *MOM*, *IO*, *Number of Analysts*, *Illiquidity*, and *Lagged Price*. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: CAR[-1,1]</i>	
	(1)	(2)
$Decile_SUE^{Price2Days} \times Decile_absEPS$	-0.0153*** (0.0029)	-0.0146*** (0.0029)
$Decile_SUE^{Price2Days}$	1.1101*** (0.0357)	1.1090*** (0.0358)
$Decile_absEPS$	0.0492*** (0.0153)	0.0564*** (0.0154)
<i>Controls</i>	Yes	Yes
$Controls \times Decile_SUE^{Price2Days}$	Yes	Yes
Stock FE	Yes	Yes
Year-Quarter FE	No	Yes
Adj. R-sq	0.119	0.123
Obs.	229,944	229,944

Table OA.8: Main Results with the Price Level Effect (Table 3 with $SUE^{Price2Days}$)

This table reports coefficient estimates of the effect of number processing constraints on the market reaction to earnings news as well as the price level effect using various functional forms of the level of EPS and the firm's stock price level. The dependent variable is $CAR[-1,1]$, the 3-day cumulative abnormal returns around a stock's EA. $SUE^{Price2Days}$ is earnings surprised scaled by stock price two days before the EA. The magnitude of actual reported earnings is $abs(EPS)$ and $\ln(absEPS)$ is the natural log of $abs(EPS)$. *Lagged Price* is the stock price two days before the EA and $\ln(Lagged Price)$ is the natural log of *Lagged Price*. In Columns (1), (2), and (3), the independent variable of interest is $Decile_SUE^{Price2Days} \times Decile_absEPS$, and we control for *Lagged Price*, $\ln(Lagged Price)$, and *Decile Lagged Price*, as well as their respective interactions with $Decile_SUE^{Price2Days}$. In Columns (4), (5), and (6), the independent variable of interest is $Decile_SUE^{Price2Days} \times absEPS$, and we control for *Lagged Price*, $\ln(Lagged Price)$, and *Decile Lagged Price*, as well as their respective interactions with $Decile_SUE^{Price2Days}$. In Columns (7), (8), and (9), the independent variable of interest is $Decile_SUE^{Price2Days} \times \ln(absEPS)$, and we control for *Lagged Price*, $\ln(Lagged Price)$, and *Decile Lagged Price*, as well as their respective interactions with $Decile_SUE^{Price2Days}$. We include all lower order terms as controls. Other controls include *Size*, *BM*, *ROA*, *Leverage*, *Growth*, *Investment*, *MOM*, *IO*, *Number of Analysts*, and *Illiquidity*. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	Dependent Variable: $CAR[-1,1]$								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$Decile_SUE^{Price2Days}$	1.1090*** (0.0358)	1.0583*** (0.0415)	1.1041*** (0.0362)	1.0620*** (0.0360)	0.9821*** (0.0419)	1.0477*** (0.0367)	1.1606*** (0.0373)	1.1231*** (0.0399)	1.1588*** (0.0368)
$Decile_SUE^{Price2Days} \times Decile_absEPS$	-0.0146*** (0.0029)	-0.0166*** (0.0031)	-0.0149*** (0.0032)						
$Decile_SUE^{Price2Days} \times absEPS$				-0.0017*** (0.0002)	-0.0015*** (0.0002)	-0.0014*** (0.0002)			
$Decile_SUE^{Price2Days} \times \ln(absEPS)$							-0.0331*** (0.0071)	-0.0375*** (0.0075)	-0.0335*** (0.0075)
$Decile_SUE^{Price2Days} \times Lagged Price$	0.0004 (0.0005)			0.0021*** (0.0005)			0.0003 (0.0005)		
$Decile_SUE^{Price2Days} \times \ln(Lagged Price)$		0.0333** (0.0139)			0.0498*** (0.0131)			0.0296** (0.0137)	
$Decile_SUE^{Price2Days} \times Decile Lagged Price$			0.0053 (0.0045)			0.0111*** (0.0042)			0.0038 (0.0044)
<i>Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Controls</i> $\times$ $Decile_SUE^{Price2Days}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stock FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-sq	0.123	0.123	0.123	0.123	0.123	0.123	0.123	0.123	0.123
<i>Obs.</i>	229,944	229,944	229,944	229,944	229,944	229,944	229,944	229,944	229,944

Table OA.9: Number Processing Constraints – Large Drift for Earnings News with High EPS magnitudes
(Table 6 with $SUE^{Price2Days}$)

This table reports coefficient estimates from OLS regressions estimating the effect of number processing constraints on post EA drift. The dependent variable is $CAR[2,60]$, the 59-day cumulative abnormal returns following a stock's EA. The magnitude of actual reported earnings is $abs(EPS)$. $SUE^{Price2Days}$ is earnings surprised scaled by stock price two days before the EA. The independent variable of interest is $Decile_SUE^{Price2Days} \times Decile_absEPS$. Controls include *Size*, *BM*, *ROA*, *Leverage*, *Growth*, *Investment*, *MOM*, *IO*, *Number of Analysts*, *Illiquidity*, and *Lagged Price*. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: CAR[2,60]</i>	
	(1)	(2)
$Decile_SUE^{LaggedPrice} \times Decile_absEPS$	0.0195*** (0.0069)	0.0180*** (0.0068)
$Decile_SUE^{Price2Days}$	0.5979*** (0.0768)	0.5549*** (0.0756)
$Decile_absEPS$	-0.0201 (0.0382)	0.0441 (0.0378)
<i>Controls</i>	Yes	Yes
$Controls \times Decile_SUE^{Price2Days}$	Yes	Yes
Stock FE	Yes	Yes
Year-Quarter FE	No	Yes
Adj. R-sq	0.052	0.085
Obs.	229,944	229,944

Table OA.10: Stock Splits – Underreaction to Earnings News with High EPS magnitudes(Table 8 with $SUE^{Price2Days}$)

This table reports coefficient estimates from difference-in-differences regressions estimating the effect of stock splits on the market reaction to EAs. The dependent variable is $CAR[-1,1]$, the 3-day cumulative abnormal returns around a stock's EA. $Post$ is an indicator equal to one in and after the year-quarter that a stock split occurs, and zero otherwise. $SUE^{Price2Days}$ is earnings surprised scaled by stock price two days before the EA. In all specifications, the independent variable of interest is $Decile_SUE^{Price2Days} \times Post$. Controls include *Size*, *BM*, *ROA*, *Leverage*, *Growth*, *Investment*, *MOM*, *IO*, *Number of Analysts*, *Illiquidity*, and *Lagged Price*. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: CAR[-1,1]</i>	
	(1)	(2)
$Decile_SUE^{Price2Days} \times Post$	0.0896*** (0.0287)	0.1244*** (0.0295)
$Decile_SUE^{Price2Days}$	1.0575*** (0.1039)	1.0583*** (0.1173)
$Post$	-1.5291*** (0.1689)	-1.6376*** (0.1749)
<i>Controls</i>	Yes	Yes
$Controls \times Decile_SUE^{Price2Days}$	Yes	Yes
Stock FE	Yes	Yes
Year-Quarter FE	No	Yes
Adj. R-sq	0.088	0.133
Obs.	53,911	53,911

Table OA.11: Stock Splits – Large Drift for Earnings News with High EPS magnitudes(Table 9 with $SUE^{Price2Days}$)

This table reports coefficient estimates from difference-in-differences regressions estimating the effect of stock splits on post EA drift. The dependent variable is $CAR[2,60]$, the 59-day cumulative abnormal returns following a stock's EA. $Post$ is an indicator equal to one in and after the year-quarter that a stock split occurs, and 0 otherwise. $SUE^{Price2Days}$ is earnings surprised scaled by stock price two days before the EA. In all specifications, the independent variable of interest is $Decile_SUE^{Price2Days} \times Post$. Controls include *Size*, *BM*, *ROA*, *Leverage*, *Growth*, *Investment*, *MOM*, *IO*, *Number of Analysts*, *Illiquidity*, and *Lagged Price*. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: CAR[2,60]</i>	
	(1)	(2)
$Decile_SUE^{Price2Days} \times Post$	-0.3380*** (0.0950)	-0.2003** (0.0948)
$Decile_SUE^{Price2Days}$	1.3915*** (0.2613)	1.1298*** (0.2726)
$Post$	-4.0576*** (0.5762)	-3.9487*** (0.5845)
<i>Controls</i>	Yes	Yes
$Controls \times Decile_SUE^{Price2Days}$	Yes	Yes
Stock FE	Yes	Yes
Year-Quarter FE	No	Yes
Adj. R-sq	0.068	0.139
Obs.	53,911	53,911

Table OA.12: Number Processing Constraints – Results Controlling for Limited Attention(Table 4 with continuous $abs(EPS)$)

This table repeats the analysis in Table 4 while using continuous $abs(EPS)$ and controlling for two proxies of investor limited attention and their interactions with $Decile_SUE$: $NRANK$ (decile ranks of busy earnings news day), and $Friday$ (an indicator for whether the EA is on Friday). The dependent variable is $CAR[-1,1]$, the 3-day cumulative abnormal returns around a stock's EA. SUE is earnings surprised scaled by stock price at the end of the fiscal quarter. The magnitude of actual reported earnings is $abs(EPS)$. The independent variable of interest is $Decile_SUE \times absEPS$. Controls include $Size$, BM , ROA , $Leverage$, $Growth$, $Investment$, MOM , IO , $Number\ of\ Analysts$, $Illiquidity$, and $Lagged\ Price$. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: CAR[-1,1]</i>	
	(1)	(2)
$Decile_SUE \times absEPS$	-0.0016*** (0.0002)	-0.0015*** (0.0002)
$Decile_SUE$	1.1704*** (0.0674)	1.0626*** (0.0358)
$Decile_SUE \times NRANK$	-0.0143** (0.0068)	
$Decile_SUE \times Friday$		-0.1651*** (0.0203)
<i>Controls</i>	Yes	Yes
$Controls \times Decile_SUE$	Yes	Yes
Stock FE	Yes	Yes
Year-Quarter FE	Yes	Yes
Adj. R-sq	0.122	0.123
Obs.	229,944	229,944

Table OA.13: Economic Mechanisms – Investor Sophistication and Robot Presence(Table 5 with continuous $abs(EPS)$)

This table repeats the analysis in Table 5 to investigate the mechanisms behind number processing constraints while using continuous $abs(EPS)$. Columns (1) and (2) report the cross-sectional results based on the degree of investor sophistication. Columns (3) and (4) report the cross-sectional results based on robot presence. The dependent variable is $CAR[-1,1]$, the 3-day cumulative abnormal returns around a stock's EA. The magnitude of actual reported earnings is $abs(EPS)$. SUE is earnings surprised scaled by stock price at the end of the fiscal quarter. The main independent variables of interest are the triple interaction terms with *High IO* and *High Robot*, where *High IO* is an indicator equal to one if a firm's fraction of institutional ownership in the top quartile, and *High Robot* is an indicator equal to one if the average monthly EDGAR downloads from robots for a firm is greater than the median number of downloads since 2003. Controls include *Size*, *BM*, *ROA*, *Leverage*, *Growth*, *Investment*, *MOM*, *IO*, *Number of Analysts*, *Illiquidity*, and *Lagged Price*. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: CAR[-1,1]</i>			
	(1)	(2)	(3)	(4)
<i>Decile_SUE</i> $\times$ <i>absEPS</i>	-0.0017*** (0.0001)	-0.0016*** (0.0002)	-0.0018*** (0.0001)	-0.0017*** (0.0002)
<i>Decile_SUE</i> $\times$ <i>absEPS</i> $\times$ <i>High IO</i>	0.0005* (0.0003)	0.0001 (0.0003)		
<i>Decile_SUE</i> $\times$ <i>absEPS</i> $\times$ <i>High Robot</i>			0.0020*** (0.0003)	0.0011*** (0.0003)
<i>Controls</i>	No	Yes	No	Yes
<i>Controls</i> $\times$ <i>Decile_SUE</i>	No	Yes	No	Yes
Stock FE	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes
Adj. R-sq	0.113	0.123	0.111	0.123
Obs.	229,944	229,944	229,944	229,944

Table OA.14: Number Processing Constraints – Large Drift for Earnings News with High EPS magnitudes
(Table 6 with continuous $abs(EPS)$)

This table repeats the analysis in Table 6 to estimate the effects of number processing constraints on post EA drift while using continuous $abs(EPS)$. The dependent variable is $CAR[2,60]$, the 59-day cumulative abnormal returns following a stock's EA. The magnitude of actual reported earnings is $abs(EPS)$. SUE is earnings surprised scaled by stock price at the end of the fiscal quarter. The independent variable of interest is $Decile_SUE \times absEPS$. Controls include $Size$, BM , ROA , $Leverage$, $Growth$, $Investment$, MOM , IO , $Number\ of\ Analysts$, $Illiquidity$, and $Lagged\ Price$. Appendix B contains the definitions of all variables used in the regressions. Robust standard errors are clustered at the stock level and presented in parentheses. ***, **, and * denote results significant at the 1%, 5%, and 10% levels.

	<i>Dependent Variable: $CAR[2,60]$</i>	
	(1)	(2)
$Decile_SUE \times absEPS$	0.0018*** (0.0004)	0.0017*** (0.0004)
$Decile_SUE$	0.6527*** (0.0771)	0.6065*** (0.0759)
$absEPS$	-0.0018 (0.0024)	0.0005 (0.0024)
<i>Controls</i>	Yes	Yes
$Controls \times Decile_SUE$	Yes	Yes
Stock FE	Yes	Yes
Year-Quarter FE	No	Yes
Adj. R-sq	0.052	0.085
Obs.	229,944	229,944

Figure OA.1: Number Processing Constraints – Underreaction to Earnings News with High EPS magnitudes (Figure 2 with $SUE^{Analyst}$)

This figure shows the effect of number processing constraints on market reaction to earnings news using continuous measures of earnings surprises. The curves are drawn using local polynomial fits to capture the non-linear relationship between abnormal returns and earnings surprises.

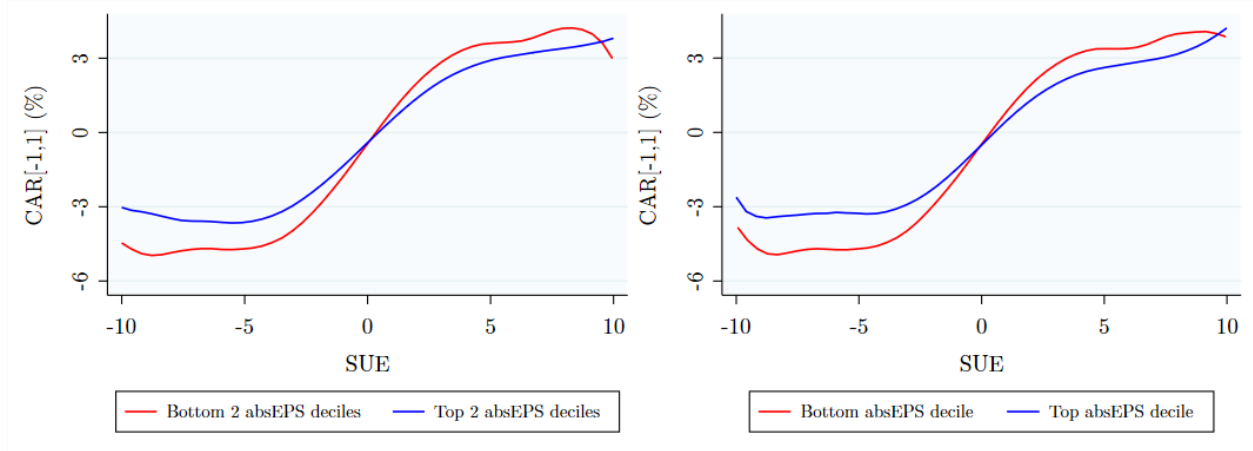
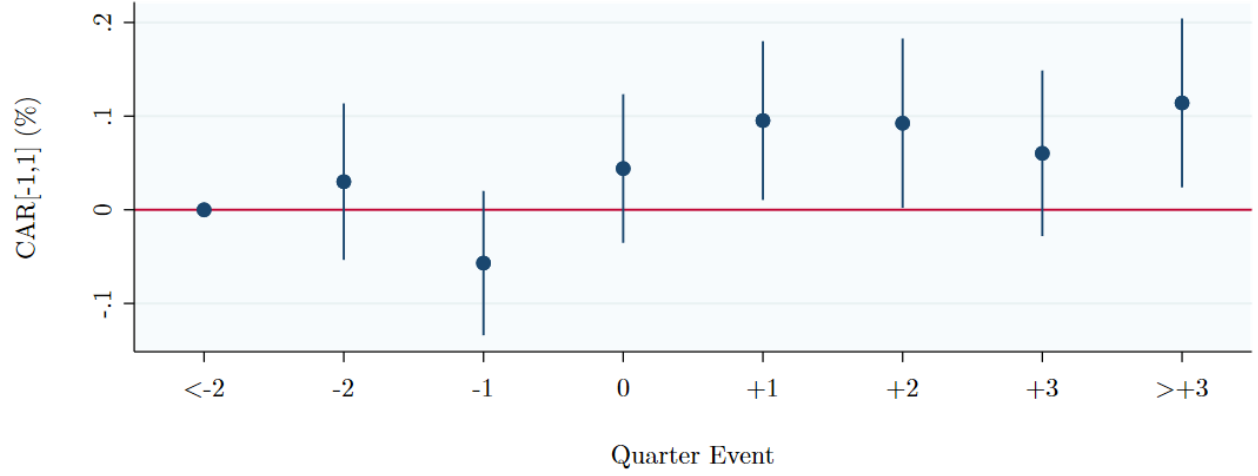


Figure OA.2: The Dynamic Effects of Stock Splits (Figure 5 with $SUE^{Analyst}$)

This figure shows coefficient estimates and 95% confidence intervals for the event study regressions estimating the effect of number processing constraints on reactions to EAs four quarters before and after a split event. The split happens at $t = 0$, and $t < -2$ serves as the benchmark.

Panel A. Underreaction to Earnings News with High EPS magnitudes



Panel B. Large Drift for Earnings News with High EPS magnitudes

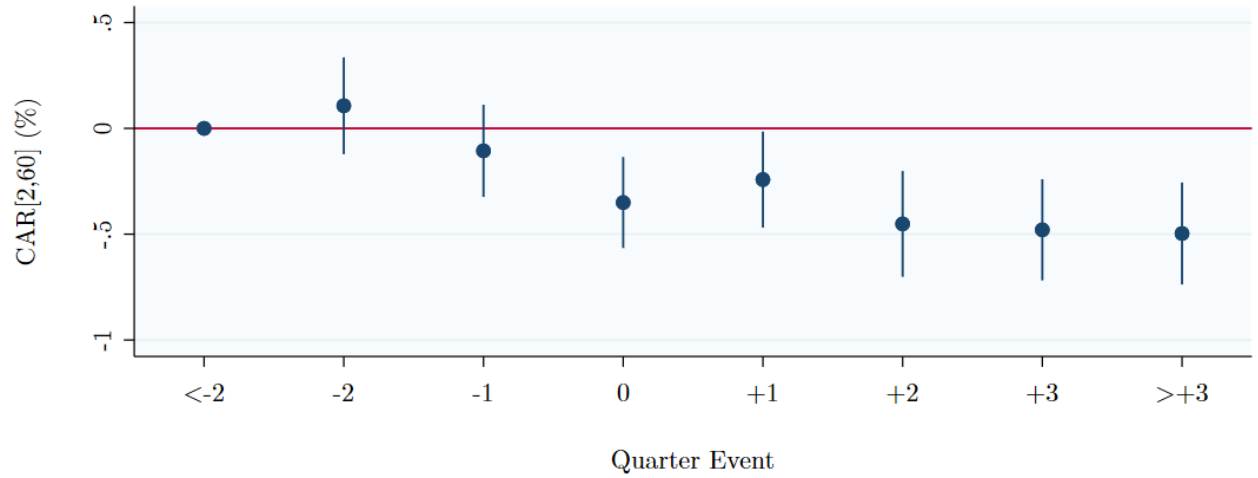


Figure OA.3: Number Processing Constraints – Underreaction to Earnings News with High EPS magnitudes (Figure 2 with $SUE^{Price2Days}$)

This figure shows the effect of number processing constraints on market reaction to earnings news using continuous measures of earnings surprises. The curves are drawn using local polynomial fits to capture the non-linear relationship between abnormal returns and earnings surprises.

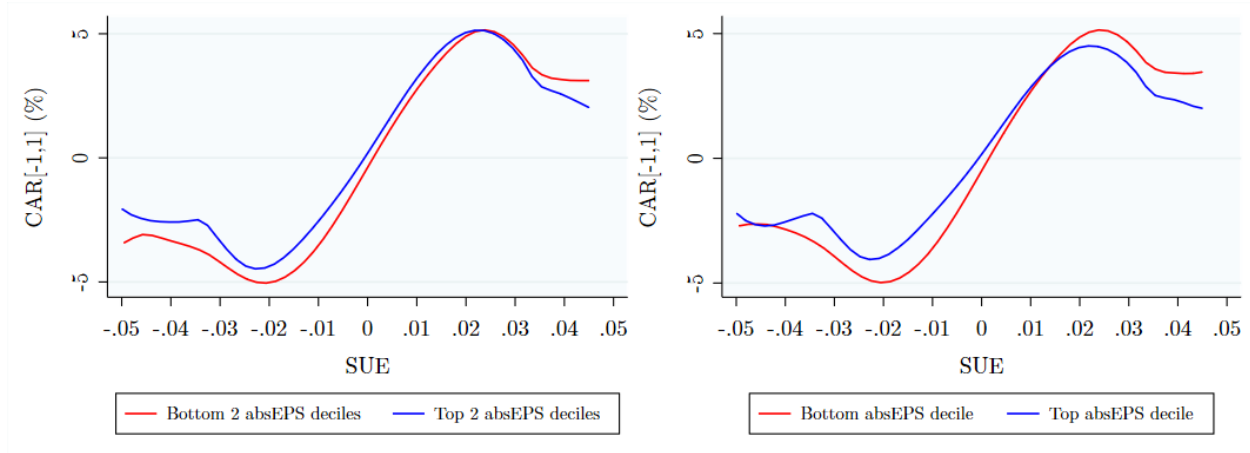
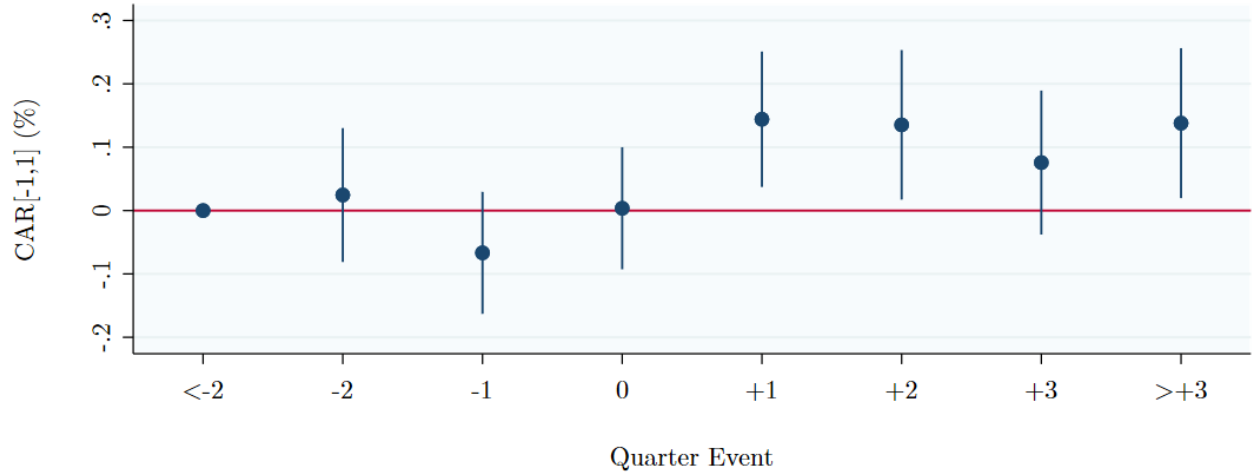


Figure OA.4: The Dynamic Effects of Stock Splits (Figure 5 with $SUE^{Price2Days}$)

This figure shows coefficient estimates and 95% confidence intervals for the event study regressions estimating the effect of number processing constraints on reactions to EAs four quarters before and after a split event. The split happens at $t = 0$, and $t < -2$ serves as the benchmark.

Panel A. Underreaction to Earnings News with High EPS magnitudes



Panel B. Large Drift for Earnings News with High EPS magnitudes

