Appendix. Online Appendix

The tables that follow are referenced in the main paper. These tables provide additional information on the variables used in the analysis (Tables 1, 2, and 3), robustness checks (Tables 4, 5, 6,7, 8, 9, 10, and 11), placebo tests (Table 12), alternative explanations (Table 13), and opportunities for future research (Table 14).

Table 1 Description of Variables Used in the Analysis of the Impact of Disruptions on the Firm's Stock Price

Variable	Description
Abnormal Return	Excess return on the firm's common stock. The base analysis uses an event window of (-3,3)
Volatility Impact	The difference in the volatility of the firm's stock 1 through 30 trading days after the match date compared to 1 through 30 trading days before the match date
Disruption	Binary variable with "1" indicating a supply chain disruption announcement, and "0" otherwise
Post Enforcement	Binary variable with "1" indicating the date is after enforcement of SOX Section 404, and "0" otherwise
Target Firm	Binary variable with "1" indicating that the firm would qualify for SOX Section 404 compliance, and "0" otherwise
Earnings Surprise	The difference between the quarterly earnings per share provided in the announcement and the average of the analysts' forecast for earnings per share prior to the announcement, divided by the stock price ten days prior to the announcement. This value is winsorized at 2.5%.
No Earning Surprise	Binary variable with "1" indicating that there is an earnings surprise, and "0" otherwise
Debt-to-Equity Ratio	The book value of the firm's long-term debt divided by market value of its common equity, lagged one quarter
Market-to-Book Ratio	The market value of the firm's common equity divided by the book value of its common equity, lagged one quarter
Fixed Assets Ratio	The ratio of property, plant, and equipment divided by total assets, lagged one quarter
Log Sales	The natural log of quarterly sales (in $M), lagged one quarter
Market Cap	The market capitalization of the firm, lagged one quarter

Table 2 Summary statistics for variables based on disrupted and matched firms used in the primary analysis.

Variable	Mean	Std. Dev.	Min.	Max.	N
Abnormal Return	-2.62	14.43	-98.65	307.34	2,556
Volatility Impact	0.22	0.69	-0.91	10.91	2,570
Disruption	0.5	0.50	0	1	2,570
Post Enforcement	0.57	0.50	0	1	2,570
Target Firm	0.75	0.43	0	1	2,570
Earning Surprise	-0.0001	0.0003	-0.0011	0.0002	2,570
No Earning Surprise	0.37	0.48	0	1	2,570
Debt-to-Equity Ratio	0.35	0.61	0	3.33	2,570
Market-to-Book Ratio	2.67	4.25	-14.41	34.06	2,570
Fixed Assets Ratio	0.31	0.27	0	0.93	2,570
Log Sales	4.23	2.59	-0.18	11.67	2,570
Market Cap	5.03	18.98	0.00	325.71	2,570

Table 3 Correlations for variables used in the analysis.

Variables	Abnormal Return	Volatility Impact	Disruption	Post Enforcement	Target Firm	Earning Surprise	No Earning Surprise	Debt-to-Equity Ratio	Market-to-Book Ratio	Fixed Assets Ratio	Log Sales	Market Cap
Abnormal Return	1.00											
Volatility Impact	-0.27	1.00										
Disruption	-0.21	0.12	1.00									
Post Enforcement	0.10	-0.01	0.02	1.00								
Target Firm	0.04	-0.02	0.01	0.27	1.00							
Earning Surprise	0.14	-0.07	-0.33	0.05	-0.09	1.00						
No Earning Surprise	0.06	-0.02	-0.30	-0.12	-0.43	0.28	1.00					
Debt-to-Equity Ratio	0.04	-0.01	0.05	-0.06	-0.02	-0.01	-0.07	1.00				
Market-to-Book Ratio	-0.06	0.05	-0.01	0.02	0.15	-0.01	-0.08	-0.12	1.00			
Fixed Assets Ratio	0.05	-0.06	0.12	0.14	0.31	-0.03	-0.20	0.23	0.00	1.00		
Log Sales	0.02	-0.01	0.16	0.25	0.53	-0.10	-0.45	0.22	0.04	0.36	1.00	
Market Cap	0.03	-0.02	0.04	0.14	0.15	0.03	-0.10	-0.05	0.04	0.07	0.42	1.00

Table 4 Estimation of the impact of announced disruptions on the volatility of the firm's stock returns over different post-disruption periods.

	Dependent Variable: *Volatility Impact*			
	30-Day	90-Day	120-Day	240-Day
	(1)	(2)	(3)	(4)
Disruption	0.13**	0.15**	0.15**	0.20**
	[0.06]	[0.07]	[0.07]	[0.08]
Post Enforcement	0.20	0.07	0.11	0.07
	[0.14]	[0.12]	[0.12]	[0.13]
Target Firm	-0.01	-0.07	-0.06	-0.06
	[0.05]	[0.05]	[0.05]	[0.06]
Disruption × *Post Enforcement*	0.34**	0.31**	0.33**	0.29*
	[0.14]	[0.14]	[0.14]	[0.17]
Disruption × *Target Firm*	0.04	-0.04	-0.06	-0.11
	[0.07]	[0.08]	[0.08]	[0.09]
Post Enforcement × *Target Firm*	0.10	0.14**	0.11	0.04
	[0.07]	[0.07]	[0.07]	[0.08]
Disruption × *Post Enforcement* × *Target Firm*	-0.43***	-0.39***	-0.41***	-0.38**
	[0.15]	[0.15]	[0.15]	[0.18]
Control Variables	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	2,570	2,570	2,570	2,570
Number of Firms	1,867	1,867	1,867	1,867
Number of Disruptions	1,285	1,285	1,285	1,285
R^2	0.13	0.18	0.20	0.23

Notes: The sample includes disrupted firms and a matched set of firms that are not disrupted, as described in Section 4.1. OLS estimation with robust standard errors clustered by firm in brackets. Included controls are described in Section 3.2.3. *** p<0.01, ** p<0.05, * p<0.10 for two-tailed tests.

Table 5 Estimation of the impact of announced disruptions on abnormal stock returns over alternative event windows.

	Dependent Variable: *Abnormal Returns*				
	(-1,1)	(-2,2)	(-3,3)	(-4,4)	(-5,5)
	(1)	(2)	(3)	(4)	(5)
Disruption	-8.79***	-5.27***	-6.50***	-9.61***	-9.16***
	[1.57]	[1.20]	[1.45]	[1.80]	[1.78]
Post Enforcement	-3.16	-1.10	-0.64	-2.00	-2.30
	[5.18]	[3.82]	[4.53]	[5.60]	[5.80]
Target Firm	0.46	1.02	0.93	0.49	0.13
	[1.34]	[0.89]	[1.16]	[1.58]	[1.58]
Disruption × *Post Enforcement*	-3.39	-4.48	-5.97	-2.89	-2.87
	[4.03]	[3.55]	[3.88]	[4.18]	[4.18]
Disruption × *Target Firm*	1.01	-1.18	-0.76	1.53	0.56
	[1.91]	[1.45]	[1.73]	[2.10]	[2.12]
Post Enforcement × *Target Firm*	-3.77	-5.07	-5.81*	-4.22	-4.28
	[3.37]	[3.24]	[3.33]	[3.28]	[3.20]
Disruption × *Post Enforcement* × *Target Firm*	9.18**	9.06**	11.31***	8.52*	9.31**
	[4.23]	[3.70]	[4.05]	[4.39]	[4.41]
Control Variables	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	2,556	2,555	2,555	2,556	2,556
Number of Firms	1,857	1,856	1,856	1,857	1,857
Number of Disruptions	1,278	1,278	1,278	1,278	1,278
R^2	0.11	0.11	0.11	0.10	0.10

Notes: The sample includes disrupted firms and a matched set of firms that are not disrupted, as described in Section 4.1. OLS estimation with robust standard errors clustered by firm in brackets. Included controls are described in Section 3.2.3. *** p<0.01, ** p<0.05, * p<0.10 for two-tailed tests.

Table 6 Estimation of the impact of announced disruptions on the volatility of the firm's stock returns over alternative thresholds of the firm's public float.

	Dependent Variable: *Volatility Impact*				
	All	\$25M-\$125M	≤ \$300M	≤ \$500M	≤ \$1B
	(1)	(2)	(3)	(4)	(5)
Disruption	0.13**	0.18	0.15**	0.15**	0.15**
	[0.06]	[0.12]	[0.06]	[0.06]	[0.06]
Post Enforcement	0.20	-0.11	0.34	0.37	0.34
	[0.14]	[0.45]	[0.30]	[0.25]	[0.22]
Target Firm	-0.01	0.19	0.06	0.04	-0.01
	[0.05]	[0.14]	[0.07]	[0.06]	[0.06]
Disruption × *Post Enforcement*	0.34**	0.45*	0.32**	0.29**	0.34**
	[0.14]	[0.23]	[0.14]	[0.14]	[0.14]
Disruption × *Target Firm*	0.04	0.03	0.03	0.04	0.07
	[0.07]	[0.17]	[0.10]	[0.09]	[0.08]
Post Enforcement × *Target Firm*	0.10	0.11	0.09	0.11	0.11
	[0.07]	[0.16]	[0.10]	[0.08]	[0.08]
Disruption × *Post Enforcement* × *Target Firm*	-0.43***	-0.66**	-0.39**	-0.38**	-0.48***
	[0.15]	[0.28]	[0.17]	[0.16]	[0.16]
Control Variables	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	2,570	427	1,170	1,380	1,675
Number of Firms	1,867	381	966	1,122	1,335
Number of Disruptions	1,285	196	535	632	779
R^2	0.13	0.10	0.11	0.11	0.11

Notes: The sample includes disrupted firms and a matched set of firms that are not disrupted, as described in Section 4.1. OLS estimation with robust standard errors clustered by firm in brackets. Included controls are described in Section 3.2.3. The sample in model (1) includes all firms, model (2) is limited to firms with a public float between \$25M and \$125M, model (3) is limited to firms with a public float less than or equal to \$300M, model (4) is limited to firms with a public float less than or equal to \$500M, and model (5) is limited to firms with a public float less than or equal to \$1B. *** p<0.01, ** p<0.05, * p<0.10

Table 7 Estimation of the impact of announced disruptions on abnormal stock returns over a (-3,3) event window using alternative thresholds of the firm's public float.

	Dependent Variable: *Abnormal Returns*				
	All	\$25M-\$125M	≤ \$300M	≤ \$500M	≤ \$1B
	(1)	(2)	(3)	(4)	(5)
Disruption	-8.79***	-9.02***	-9.17***	-8.86***	-8.67***
	[1.57]	[2.66]	[1.64]	[1.63]	[1.62]
Post Enforcement	-3.16	-2.29	-4.96	-5.14	-7.17
	[5.18]	[5.21]	[12.03]	[11.28]	[8.91]
Target Firm	0.46	2.11	2.21	1.91	2.47
	[1.34]	[4.14]	[2.03]	[1.73]	[1.69]
Disruption × *Post Enforcement*	-3.39	-1.21	-3.68	-3.83	-4.45
	[4.03]	[4.86]	[3.97]	[4.03]	[4.07]
Disruption × *Target Firm*	1.01	-3.86	-0.45	-1.66	-1.70
	[1.91]	[4.00]	[2.65]	[2.36]	[2.17]
Post Enforcement × *Target Firm*	-3.77	-4.53	-6.90*	-6.47*	-6.23*
	[3.37]	[3.95]	[3.69]	[3.72]	[3.67]
Disruption × *Post Enforcement* × *Target Firm*	9.18**	10.48*	12.01**	12.60***	12.99***
	[4.23]	[6.42]	[4.93]	[4.72]	[4.68]
Control Variables	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	2,556	418	1,162	1,373	1,673
Number of Firms	1,857	377	958	1,121	1,333
Number of Disruptions	1,278	195	532	629	776
R^2	0.11	0.15	0.15	0.14	0.13

Notes: The sample includes disrupted firms and a matched set of firms that are not disrupted, as described in Section 4.1. OLS estimation with robust standard errors clustered by firm in brackets. Included controls are described in Section 3.2.3. The sample in model (1) includes all firms, model (2) is limited to firms with a public float between \$25M and \$125M, model (3) is limited to firms with a public float less than or equal to \$300M, model (4) is limited to firms with a public float less than or equal to \$500M, and model (5) is limited to firms with a public float less than or equal to \$1B. *** p<0.01, ** p<0.05, * p<0.10

Table 8 Estimation of the impact of announced disruptions on the volatility of the firm's stock returns using alternative matching methods.

	Dependent Variable: *Volatility Impact*				
	No Match	PS, 20	PS, 10	PS, 5	Mahalanobis
	(1)	(2)	(3)	(4)	(5)
Disruption		0.15***	0.17***	0.16***	0.13**
		[0.05]	[0.05]	[0.05]	[0.06]
Post Enforcement	0.24*	0.05	0.08*	0.07	-0.03
	[0.13]	[0.03]	[0.04]	[0.05]	[0.07]
Target Firm	-0.02	-0.06***	-0.04*	-0.04	-0.13**
	[0.08]	[0.02]	[0.03]	[0.03]	[0.05]
Disruption × *Post Enforcement*		0.22	0.19	0.20	0.31**
		[0.13]	[0.14]	[0.14]	[0.15]
Disruption × *Target Firm*		0.08	0.06	0.06	0.12
		[0.06]	[0.07]	[0.07]	[0.08]
Post Enforcement × *Target Firm*	-0.33**	0.01	-0.01	0.00	0.14*
	[0.13]	[0.03]	[0.04]	[0.05]	[0.07]
Disruption × *Post Enforcement* × *Target Firm*		-0.35**	-0.33**	-0.34**	-0.48***
		[0.14]	[0.15]	[0.15]	[0.16]
Control Variables	Yes	Yes	Yes	Yes	Yes
Observations	1,344	18,532	11,754	7,027	2,542
Number of Firms	894	5,661	4,704	3,660	1,843
Number of Disruptions	1,344	1,282	1,282	1,282	1,281
R^2	0.03	0.03	0.03	0.03	0.04

Notes: The sample in model (1) has no matched control observations, (2) has matched controls based on propensity score matching with up to 20 nearest neighbors, (3) has matched controls based on propensity score matching with up to 10 nearest neighbors, (4) has matched controls based on propensity score matching with up to 5 nearest neighbors, and (5) has matched controls based on Mahalanobis distance. These alternative matching methods are described in Section 4.1. OLS estimation with robust standard errors clustered by firm in brackets. Included controls are described in Section 3.2.3. *** p<0.01, ** p<0.05, * p<0.10

Table 9 Estimation of the impact of announced disruptions on abnormal stock returns over a (-3,3) event window using alternative matching methods.

	Dependent Variable: *Abnormal Return*				
	No Match	PS, 20	PS, 10	PS, 5	Mahalanobis
	(1)	(2)	(3)	(4)	(5)
Disruption		-7.65***	-7.73***	-7.97***	-6.88***
		[1.16]	[1.20]	[1.24]	[1.41]
Post Enforcement	-2.13	0.72	1.44	1.41	0.19
	[4.37]	[2.04]	[2.10]	[2.22]	[2.14]
Target Firm	0.67	1.20**	1.58***	0.96	-1.54
	[1.66]	[0.49]	[0.59]	[0.71]	[1.10]
Disruption × *Post Enforcement*		-1.35	-1.61	-2.18	-2.02
		[2.46]	[2.50]	[2.59]	[2.57]
Disruption × *Target Firm*		0.04	-0.25	0.43	1.04
		[1.45]	[1.49]	[1.53]	[1.65]
Post Enforcement × *Target Firm*	5.19**	-1.16*	-1.78**	-2.00*	0.26
	[2.53]	[0.64]	[0.79]	[1.04]	[1.43]
Disruption × *Post Enforcement* × *Target Firm*		6.80**	7.39***	7.55***	5.75**
		[2.67]	[2.72]	[2.81]	[2.78]
Control Variables	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	1,345	18,731	11,759	7,018	2,539
Number of Firms	896	5,748	4,679	3,642	1,846
Number of Disruptions	1,345	1,281	1,281	1,281	1,280
R^2	0.09	0.09	0.09	0.09	0.10

Notes: The sample in model (1) has no matched control observations, (2) has matched controls based on propensity score matching with up to 20 nearest neighbors, (3) has matched controls based on propensity score matching with up to 10 nearest neighbors, (4) has matched controls based on propensity score matching with up to 5 nearest neighbors, and (5) has matched controls based on Mahalanobis distance. These alternative matching methods are described in Section 4.1. OLS estimation with robust standard errors clustered by firm in brackets. Included controls are described in Section 3.2.3. *** p<0.01, ** p<0.05, * p<0.10

Table 10 Estimation of the impact of announced disruptions on (1) the volatility of the firm's stock returns and (2) the abnormal stock returns, including firm fixed effects.

Dependent Variable:	*Volatility Impact* (1)	*Abnormal Returns* (2)
Disruption	0.20***	-6.86***
	[0.07]	[1.25]
Post Enforcement	-0.20	-5.59
	[0.24]	[5.09]
Target Firm	-0.02	-0.59
	[0.08]	[1.98]
Disruption × *Post Enforcement*	0.23	-1.28
	[0.15]	[2.34]
Disruption × *Target Firm*	0.12	-0.82
	[0.09]	[1.54]
Post Enforcement × *Target Firm*	-0.01	4.38
	[0.13]	[3.17]
Disruption × *Post Enforcement* × *Target Firm*	-0.38**	6.62***
	[0.16]	[2.55]
Constant	0.31	-19.61**
	[0.42]	[9.76]
Control Variables	Yes	Yes
Time Fixed Effects	Yes	Yes
Firm Fixed Effects	Yes	Yes
Observations	4,017	3,993
Number of Firms	894	896
Number of Disruptions	1,344	1,345
R^2	0.08	0.11

Notes: The sample includes disrupted periods and non-disrupted periods for disrupted firms. OLS estimation with robust standard errors clustered by firm in brackets. Included controls are described in Section 3.2.3. *** p<0.01, ** p<0.05, * p<0.10 for two-tailed tests.

Table 11 Estimation of the impact of announced disruptions on (1) the volatility of the firm's stock returns and (2) the abnormal stock returns, controlling for interactions with the firm's market capitalization.

Dependent Variable:	*Volatility Impact* (1)	*Abnormal Returns* (2)
Disruption	0.14**	-8.75***
	[0.06]	[1.58]
Post Enforcement	0.21	-2.94
	[0.14]	[5.23]
Target Firm	0.00	0.50
	[0.05]	[1.37]
Market Cap	0.03	0.18
	[0.03]	[0.14]
Post Enforcement × *Market Cap*	-0.04	-0.47*
	[0.03]	[0.24]
Target Firm × *Market Cap*	-0.03	-0.13
	[0.03]	[0.14]
Disruption × *Post Enforcement*	0.33**	-3.52
	[0.14]	[4.06]
Disruption × *Target Firm*	0.04	0.96
	[0.07]	[1.91]
Post Enforcement × *Target Firm*	0.09	-4.00
	[0.07]	[3.42]
Disruption × *Post Enforcement* × *Target Firm*	-0.42***	9.31**
	[0.15]	[4.26]
Post Enforcement × *Target Firm* × *Market Cap*	0.04	0.47*
	[0.03]	[0.24]
Constant	-0.18	7.69*
	[0.15]	[4.33]
Control Variables	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	2,570	2,556
Number of Firms	1,867	1,857
Number of Disruptions	1,285	1,278
R^2	0.13	0.11

Notes: The sample includes disrupted firms and a matched set of firms that are not disrupted, as described in Section 4.1. OLS estimation with robust standard errors clustered by firm in brackets. Included controls are described in Section 3.2.3. *** p<0.01, ** p<0.05, * p<0.10 for two-tailed tests.

Table 12 Estimation of the impact of randomly assigned phantom disruptions on the volatility of the firm's stock returns and the abnormal stock returns over a (-3,3) event window.

Dependent Variable:	*Volatility Impact* (1)	*Abnormal Returns* (2)
Placebo	0.005	-0.346
	[0.071]	[1.567]
Post Enforcement	0.165	1.611
	[0.125]	[1.898]
Target Firm	0.009	1.262
	[0.053]	[1.323]
Placebo × *Post Enforcement*	0.034	0.343
	[0.133]	[2.266]
Placebo × *Target Firm*	-0.035	0.204
	[0.081]	[1.738]
Post Enforcement × *Target Firm*	-0.054	1.307
	[0.090]	[1.774]
Placebo × *Post Enforcement* × *Target Firm*	0.008	-0.087
	[0.142]	[2.432]
Control Variables	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	2,416	2,406
Number of Firms	1,708	1,740
Number of Placebos	1,208	1,203
R^2	0.02	0.02

Notes: The sample includes disrupted firms and a matched set of firms that are not disrupted, as described in Section 4.1. OLS estimation with robust standard errors clustered by firm in brackets. Included controls are described in Section 3.2.3. *** p<0.01, ** p<0.05, * p<0.10 for two-tailed tests.

Table 13 Estimation of the impact of announced disruptions on Earnings Surprise.

Dependent Variable: *Earnings Surprise*	(1)
Disruption	-0.000155***
	[0.000032]
Post Enforcement	-0.000015
	[0.000118]
Target Firm	-0.000007
	[0.000017]
Disruption × *Post Enforcement*	-0.000007
	[0.000017]
Disruption × *Target Firm*	-0.000151***
	[0.000044]
Post Enforcement × *Target Firm*	-0.000014
	[0.000018]
Disruption × *Post Enforcement* × *Target Firm*	0.000041
	[0.000057]
Control Variables	Yes
Time Fixed Effects	Yes
Observations	2,556
Number of Firms	1,857
Number of Disruptions	1,278
R^2	0.16

Notes: The sample includes disrupted firms and a matched set of firms that are not disrupted, as described in Section 4.1. OLS estimation with robust standard errors clustered by firm in brackets. Included controls are described in Section 3.2.3. *** p<0.01, ** p<0.05, * p<0.10 for two-tailed tests.

Table 14 Estimation of the impact of announced disruptions by Canadian firms on (1) the volatility of the firm's stock returns and (2) the abnormal stock returns, controlling for interactions with the firm's market capitalization.

Dependent Variable:	*Volatility Impact* (1)	*Abnormal Returns* (2)
Post Enforcement	-0.07	0.76
	[0.31]	[5.47]
Target Firm	0.21	-3.53
	[0.24]	[5.37]
Post Enforcement × *Market Cap*	-0.00	1.21
	[0.33]	[5.99]
Constant	0.51	-7.22
	[0.33]	[4.70]
Control Variables	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	106	108
Number of Firms	67	68
Number of Disruptions	106	108
R^2	0.05	0.15

Notes: The sample includes disrupted Canadian firms. OLS estimation with robust standard errors clustered by firm in brackets. Included controls are described in Section 3.2.3. *** p<0.01, ** p<0.05, * p<0.10 for two-tailed tests.