

Table S2a- Individual Firm Volatility – Roll Proxy

This table reports changes in individual firm volatility following nine changes in the New York State Stock Transfer Tax over the period 1932 to 1981. Sample stocks are all those continuously traded on the NYSE or AMEX for one year pre- and post- each tax change. There are five exceptions to this due to the proximity of confounding events: March 1932 one month pre and post; July 1966 six months pre and post; August 1975 three months pre and post; August 1978 twelve months pre and 10 months post (starting in December 1978); and October 1979 ten months pre and 12 months post. This table contains parameter estimates for pooled and panel models of volatility with and without control variables. The pooled specification is defined as

$$\sigma_{i,t} = \beta_0 + \beta_1 \%STT_{i,t} + \beta_2 AvgPrice_{i,t} + \beta_3 AvgVolume_{i,t} + \beta_4 Roll_{i,t} + \varepsilon_{i,t}$$

where $\sigma_{i,t}$ is the percent standard deviation of returns for stock i at period t (pre- or post- event) and $\%STT_{i,t} = \frac{STT_{i,t}}{AvgPrice_{i,t}}$, where $STT_{i,t}$ is the tax per share for stock i based on the average price in period t . $AvgPrice_{i,t}$ and $AvgVolume_{i,t}$ are the average daily closing price and daily volume respectively for period t . $Roll_{i,t}$ is the Roll (1984) measure for each stock in period t . Below each parameter estimate are t-statistics in italics.

The panel specification is defined as

$$\sigma_{i,t} = \varphi_t + \mu_i + \beta_1 \%STT_{i,t} + \beta_2 AvgPrice_{i,t} + \beta_3 AvgVolume_{i,t} + \beta_4 Roll_{i,t} + \varepsilon_{i,t}$$

where φ_t and μ_i are dummy variable vectors for time and firm fixed effects, respectively. The %STT is equal to zero for all stocks post 1981. Panel regression t-statistics are calculated using double-clustered standard errors which are robust to simultaneous correlation across firms and across time. They appear in italics below each parameter estimate. ***, **, * Denote significance at the 0.01, 0.05 and the 0.10 level respectively.

Panel B. Regressions- Individual Firm Volatility – Roll Proxy

Model	%STT	AvgPrice	AvgVolume (E-8)	Roll	Adjusted R ²
Pooled	0.128	-0.00012	0.42	0.049	0.48
	<i>3.99***</i>	<i>-16.7***</i>	<i>18.14***</i>	<i>2.52**</i>	
Panel	0.07	-0.0008	0.43	0.013	0.84
	<i>2.6**</i>	<i>-3.41***</i>	<i>7.04***</i>	<i>0.79</i>	

Table S2b- Individual Firm Volatility – Excluding 1932 and 1933

This table reports changes in individual firm volatility following seven changes in the New York State Stock Transfer Tax over the period 1935 to 1981. Sample stocks are all those continuously traded on the NYSE or AMEX for one year pre- and post- each tax change. There are four exceptions to this due to the proximity of confounding events: July 1966 six months pre and post; August 1975 three months pre and post; August 1978 twelve months pre and 10 months post (starting in December 1978); and October 1979 ten months pre and 12 months post. The pooled specification is defined as

$$\sigma_{i,t} = \beta_0 + \beta_1 \%STT_{i,t} + \beta_2 AvgPrice_{i,t} + \beta_3 AvgVolume_{i,t} + \beta_4 \%Effective_{i,t} + \varepsilon_{i,t}$$

where $\sigma_{i,t}$ is the percent standard deviation of returns for stock i at period t (pre- or post- event) and $\%STT_{i,t} = \frac{STT_{i,t}}{AvgPrice_{i,t}}$, where $STT_{i,t}$ is the tax per share for stock i based on the average price in period t . $AvgPrice_{i,t}$ and $AvgVolume_{i,t}$ are the average daily closing price and daily volume respectively for period t . $\%Effective_{i,t}$ is the Holden (2009) measure for each stock in period t . Below each parameter estimate are t -statistics in italics.

The panel specification is defined as

$$\sigma_{i,t} = \varphi_t + \mu_i + \beta_1 \%STT_{i,t} + \beta_2 AvgPrice_{i,t} + \beta_3 AvgVolume_{i,t} + \beta_4 \%Effective_{i,t} + \varepsilon_{i,t}$$

where φ_t and μ_i are dummy variable vectors for time and firm fixed effects, respectively. The $\%STT$ is equal to zero for all stocks post 1981. Panel regression t -statistics are calculated using double-clustered standard errors which are robust to simultaneous correlation across firms and across time. They appear in italics below each parameter estimate. ***, **, * Denote significance at the 0.01, 0.05 and the 0.10 level respectively.

Panel B. Regressions- Individual Firm Volatility – Excluding 1932 and 1933

Model	%STT	AvgPrice	AvgVolume	%Effective	Adjusted R2
			(E-8)		
Pooled	0.06 <i>2.44**</i>				0.37
	0.091 <i>2.76***</i>	-0.0003 <i>-19.1***</i>	6.9 <i>5.80***</i>	-0.017 <i>-1.04</i>	0.46
Panel	0.055 <i>3.01***</i>				0.66
	0.052 <i>2.50***</i>	-0.0007 <i>-3.45***</i>	0.38 <i>6.11***</i>	0.010 <i>0.89</i>	0.73

Table S3 Portfolio volatility – Including NASDAQ

This table reports changes in portfolio volatility following nine changes in the New York State Stock Transfer Tax over the period 1978 to 1981. Nasdaq return data are not available prior to 1973 so only the 1975 through 1981 results are included. Sample stocks are all those continuously traded on the NYSE or AMEX one year pre- and post- each tax change. There are two exceptions to this due to the proximity of confounding events: August 1978 twelve months pre and 10 months post (starting in December 1978); and October 1979 ten months pre and 12 months post. Following the framework of Schwert and Seguin (1990) and implementation of Jones and Seguin (1997), we estimate the following time-series regression:

$$\sigma^{NY} = \gamma_0 + \gamma_1 \sigma_t^{NASDAQ} + \gamma_2 \sigma_t^{NASDAQ} I_{post,t} + \epsilon_t.$$

σ^{NY} is the standard deviation of NYSE/AMEX on day t estimated as the absolute return scaled by $\sqrt{\pi/2}$. $I_{post,t}$ is a dummy variable that equals one post-event and 0 otherwise. σ_t^{NASDAQ} is the estimated standard deviation of returns for day t conditional on 12 previous daily returns. It is the fitted value of:

$$\sigma_t^{NASDAQ} = \sum_{i=1}^{12} \sigma_{t-i}^{NASDAQ} + \epsilon_t$$

where σ_t^{NASDAQ} is the absolute return scaled by $\sqrt{\pi/2}$. Autocorrelation-consistent t-statistics are reported below each estimate.

Event	γ_0	γ_1	γ_2
August 1975	0.004	1.032	-0.311
	<i>1.22</i>	<i>4.84***</i>	<i>-2.06*</i>
August 1978	0.006	1.015	-0.217
	<i>0.98</i>	<i>1.04</i>	<i>-1.64</i>
October 1979	0.0051	0.861	-0.197
	<i>2.47***</i>	<i>3.88***</i>	<i>-2.18**</i>
October 1980	0.0071	0.922	-0.134
	<i>2.04*</i>	<i>3.28***</i>	<i>-1.76</i>
October 1981	0.0062	0.783	-0.128
	<i>1.49</i>	<i>2.29**</i>	<i>-1.64</i>

Table S6 - A Natural Experiment – Excluding Stocks that Switched STT Regimes During the Sample Period

This table contains results of a multivariate diff-in-diff analysis of the impact of changes in the New York State Stock Transfer Tax on individual firm volatility and effective spreads. Sample stocks are all those continuously traded on the NYSE or AMEX for one year pre- and post- July 1, 1945. The sample only includes stock trading in the same regime over the entire sample period. Stocks trading at less than \$10 per share (n=125) had their STT reduced while those selling at \$10 or more (n=365) saw no change in STT. Panel A contains parameter estimates for effective spread with control variables. The specification is defined as

$$\%Effective_{i,t} = \beta_0 + \beta_1 AvgVolume_{i,t} + \beta_2 \sigma_{i,t} + \beta_3 Low_{i,t} + \beta_4 Post_{i,t} + \beta_5 (Low_{i,t} * Post_{i,t}) + \varepsilon_{i,t}$$

where $\%Effective_{i,t}$ is the Holden measure for stock i at period t (pre- or post- STT change.) $AvgVolume_{i,t}$ is the daily volume for stock i for period t . $\sigma_{i,t}$ is the percent standard deviation of returns for each stock in period t . Low is a dummy variable equal to one for stocks trading below \$10 and 0 otherwise. $Post$ is a dummy variable equal to one in the post-event period and 0 otherwise. We also include an interaction variable $Low*Post$. t -statistics are in italics below each parameter estimate. Panel A also contains the results of a specification which excludes $AvgVolume$ and σ .

Panel B contains parameter estimates for firm volatility. The specification is defined as

$$\sigma_{i,t} = \beta_0 + \beta_1 AvgPrice_{i,t} + \beta_2 AvgVolume_{i,t} + \beta_3 \%Effective_{i,t} + \beta_4 Low_{i,t} + \beta_5 Post_{i,t} + \beta_6 (Low_{i,t} * Post_{i,t}) + \varepsilon_{i,t}$$

where $\sigma_{i,t}$ is the percent standard deviation of returns for stock i at period t (pre- or post- event.) $AvgPrice_{i,t}$ and $AvgVolume_{i,t}$ are the average daily closing price and daily volume respectively for period t . $\%Effective_{i,t}$ is the Holden (2009) spread measure for each stock i in period t . Low is a dummy variable equal to one for stocks trading below \$10 and 0 otherwise. $Post$ is a dummy variable equal to one in the post-event period and 0 otherwise. We also include an interaction variable $Low*Post$. t -statistics are in italics below each parameter estimate. Panel B also contains the results of a specification which excludes $AvgPrice$, $AvgVolume$, and $\%Effective$.

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Internet Table S6 - A Natural Experiment (continued).

Panel A. Percentage Effective Spread

AvgVolume (E-8)	Firm Volatility	Low	Post	Low*Post	Adjusted R ²
0.50	0.10	0.52	-0.94	-1.01	0.71
<i>1.01</i>	<i>1.32</i>	<i>1.91</i>	<i>-2.73**</i>	<i>-3.20***</i>	
		0.48	-0.90	-0.96	0.57
		<i>1.79</i>	<i>-2.27**</i>	<i>-3.36***</i>	

Panel B. Firm Return Volatility

AvgPrice	AvgVolume (E-8)	%Effective	Low	Post	Low*Post	Adjusted R ²
-0.08	0.61	0.017	0.061	-0.034	0.078	0.70
<i>-2.20***</i>	<i>3.77***</i>	<i>1.21</i>	<i>2.07**</i>	<i>-1.96</i>	<i>3.22***</i>	
			0.08	-0.030	0.08	0.61
			<i>2.47**</i>	<i>-1.32</i>	<i>3.09***</i>	