Internet Appendix to

The Price of Street Friends:

Social Networks, Informed Trading, and Shareholder Costs

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October 2014

A11. Controlling for Variables Logically Associated with Social Ties

The sample is described in Table 1. The dependent variable is a firm's annual bid-ask spread as defined in Table 1. To address the potential concern that social ties may be correlated with certain firm characteristics, we first estimate regressions of the four social ties variables on firm size, return volatility, Tobin's q, leverage, ROA, ROE, an indicator for firms headquartered in New York, New Jersey, and Connecticut, along with industry and year fixed effects. We then use the residual from these regressions in place of the social ties variables and repeat the baseline regressions in Table 2. All the other control variables are as defined in Table 1. t-statistics based on standard errors robust to clustering at the firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Dependent variable = Annual Bid-Ask Spread (%)				
	(1)	(2)	(3)	(4)	(5)
Intercept	1.42	1.45	1.42	1.42	1.45
	$(7.55)^{***}$	$(7.63)^{***}$	$(7.53)^{***}$	$(7.51)^{***}$	$(7.63)^{***}$
Residual # of connected D&E $(\times 10^{-2})$	0.87				
	$(6.28)^{***}$				
Residual # of connected D&E via employment $(\times 10^{-2})$		1.45			0.83
		$(6.88)^{***}$			$(3.78)^{***}$
Residual # of connected D&E via education $(\times 10^{-2})$			0.90		0.59
			$(7.07)^{***}$		$(4.57)^{***}$
Residual # of connected D&E via activities $(\times 10^{-2})$				2.16	1.06
				$(5.96)^{***}$	$(2.93)^{***}$
Residual # of same-person connections $(\times 10^{-2})$	-3.86	-0.54	-5.00	-0.17	-4.05
	$(-3.88)^{***}$	(-0.57)	$(-4.86)^{***}$	(-0.18)	$(-3.89)^{***}$
Log volume	-0.32	-0.32	-0.32	-0.32	-0.32
	$(-17.54)^{***}$	$(-17.47)^{***}$	$(-17.56)^{***}$	$(-17.53)^{***}$	$(-17.51)^{***}$
Log market cap	0.20	0.20	0.20	0.20	0.20
	$(9.71)^{***}$	$(9.49)^{***}$	$(9.76)^{***}$	$(9.75)^{***}$	$(9.48)^{***}$
Log Price	-0.24	-0.24	-0.24	-0.24	-0.23
	$(-14.88)^{***}$	$(-15.13)^{***}$	$(-14.92)^{***}$	$(-15.23)^{***}$	$(-14.78)^{***}$
Nasdaq Dummy	0.69	0.68	0.69	0.69	0.67
	$(8.82)^{***}$	$(8.66)^{***}$	$(8.85)^{***}$	$(8.87)^{***}$	$(8.56)^{***}$
Log average daily trades* Nasdaq dummy	-0.14	-0.14	-0.14	-0.14	-0.14
	$(-12.53)^{***}$	$(-12.19)^{***}$	$(-12.64)^{***}$	$(-12.73)^{***}$	$(-12.09)^{***}$
Return variance	115.83	115.20	115.92	115.63	115.65
	$(5.44)^{***}$	$(5.43)^{***}$	$(5.45)^{***}$	$(5.44)^{***}$	$(5.44)^{***}$
Year and Industry dummies	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.59	0.59	0.59	0.59	0.59
N	17,220	17,220	17,220	17,220	17,220

A12.1 Alternate Measure of Trading Costs---Effective Bid-Ask Spread

The sample is described in Table 1. The dependent variable is the effective bid-ask spread rather than the quoted spread in the main tables. We follow Stoll (2000) and Brockman, Chung, and Yan (2009) and define the effective bid-ask spread as two times the absolute value of the difference between the trade price and the quoted midpoint, scaled by the quoted midpoint. All the control variables are as defined in Table 1. t-statistics based on standard errors robust to clustering at the firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Dependent variable = Effective bid-ask spread (%)				
	(1)	(2)	(3)	(4)	(5)
Intercept	2.76	2.76	2.75	2.87	2.89
	$(11.87)^{***}$	$(11.88)^{***}$	$(11.81)^{***}$	$(12.05)^{***}$	$(12.16)^{***}$
# of connected D&E ($\times 10^{-2}$)	0.64				
	$(3.74)^{***}$				
# of connected D&E via employment ($\times 10^{-2}$)		0.74			0.37
		$(4.55)^{***}$			$(2.10)^{**}$
# of connected D&E via education ($\times 10^{-2}$)			2.56		1.59
			$(4.88)^{***}$		$(2.78)^{***}$
# of connected D&E via activities ($\times 10^{-2}$)				1.50	0.94
				$(5.13)^{***}$	$(2.96)^{***}$
# of same-person connections ($\times 10^{-2}$)	-2.82	-3.89	-0.98	-1.09	-2.99
	$(-2.49)^{**}$	$(-3.38)^{***}$	(-0.88)	(-0.98)	$(-2.51)^{**}$
Log volume	-0.23	-0.23	-0.23	-0.23	-0.23
	$(-10.70)^{***}$	$(-10.73)^{***}$	$(-10.69)^{***}$	$(-10.64)^{***}$	$(-10.68)^{***}$
Log market cap	0.04	0.04	0.05	0.04	0.03
	$(1.69)^{*}$	$(1.72)^{*}$	$(1.77)^{*}$	(1.31)	(1.14)
Log Price	-0.30	-0.30	-0.30	-0.30	-0.29
	$(-15.50)^{***}$	$(-15.55)^{***}$	$(-15.59)^{***}$	$(-15.56)^{***}$	$(-15.31)^{***}$
Nasdaq Dummy	1.24	1.24	1.24	1.23	1.22
	$(12.66)^{***}$	$(12.65)^{***}$	$(12.66)^{***}$	$(12.50)^{***}$	$(12.45)^{***}$
Log average daily trades* Nasdaq dummy	-0.20	-0.20	-0.20	-0.20	-0.20
	$(-13.80)^{***}$	$(-13.81)^{***}$	$(-13.88)^{***}$	$(-13.52)^{***}$	$(-13.47)^{***}$
Return variance	98.42	98.38	98.07	97.99	97.90
	$(4.74)^{***}$	$(4.75)^{***}$	$(4.73)^{***}$	$(4.74)^{***}$	$(4.73)^{***}$
Year and Industry dummies	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.65	0.65	0.65	0.65	0.66
N	17,482	17,482	17,482	17,482	17,482

A12.2. Alternate Measure of Trading Costs---Adverse Selection Component of Bid-Ask Spread

The sample is described in Table 1. The dependent variable is the adverse selection component of the bid-ask spread estimated with the Lin, Sanger, and Booth (1995) methodology. All the control variables are as defined in Table 1. t-statistics based on standard errors robust to clustering at the firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

| | Dependent variable = | | | | |
| | Adverse selection component of the bid-ask spread | | | | |
Variable	(1)	(2)	(3)	(4)	(5)
Intercept	0.78	0.77	0.77	0.78	0.78
	$(46.51)^{***}$	$(46.53)^{***}$	$(46.77)^{***}$	$(44.71)^{***}$	$(44.64)^{***}$
# of connected D&E ($\times 10^{-2}$)	0.10				
	$(4.65)^{***}$				
# of connected D&E via employment ($\times 10^{-2}$)		0.04			0.00
		$(1.82)^{*}$			(0.02)
# of connected D&E via education ($\times 10^{-2}$)			0.13		0.03
			$(1.94)^{*}$		(0.44)
# of connected D&E via activities ($\times 10^{-2}$)				0.15	0.14
				$(3.88)^{***}$	$(3.27)^{***}$
# of same-person connections ($\times 10^{-2}$)	-0.84	-0.61	-0.46	-0.50	-0.51
	$(-3.95)^{***}$	$(-3.18)^{***}$	$(-2.92)^{***}$	$(-3.18)^{***}$	$(-2.83)^{***}$
Log volume	-0.03	-0.03	-0.03	-0.03	-0.03
	$(-21.56)^{***}$	$(-21.51)^{***}$	$(-21.48)^{***}$	$(-21.36)^{***}$	$(-21.37)^{***}$
Log market cap	0.02	0.02	0.02	0.02	0.02
	$(12.12)^{***}$	$(13.21)^{***}$	$(13.45)^{***}$	$(11.77)^{***}$	$(11.65)^{***}$
Log Price	0.02	0.02	0.02	0.02	0.02
	$(12.67)^{***}$	$(12.21)^{***}$	$(12.29)^{***}$	$(12.50)^{***}$	$(12.44)^{***}$
Nasdaq Dummy	-0.30	-0.30	-0.30	-0.30	-0.30
	$(-38.98)^{***}$	$(-38.97)^{***}$	$(-38.86)^{***}$	$(-38.71)^{***}$	$(-38.71)^{***}$
Log average daily trades* Nasdaq dummy	0.03	0.03	0.03	0.03	0.03
	$(25.68)^{***}$	$(25.56)^{***}$	$(25.45)^{***}$	$(25.32)^{***}$	$(25.33)^{***}$
Return variance	-4.21	-4.21	-4.23	-4.26	-4.27
	$(-4.25)^{***}$	$(-4.25)^{***}$	$(-4.25)^{***}$	$(-4.28)^{***}$	$(-4.28)^{***}$
Year and Industry dummies	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.66	0.66	0.66	0.66	0.66
N	17,144	17,144	17,144	17,144	17,144

A13. Alternate Measures of Social Connections

The sample is described in Table 1. The dependent variable is a firm's annual bid-ask spread as defined in Table 1. We measure a public firm's social connection with the investment community with the total number of ties the firm's executives and directors have with investment firms rather than the number of its connected executives and directors. All the other control variables are as defined in Table 1. t-statistics based on standard errors robust to clustering at the firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Dependent variable = Annual Bid-Ask Spread (%)				
	(1)	(2)	(3)	(4)	(5)
Intercept	1.77	1.66	1.63	1.78	1.78
	$(7.22)^{***}$	$(6.89)^{***}$	$(6.73)^{***}$	$(7.12)^{***}$	$(7.15)^{***}$
# of social ties ($\times 10^{-2}$)	0.13				
	$(6.93)^{***}$				
# of social ties via employment ($\times 10^{-2}$)		0.17			0.11
		$(6.25)^{***}$			$(4.01)^{***}$
# of social ties via education ($\times 10^{-2}$)			0.99		0.23
			$(4.53)^{***}$		(1.01)
# of social ties via activities ($\times 10^{-2}$)				0.23	0.16
				$(6.39)^{***}$	$(4.27)^{***}$
# of same-person connections ($\times 10^{-2}$)	-5.78	-6.54	-0.81	-1.20	-5.16
	$(-5.08)^{***}$	$(-5.15)^{***}$	(-0.72)	(-1.12)	$(-3.94)^{***}$
Log volume	-0.32	-0.32	-0.32	-0.32	-0.32
	$(-13.32)^{***}$	$(-13.29)^{***}$	$(-13.15)^{***}$	$(-13.20)^{***}$	$(-13.26)^{***}$
Log market cap	0.17	0.18	0.19	0.17	0.17
	$(6.34)^{***}$	$(6.83)^{***}$	$(6.91)^{***}$	$(6.29)^{***}$	$(6.20)^{***}$
Log Price	-0.23	-0.24	-0.24	-0.24	-0.23
	$(-12.50)^{***}$	$(-12.60)^{***}$	$(-12.73)^{***}$	$(-12.72)^{***}$	$(-12.49)^{***}$
Nasdaq Dummy	0.67	0.69	0.70	0.67	0.66
	$(5.72)^{***}$	$(5.95)^{***}$	$(6.03)^{***}$	$(5.70)^{***}$	$(5.67)^{***}$
Log average daily trades* Nasdaq dummy	-0.14	-0.14	-0.14	-0.14	-0.13
	$(-7.86)^{***}$	$(-8.22)^{***}$	$(-8.37)^{***}$	$(-7.82)^{***}$	$(-7.78)^{***}$
Return variance	93.82	94.40	94.15	93.52	93.69
	$(4.32)^{***}$	$(4.33)^{***}$	$(4.31)^{***}$	$(4.31)^{***}$	$(4.32)^{***}$
Year and Industry dummies	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.58	0.58	0.58	0.58	0.58
N	18,482	18,482	18,482	18,482	18,482

A14. Do Social Connections Have a Stronger Impact among Firms with Severer Information Asymmetry?

The sample is described in Table 1. The dependent variable is a firm's annual bid-ask spread as defined in Table 1. We identify firms with severe information asymmetry as those with less analyst coverage (i.e. less than the median number of analysts following in a given year). All the other control variables are as defined in Table 1. For the regressions, t-statistics based on standard errors robust to clustering at the firm level are reported in parentheses. For the tests of the differences between coefficients, chi-square statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable = Annual Bid-Ask Spread (%)				
	(1)	(2)	(3)	(4)	(5)
Less analyst coverage (i.e. severer information asymmetry)					
# of connected D&E ($\times 10^{-2}$)	1.13 $(4.08)^{***}$				
# of connected D&E via employment ($\times 10^{-2}$)		1.28 $(4.69)^{***}$			1.10 $(3.69)^{***}$
# of connected D&E via education ($\times 10^{-2}$)			1.37 (1.51)		-0.15 (-0.16)
# of connected D&E via activities ($\times 10^{-2}$)				1.71 $(3.40)^{***}$	1.03 $(1.86)^{*}$
Control variables and fixed effects	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.61	0.61	0.61	0.61	0.61
N	9,212	9,212	9,212	9,212	9,212
More analyst coverage (i.e. less severe information asymmetry)					
# of connected D&E ($\times 10^{-2}$)	0.26 $(2.97)^{***}$				
# of connected D&E via employment ($\times 10^{-2}$)		0.20 $(2.40)^{**}$			0.09 (0.94)
# of connected D&E via education ($\times 10^{-2}$)			1.01 $(3.97)^{***}$		0.85 $(3.08)^{***}$
# of connected D&E via activities ($\times 10^{-2}$)				0.36 $(2.60)^{***}$	0.13 (0.83)
Control variables and fixed effects	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.58	0.58	0.58	0.58	0.58
N	9,270	9,270	9,270	9,270	9,270
Difference between coefficients					
All Ties	0.87 $(3.30)^{*}$				
Employment based ties		1.08 $(5.48)^{**}$			1.01 $(5.19)^{**}$
Education based ties			0.26 (0.09)		-0.10 (0.84)
Activity based ties				1.35 $(3.96)^{**}$	0.90 (1.90)

A15. Do Social Connections Have a Stronger Impact When Informed Trading Is More Likely?

The sample is described in Table 1. The dependent variable is a firm's annual bid-ask spread as defined in Table 1. We define the pre-earnings-announcement period of [-10, 0] as the high-risk (of informed trading) period and the post-earnings-announcement period of [+3, +12] as the low risk period. All the other control variables are as defined in Table 1. In regressions, t-statistics based on standard errors robust to clustering at the firm level are reported in parentheses. For the tests of the differences between coefficients, chi-square statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable = Annual Bid-Ask Spread (%)				
	(1)	(2)	(3)	(4)	(5)
Pre-earnings announcement period (i.e. informed trading more likely)					
# of connected D&E ($\times 10^{-2}$)	0.56 $(6.44)^{***}$				
# of connected D&E via employment ($\times 10^{-2}$)		0.56 $(6.66)^{***}$			0.37 $(3.87)^{***}$
# of connected D&E via education ($\times 10^{-2}$)			1.48 $(5.45)^{***}$		0.80 $(2.70)^{***}$
# of connected D&E via activities ($\times 10^{-2}$)				0.91 $(6.25)^{***}$	0.49 $(2.88)^{***}$
Control variables and fixed effects	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.54	0.54	0.54	0.54	0.54
N	18,347	18,347	18,347	18,347	18,347
Post-earnings announcement period (i.e. informed trading less likely)					
# of connected D&E ($\times 10^{-2}$)	0.49 $(5.70)^{***}$				
# of connected D&E via employment ($\times 10^{-2}$)		0.49 $(5.90)^{***}$			0.31 $(3.30)^{***}$
# of connected D&E via education ($\times 10^{-2}$)			1.41 $(5.28)^{***}$		0.83 $(2.85)^{***}$
# of connected D&E via activities ($\times 10^{-2}$)				0.81 $(5.65)^{***}$	0.42 $(2.54)^{**}$
Control variables and fixed effects	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.53	0.53	0.53	0.53	0.53
N	18,346	18,346	18,346	18,346	18,346
Difference between coefficients of pre- and post-earnings announcement periods					
All Ties	0.07 $(5.32)^{**}$				
Employment based ties		0.07 $(6.40)^{**}$			0.06 $(3.85)^{**}$
Education based ties			0.07 (0.53)		-0.03 (0.09)
Activity based ties				0.10 $(4.45)^{**}$	0.06 (1.35)

A16. Include Institutional Holdings and Its Herfindahl Index as Control

The sample is described in Table 1. The dependent variable is a firm's annual bid-ask spread as defined in Table 1. In addition to the control variables included in Table 2, we also include institutional holdings and its Herfindahl index. t-statistics based on standard errors robust to clustering at the firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Dependent variable = Annual Bid-Ask Spread (%)				
	(1)	(2)	(3)	(4)	(5)
Intercept	0.64	0.62	0.57	0.68	0.72
	(2.77)***	(2.67)***	(2.45)**	(2.86)***	(3.03)***
# of connected D&E ($\times 10^{-2}$)	0.89				
	(4.33)***				
# of connected D&E via employment ($\times 10^{-2}$)		0.85			0.56
		(4.52)***			(2.99)***
# of connected D&E via education ($\times 10^{-2}$)			2.19		1.13
			(4.36)***		(2.30)**
# of connected D&E via activities ($\times 10^{-2}$)				1.39	0.76
				(4.72)***	(2.54)**
# of same-person connections ($\times 10^{-2}$)	-4.04	-4.67	-1.06	-1.24	-3.95
	(-3.78)***	(-4.06)***	(-1.13)	(-1.34)	(-3.46)***
Log volume	-0.31	-0.31	-0.31	-0.31	-0.31
	(-12.75)***	(-12.76)***	(-12.72)***	(-12.70)***	(-12.74)***
Log market cap	0.21	0.22	0.22	0.21	0.21
	(8.14)***	(8.31)***	(8.37)***	(7.88)***	(7.72)***
Log Price	-0.20	-0.20	-0.21	-0.20	-0.20
	(-10.87)***	(-10.99)***	(-11.29)***	(-11.14)***	(-10.81)***
Nasdaq Dummy	0.68	0.68	0.68	0.67	0.66
	(6.21)***	(6.23)***	(6.24)***	(6.08)***	(6.04)***
Log average daily trades* Nasdaq dummy	-0.13	-0.13	-0.13	-0.13	-0.13
	(-8.22)***	(-8.30)***	(-8.36)***	(-7.98)***	(-7.94)***
Return variance	125.52	125.43	125.35	125.21	125.17
	(6.84)***	(6.84)***	(6.83)***	(6.81)***	(6.82)***
Institutional holdings	0.27	0.27	0.28	0.28	0.28
	(5.98)***	(5.98)***	(6.22)***	(6.22)***	(6.09)***
Institutional Herfindahl Index	1.42	1.41	1.42	1.42	1.41
	(13.24)***	(13.21)***	(13.22)***	(13.29)***	(13.20)***
Year and Industry dummies	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.61	0.61	0.61	0.61	0.61
N	17,361	17,361	17,361	17,361	17,361

A17.Fama-Macbeth Regressions

The sample is described in Table 1. The dependent variable is a firm's annual bid-ask spread as defined in Table 1.Since the social tie variables are fairly stable over time, we estimate the Fma-MacBeth (1973) type regressions. The coefficients reported are the means of regression coefficients across the 9 sample years. t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Dependent variable = Annual Bid-Ask Spread (%)				
	(1)	(2)	(3)	(4)	(5)
Intercept	1.62	1.64	1.57	1.63	1.70
	$(2.64)^{**}$	$(2.65)^{**}$	$(2.49)^{**}$	$(2.53)^{**}$	$(2.76)^{**}$
# of connected D&E ($\times 10^{-2}$)	0.59				
	$(2.56)^{**}$				
# of connected D&E via employment ($\times 10^{-2}$)		0.83			0.67
		$(2.99)^{**}$			$(2.00)^{*}$
# of connected D&E via education ($\times 10^{-2}$)			1.52		0.73
			$(3.69)^{***}$		(1.70)
# of connected D&E via activities ($\times 10^{-2}$)				1.01	0.39
				$(3.71)^{***}$	(0.94)
# of same-person connections ($\times 10^{-2}$)	-4.45	-7.18	-1.50	-1.87	-6.82
	$(-2.62)^{**}$	$(-3.08)^{**}$	(-1.15)	(-1.34)	$(-2.92)^{**}$
Log volume	-0.36	-0.36	-0.36	-0.36	-0.36
	$(-6.64)^{***}$	$(-6.64)^{***}$	$(-6.63)^{***}$	$(-6.60)^{***}$	$(-6.65)^{***}$
Log market cap	0.23	0.23	0.23	0.23	0.22
	$(4.65)^{***}$	$(4.59)^{***}$	$(4.37)^{***}$	$(4.12)^{***}$	$(4.29)^{***}$
Log Price	-0.27	-0.27	-0.27	-0.27	-0.26
	$(-4.10)^{***}$	$(-4.09)^{***}$	$(-4.13)^{***}$	$(-4.12)^{***}$	$(-4.05)^{***}$
Nasdaq Dummy	0.43	0.43	0.43	0.42	0.42
	(1.19)	(1.18)	(1.20)	(1.18)	(1.16)
Log average daily trades* Nasdaq dummy	-0.12	-0.12	-0.12	-0.12	-0.12
	$(-3.10)^{**}$	$(-3.07)^{**}$	$(-3.16)^{**}$	$(-3.10)^{**}$	$(-3.05)^{**}$
Return variance	137.33	137.27	136.97	136.91	136.89
	$(5.06)^{***}$	$(5.06)^{***}$	$(5.05)^{***}$	$(5.05)^{***}$	$(5.05)^{***}$
Number of years	9	9	9	9	9