Sell Side School Ties:

Internet Appendix*

*Citation format: Cohen, Lauren, Andrea Frazzini and Christopher Malloy, Internet Appendix to "Sell Side School Ties," *Journal of Finance*, DOI: 10.1111/j.1540-6261.2010.01574.x.

This appendix contains a number of additional tests, robustness checks, and summary statistics for Sell Side School Ties. We organize by the accompanying tables and figures. Thus each subsequent section corresponds to a table (or figure) in the appendix.

I. Table A1 - Summary Statistics on Links

Table A1 presents the percentage of linked stocks, the number of linked stocks, and the number of stocks covered for different categories of analysts. Note that we classify an analyst-stock pair as "linked" if an analyst attended at least one common school with at least one senior manager (or board member), and "unlinked" if an analyst did not attend a single common school with any senior manager (or board member). Also note that we require education data on at least one senior manager in order to define a valid analyst-stock link or non-link.[1] Analysts, as a whole, are linked to an average of 18% of the stocks they cover; since the average analyst covers 6.2 stocks, this translates to just over 1 linked stock on average per analyst. Analysts who attended a school in the top 10 in terms of the number of links to firms are tied to an average of 35% of the stocks they cover, or roughly 2 stocks on average. Similarly, analysts who attended any university ranked in the top 40 by US News and World Report in the prior year have ties to 28% of the firms they cover. Meanwhile analysts from Ivy League schools are actually linked to slightly fewer stocks than the average analyst. Finally, there are no significant differences across any of the sub-categories in the percentage of linked stocks Pre- and Post-Regulation FD, suggesting that the population of analysts is unlikely to have changed over time in a way that is correlated with school ties.

II. Table A2 - Pre- and Post-Reg FD

Table A2 provides evidence of the returns on buy recommendations pre- and post-Reg FD. Panel A indicates that the large returns to school ties for buy recommendations

[1] In Table A9 we run all of our results on the subsample for whom we have valid education data for all three senior managers (rather than just one), and the results are virtually identical to those presented here.

are concentrated in the pre-Reg FD period. Specifically, the school tie premium in the pre-Reg FD period ranges between 68 to 78 basis points per month, or 8.16% (t=4.35) to 9.36% (t=3.50) per year.[2] Post-Regulation FD, this difference is only 14 to 26 basis points per month, and is statistically indistinguishable from zero. Panel B also reports results for abnormal returns following buy recommendations, obtaining the identical pattern of large and significant abnormal returns pre-Reg FD, and small and insignificant abnormal returns post-Reg FD.

III. Table A3 - Summary Statistics for UK Sample

Table A3 provides summary statistics on the UK sample of firms and analysts used in Table VII. The table mimics the setup of Table I in the paper, which provides these same statistics for the main US sample.

IV. Table A4 - School Links and All-Star

Another way to quantify the value of the social networks we isolate in this paper is to test the extent to which school ties predict the probability of that analyst's becoming an All-Star. As in our prior tests, All-Star status is defined as being listed as an "All-Star" in the October issue of Institutional Investor magazine in a given year. All-Star status is a sought-after designation among analysts, and is typically associated with higher-compensation (Stickel (1992)).[3] To assess the predictive power of an analyst's network, we regress a dummy variable for All-Star status in a given year on the average number of school ties per analyst per year (Num Link) plus a host of control variables at the analyst- and stock-level. The dependent variable is a dummy variable equal to one if the analyst was voted as an All-Star analyst for that year. We employ a similar set of control variables as in Table IV, with the exception that affiliation status is now

[2] See Table A2, for additional specifications using abnormal returns, upgrades, etc. These results are very similar to those described here.

[3] Stickel (1992) shows that All-Star analysts also produce more accurate earnings forecasts than other analysts, suggesting a link between reputation and performance. Interestingly, in unreported tests we find that the All-Star analysts in our sample do not outperform other analysts on their buy/sell recommendations; this result is consistent with prior evidence (see Groysberg et al. (2008), footnote 27) that finds no relation between All-Star status and stock returns, except at very short windows surrounding recommendation changes.

measured as the average percentage of stocks (over the year) in an analyst's portfolio that have an underwriting relationship with the analyst's brokerage. We also include a control variable for covered firm size, equal to the average size of the firms covered by the analyst in that year. All observations are at the analyst-year level; fixed effects at the year, analyst, and broker level are included where indicated, and all standard errors are adjusted for clustering by year. We run these regressions using both an OLS and a probit framework. We report both in Table A4.

Table A4 reports the coefficient estimates from these predictive regressions. Columns 1-8 are OLS panel regressions, while Column 9 is a probit regression with random effects (given the known statistical problems associated with fixed effects in non-linear panel data estimation models (Greene (2003))). The coefficients on Linked to Mgmt indicate that the number of school ties is a strong positive predictor of the likelihood of being an All-Star. The coefficient on connections in Column 1 implies that a one standard deviation increase in connections increases the probability of being an All-Star by nearly 50%, from 9.2% to 13.6%. Columns 3-5 show that analysts who attended Ivy League schools or the most linked schools in our sample are more likely to be All Star analysts. These school-specific effects, though, have almost no impact on the magnitude or significance of the effect of the specific links of analysts to the management of firms that they cover. Columns 7-9 illustrate the effect of Reg FD on this result: we include a post-Reg FD dummy variable plus an interaction term (Link Mgmt*post-Reg FD) designed to capture the predictive impact of the number of school ties on All-Star status in the post-Reg FD time period.[4] Once again the interaction term is strongly negative, and the combined effect ([Link Mgmt*post-Reg FD]+[Linked to Mgmt]) is close to zero and insignificant, indicating that school ties have no effect on being an All-Star in the post-Reg FD period. The fact that school ties predict All-Star status only before the imposition of Reg FD further highlights the value of social networks precisely during those times when selective disclosure is least inhibited.

V. Table A5 - Robustness Checks

Table A5 presents a series of robustness checks designed to ensure that our results are not driven by particular types of analyst, firms, or academic institutions. In general,

[4] Again we do not include year fixed effects in these specifications, because the regression cannot be estimated with year fixed effects and the post Reg FD dummy variable included together.

our results are robust to a variety of breakdowns; further, our findings are typically concentrated in precisely those areas where one might expect information asymmetry to be most pronounced, and hence the return premium associated with school ties to be largest. For example, Panel A of Table A5 shows that the long-short portfolio return of linked buy recommendations minus non-linked buy recommendations earns 89 basis points per month in a subsample of small stocks (below the NYSE median market capitalization) over the full sample period, and 144 basis points per month in the pre-Reg FD period.

Panel B presents a series of breakdowns by type of analyst. First we separate affiliated and unaffiliated analysts. The long-short portfolio return of linked buy recommendations minus non-linked buy recommendations of non affiliated analysts earns 44 basis points per month over the entire sample, 67 basis points per month in the pre-Reg FD period and an insignificant 13 basis points post Reg-FD. Returns for affiliated analysts are similar in magnitude but insignificant. Splitting the sample by the size of the brokerage house, the connection premium appears concentrated in those analysts at the larger brokerage houses.

Panel C shows that our results are not driven by a particular type of academic institution. Although the school-tie premium is larger among Ivy League institutions (57 basis points per month compared to 36 basis points for Non-Ivy League institutions, over the full sample period), it is large and significant for both sets of schools, indicating that analysts from high quality schools are not driving our results. This also holds true splitting the sample between "Top 10 linked" versus "Not Top 10 linked" and "Top 40 US news" versus "Not Top 40 US News." Finally, school-adjusted returns, defined as the raw return minus the average return of a portfolio of all firms where at least a senior official (CEO, CFO or Chairman) or a board member received a degree from the same institution, are similar to our full sample results in Tables IV and V, indicating that individual school effects do not drive our results.

VI. Table A6 - Robustness Checks for Sell Recommendations

Table A6 reports the same robustness checks as Table A5, but for sell recommendations. As with our earlier findings, the results for sell recommendations are mixed, and generally insignificant.

VII. Table A7 - Event Time Returns

We also compute event-time cumulative abnormal returns (CARs) following upgrades and downgrades, for linked and non-linked stocks. Abnormal returns are defined as DGTW characteristic-adjusted returns. These event-time CARs are reported in Panel A of Table A7, and are plotted in Figure A1. These event-time returns are consistent with the findings from our earlier calendar time portfolio tests. Over the full sample period, upgrades by analysts with school ties earn a premium of 35 basis points over other upgrades in the 2 days around the event, and a premium of almost 400 basis points over the calendar year after the recommendation change.[5] Figure A1 shows that much of the upgrade return premium associated with school ties is concentrated between 60 and 250 days after the recommendation, suggesting that whatever information these linked analysts obtain does not get revealed into prices until several months after the recommendation change.

We also calculate these event-time returns (CARs) separately for the pre-Reg FD (Panel B) and the post-Reg FD (Panel C) sample periods. Figures A2 and A3 then present the event-time plots for the pre- and post-Reg FD sub-periods, respectively. In the pre-Reg FD period, Figure A2 shows that the school-tie premium increases to over 700 basis points over the calendar year after recommendation changes, while in the post-Reg FD period, Figure A3 shows that the school tie premium decreases to less than 150 basis points.

VIII. Table A8 - Clustering by Analyst

Table A8 replicates Table IV in the paper, but adjusting standard errors for

[5] See Table A7 for event-time return decompositions over various horizons.

clustering at the analyst (as opposed to the recommendation month) level. Standard error estimates are quite close to those in Table IV, and significance levels of school ties are identical across all specifications.

IX. Table A9 - Restricted Sample and DGTW-Adjusted Returns

Table A9 contains regression specifications of Tables IV and V in the paper, for returns following buy and sell recommendations. The two differences are that: i.) we do the analysis on a restricted sample for which we are able to definitively identify all potential links from the analyst to senior managers (i.e., where we have school information for the analyst, and all three senior managers), and ii.) we do the analysis for DGTW characteristic-adjusted returns. As seen in the table, we obtain very similar results, in terms of both magnitude and significance, to Tables IV and V.

X. Figure A1

Figure A1 contains event time returns following linked and non-linked buy recommendations, and following linked and non-linked sell recommendations over the entire sample period.

XI. Figure A2

Figure A2 contains event time returns following linked and non-linked buy recommendations, and following linked and non-linked sell recommendations in the pre-Reg FD sample period (recommendations issued prior to October 23, 2000).

XII. Figure A3

Figure A3 contains event time returns following linked and non-linked buy recommendations, and following linked and non-linked sell recommendations in the pre-Reg FD sample period (recommendations issued subsequent to October 23, 2000).

Table A1: Percentage of Linked Stocks by Category

This table shows the distribution of linked stocks across analysts, where a "linked stock" is defined as a stock that the analyst covers with whom the analyst shares an educational link with the senior management (or board of directors). The table reports the number of linked stocks, the percentage of linked stocks (as a% of total stocks covered by an analyst), and the number of stocks covered, for the entire analyst sample ("All") and for different categories of analysts. The categories are as follows: "Top 10" refers to analysts who attended a school with the highest number of links to senior management (or the board of directors) in our sample; "Bottom 10" refers to analysts who attended schools with the lowest number of links; "Ivy League" refers to analysts who attended a school in the Ivy League; and Non-Ivy refers to analysts who did not attend a school in the Ivy League.; US News Top 40 indicates if an analyst attended a school ranked in the Top 40 National Universities in US News and World Report. "Pre Reg-FD" refers to all recommendations made before Regulation FD came into effect (Oct 23, 2000), and "Post Reg-FD" refers to all those made after the law came into effect.

Panel A: Full Sample							
	Mean Pct. Linked	Num. Stocks Linked	Num. Stocks Covered	Std Pct. Linked	P10 Pct. Linked	Median Pct. Linked	P90 Pct. Linked
All	0.18	1.12	6.19	0.26	0.00	0.00	0.50
Top 10	0.35	2.26	6.31	0.30	0.00	0.31	0.82
Top 40 US News	0.28	2.80	6.29	0.26	0.00	0.22	0.67
Bottom 10	0.12	0.70	6.02	0.24	0.00	0.00	0.44
Ivy League	0.12	0.70	6.02	0.24	0.00	0.00	0.44
Non-Ivy	0.14	0.85	6.20	0.22	0.00	0.00	0.42
Panel B: Pre Reg-FD							
All	0.18	1.04	5.81	0.27	0.00	0.00	0.60
Top 10	0.34	1.93	5.79	0.31	0.00	0.27	0.80
Top 40 US News	0.28	2.51	5.53	0.26	0.00	0.22	0.68
Bottom 10	0.12	0.70	5.71	0.24	0.00	0.00	0.44
Ivy League	0.12	0.70	5.71	0.24	0.00	0.00	0.44
Non-Ivy	0.13	0.77	5.86	0.22	0.00	0.00	0.40
Panel C: Post Reg-FD							
All	0.17	1.16	6.38	0.25	0.00	0.00	0.50
Top 10	0.36	2.47	6.65	0.30	0.00	0.33	0.83
Top 40 US News	0.27	2.99	6.76	0.25	0.00	0.22	0.67
Bottom 10	0.13	0.70	6.26	0.24	0.00	0.00	0.45
Ivy League	0.13	0.70	6.26	0.24	0.00	0.00	0.45
Non-Ivy	0.14	0.89	6.35	0.22	0.00	0.00	0.43

Table A2: Buy Recommendations, Returns to School Ties Pre and Post- REG FD

This table shows calendar time portfolio returns. We classify a stock as having an educational tie to the analyst if he/she attended the same institution as a senior officer (CEO, CFO or Chairman) or a board member. Each recommendation is assigned to one of two portfolios: (1) a BUY portfolio consisting of all stocks upgraded with respect to the previous recommendation, or initiated, resumed or reiterated coverage with a buy (IBES code = 2) or strong buy (IBES code = 1) rating, and (2) a SELL portfolio, consisting of all stocks downgraded with respect to the previous recommendation, initiated, resumed or reiterated coverage with a hold (IBES code =3), sell (IBES code = 4) or strong sell (IBES code = 5) rating or dropped from coverage. If the brokerage house does not report the stock as dropped from coverage and a recommendation is not revised or reiterated within twelve months it is considered expired. We skip a trading day between recommendation and investment (disinvestment). For the BUY portfolio each recommended stock is held until it is either downgraded, dropped from coverage, or the recommendation expires. We compute value weighted portfolios by averaging across analysts, weighting individual recommendations by the IBES recommendation code; for the BUY portfolio, we reverse these recommendation codes so that a strong buy is set to 5 and a strong sell is set to 1. The SELL portfolio is constructed in a similar fashion with the exception that that the original IBES recommendation codes (i.e., strong sell=5, and strong buy=1) are used as portfolio weight. We report average returns and DGTW-adjusted returns for the period 1993 to 2006. DGTW characteristic-adjusted returns are defined as raw returns minus the returns on a value weighted portfolio of all CRSP firms in the same size, (industry-adjusted) market-book, and 1-year momentum quintile. Returns are in monthly percent. L/S is average return of a zero cost portfolio that holds the portfolio of linked stocks and sells short the portfolio of non-linked stocks. Pre- and Post REG FD indicates returns for recommendations issued prior and subsequent to the introduction of Regulation FD on October 23, 2000. *t*-statistics are shown below the coefficient estimates, and 5% statistical significance is indicated in bold.

Panel A: Raw returns	Pre REG FD		Post REG FD		Difference		Only Upgrades		
No shared educational background	1.25 (1.93)		0.76 (0.87)		0.50 (0.46)		Pre REG FD	Post REG FD	Diff
Linked recommendations		L/S		L/S		L/S	L/S	L/S	L/S
Analyst linked to senior Management	**2.03** (3.12)	**0.78** (3.50)	1.02 (1.19)	0.26 (1.51)	1.01 (0.95)	0.51 (1.73)	**0.64** (2.44)	-0.14 -(0.68)	**0.80** (2.24)
Analyst linked to senior Management or board of directors	**1.94** (3.12)	**0.68** (4.36)	0.90 (1.05)	0.14 (0.84)	1.04 (1.01)	**0.55** (2.38)	**0.53** (2.30)	0.11 (0.64)	0.43 (1.41)

Table A2: Buy Recommendations, Returns to School Ties Pre and Post- REG FD (continued)

Panel B: Abnormal returns	Pre REG FD		Post REG FD		Difference		Only upgrades		
No shared educational background	0.27		-0.26		0.53		Pre REG FD	Post REG FD	Diff
	(2.09)		-(2.08)		(2.89)				
Linked recommendations		L/S		L/S		L/S	L/S	L/S	L/S
Analyst linked to senior Management	**0.95**	**0.67**	-0.07	0.19	**1.01**	**0.48**	**0.68**	-0.19	**0.91**
	(4.14)	(3.97)	-(0.35)	(1.29)	(3.26)	(2.04)	(3.10)	-(0.83)	(2.75)
Analyst linked to senior Management or board of directors	**0.82**	**0.55**	-0.05	0.21	**0.87**	0.34	**0.50**	0.08	0.42
	(4.38)	(4.62)	-(0.27)	(1.71)	(3.26)	(1.94)	(2.36)	(0.50)	(1.54)

Table A3: Summary statistics for UK Sample

This table reports summary statistics for the sample of sell side analysts and the UK stocks they cover between 1993 and 2006. Analogous to our US sample, we collect educational data on I/B/E/S analysts issuing recommendations on stocks traded in the UK, as defined by the I/B/E/S country exchange code. We hand matched firms from the Boardex sample to I/B/E/S using company names. Daily returns (in local currency) are from Factset. Market equity and book equity are from Compustat Global. Panel A reports the data coverage as a fraction of the total number of IBES analysts, the total number of stocks, and the total number of IBES recommendations (Recs). Panel B reports pooled means. Analyst coverage is the # of analysts providing recommendations for a given stock in the prior 12 months; # of stocks is the number of stocks for a given analyst with a valid recommendation in the prior 12 months.

Panel A: coverage of IBES/UK universe

year	# analysts	#stocks	# recs	fraction of analysts	fraction of stocks	fraction of recs
1993	4	5	5	0.01	0.02	0.02
1994	1	1	1	0.02	0.01	0.01
1995	6	12	14	0.04	0.02	0.02
1996	12	33	46	0.04	0.04	0.04
1997	9	22	35	0.02	0.02	0.02
1998	19	57	103	0.04	0.06	0.06
1999	26	67	106	0.05	0.07	0.07
2000	29	77	135	0.04	0.08	0.08
2001	34	73	126	0.04	0.08	0.08
2002	39	76	194	0.04	0.10	0.10
2003	57	141	331	0.06	0.17	0.17
2004	52	163	310	0.06	0.19	0.19
2005	52	170	300	0.05	0.17	0.17
Average	26	69	131	0.05	0.08	0.08

Panel B: pooled observations	mean	median	min	max	std
Analysts coverage	2.7	2.0	1.0	13.0	2.0
# firms per analysts	9.2	7.0	1.0	37.0	7.3
12-month return percentile	0.5	0.5	0.0	1.0	0.3
# of schools per year	229.6	243.5	84.0	338.0	79.7
# of board members per year	280.8	277.0	8.0	655.0	236.6
# of senior officers per year	104.7	104.5	5.0	234.0	85.5

Table A4: All-Star Status and School Ties

This table reports the effect of being linked on All-Star status. The dependent variable in each regression is a categorical variable for All Star status, which is equal to 1 if the analyst was voted an all star analyst in the October issue of Institutional Investor magazine for the given year. All observations are thus at the analyst-year level. The first 2 variables are variables that measure the average connectedness of an analyst to the portfolio of firms that she covers: (i) *Linked to Mgmt* indicates the number of firms the analyst covers to whom he is connected to the senior officers, and (ii) *Linked. to Either* indicates the number of firms the analyst covers to whom he is connected to either the senior officers or board of directors. *Top 10 Most Linked* is a categorical variable indicating if an analyst attended a school with the highest number of links to senior management (or the board of directors) in our sample. *Ivy League* is a categorical variable indicating if an analyst attended a school in the Ivy League. *US News Top 40* is a categorical variable indicating if an analyst attended a school ranked in the Top 40 National Universities in US News and World Report *Post Reg-FD* is a categorical variable equal to 1 for years after Regulation FD came into effect (2000), and 0 for all years before. *Link Mgmt*Post Reg-FD* is the interaction term between *Linked to Mgmt* and *Post Reg-FD*. *Covered Firm Size* is the average size of firm covered by the given analyst in the given year. *Analyst Experience* is equal to the number of years the analyst has been making recommendations recorded in I/B/E/S. *Affiliation* is the average percentage of stocks in an analyst's portfolio that have an underwriting relationship with the analyst's brokerage. *Brokerage Size* is the total number of analysts that work at the given analyst's brokerage house. Fixed effects at the year (Year), analyst (Analyst), and brokerage house (Broker) level are included where indicated. Columns 1-8 are OLS panel regressions, while Column 9 is a probit regression run with random effects. All standard errors are adjusted for clustering by year, and t-stats using these clustered standard errors are included in parentheses below the coefficient estimates. 5% statistical significance is indicated in bold.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
									Probit
Linked to Mgmt	**0.049**		**0.044**	**0.047**	**0.047**	**0.033**	**0.040**	**0.036**	**0.426**
	(4.89)		(4.55)	(4.28)	(4.28)	(4.13)	(5.83)	(4.61)	(4.73)
Linked to Either		**0.024**							
		(3.99)							
Top 10 Most Linked			**0.026**			0.002			0.308
			(4.56)			(0.23)			(1.51)
Ivy League				**0.024**		-0.011			0.221
				(2.15)		(0.76)			(1.22)
Top 40 US News					-0.006	-0.013			-0.077
					(0.70)	(1.21)			(0.43)
Link Mgmt*							**-0.043**	**-0.038**	**-0.336**
Post Reg-FD							(3.85)	(3.93)	(3.27)
Post Reg-FD							0.005	**0.039**	**-0.546**
							(0.34)	(3.83)	(4.38)
Covered Firm Size						**0.015**		-0.001	**0.138**
						(4.70)		(0.17)	(3.08)
Brokerage Size						**0.001**		0.000	**0.009**
						(2.50)		(1.04)	(10.07)
Affiliation						**0.112**		0.082	**1.240**
						(2.31)		(1.40)	(4.50)
Analyst Experience						**0.018**		-0.005	**0.050**
						(4.81)		(0.81)	(2.82)
Fixed Effect	Year	Year	Year	Year	Year	Year	Analyst	Analyst	
Fixed Effect						Broker		Broker	

Table A5: Robustness Checks for Buy Recommendations

This table shows calendar time portfolio returns for buy recommendations. We report average the DGTW-adjusted return of a zero cost portfolio that goes long the portfolio of buy recommendations on linked stocks and sells short the portfolio of buy recommendations on non-linked stocks between 1993 to 2006. In this table, links are defined as recommendations by an analyst who is linked either to the firm's senior management or to the firm's board of directors. "Pre" and "Post" REG FD refers to the introduction of Regulation FD on October 23, 2000. IPO are stocks with less than 24 months from the IPO date. Panel A reports results broken down by stock characteristics. "IPO"s are stocks that are less than 24 months removed from the IPO date. Panel B reports results broken down by analyst characteristics. "Affiliated" analysts belong to a bank that has an under-writing relationship with the covered firm. Brokerage houses are classified as "large" or "small" based on the median number or analysts issuing recommendations in the current calendar year. Panel C reports results broken down by school characteristics. School adjusted returns are defined as raw returns minus the average return of a portfolio of all firms where at least a senior official (CEO, CFO or Chairman) or a board member received a degree from the same institution. "Top 10 most linked" are academic institutions, ranked by the total number of links in Table II over the period 1993 to 2006. "Top 40 US News" indicates analysts who attended a school ranked in the Top 40 National Universities in US News and World Report t-statistics are shown below the coefficient estimates, and 5% statistical significance is indicated in bold.

BUY recommendations, linked recommendations minus not linked						
Abnormal returns	Full sample	Pre REG FD	Post REG FD		Full sample	Pre REG FD	Post REG FD
Panel A1: Stock characteristics						
Large cap stocks	**0.45**	**0.62**	0.23	Small cap stocks	**0.89**	**1.44**	0.18
above NYSE median	(3.69)	(3.31)	(1.69)	above NYSE median	(3.22)	(3.71)	(0.47)
IPO	**0.87**	**0.98**	0.75	Not IPO	**0.28**	**0.49**	0.02
<24 months from IPO	(2.62)	(2.11)	(1.56)	>24 months from IPO	(3.11)	(3.76)	(0.15)
High analysts coverage	**0.34**	**0.48**	0.14	Low analysts coverage	**0.45**	**0.67**	0.17
above NYSE median	(3.10)	(3.21)	(0.95)	Below NYSE median	(3.78)	(3.99)	(1.04)
Panel B1: Analyst characteristics						
Affiliated	0.62	0.82	-0.04	Non affiliated	**0.44**	**0.67**	0.13
	(1.42)	(1.70)	-(0.05)		(3.67)	(4.14)	(0.79)
Large brokerage firm	**0.46**	**0.69**	0.16	Small brokerage firm	-0.39	0.03	-0.94
	(3.92)	(4.31)	(0.97)		-(0.66)	(0.04)	-(1.17)
Panel C1: School characteristics						
Ivy league	**0.57**	**0.98**	0.03	Not Ivy league	**0.36**	**0.49**	0.20
	(3.55)	(4.65)	(0.12)		(3.02)	(2.95)	(1.15)
Top 10 most linked	**0.41**	**0.70**	0.05	Not Top 10 most linked	**0.54**	**0.79**	0.23
	(2.86)	(3.45)	(0.23)		(3.37)	(3.68)	(0.93)
Top 40 US News	**0.47**	**0.80**	0.05	Not Top 40 US News	**0.45**	**0.72**	0.10
	(3.72)	(4.73)	(0.26)		(3.96)	(4.82)	(0.59)
School adjusted returns	**0.38**	**0.53**	0.20	School adjusted returns	**0.42**	**0.64**	0.16
Senior management	(4.14)	(4.03)	(1.61)	Board	(4.05)	(4.31)	(1.15)

Table A6: Robustness Checks for Sell Recommendations

This table shows calendar time portfolio returns for sell recommendations. We report average the DGTW-adjusted return of a zero cost portfolio that goes long the portfolio of sell recommendations on linked stocks and sells short the portfolio of sell recommendations on non-linked stocks between 1993 to 2006. In this table links are defined as recommendations by an analyst who is linked either to the firm's senior management or to the firm s board of directors. "Pre" and "Post" REG FD refers to the introduction of Regulation FD on October 23, 2000. IPO are stocks with less than 24 months from the IPO date. Panel A reports results broken down by stock characteristics. "IPO"s are stocks that are less than 24 months removed from the IPO date. Panel B reports results broken down by analyst characteristics. "Affiliated" analysts belong to a bank that has an under-writing relationship with the covered firm. Brokerage houses are classified as "large" or "small" based on the median number or analysts issuing recommendations in the current calendar year. Panel C reports results broken down by school characteristics. School adjusted returns are defined as raw returns minus the average return of a portfolio of all firms where at least a senior official (CEO, CFO or Chairman) or a board member received a degree from the same institution. "Top 10 most linked" are academic institutions, ranked by the total number of links in table II over the period 1990 to 2006. t-statistics are shown below the coefficient estimates, and 5% statistical significance is indicated in bold.

SELL recommendations, linked recommendations minus not linked						
Abnormal returns	Full sample	Pre REG FD	Post REG FD		Full sample	Pre REG FD	Post REG FD
Panel A2: Stock characteristics							
Large cap stocks	0.17	0.30	0.02	Small cap stocks	0.05	-0.02	0.15
above NYSE median	(1.73)	(1.65)	(0.11)	above NYSE median	(0.17)	-(0.04)	(0.47)
IPO	-0.30	-0.14	-0.48	Not IPO	0.10	0.20	-0.04
<24 months from IPO	-(0.73)	-(0.20)	-(1.21)	>24 months from IPO	(0.90)	(1.34)	-(0.25)
High analysts coverage	0.15	**0.32**	-0.07	Low analysts coverage	0.02	0.07	-0.05
above NYSE median	(1.31)	(2.25)	-(0.38)	below NYSE median	(0.18)	(0.46)	-(0.25)
Panel B2: Analyst characteristics							
Affiliated	-0.46	-0.43	-0.54	Non affiliated	0.07	0.18	-0.07
	-(0.80)	-(0.67)	-(0.42)		(0.64)	(1.26)	-(0.41)
Large brokerage firm	0.10	**0.32**	-0.19	Small brokerage firm	0.79	0.72	0.88
	(0.84)	(1.99)	-(1.22)		(1.20)	(0.90)	(0.80)
Panel C2: School characteristics							
Ivy League	0.23	**0.54**	-0.17	Not Ivy League	-0.05	-0.06	-0.03
	(1.47)	(2.38)	-(0.83)		-(0.35)	-(0.34)	-(0.14)
Top 10 most linked	-0.03	0.06	-0.14	Not Top 10 most linked	0.18	0.34	-0.03
	-(0.18)	(0.30)	-(0.64)		(1.36)	(1.88)	-(0.16)
Top 40 US News	0.11	0.34	-0.18	Not Top 40 US News	0.04	0.16	-0.12
	(0.94)	(1.98)	-(1.14)		(0.40)	(1.07)	-(0.92)
School adjusted returns	0.06	0.15	-0.06	School adjusted returns	0.08	0.20	-0.07
Senior management	(0.62)	(1.24)	-(0.41)	Board	(0.80)	(1.55)	-(0.44)

Table A7: Returns to School Ties, Event-time returns (upgrades/downgrades only)

This table shows event time cumulative abnormal returns. We classify a stock as having an educational tie to the analyst if he/she attended the same institution as a senior officer (CEO, CFO or Chairman) or a board member. Each recommendation is assigned to one of two portfolios: (1) a BUY portfolio consisting to all stocks upgraded with respect to the previous recommendation, and (2) a SELL portfolio, consisting of all stocks downgraded with respect to the previous recommendation. We report event-time average cumulative abnormal returns (CAR). Abnormal returns are defined as DGTW characteristic-adjusted returns: daily returns minus the returns on a value weighted portfolio of all CRSP firms in the same size, (industry-adjusted) market-book, and 1-year momentum quintile. Returns are in percent, standard errors are clustered by calendar date, and t-statistics are shown below the coefficient estimates. 5% statistical significance is indicated in bold. Panel B and panel C reports results prior and subsequent to the introduction of Regulation FD on October 23, 2000, respectively.

	Buy recommendation				Sell recommendations			
CAR[t,t+k]	[0, 1]	[2,125]	[2,250]	[0,250]	[0, 1]	[2,125]	[2,250]	[0,250]
Panel A: full sample								
No shared educational background	**2.49**	**1.56**	**2.02**	**4.51**	**-2.37**	**-1.11**	-1.13	**-3.50**
	(35.40)	(4.08)	(3.19)	(7.07)	-(23.39)	-(2.88)	-(1.89)	-(5.77)
Analyst linked to senior	**2.83**	**2.62**	**3.99**	**8.47**	**-2.65**	0.12	1.01	-1.65
Management or board of directors	(20.92)	(3.54)	(3.23)	(6.82)	-(14.44)	(0.17)	(0.96)	-(1.55)
Difference	**0.35**	1.06	1.96	**3.96**	-0.28	1.23	2.14	1.86
	(2.29)	(1.27)	(1.41)	(2.84)	-(1.34)	(1.57)	(1.77)	(1.52)
Panel B: pre REG FD								
No shared educational background	**1.95**	**3.85**	**5.36**	**7.31**	**-2.33**	-1.04	-1.93	**-4.26**
	(17.84)	(5.29)	(4.52)	(6.14)	-(15.52)	-(1.46)	-(1.70)	-(3.71)
Analyst linked to senior	**2.33**	**5.16**	**12.09**	**14.53**	-2.38	-0.40	2.27	-0.11
Management or board of directors	(11.58)	(4.10)	(5.68)	(6.80)	-(8.89)	-(0.32)	(1.15)	-(0.05)
Difference	0.38	**1.31**	**6.73**	**7.22**	-0.05	0.64	4.20	4.16
	(1.66)	(1.98)	(2.77)	(2.95)	-(0.15)	(0.45)	(1.84)	(1.81)
Panel C: post RED FD								
No shared educational background	**2.76**	**0.37**	**0.24**	**3.00**	**-2.39**	**-1.14**	-0.81	**-3.20**
	(30.70)	(0.83)	(0.33)	(4.06)	-(18.54)	-(2.46)	-(1.15)	-(4.48)
Analyst linked to senior	**3.13**	1.08	-0.89	**4.48**	**-2.77**	0.32	0.53	-2.24
Management or board of directors	(17.37)	(1.19)	-(0.60)	(3.00)	-(11.70)	(0.40)	(0.43)	-(1.80)
Difference	0.38	0.71	-1.14	1.48	-0.38	1.46	1.34	0.96
	(1.88)	(0.70)	-(0.69)	(0.89)	-(1.41)	(1.56)	(0.95)	(0.67)

Table A8: School Tie Regressions for Buy Recommendations clustering by Analyst

This table reports panel regressions of returns on buy recommendations of analysts. The dependent variable is future returns (Ret). The regressions were run daily, but coefficients have been adjusted to represent monthly returns in percent. The first 2 variables are categorical variables of whether or not the analyst is linked in an education network to the given firm on which she is making a recommendation: (i) *Linked to Mgmt* indicates the analyst is linked to the senior officers, (ii) *Linked to Either* indicates the analyst is linked to either the senior officers or the board of directors. *Top 10 Most Linked* is a categorical variable indicating if an analyst attended a school with the highest number of links to senior management (or the board of directors) in our sample. *Ivy League* is a categorical variable indicating if an analyst attended a school in the Ivy League. *US News Top 40* is a categorical variable indicating if an analyst attended a school ranked in the Top 40 National Universities in US News and World Report. *Size* is the market capitalization of the firm, *BM* is the book-to-market ratio of the firm, and *Past Returns* is the past one-year stock return of the firm. *Analyst Experience* is equal to the number of years the analyst has been making recommendations recorded in I/B/E/S. *Affiliation* is a categorical variable that measures whether or not the given firm has an underwriting relationship with the analyst's brokerage. *All Star* is a categorical variable equal to 1 if the investor was voted an all star analyst in the October issue of Institutional Investor magazine for the given year. *Brokerage Size* is the total number of analysts that work at the given analyst's brokerage house. Fixed effects for month (Month), analyst (Analyst), and industry (Indus) using the Fama-French industry definitions, are included where indicated. All standard errors are adjusted for clustering at the analyst level, and t-stats using these clustered standard errors are included in parentheses below the coefficient estimates. 5% statistical significance is indicated in bold.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Ret	**Ret**	**Ret**	**Ret**	**Ret**	**Ret**	**Ret**
Linked to Mgmt	**0.48**		**0.43**	**0.44**	**0.43**	**0.39**	**0.32**
	(4.07)		(3.53)	(3.62)	(3.61)	(3.14)	(2.61)
Linked to Either		**0.37**					
		(4.71)					
Top 10 Most Linked			0.04				
			(0.54)				
Ivy League				0.01			
				(0.14)			
Top 40 US News					0.05		
					(0.58)		
Size			**-0.01**	**-0.01**	**-0.01**		**-0.01**
			(5.93)	(5.81)	(6.04)		(5.80)
BM			**0.68**	**0.67**	**0.68**		**0.69**
			(8.38)	(7.55)	(8.34)		(8.41)
Past Returns			-0.07	-0.07	-0.07		**-0.14**
			(1.46)	(1.47)	(1.50)		(2.89)
Analyst Experience			**0.03**	**0.03**	**0.03**		**-0.29**
			(2.24)	(2.22)	(2.46)		(2.64)
Affiliation			-0.32	-0.33	-0.32		**-0.43**
			(1.87)	(1.80)	(1.86)		(2.39)
All Star			-0.02	-0.13	-0.01		0.05
			(0.14)	(1.03)	(0.12)		(0.21)
Brokerage Size			**0.00**	**-0.00**	**-0.00**		**-0.01**
			(2.54)	(1.96)	(2.70)		(2.55)
Fixed Effect	Month	Month	Month	Month	Month	Month	Month
Fixed Effect			Indus	Indus	Indus	Analyst	Analyst

Table A9: School Tie Regressions for Buy and Sell Recommendations on Restricted Sample

This table reports panel regressions of returns on buy and sell recommendations of analysts. The dependent variable is future returns (Ret) or future DGTW characteristic-adjusted returns (Xret). The regressions were run daily, but coefficients have been adjusted to represent monthly returns in percent. Columns 1-4 are panel regressions of returns following buy recommendations, while Columns 5-8 are panel regressions of returns following sell recommendations. The two samples used are the full sample (Full), and a restricted sample constrained to only those situations where we definitively identify all potential links between every senior manager to the analyst (i.e., where we have all school information for all three senior managers and the analyst), which is termed the Restricted sample. The first variable, *Linked to Mgmt*, is a categorical variable of whether or not the analyst is linked in an education network to the given firm on which she is making a recommendation. *Size* is the market capitalization of the firm, *BM* is the book-to-market ratio of the firm, and *Past Returns* is the past one-year stock return of the firm. *Analyst Experience* is equal to the number of years the analyst has been making recommendations recorded in I/B/E/S. *Affiliation* is a categorical variable that measures whether or not the given firm has an underwriting relationship with the analyst's brokerage. *All Star* is a categorical variable equal to 1 if the investor was voted an all star analyst in the October issue of Institutional Investor magazine for the given year. *Brokerage Size* is the total number of analysts that work at the given analyst's brokerage house. Fixed effects for month (Month), analyst (Analyst), and industry (Indus) using the Fama-French industry definitions, are included where indicated. All standard errors are adjusted for clustering at the analyst level, and t-stats using these clustered standard errors are included in parentheses below the coefficient estimates. 5% statistical significance is indicated in bold.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Recommendation:	**Buy**	**Buy**	**Buy**	**Buy**	**Sell**	**Sell**	**Sell**	**Sell**
Sample:	**Restricted**	**Restricted**	**Restricted**	**Full**	**Restricted**	**Restricted**	**Restricted**	**Full**
Return:	**Ret**	**Ret**	**Ret**	**Xret**	**Ret**	**Ret**	**Ret**	**Xret**
Linked to Mgmt	**0.29**	**0.37**	**0.29**	**0.28**	-0.09	-0.03	-0.11	0.06
	(2.62)	(3.21)	(2.14)	(2.12)	(0.93)	(0.24)	(0.94)	(0.52)
Size		**-0.01**	**-0.01**	**0.00**		**-0.01**	**-0.01**	**0.00**
		(5.62)	(6.24)	(3.63)		(4.33)	(5.11)	(2.32)
BM		**0.67**	**0.66**	0.15		**0.59**	**0.58**	-0.05
		(5.57)	(5.74)	(1.68)		(4.80)	(5.06)	(0.52)
Past Returns		-0.07	**-0.14**	-0.07		**-0.50**	**-0.61**	**-0.18**
		(0.86)	(2.08)	(1.72)		(3.23)	(4.42)	(2.02)
Analyst Experience		**0.03**	-0.13	**-0.26**		0.01	-0.11	**-0.30**
		(2.42)	(1.19)	(2.32)		(1.06)	(0.81)	(2.40)
Affiliation		-0.25	-0.33	**-0.52**		-0.20	-0.26	-0.43
		(1.29)	(1.66)	(3.71)		(0.61)	(0.74)	(1.49)
All Star		-0.03	0.13	-0.05		-0.11	-0.03	-0.01
		(0.23)	(0.72)	(0.29)		(1.01)	(0.17)	(0.05)
Brokerage Size		**0.00**	**-0.01**	**0.00**		0.00	0.00	0.00
		(3.29)	(4.14)	(2.34)		(1.59)	(1.32)	(0.20)
Fixed Effect	Month	Month	Month	Month	Month	Month	Month	Month
Fixed Effect		Indus	Analyst	Analyst		Indus	Analyst	Analyst

Figure A1: Returns to School Ties, Event-time returns, 1993-2006

This figure shows event time cumulative abnormal returns. We classify a stock as having an educational tie to the analyst if he/she attended the same institution of a senior officer (CEO, CFO or Chairman) or a board member. Each recommendation is assigned to one of two portfolios: (1) a BUY portfolio consisting of all stocks upgraded with respect to the previous recommendation, and (2) a SELL portfolio, consisting of all stocks downgraded with respect to the previous recommendation. We report event-time average cumulative abnormal returns (CAR). Abnormal returns are defined as DGTW characteristic-adjusted returns: daily returns minus the returns on a value weighted portfolio of all CRSP firms in the same size, (industry-adjusted) market-book, and 1-year momentum quintile. Returns are in percent.

Figure A2: Returns to School Ties, Event-time returns, pre-Reg. FD

This figure shows event time cumulative abnormal returns. We classify a stock as having an educational tie to the analyst if he/she attended the same institution of a senior officer (CEO, CFO or Chairman) or a board member. Each recommendation is assigned to one of two portfolios: (1) a BUY portfolio consisting of all stocks upgraded with respect to the previous recommendation, and (2) a SELL portfolio, consisting of all stocks downgraded with respect to the previous recommendation. We report event-time average cumulative abnormal returns (CAR). Abnormal returns are defined as DGTW characteristic-adjusted returns: daily returns minus the returns on a value weighted portfolio of all CRSP firms in the same size, (industry-adjusted) market-book, and 1-year momentum quintile. Returns are in percent.

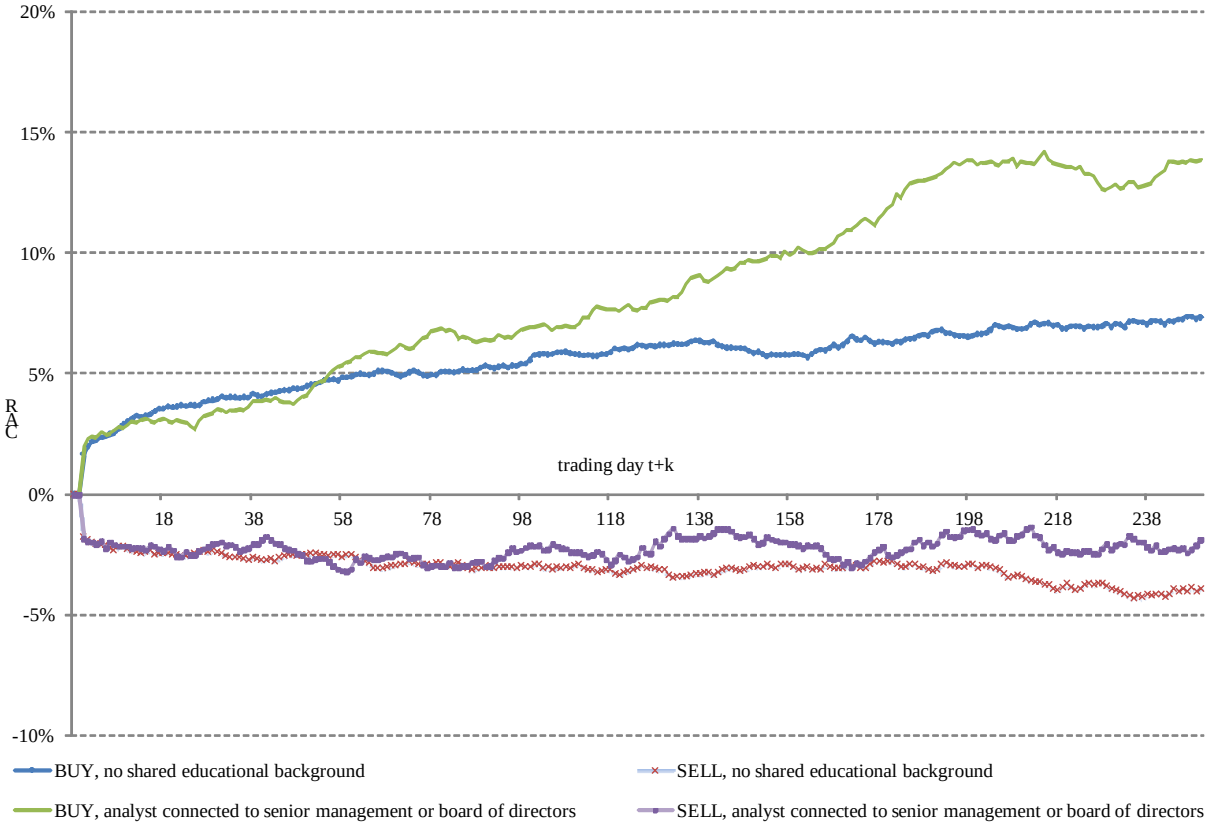

Figure A3: Returns to School Ties, Event-time returns, post-Reg. FD

This figure shows event time cumulative abnormal returns. We classify a stock as having an educational tie to the analyst if he/she attended the same institution of a senior officer (CEO, CFO or Chairman) or a board member. Each recommendation is assigned to one of two portfolios: (1) a BUY portfolio consisting of all stocks upgraded with respect to the previous recommendation, and (2) a SELL portfolio, consisting of all stocks downgraded with respect to the previous recommendation. We report event-time average cumulative abnormal returns (CAR). Abnormal returns are defined as DGTW characteristic-adjusted returns: daily returns minus the returns on a value weighted portfolio of all CRSP firms in the same size, (industry-adjusted) market-book, and 1-year momentum quintile. Returns are in percent.