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Analyst Impartiality and Investment Banking Relationships

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ABSTRACT

This study examines whether investment banking ties influence the speed with which analysts convey unfavorable news. We hypothesize that affiliated analysts have incentives to respond promptly to good news but prefer not to issue bad news about client companies. Using duration models of the time between an equity issue and the first downgrade, we find affiliated analysts are slower to downgrade from Buy and Hold recommendations and significantly faster to upgrade from Hold recommendations, in both within-analyst and within-issuer tests. We also find affiliated analysts issue recommendations sooner and more frequently after an offering than unaffiliated analysts, and that unaffiliated analysts are more likely than affiliated analysts to drop coverage of sample firms. Our findings indicate that banking ties increase analysts' reluctance to reveal negative news, and that reform efforts must carefully consider the incentives of affiliated and unaffiliated analysts to initiate coverage and convey the results of their research.

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1. Introduction

The financial press and several regulatory bodies have raised concerns that analysts' objectivity has been compromised by investment banking ties between analysts' employers and the companies that analysts cover.[1] Morgenson [2002, p. 1], in an article titled "Requiem for an Honorable Profession," contends that the research culture within Wall Street banks shifted to the point that analysts "had become salesmen and saleswomen for their investment banking departments in their routine communications." New York Attorney General Eliot Spitzer voiced a similar concern in his remarks to participants at the Institutional Investor Awards Dinner in November 2002:

> For at least the last several years, analysts have labored in a corporate structure that placed undue or improper pressure on them. Too often, they were asked to tailor their investment advice to further investment banking interests, even if that was in conflict with their obligation to provide honest, objective advice . . . But to be frank about it, the advice provided to investors was often dishonest. It was dishonest because small investors were advised to buy stocks that the analyst believed they never should have owned, and told to hold stocks that they long ago should have sold.
> *Spitzer [2002]*

This was also the perspective of numerous Congressional hearings, exemplified by the Senate hearings on analyst coverage of Enron titled "The Watchdogs Didn't Bark."

While the anecdotal evidence is compelling that investment banking ties have influenced some analysts' research, the pervasiveness and nature of its influence are less clear. In this paper, we provide systematic evidence of the influence of investment banking ties on analysts' research and document the ties' influence on the timeliness with which analysts conveyed negative news during the 1994–2001 period.

Prior research documents differences in the reports issued by analysts with and without investment banking ties to the companies they cover (hereafter, affiliated and unaffiliated analysts, respectively) (Dugar and Nathan [1995], Lin and McNichols [1998], Dechow, Hutton, and Sloan [2000], Michaely and Womack [1999]). Collectively, these studies find that affiliated analysts issue more optimistic earnings growth forecasts and more favorable recommendations. However, as several of these studies acknowledge, one cannot conclude from this evidence that the investment banking ties influenced the analysts because the direction of causation is unclear: banking ties may influence analysts' research or analysts' research may influence managers' selections of which banks to hire as underwriters.

The aim of this study is to examine evidence concerning the speed with which affiliated analysts convey unfavorable news through downgrades of

[1] These articles include Siconolfi [1992], Siconolfi [1995a], Siconolfi [1995b], and more recently, Feldman and Caplin [2002], Byrne [2002a], Byrne [2002b], Gasparino [2003], and Morgenson [2002].

recommendations. We hypothesize that affiliated analysts have incentives to respond promptly to good news, but prefer not to issue bad news about client companies. We therefore examine the length of time before an analyst updates his or her recommendations for evidence that affiliated analysts delay bad news. This design directly examines a behavior alleged in numerous legal proceedings against investment banks and analysts, that their investment banking ties caused analysts to avoid downgrading previously recommended companies as investors incurred losses.

An advantage of our design is that it helps resolve the ambiguous causality in prior tests that focus on analysts' relative optimism at a single point in time. If our tests were to show that affiliated analysts are faster than unaffiliated analysts to downgrade, this would work against the idea that analysts' banking ties influence their behavior in a way that disadvantages investors. If our tests show that affiliated analysts are slower than unaffiliated analysts to downgrade, then we can no longer infer the reverse causality directly from the evidence. We find it plausible that an issuer selects a bank as underwriter based on the favorableness of its analysts' views, because this results in a higher valuation for the issuing company. We can, however, see no motive for an issuer preferring a bank whose analysts are slow to downgrade, except for the purpose of delaying the disclosure of negative information to investors.

We provide three types of evidence. First, we provide descriptive evidence of affiliated and unaffiliated analysts' coverage of companies issuing equity, to characterize their potential influence on investors and to lay a foundation for our statistical analysis. Second, we provide descriptive evidence of the favorableness of affiliated and unaffiliated analysts' recommendations, to assess how our sample period differs from those examined in prior research. Third, we use a duration model to examine the time pattern of analysts' revisions of recommendations.

We provide duration comparisons along three dimensions. First, we compare affiliated analysts with unaffiliated analysts covering the same companies at the same time. This provides a control for differences among companies that could potentially confound the tests. Second, we compare investment bank (hereafter, bank) analysts' behavior toward their employers' clients with the same analysts' behavior toward nonclients. This second comparison provides a control for differences among analysts, because we study the same individuals in two different settings. Third, we repeat both comparisons, studying upgrades rather than downgrades, to provide a comparison in a setting where affiliated analysts' interests conflict less with investors' interests.

Our tests show that affiliated analysts downgrade from initial recommendations of Buy and Hold significantly more slowly than unaffiliated analysts. Furthermore, affiliated analysts upgrade from initial recommendations of Hold significantly more quickly than unaffiliated analysts. These results suggest that affiliated analysts prefer to have at least a Buy recommendation on client companies. Our tests show weaker evidence that

affiliated analysts delay downgrades from Strong Buy, and find that affiliated analysts are slower than unaffiliated analysts to upgrade from Buy. This latter finding does not support the notion that affiliated analysts prefer to issue a Strong Buy for client companies. Taken as a whole, our results strongly support the view that investment banking ties influence analysts' behavior and cause them to delay negative news and accelerate good news.

This paper contributes to the literature on analysts in several ways. First, we document that affiliated analysts issue recommendations sooner following an equity offering and in greater numbers than unaffiliated analysts. Consequently, investors have access to proportionately less unaffiliated research in the months immediately following an offering, particularly for initial public offerings (IPOs). Second, we provide evidence that selection is a major force in analysts' coverage of companies issuing equity, and that relatively more unaffiliated analysts drop coverage than affiliated analysts. Third, our main results provide evidence that affiliation influences analysts' timeliness in downgrading their recommendations. Fourth, our study examines the 1994–2001 period, which anecdotal evidence suggests is one in which analysts' conflicts of interest vis-à-vis investment banking were exacerbated.

Greenspan [2002], among others, suggests that analysts should play an important role in corporate governance, as they are potentially more independent than corporate board members, who have "limited incentives to safeguard shareholder interests," and outside auditors, who are "generally chosen by the CEO or by an audit committee of CEO-chosen directors." Furthermore, analysts have the unique role of interpreting financial statements and evaluating the investment potential of a corporation. To the extent that analysts fail to report their information on a timely basis, particularly unfavorable information about which management may be less forthcoming, they do not serve investors' interests. Our study provides evidence that investment banking ties increase analysts' reluctance to reveal the most negative news.

The findings have implications for current efforts to reform analysts' research. The New York Attorney General, the National Association of Securities Dealers, and the New York Stock Exchange have agreed to a $1.4 billion settlement with major investment banks, requiring banks to insulate research analysts from investment banking pressure and obliging banks to furnish independent research to retail investors. Our finding that affiliated analysts delay downgrades relative to unaffiliated analysts supports the idea that reducing investment banking influence on analyst research may benefit investors. We also document, however, that unaffiliated analysts provided no recommendations in the two years following an offering for 27.4% of the companies issuing seasoned equity offerings (SEOs) and 40.1% of the companies making IPOs. Furthermore, we find unaffiliated analysts are more likely than affiliated analysts to drop coverage after initially providing recommendations. These results suggest that efforts to reform

analysts' research must take the incentives of both affiliated and unaffiliated analysts to provide coverage into account.

In the next section, we review related literature and develop our hypotheses. In section 3, we discuss our sample selection and our statistical methods, and provide descriptive information about our sample. Section 4 contains our results and discussion, and we conclude in section 5.

2. *Related Literature and Hypothesis Development*

Several studies examine whether affiliated analysts issue more favorable research reports than unaffiliated analysts. Dugar and Nathan [1995] examine a sample of recommendations issued from 1983 through 1988 and document that affiliated analysts issue more favorable earnings forecasts and recommendations than unaffiliated analysts. Lin and McNichols [1998] examine SEOs issued during 1989–1994 and find that affiliated analysts issue more favorable long-term growth forecasts and recommendations than unaffiliated analysts, though their near-term forecasts are indistinguishable. They also find that investors react similarly to affiliated and unaffiliated analysts' Buy recommendations, but they react more negatively to affiliated analysts' Hold recommendations. This suggests that investors at least partially discount overoptimism in affiliated analysts' Hold ratings. Dechow, Hutton, and Sloan [2000] examine a sample of companies issuing equity between 1981 and 1990 and document that analysts' long-term growth forecasts are significantly negatively associated with postoffering underperformance in stock returns. Michaely and Womack [1999] study IPO companies in 1991–1992 with coverage by First Call and find that lead underwriter recommendations are more favorable than other analysts' recommendations and that stock returns are significantly greater following Buy recommendations of nonlead analysts. The findings of Dechow, Hutton, and Sloan [2000] and of Michaely and Womack [1999] suggest that investors do not fully discount analysts' overoptimism. Iskoz [2003] confirms that lead underwriter analysts' relative optimism continued into the 1993–2000 period, but finds little evidence of differential investment performance.

As several of these studies note, two potential explanations for affiliated analysts' greater optimism are (1) banking ties create a conflict of interest that affects analysts' behavior and (2) managers select banks with favorable views to underwrite their firms' securities. The conflict of interest and the selection arguments generate the same prediction, that affiliated analysts' research reports will be more favorable than those of unaffiliated analysts.

In this study, we conjecture that analysts prefer not to issue bad news about client companies. It may be the case that all analysts are reluctant to issue bad news, for example to help them retain access to management. The idea that we wish to test, however, that banking ties create a conflict of interest, implies that this reluctance is strongest when those ties are present. These conjectures lead us to the following hypotheses (stated in alternative form):

$H1_A$: For a given issuer, affiliated analysts downgrade their recommendations more slowly than unaffiliated analysts.

$H2_A$: Within a given investment bank, analysts downgrade their recommendations more slowly for client companies than for nonclient companies.

Hypotheses H1 and H2 differ by the conditioning information, or basis for comparison. We test H1 by conditioning on the issuing company and comparing different analysts for a given issuer. We test H2 by conditioning on the analyst and comparing different issuers for a given analyst.[2] We test these hypotheses using a hazard model of the time until a downgrade, as described in the next section.

A competing explanation for differential timing of downgrades is that analysts with the most optimistic beliefs also hold those beliefs most strongly. In this view, the most optimistic analysts require more contrary evidence to cause them to downgrade than their peers, and so appear slower. In our tests, we control for the initial level of the recommendation, which also allows us to test this conjecture. We strongly reject this notion, as analysts downgrade most quickly from the most optimistic recommendation categories, whether affiliated or not. This suggests that all analysts find downgrades from very favorable ratings less costly than downgrades from less favorable ratings.

3. Sample and Statistical Models

Our sample is U.S. companies that issued common stock in an underwritten public equity offering between 1994 and 2001. We choose public offerings as a starting point because the financing event allows us to distinguish affiliated from unaffiliated analysts, and client from nonclient companies. Consistent with the prior literature on analysts' banking affiliations, we use the Securities Data Corporation (SDC) database, which omits "best efforts" offerings, so our sample likewise excludes these. We expect that bank analysts will have weaker incentives in best-efforts offerings than in firm-commitment offerings, because the investment bank has less at risk in the former case. Thus, our results may not generalize to best-efforts offerings. We include both IPOs and SEOs in our sample, which allows us to explore whether the effects differ between the two.

As panel A of table 1 shows, from the 7,992 offerings of common stock in 1994 through 2001, we omit 576 issues of American Depositary Receipts or shares in funds. We believe analyst coverage of funds and foreign entities

[2] We use First Call data, and do not have access to the identities of individual analysts, so analysts are observationally equivalent to their employers in our data set. Since our hypotheses concern incentives created by banking relationships, i.e., incentives at the employer level, we believe this distinction is not material. When we refer to analysts, we mean equivalently the analysts' employers.

TABLE 1
Sample Information

Panel A: The effect of selection criteria on the number of companies included in the sample

Equity offerings from January 1, 1994 through December 31, 2001, per Securities Data Corporation	7,992
Less offerings by REITs, closed end funds and ADRs	(576)
Subtotal	7,416
Less offerings where lead underwriter is not included in First Call	(913)
Subtotal	6,503
Less multiple offerings by same issuer during sample period	(1,863)
Number of companies in sample	4,640

Panel B: Offerings included in sample, by year and type of offering

	Available Offerings from Securities Data Corporation Database			Offerings Included in Sample, after Randomly Selecting One Offering per Company		
Year	SEO	IPO	Total	SEO	IPO	Total
1994	318	340	658	234	261	495
1995	489	415	904	333	315	648
1996	600	652	1252	382	529	911
1997	533	452	985	306	375	681
1998	368	295	663	205	245	450
1999	399	471	870	236	397	633
2000	371	361	732	207	334	541
2001	354	85	439	198	83	281
Total	3,432	3,071	6,503	2,102	2,560	4,640

ADR, American Depositary Receipt; IPO, initial public offering; REIT, Real Estate Investment Trust; SEO, seasoned equity offering.

may be qualitatively different from coverage of domestic companies. We also omit 913 offerings in which the lead underwriter was not included in the First Call database, because we cannot observe the behavior of brokers that are not included in that database. In cases where a company makes more than one public issue of common stock during the sample period, we select one issue at random to avoid having multiple events for a given company, reducing our sample by a further 1,863 issues. We are left with 4,640 equity issues. Panel B of table 1 shows that 1995–1997 has the largest number of equity offerings in our sample period, and that 2001 has substantially fewer than earlier years, but no time-clustering is evident overall.

We obtain our analyst recommendations from the First Call database. By hand, we match SDC underwriter names to First Call broker names to link the two databases. SDC defines the following relationships: book manager, co-manager, joint book manager, and joint lead underwriter. We classify all of these as affiliated, and other analyst firms as unaffiliated. Our results are robust to dropping co-managers from the affiliated group.

We examine analyst recommendations in a two-year window following the equity issue using a hazard model. To implement the hazard model, we define the duration of interest as the period starting with the equity issue

and ending with the earlier of a downgrade by the analyst or the end of the window. The general form of the hazard model is:

$$\ln h_{ij}(t) = \alpha(t) + \underline{\mathrm{B}} X_{ij}(t) \tag{1}$$

where:

$h_{ij}(t)$ = the hazard, or instantaneous risk of downgrade, at time t for analyst i and company j, conditional on survival to t;
$\alpha(t)$ = the baseline hazard;
$\underline{\mathrm{B}}$ is a vector of coefficients; and
$X_{ij}(t)$ is a matrix of observations on explanatory variables, some of which may vary with time.

We estimate the model by the method of partial likelihood developed by Cox [1972] (hereafter, Cox regression). An advantage of this method is that we can obtain unbiased and asymptotically normal estimates of the coefficients B, without specifying the functional form of the baseline hazard $\alpha(t)$. The partial likelihood estimates are not fully efficient, relative to estimates that employ the correct baseline hazard model. In most cases, including this one, the true baseline hazard model is unknown, so full efficiency is not achievable.

Processes that prevent observation at some times t, called censoring and truncation, are important considerations in employing hazard models. Our design has right censoring and left truncation, and analyst data have an inherent type of random censoring. We discuss these design issues and how we address them below.

Right censoring occurs because we fix the end of our observation window at two years after the equity offering, so we do not observe downgrades that occur beyond the close of the window. The likelihood function, therefore, depends on only those downgrades that occur within our window. We set a fixed window to increase the construct validity of the "affiliated" and "unaffiliated" designations, which we determine at the time of the offering. The longer our window extends after the equity offering, the less likely that our proxy for banking ties, affiliation at the time of the offering, will be reliable. However, the shorter the window, the fewer downgrades occur within it. We examined window lengths of one and two years to assess our results' sensitivity to this choice. In untabulated results, we find slightly stronger affiliation effects in the one-year window, consistent with the incentives associated with affiliation weakening over time. However, we can estimate fewer comparisons in the one-year window because of sparse observations in some subgroups and therefore present our primary findings based on the two-year window.

Our design has truncation from below, or left truncation, because we measure downgrades relative to the analyst's initial post-issue recommendation, and different analysts make these initial recommendations at different times. We measure the duration for each analyst and issuer as the time from the equity issue to a downgrade, if any, which creates a common "event time"

for each issuing company. The control for left truncation treats an individual analyst as being at no risk of downgrade until after that analyst makes an initial recommendation. This control does not alter the analyst's duration. Rather, it affects the likelihood calculation, which is based on day-by-day cumulative sample frequencies. A given analyst enters the denominator of this calculation only after he/she has made an initial forecast and enters the numerator if and when he/she subsequently downgrades.[3]

A third process limiting observation arises in analyst data because analysts may drop coverage of a company. This introduces "informative random censoring," that is, "random" because it is not part of our design and "informative" because we believe that analysts may drop coverage rather than make an explicit downgrade. McNichols and O'Brien [1997] demonstrate that analysts tend to drop coverage in circumstances of unexpected bad earnings news. The statistics literature offers no clear-cut method for dealing with informative random censoring. One proposal is to perform a sensitivity analysis, treating the randomly censored observations first as survivors and then as "failures," that is, downgrades in our context.[4] An obstacle to performing the proposed sensitivity analysis in our setting is that, to treat these observations as downgrades, we would need to know the date when the analyst dropped coverage, and we do not have a reliable source of drop dates. Instead, we examine the sensitivity of our results to omitting observations in which we presume a drop has occurred, as we discuss in our results section. Our conclusions are not sensitive to omitting these observations.

In terms of our hypotheses, if affiliated analysts are more likely than unaffiliated analysts to drop, then treating drops as survivors, as our main tests do, biases the tests in favor of finding that affiliated analysts delay downgrading. If affiliated analysts are less likely to drop, then the bias reverses. We observe in our data that 23% of affiliated and 35% of unaffiliated analysts with recommendations in the first two years after the issue have no further recommendations within three years after the issue. We therefore suspect that this censoring biases against our finding a delay due to banking relationships. Our sensitivity analysis confirms this conjecture.

As we discussed above, our hypotheses H1 and H2 differ by the conditioning information, or basis for comparison. H1 conditions on the issuing company, whereas H2 conditions on the analyst. We effect this conditioning using the fixed-effects partial likelihood (FEPL) method.[5] The basic model (1) becomes,

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[3] Lawless [2003, p. 67–71] provides a good discussion of this issue. Later, we consider an alternative design, in which we define downgrades relative to recommendations that were outstanding at the time of the offering. This design effectively limits our sample to SEO firms, as First Call rarely lists analyst coverage prior to IPOs. Our results in this alternative design provide weak support for the conjecture that affiliated analysts downgrade more slowly, and no support for the idea that they downgrade more quickly.

[4] Allison [1995, p. 249–252], Lawless [2003, p. 52–63].

[5] Chamberlain [1985] proposes this method for controlling for unobserved heterogeneity among individuals.

$$\text{for H1:} \qquad \ln h_{ij}(t) = \alpha_j(t) + \underline{\mathrm{B}} X_{ij}(t), \tag{2}$$

$$\text{and for H2:} \quad \ln h_{ij}(t) = \alpha_i(t) + \underline{\mathrm{B}} X_{ij}(t). \tag{3}$$

Essentially, this method absorbs an overall issuer effect or an overall analyst effect into the baseline hazard function. We can then compare affiliated with unaffiliated analysts within issuing company for H1; and client with nonclient companies within analyst for H2.

The advantage of the FEPL method for H1, our within-issuer across-analysts test, is that each issuer acts as its own control: earnings announcements or other public news events do not differ between the two groups of analysts for a given issuer, and therefore this "event time" comparison controls for them. Tests of H2, which are within-analyst across issuers, do not control for firm-specific information because different issuers' information events occur at different times. These tests control for differences among banks, for example, differences in how often banks issue research reports. Our inferences from these tests rely on the fact that all firms in the sample are equity issuers: we compare client with nonclient companies within each analyst, but the nonclients of one analyst are the clients of another. We presume that the aggregate client versus nonclient effect captures only analysts' systematic behavior, not issuer effects. The fact that our within-issuer and within-analyst tests give consistent results gives us greater confidence in our conclusions on H2.

The remainder of our model consists of the matrix X_{ij} of explanatory and test variables. Our main test variable is an indicator variable, $Affil_{ij}$, which takes the value 1 if SDC listed investment bank i as a manager, co-manager, or joint manager for company j's equity offering, and is 0 otherwise. We hypothesize that affiliated analysts will delay downgrades. Equivalently, we hypothesize a lower hazard of downgrade at any time t for affiliated than unaffiliated analysts. We therefore expect negative coefficients on *Affil*.

We condition on the level of the initial recommendation, coded 1 through 5 in First Call, with 1 indicating Strong Buy. We include indicator variables for the recommendation categories, and interact *Affil* with these indicators. Thus, we examine the difference in behavior between affiliated and unaffiliated analysts starting from the same initial recommendation. We omit observations where the analyst's initial recommendation was Strong Sell (coded 5) from the downgrade regressions, because no downgrade is possible from this category. Symmetrically, when we examine analysts' upgrade behavior, we omit observations where the analyst's initial recommendation was Strong Buy (coded 1). We use the Sell categories (coded 4–5) as the baseline or, in cases of sparse data, the combined Hold and Sell categories (coded 3–5).[6] We expect that analysts find downgrading less problematic, the more

[6] Sell recommendations are rare, and downgrades from them are rarer still. The stratification in our model, within issuer, further restricts our ability to obtain reliable separate estimates for categories with sparse data.

favorable the initial recommendation. We therefore expect positive coefficients on our *Buy* and *StrBuy* indicators in the downgrade regressions, and we further expect larger coefficients for *StrBuy* than for *Buy*. Within these categories, the conflict of interest story predicts that affiliated analysts will downgrade more slowly, leading to negative coefficients on the interactions.

As we discuss further below, we find substantial differences in the patterns of initial recommendations following the equity issue, depending upon whether the issue is an IPO or an SEO. Accordingly, we report our results both pooled across the two types of equity issues and separately. Although splitting the sample along this additional dimension creates additional problems with sparse data, overall our results regarding affiliation are consistent across the two types of offering.

4. Results

Table 2 provides descriptive statistics for sample companies and sample analyst firms included in First Call. We define coverage by an analyst as the presence of a recommendation in the First Call database within one year following the offering. The 3,731 companies with coverage by an analyst are covered on average by 6.1 analysts, with a median of five analysts, a minimum of one, and a maximum of 44. The average number of affiliated analysts is 2.05, reflecting the facts that underwriters cover the majority of companies whose offerings they underwrite and that many deals have multiple co-underwriters. Companies raised an average (median) of $113.93 ($51.87) million in proceeds and paid an average (median) gross spread to the underwriters of $6.16 ($3.37) million. The average (median) percentage gross spread is 6.58% (7%), consistent with the findings of Chen and Ritter [2000].

Panel B of table 2 provides descriptive statistics for 134 investment banks and their involvement with the sample offerings.[7] Of these 134 banks, 88 served as lead underwriter, underwriting an average (median) of 34.12 (7.5) offerings. The banks served as co-underwriter in an average (median) of 43.02 (12) offerings. We estimated the average offering proceeds per bank by allocating the proceeds to the lead underwriter bank. The average offering proceeds per bank were $4.693 billion, with a range from $3.75 million to $73.6 billion. We estimated the gross spread earned per lead bank as 100% of the gross spread if the bank was the sole underwriter and as 60% of the gross spread with the remaining 40% shared equally by co-underwriters for deals with multiple underwriters.[8] Using this approach, we estimate that the banks earned an average (median) of $201.80 ($16.70) million from sample offerings. The banks covered an average of 159 companies and issued an

[7] These firms were designated as investment banks on the basis of underwriting offerings in the Securities Data Corporation database over the sample period. However, not all of these banks underwrote offerings in our sample, as we select only one offering per company.

[8] The proportions for splitting fees are based on evidence in Chen and Ritter [2000].

TABLE 2

Descriptive Statistics on Sample Companies and Sample Banks

Variable	*N*	Mean	Std. Dev.	Median	Minimum	Maximum
Panel A: Descriptive statistics for the 3,731 sample companies with coverage by any analyst						
Number of analysts covering company	3,731	6.10	5.10	5	1	44
Number of affiliated underwriter analysts covering company	3,731	2.05	1.27	2	0	14
Total offering proceeds (in $ million)	3,685	113.93	64.12	51.87	2.06	7,322
Gross spread (in $ million)	3,648	6.16	11.11	3.37	0.12	237
Gross spread as percent of proceeds	3,647	6.58%	2.29%	7.00%	0.25%	73.60%
Panel B: Descriptive statistics for the 134 investment banks underwriting offerings in 1994–2001 and included in the First Call recommendations database						
Number of offerings bank served as lead underwriter	88	34.12	65.3	7.5	1	271
Number of offerings bank served as co-underwriter	108	43.02	66.78	12	1	294
Total offering proceeds (in $ million)	88	4,693	13,866	233.14	3.75	73,553
Gross spread (in $ million)	110	201.80	534.50	16.70	0.11	2,780.83
Number of companies covered by investment bank	134	159.14	218.58	73.00	1	936
Number of recommendations issued on sample companies	134	290.82	393.46	136	1	1,664
Average recommendation: client companies	114	1.55	0.45	1.50	1	4
Average recommendation: nonclient companies	134	1.78	0.32	1.77	1	3
Panel C: Descriptive statistics for the 109 nonbank research firms providing recommendations on sample companies and included in the First Call recommendations database						
Number of recommendations issued on sample companies	109	22.94	37.74	7	1	220
Number of companies covered by research firm	109	13.30	20.49	5	1	121
Average recommendation	109	1.77	0.52	1.83	1	3

average of 291 recommendations on sample companies in the first two years after an offering, with a minimum of one recommendation and a maximum of 1,664. The average recommendation was 1.55 for client companies and 1.78 for nonclient companies, consistent with more favorable recommendations for banking clients. These averages reflect a mix of recommendations

less favorable than Strong Buy (coded 1) and more favorable than Buy (coded 2).

Panel C of table 2 shows some descriptive information for the 109 nonbank firms providing recommendations on our sample companies. Nonbank analyst firms cover 13.3 sample companies on average and five at the median, compared with 159 and 73, respectively, for investment banks. These firms also issue substantially fewer recommendations on sample companies, reflecting the fact that they cover substantially fewer companies. Interestingly, the average recommendation per nonbank firm in the first two years of coverage is 1.77, which is comparable to the average of 1.78 for unaffiliated investment banks. Note, however, that the bank average for investment banking clients, 1.55, is the most favorable of the three.

Table 3 provides descriptive evidence on the coverage of and recommendations issued for sample companies, by affiliation. Panel A documents that affiliated analysts play a major role in covering sample companies, issuing recommendations on 72.12% of SEO issuers and 77.71% of IPO issuers. Unaffiliated analysts cover 72.55% of SEO companies, but only 59.91% of

TABLE 3

Analyst Coverage and Recommendations on Sample Companies in the First Year Following an Offering, by Affiliation with an Underwriting Bank

Panel A: Analyst coverage of sample companies, by affiliation

	Number of SEO companies	% of SEO companies	Number of IPO companies	% of IPO companies
1. Companies with coverage only by affiliated (lead or co-underwriter) analysts	166	7.90%	519	20.44%
2. Companies with coverage only by unaffiliated analysts	175	8.33%	67	2.64%
3. Companies with coverage by both affiliated and unaffiliated analysts	1,350	64.22%	1,454	57.27%
4. Companies with no coverage	411	19.55%	499	19.65%
Total of companies issuing offerings (sum of 1 to 4)	2,102	100.00%	2,539	100.00%

Panel B: Distribution of recommendations issued in the first two years following an IPO or SEO, by analyst affiliation

	Recommendations					
Role of the bank	1 (Strong buy)	2 (Buy)	3 (Hold)	4 (Sell)	5 (Strong sell)	Total
Affiliated	3,809	3,193	628	15	4	7,649
	49.80%	41.74%	8.21%	0.20%	0.05%	33.59%
Unaffiliated	6,065	5,710	3,187	111	53	15,126
	40.10%	37.75%	21.07%	0.73%	0.35%	68.69%
Total	9,874	8,903	3,815	126	57	22,775
	43.52%	39.01%	16.65%	0.56%	0.26%	100%

TABLE 3 — *Continued*

Panel C: Descriptive statistics for recommendations, by affiliation of analyst

	N	Mean	Std. Dev.	Median	Minimum	Maximum
Recommendation by						
Affiliated	7,649	1.59	0.65	2.00	1	5
Unaffiliated	15,126	1.83	0.80	2.00	1	5

Panel D: Statistical tests of differences in mean and median recommendations, by affiliation of analyst

		Wilcoxon	
Comparisons	*t*-statistic	*z*-statistic	Chi-Square
Affiliated (lead and co-underwriter) recommendations more favorable than unaffiliated recommendations	24.76	21.10	677.10

In panel A, coverage is defined as the presence of a recommendation within the first two years following the offering.

For panel B, in each of the five "Recommendations" columns, the table reports the frequency with the percent of the row total below. For example, affiliated analysts issued 3,809 Strong Buy recommendations, which comprised 49.80% of recommendations from affiliated analysts. The column labeled "Total" reports the total frequency for the row with the row's percent of the overall total below.

In panel C, 1 = Strong Buy; 5 = Strong Sell.

IPO companies. These data suggest a striking propensity of affiliated analysts to cover the companies their employer underwrites. For a typical offering, two banks are affiliated, one as lead and a second as co-underwriter, and the remainder of the 134 banks are unaffiliated. Thus, the finding that the numbers of companies covered by affiliated and unaffiliated analysts are similar for SEOs and greater for IPOs indicates the strong tendency of analysts to cover their banks' offerings. This tendency and the fact that unaffiliated analysts do not cover all offering firms results in 7.90% of SEO companies and 20.44% of IPO companies receiving only affiliated coverage.

Figure 1 presents the number of recommendations issued by affiliated and unaffiliated analysts in the year before and the three years following an SEO. The chart indicates that although affiliated analysts generally issued less than half as many recommendations per month as unaffiliated analysts in the year prior to the SEO, around 200 recommendations per month, they both issued over 1,200 recommendations in the month following the SEO. This reflects a substantial increase in activity for both affiliated and unaffiliated analysts, with a proportionately greater increase by affiliated analysts.

Figure 2 presents an even more striking pattern for IPO companies. Affiliated analysts issued 2,723 recommendations in the month following the IPO, compared with 189 recommendations issued by unaffiliated analysts. In fact, the cumulative number of recommendations issued by affiliated analysts for IPO firms throughout the first year is 7,412, which substantially exceeds the 5,020 recommendations issued by unaffiliated analysts in this time period. A key point to note from figures 1 and 2 is that affiliated analysts

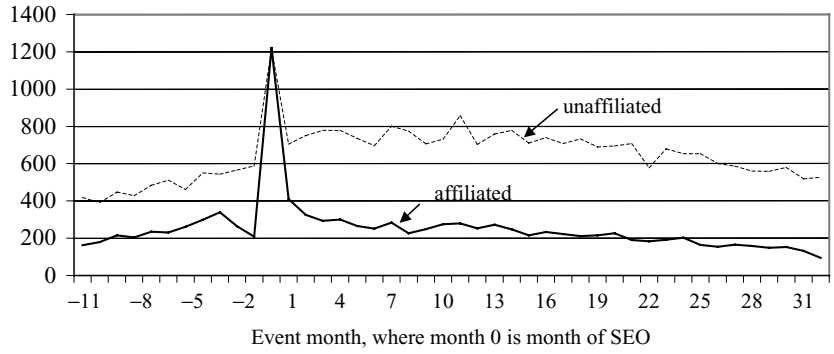

FIG. 1.—Number of recommendations issued by affiliated and unaffiliated analysts in the year before and three years following an SEO.

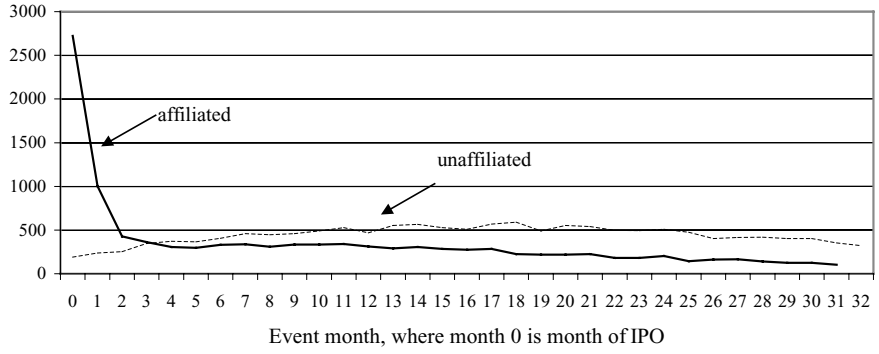

FIG. 2.—Number of recommendations issued by affiliated and unaffiliated analysts in the three years following an IPO.

initiate coverage sooner than unaffiliated analysts for IPO companies, and therefore potentially have a disproportionate influence on the information available to investors regarding IPO companies. Bradley, Jordan, and Ritter [2003] find similar results for their sample of IPOs from 1999–2000, as does Iskoz [2003] for IPOs in 1993–2000. As we described earlier, our duration analysis explicitly takes the earlier initiation of coverage by affiliated analysts into account.

Table 3, panel B presents the distribution of recommendations in the first two years after an offering, by affiliation. The data indicate that affiliated analysts issue proportionately more recommendations in the Strong Buy category, at 49.8% of the recommendations they issued, while unaffiliated analysts issued 40.1%. Correspondingly, affiliated analysts issued proportionately fewer Hold, Sell, and Strong Sell recommendations, at 8.46%, while unaffiliated analysts issued 22.15%.

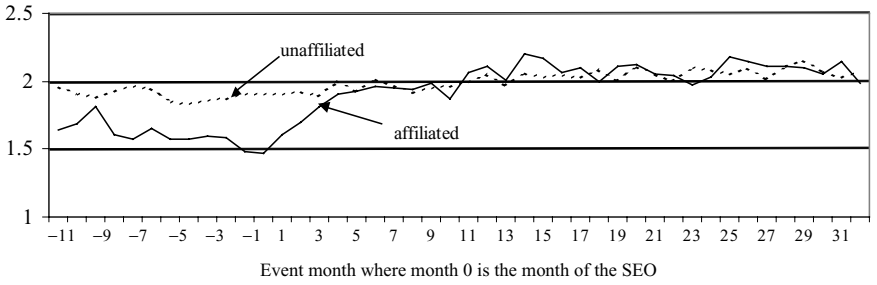

FIG. 3.—Average value of recommendations issued by affiliated and unaffiliated analysts in the year before and three years following an SEO.

Consistent with the frequencies in panel B, panel C documents that the average recommendation by affiliated analysts is 1.59, versus 1.83 for unaffiliated analysts. Panel D documents that affiliated analyst recommendations are significantly more favorable than those of unaffiliated analysts ($t = 24.76$). In an untabulated analysis, we find that co-underwriter analysts issue recommendations that are significantly more favorable than those of unaffiliated analysts, providing support for our classification of co-underwriter analysts as affiliated.

Figures 3 and 4 show the average value of recommendations issued by affiliated and unaffiliated analysts each month for the year before and three years after an SEO and for the three years following an IPO. The evidence in Table 3 shows affiliated recommendations to be more favorable, on average, but figures 3 and 4 show that this effect has an interesting time pattern. Affiliated recommendations are initially more favorable than unaffiliated recommendations, but become similar later in the first year following the offering, and actually become less favorable for IPO companies. Recall from figure 2, however, that affiliated analysts generally issue recommendations in the first two months following the IPO while unaffiliated analysts generally

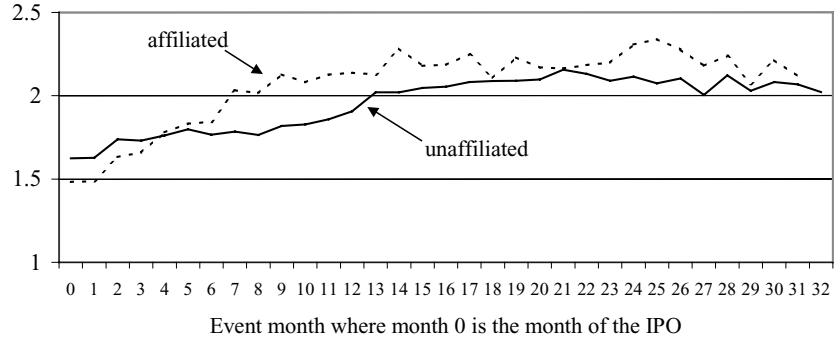

FIG. 4.—Average value of recommendations issued by affiliated and unaffiliated analysts in the three years following an IPO.

initiate coverage later. Figures 3 and 4 include only new recommendations, month by month.

Table 4, panels A and B present frequencies of downgrades and upgrades, respectively, within our two-year window. We report these frequencies separately by initial recommendation, affiliation, and type of equity offering. Several facts emerge from these frequencies. First, examining the proportions of downgrades across the five categories of initial recommendation, we find that more favorable initial recommendations generally have proportionately more downgrades. Symmetrically, more favorable initial recommendations generally have proportionately fewer upgrades. These patterns appear consistently, regardless of affiliation or type of equity offering. Second, analysts' well-documented tendency to avoid Sell recommendations appears in our data as well. This tendency affects not only the distribution of recommendations across categories, but also the distributions of downgrades and

TABLE 4

Frequencies of Downgrades, Upgrades, and Presumed Drops across Categories of Initial Recommendations, Partitioned by Type of Equity Offering (IPO/SEO) and Affiliation

			Initial Recommendation				
			1	2	3	4	5
Panel A: Counts of initial recommendations and downgrades per analyst-issuer within two years of the equity issue							
SEO	Unaffiliated	Total	3,102	2,719	1,750	60	31
		Downgrades	1,287	801	63	3	0
		Down % of total	*41.5%*	*29.5%*	*3.6%*	*5.0%*	*0.0%*
	Affiliated	Total	1,231	1,041	387	11	2
		Downgrades	667	348	7	0	0
		Down % of total	*54.2%*	*33.4%*	*1.8%*	*0.0%*	*0.0%*
IPO	Unaffiliated	Total	2,320	1,964	883	26	11
		Downgrades	992	600	24	1	0
		Down % of total	*42.8%*	*30.5%*	*2.7%*	*3.8%*	*0.0%*
	Affiliated	Total	1,984	1,485	130	4	2
		Downgrades	1,157	605	0	0	0
		Down % of total	*58.3%*	*40.7%*	*0.0%*	*0.0%*	*0.0%*
Panel B: Counts of initial recommendations and upgrades per analyst-issuer within two years of the equity issue							
SEO	Unaffiliated	Total	3,102	2,719	1,750	60	31
		Upgrades	0	762	632	35	10
		Up % of total	*0.0%*	*28.0%*	*36.1%*	*58.3%*	*32.3%*
	Affiliated	Total	1,231	1,041	387	11	2
		Upgrades	0	331	174	8	0
		Up % of total	*0.0%*	*31.8%*	*45.0%*	*72.7%*	*0.0%*
IPO	Unaffiliated	Total	2,320	1,964	883	26	11
		Upgrades	0	492	244	10	4
		Up % of total	*0.0%*	*25.1%*	*27.6%*	*38.5%*	*36.4%*
	Affiliated	Total	1,984	1,485	130	4	2
		Upgrades	0	480	83	0	2
		Up % of total	*0.0%*	*32.3%*	*63.8%*	*0.0%*	*100.0%*

TABLE 4 — *Continued*

			Initial Recommendation				
			1	2	3	4	5
Panel C: Counts of initial recommendations and presumed drops							
SEO	Unaffiliated	Total	3,102	2,719	1,750	60	31
		Drops	1,039	854	715	17	16
		Drops % of total	*33.5%*	*31.4%*	*40.9%*	*28.3%*	*51.6%*
	Affiliated	Total	1,231	1,041	387	11	2
		Drops	287	238	141	1	2
		Drops % of total	*23.3%*	*22.9%*	*36.4%*	*9.1%*	*100.0%*
IPO	Unaffiliated	Total	2,320	1,964	883	26	11
		Drops	812	657	420	10	6
		Drops % of total	*35.0%*	*33.5%*	*47.6%*	*38.5%*	*54.5%*
	Affiliated	Total	1,984	1,485	130	4	2
		Drops	457	309	29	4	0
		Drops % of total	*23.0%*	*20.8%*	*22.3%*	*100.0%*	*0.0%*

In panel A, initial recommendations are the first by each analyst in the two-year period following the offering. Affiliated analysts are identified by the Securities Data Corporation as managers, comanagers, or joint managers for the offering. All other analysts are unaffiliated.

In panel C, we code a presumed drop when an analyst makes an initial recommendation within two years of the equity issue and no subsequent recommendation within three years of the issue.

upgrades. The fact that no affiliated analysts downgrade from Sell within our sample means that we cannot estimate an affiliation effect in our duration model for these categories. The same is true for the downgrades from Hold in the IPO subsample. Generally, the sparseness of events (downgrades or upgrades) in the Sell categories limits our ability to estimate separate coefficients reliably for them, and so we combine the two or three lowest categories together for our hazard analysis.

Table 4, panel C reports similar frequencies for presumed drops. Recall from our earlier discussion of informative random censoring that analysts' ability to drop coverage could influence our results. Because we do not have reliable dates for drop events, we construct a proxy. If an analyst initiates coverage within our two-year window and never issues another recommendation for that issuer within three years of the issue date, then we presume that the analyst has dropped coverage of that issuer. By this definition of drop, we find that unaffiliated analysts generally drop coverage relatively more frequently than affiliated analysts, regardless of type of equity offering. The only circumstances where this is not true involve the sparsely populated Affiliated/Sell cells, where results are less reliable. Overall, this suggests that drops are likely informative for our variable of interest, affiliation. Consequently, we undertake a sensitivity check on our hazard model estimation, omitting the presumed drop observations from the analysis.

In table 5, we report the results of our hazard models of time to downgrade. Panel A contains the results pooled across all equity issues, while panels B and C replicate the tests for SEOs and IPOs separately, respectively. In each panel, the columns on the left contain the results for H1, the within-issuer tests for affiliated versus unaffiliated analysts, while the columns on

TABLE 5

Cox Regressions of the Duration from Issue Date to Downgrade within a Two-Year Window after an Equity Issue, for U.S. Companies Issuing Common Equity in an Underwritten Offering during 1994–2001, and Analysts Covering Those Companies

	H1: Within Issuer			H2: Within Analyst		
	Coefficient Estimate	*p*-value	Hazard Ratio	Coefficient Estimate	*p*-value	Hazard Ratio
Panel A: All equity issues pooled ($N = 19{,}097$)						
StrBuy	3.25	<0.0001	25.85	2.99	<0.0001	19.90
Buy	2.68	<0.0001	14.63	2.47	<0.0001	11.85
Hold	0.20	0.37	1.23	0.09	0.43	1.09
*Affil*StrBuy*	0.01	0.41	1.01	−0.07	0.02	0.93
*Affil*Buy*	−0.13	0.01	0.88	−0.14	<0.01	0.87
*Affil*Hold*	−1.30	<0.01	0.27	−1.08	<0.01	0.34
Panel B: SEOs only ($N = 10{,}301$)						
StrBuy	2.98	<0.0001	19.61	2.81	<0.0001	16.68
Buy	2.44	<0.0001	11.45	2.29	<0.0001	9.90
Hold	0.03	0.48	1.03	−0.02	0.49	0.98
*Affil*StrBuy*	0.05	0.22	1.05	−0.01	0.44	0.99
*Affil*Buy*	−0.13	0.05	0.88	−0.13	0.03	0.88
*Affil*Hold*	−1.04	0.01	0.35	−0.71	0.04	0.49
Panel C: IPOs only ($N = 8{,}796$)						
StrBuy	3.48	<0.0001	32.47	3.25	<0.0001	25.69
Buy	2.87	<0.0001	17.60	2.75	<0.0001	15.70
Hold	—[a]			—[a]		
*Affil*StrBuy*	−0.03	0.30	0.97	−0.11	0.02	0.90
*Affil*Buy*	−0.12	0.05	0.89	−0.16	0.01	0.85
*Affil*Hold*	—[a]			—[a]		

The partial likelihood model adjusts for left truncation at the analyst's initial post-equity recommendation and right censoring at the end of the two-year window. Estimation is stratified within issuing company for H1 and within analyst for H2. *Affil* = 1 if the Securities Data Corporation listed the analyst as a manager, comanager, or joint manager for the equity issue, and 0 otherwise. *StrBuy*, *Buy*, or *Hold* = 1 if the analyst's initial post-issue recommendation was Strong Buy, Buy, or Hold, respectively, and 0 otherwise.

[a]Sparse data prevent estimation of an affiliation effect for the Hold and Sell categories in the IPO subsample. See table 4 for frequencies.

the right contain the results for H2, the within-analyst tests for client versus nonclient issuers. In all cases, the models have highly significant likelihood ratio and Wald statistics (not tabulated) relative to a global null hypothesis that all the coefficients are zero.

The indicator variables for the level of the initial recommendation behave as we expected. Analysts are vastly more likely to downgrade from an initial rating of Strong Buy or Buy than from a Sell rating. The hazard ratios provide a convenient way to interpret the results, in terms of the instantaneous hazard of downgrade. All hazard ratios for these indicators exceed 9, meaning that, conditional on arriving at time t without a downgrade, unaffiliated analysts are more than nine times more likely to downgrade from Strong Buy or Buy than from a Sell recommendation. In all cases, the coefficients and hazard ratios for *StrBuy* exceed those for *Buy*, as expected.

These ancillary results on the initial recommendation category confirm our expectations and refute an alternative view of the interaction between ratings levels and the strength of analysts' beliefs. In this alternative view, more favorable ratings reflect more strongly felt beliefs, and therefore the timing of revisions might not represent a truly different dimension of analyst behavior from the ratings themselves. If this were the case, then we would expect downgrades from Strong Buy to be slower than downgrades from less favorable categories. We find the reverse, consistent with the conventional wisdom that analysts are least willing to downgrade to the *Hold* and *Sell* categories.

Our main test variable is *Affil*, interacted with the indicators for initial recommendation. We expect a negative coefficient if affiliated analysts downgrade more slowly, consistent with the conflict of interest story. For H1, in which we compare affiliated with unaffiliated analysts within issuer, we find significant negative coefficients on *Affil* Buy* and *Affil* Hold*, indicating that affiliated analysts downgrade from an initial Buy or Hold recommendation more slowly than unaffiliated analysts for the same issuer.[9] We find no difference in speed to downgrade from an initial Strong Buy recommendation. In the pooled sample reported in panel A for H1, the hazard ratio of 0.88 for *Affil* Buy* means that, conditional on having arrived at time t without a downgrade, an affiliated analyst is 88% as likely to downgrade from Buy at t as an unaffiliated analyst. In the Hold category, affiliated analysts have an instantaneous hazard of only 27% of their unaffiliated counterparts.

For H2, in which we compare client with nonclient issuers for a given analyst, we find broadly similar results, although in this case the coefficient on *Affil* StrBuy* also is significantly negative. The tests indicate that analysts are slower to downgrade client issuers than nonclient issuers, from initial Strong Buy, Buy, or Hold recommendations. The increasingly negative coefficients on *Affil* StrBuy, Affil* Buy*, and *Affil* Hold* indicate that affiliated analysts are increasingly more reluctant to downgrade, the less favorable the initial recommendation.

We observe in figures 1 and 2 that affiliated and unaffiliated analysts differ in the timing of their recommendations following the equity issue, and that the patterns differ between IPO and SEO firms. We therefore repeat our hazard analysis separately for these two subsamples, to ensure that the results are not specific to one type of issue. The results in table 5 panel B, in which we estimate the same models for SEO issuers only, are consistent with those in panel A, with significantly negative coefficients on *Affil* Buy* and *Affil* Hold* for both the within issuer and within analyst estimations. In panel C, we estimate the models for IPO issuers only. Recall from table 4, panel A that no affiliated analysts downgraded from Hold or Sell in the IPO sample, so it

[9] The chi-square test is nondirectional, so the p-values produced by statistical programs are two-sided. Because our hypotheses are directional, we divide the two-tailed p-values by 2 to report one-tailed p-values.

TABLE 6

Cox Regressions of the Duration from Issue Date to Upgrade within a Two-Year Window after an Equity Issue, for U.S. Companies Issuing Common Equity in an Underwritten Offering during 1994–2001, and Analysts Covering Those Companies

	Within Issuer			Within Analyst		
	Coefficient Estimate	*p*-value	Hazard Ratio	Coefficient Estimate	*p*-value	Hazard Ratio
Panel A: All equity issues pooled ($N = 10,506$)						
Buy	−1.07	<0.0001	0.34	−0.75	<0.0001	0.47
Hold	−0.60	<0.01	0.55	−0.52	<0.01	0.59
*Affil*Buy*	−0.28	<0.0001	0.76	−0.29	<0.0001	0.75
*Affil*Hold*	0.67	<0.0001	1.96	0.48	<0.0001	1.61
Panel B: SEOs only ($N = 6,001$)						
Buy	−1.37	<0.0001	0.26	−0.84	<0.0001	0.43
Hold	−0.87	<0.0001	0.42	−0.54	<0.01	0.58
*Affil*Buy*	−0.05	0.28	0.95	−0.07	0.15	0.93
*Affil*Hold*	0.58	<0.0001	1.79	0.37	<0.0001	1.45
Panel C: IPOs only ($N = 4,505$)						
Buy	−0.40	0.12	0.67	−0.23	0.22	0.79
Hold	0.03	0.46	1.04	−0.06	0.42	0.94
*Affil*Buy*	−0.51	<0.0001	0.60	−0.51	<0.0001	0.60
*Affil*Hold*	1.10	<0.0001	3.02	0.51	<0.01	1.67

The partial likelihood model adjusts for left truncation at the analyst's initial post-equity recommendation and for right censoring at the end of the two-year window. Estimation is stratified within issuing company or within analyst. *Affil* = 1 if the Securities Data Corporation listed the analyst as a manager, comanager, or joint manager for the equity issue, and 0 otherwise. *Buy* or *Hold* = 1 if the analyst's initial post-issue recommendation was Buy or Hold, respectively, and 0 otherwise.

is not possible to estimate an affiliation effect in this category. These results confirm what we found in the upper two panels, indicating that our results are not specific to one type of equity issue. Overall, the findings provide consistent evidence that affiliated analysts are slower to downgrade from Buy and Hold recommendations, and weaker evidence that they are slower to downgrade from Strong Buy.

We next examine analysts' upgrade behavior to assess whether we observe timely updating when affiliated analysts have good news. Specifically, in table 6, we repeat the Cox regression tests with upgrades rather than downgrades as the event of interest. If affiliated analysts have better access to information, for example, because of their due diligence activities or favorable treatment by management, then we would expect them to upgrade at least as quickly as unaffiliated analysts. On the other hand, if they take more care with their analyses, this could cause all their ratings changes to be slower than those of unaffiliated analysts. If affiliated analysts are simply slower than unaffiliated in all circumstances, then the conflict of interest story is less credible.

In the upgrade models, we exclude observations where the analyst's initial rating was Strong Buy, because analysts cannot upgrade from this category.

This is symmetric with our exclusion of Strong Sells when we estimate the downgrade model. The baseline category in table 6 is the combined Sell and Strong Sell group. As expected for upgrades, the coefficient on *Buy* is negative and statistically significant, indicating that unaffiliated analysts upgrade less quickly from an initial Buy than from a Sell or Strong Sell. The coefficient on *Hold* is generally negative, statistically significant, and smaller in magnitude than the coefficient on *Buy*, except in the IPO subsample where it is indistinguishable from zero.

The findings indicate that affiliated analysts upgrade more quickly from the Hold category than their unaffiliated counterparts, but they upgrade more slowly from an initial Buy recommendation. These results appear consistently across our two stratifications (within-issuer or within-analyst) and in the IPO subsample. In the SEO subsample, affiliated analysts are faster to upgrade from Hold, but indistinguishable from unaffiliated analysts when the initial recommendation is Buy.

These findings strongly support the role of banking ties as an influence on analysts' use of Hold and Sell recommendations, as affiliated analysts are significantly slower to downgrade to these recommendations yet significantly faster to upgrade from them. The findings suggest that banking ties provide analysts with incentives to maintain at least a Buy recommendation on client firms.

The findings vis-à-vis Strong Buy recommendations are weaker. Although we find evidence of significantly slower downgrades from Strong Buy by affiliated analysts in the within-analyst estimation, consistent with the conflict of interest hypothesis, we also find evidence of significantly slower upgrades from Buy to Strong Buy, for both the within-issuer and within-analyst estimations, consistent with other factors contributing to the delay in ratings change. One interpretation of these findings that is consistent with the conflict of interest hypothesis is that affiliated analysts view a Buy recommendation as a sufficiently positive signal, so that they have less incentive to upgrade from Buy to Strong Buy than from Hold to Buy.

To test whether informative random censoring may influence our results, we repeat our analyses omitting all the observations we coded as presumed drops in panel C of table 4. The results, not tabulated here, are very similar to those reported in tables 5 and 6, but with stronger statistical significance. Our measure of dropped coverage will not capture all drops, for example, drops that occur after one or more revisions to recommendations. Based on the numbers in table 4, panel C, however, we believe it captures a considerable number. The fact that our results are stronger after omitting these observations suggests that including drops biased our tests against finding affiliated analysts slower and increases our confidence that informative random censoring does not drive our results. We also address the possibility that our definition of presumed drops in table 4, panel C may be too inclusive. In this sensitivity check, we omit only those presumed drops that also had no earnings forecasts in the First Call database during year 3 following the IPO, again with similar results.

As we mentioned earlier, our main research design begins after the equity offering so that we can include both IPOs and SEOs in our sample. Nevertheless, figure 3 shows that, for SEOs, affiliated analysts downgrade their recommendations quickly after the equity issue, leaving open the possibility that we have chosen their already-downgraded recommendations as our starting point, and hence find future downgrades delayed.[10] We examine this issue in two ways. First, for each analyst's initial recommendation, we use the last recommendation in the year prior to the equity issue, and we measure duration as the time from the issue to the first post-issue downgrade, if any, within two years. This will capture the behavior evident in figure 3. Second, we omit all recommendations within the first year following the equity issue and run our original model only on recommendations made during the second year. Figures 1 through 4 suggest that the months around the offering are atypical, in terms of both the amount of affiliated analyst activity, and the relative optimism in their recommendations. By omitting the first year, we may capture more typical behavior.

Table 7 shows the analysis of downgrades measured relative to the preissue recommendation. In panel A, we report the frequencies of initial recommendations and downgrades for comparison with table 4 in our main analysis. As expected, this shows that we observe very few recommendations for IPO firms prior to the issue in the First Call database, and lower numbers of recommendations overall.

Table 7, panel B shows the results of our hazard model, measuring downgrades relative to the preissue recommendation.[11] As in our main analysis, we measure duration as the time from the equity issue to the downgrade, to preserve the "event time" interpretation in the within-issuer tests. In this case, we need no control for left truncation of the data, because all analysts with recommendations prior to the issue have a positive hazard of downgrade. We find no difference between affiliated and unaffiliated analysts in time to downgrade in the within-issuer tests. In the within-analyst tests, we find that affiliated analysts downgrade more slowly from Strong Buy for clients than for nonclients. In addition, the coefficients on affiliated analysts' downgrades from Buy and from Hold are negative although not statistically significant at conventional levels. While the results differ from those reported in table 5, we find no evidence that affiliated analysts downgrade more rapidly than unaffiliated when measured from before to after the equity offering, and some evidence of delay.

Table 8 presents the results of our analysis omitting recommendations made during the first year after the equity issue. In this analysis, we use the analyst's first recommendation issued more than 365 days after the offering as the initial recommendation, and look for downgrades from this initial recommendation. As in our main analysis, we measure duration as the time

[10] We thank the referee for suggesting this analysis.

[11] Recall that we omit Strong Sell initial recommendations when estimating the hazard of downgrade, because no downgrade is possible from this category.

TABLE 7

Frequency and Cox Regression Analysis of Downgrades, with the Initial Recommendation Defined as Each Analyst's Last Recommendation Prior to the Equity Issue, for U.S. Companies Issuing Common Equity in an Underwritten Offering during 1994–2001, and Analysts Covering Those Companies

Panel A: Counts of initial recommendations and downgrades per analyst-issuer within two years of the equity issue.

			Initial Recommendation				
			1	2	3	4	5
SEO	Unaffiliated	Total	1,283	912	726	23	19
		Downgrades	695	310	25	2	0
		Down% of total	*54.2%*	*34.0%*	*3.4%*	*8.7%*	*0.0%*
	Affiliated	Total	872	553	93	6	0
		Downgrades	517	200	3	0	0
		Down% of total	*59.3%*	*36.2%*	*3.2%*	*0.0%*	
IPO	Unaffiliated	Total	5	3	11	1	0
		Downgrades	1	0	1	0	0
		Down% of total	*20.0%*	*0.0%*	*9.1%*	*0.0%*	
	Affiliated	Total	8	1	0	0	0
		Downgrades	2	1	0	0	0
		Down% of total	*25.0%*	*100.0%*			

Panel B: Cox regression analysis of all equity issues pooled ($N = 4,497$)

	H1: Within Issuer			H2: Within Analyst		
	Coefficient Estimate	*p*-value	Hazard Ratio	Coefficient Estimate	*p*-value	Hazard Ratio
StrBuy	2.50	<0.01	12.16	2.58	<0.01	13.16
Buy	1.67	0.01	5.32	1.71	0.01	5.51
Hold	−1.00	0.10	0.37	−0.83	0.13	0.44
*Affil*StrBuy*	0.05	0.26	1.06	−0.13	0.02	0.88
*Affil*Buy*	0.02	0.42	1.02	−0.04	0.32	0.96
*Affil*Hold*	0.00	0.50	1.01	−0.16	0.40	0.86

The duration for the Cox regressions is the time from equity issue to downgrade within a two-year window, with adjustment for right censoring at the end of the two-year window and no adjustment for left truncation. Estimation is stratified within issuing company for H1, and within analyst for H2. *Affil* = 1 if the Securities Data Corporation listed the analyst as a manager, comanager, or joint manager for the equity issue, and 0 otherwise. *StrBuy*, *Buy*, or *Hold* = 1 if the analyst's initial post-issue recommendation was Strong Buy, Buy, or Hold, respectively, and 0 otherwise.

from equity issue to downgrade, if any, within two years. We must control for left truncation here, because different analysts will have different dates for the initial recommendation. Panel A of table 8 shows a dramatic drop in the level of optimism in affiliated analysts' initial recommendations, relative to the full, two-year sample in table 4, confirming the pattern evident in figures 3 and 4. Unaffiliated analysts remain relatively optimistic. Table 8 panel A also shows lower relative frequencies of downgrades than table 4.

Table 8, panel B shows the results of the hazard model applied to recommendations during year 2 following the equity issue. The within-issuer results confirm those of our main analysis, that affiliated analysts downgrade more slowly from Buy and Hold than unaffiliated analysts. The within-analyst tests show no significant differences, though the coefficients on *Affil*Buy* and *Affil*Hold* are negative. We attribute the lack of results here to the weaker

TABLE 8

Frequency and Cox Regression Analysis of Downgrades, with the Initial Recommendation Defined as Each Analyst's First Recommendation within the Second Year Following the Equity Issue, for U.S. Companies Issuing Common Equity in an Underwritten Offering during 1994–2001, and Analysts Covering Those Companies

Panel A: Counts of initial recommendations and downgrades per analyst-issuer within the second year following the equity issue.

			Initial Recommendation				
			1	2	3	4	5
SEO	Unaffiliated	Total	1,796	1,851	1,432	63	33
		Downgrades	500	409	41	4	0
		Down % of total	*27.8%*	*22.1%*	*2.9%*	*6.3%*	*0.0%*
	Affiliated	Total	452	609	519	13	5
		Downgrades	142	135	13	0	0
		Down % of total	*31.4%*	*22.2%*	*2.5%*	*0.0%*	*0.0%*
IPO	Unaffiliated	Total	1,322	1,438	1,016	37	16
		Downgrades	433	354	33	2	0
		Down % of total	*32.8%*	*24.6%*	*3.2%*	*5.4%*	*0.0%*
	Affiliated	Total	450	689	701	18	2
		Downgrades	148	155	20	2	0
		Down % of total	*32.9%*	*22.5%*	*2.9%*	*11.1%*	*0.0%*

Panel B: Cox regression analysis of all equity issues pooled ($N = 12{,}406$)

	H1: Within Issuer			H2: Within Analyst		
	Coefficient Estimate	*p*-value	Hazard Ratio	Coefficient Estimate	*p*-value	Hazard Ratio
StrBuy	2.29	<0.01	9.84	2.23	<0.01	9.27
Buy	1.69	<0.01	5.43	1.85	<0.01	6.38
Hold	−0.70	0.06	0.50	−0.37	0.16	0.69
*Affil*StrBuy*	0.03	0.40	1.03	0.05	0.25	1.05
*Affil*Buy*	−0.32	<0.01	0.73	−0.06	0.20	0.94
*Affil*Hold*	−1.05	<0.01	0.35	−0.16	0.23	0.86

The duration for the Cox regressions is the time from equity issue to downgrade within a two-year window, with adjustment for left truncation and for right censoring at the end of the two-year window. Estimation is stratified within issuing company for H1, and within analyst for H2. *Affil* = 1 if the Securities Data Corporation listed the analyst as a manager, comanager, or joint manager for the equity issue, and 0 otherwise. *StrBuy*, *Buy*, or *Hold* = 1 if the analyst's initial post-issue recommendation was Strong Buy, Buy, or Hold, respectively, and 0 otherwise.

alignment of events in this test, in which we compare client with nonclient issuers for each analyst. Different issuers will have bad news events at different times, and so the durations will be less comparable than in our within-issuer analysis. We conjecture that the strength of our main results in the within-analyst tests reported in table 5 derives from issuers timing equity offerings at performance peaks. The full two-year window allows us to capture more downgrades, both in number and in percent, for companies with subsequent performance declines.

We perform two additional sensitivity analyses. First, we omit analysts covering fewer than four issuers (from the within-analyst tests) or issuers with fewer than four analysts (from the within-issuers tests), to examine the effect of sparse observations. Our results in this analysis are nearly identical

to those reported in table 5, indicating that sparsely covered firms and relatively inactive analysts have little influence. Second, we omit co-managers from the affiliated group of analysts, because this group may have different incentives from lead underwriters. We find similar results, although generally slightly weaker than those reported in table 5, consistent with the smaller sample size used in these tests. If co-managers were misclassified in the affiliated group, then removing them should have made our results stronger, as the separation between groups would be sharper. The fact that removing them does not strengthen the results supports our classification of co-managers in the affiliated group.

Taken as a whole, the duration model results provide support for the conjecture that affiliated analysts delay downgrades for client companies, relative to unaffiliated analysts and relative to nonclient companies. We also find evidence that affiliated analysts upgrade more quickly than unaffiliated analysts when the initial recommendation is Hold, although they are not faster to upgrade from Buy. The fact that our results regarding delayed downgrades are quite consistent across different approaches to the data gives us greater confidence in them.

5. Summary and Conclusions

This paper examines analysts' recommendations for a sample of 3,731 companies making IPOs or SEOs during 1994–2001 to test for evidence that analyst impartiality is compromised by investment banking ties. Specifically, we test the hypothesis that analysts delay downgrading recommendations about their employers' underwriting clients.

In our descriptive analysis, we find that investors have access to proportionately less unaffiliated research in the months immediately following an offering, particularly for IPOs. This occurs because analysts affiliated with underwriter banks issue recommendations sooner following an offering and in substantially greater numbers than unaffiliated analysts. We also find that unaffiliated analysts drop coverage in proportionately greater numbers than affiliated analysts. The delay by unaffiliated analysts in initiating coverage and their greater propensity to drop coverage contribute to an environment in which affiliated analysts may have significantly greater influence on investor expectations around equity offerings than for nonissuing companies or for the issuing companies at other times.

In tests of our main hypotheses, we find that investment banking relationships have a significant influence on analysts' timeliness. We find affiliated analysts downgrade significantly more slowly than unaffiliated analysts from Buy or Hold. When the initial recommendation is Strong Buy, we find affiliated analysts either slower than or indistinguishable from unaffiliated analysts. We also find that affiliated analysts upgrade significantly faster from Hold than unaffiliated analysts. Taken together, these results suggest that analysts delay the disclosure of negative information and accelerate favorable information to maintain a Buy recommendation on client

companies. These results reinforce the Lin and McNichols [1998] finding that investors view Hold recommendations issued by affiliated analysts as a significantly negative signal, and as a more negative signal than when issued by unaffiliated analysts.

Our findings provide little support for the notion that affiliated analysts try to maintain a Strong Buy rating on client companies. While the within-bank tests indicate that analysts downgrade client companies more slowly than nonclient companies, we also find that analysts upgrade client companies to Strong Buy more slowly than nonclient companies. Furthermore, in the within-issuer tests, affiliated analysts downgrade from Strong Buy no more slowly than unaffiliated analysts. Our findings also provide little support for the notion that affiliated analysts draw on their access to management and their superior knowledge of the firm to provide information to investors on a more timely basis, as affiliated analysts update more quickly only when upgrading their Hold ratings.

These findings are relevant to informing potential reform efforts of analysts' research and underscore the findings of McNichols and O'Brien [1997] that selection plays a major role in analysts' coverage decisions. The reform effort aims to increase the availability of objective research about companies. We find that unaffiliated analysts provide no recommendations in the two years following an offering for 40% of the companies making IPOs, and that they more frequently drop coverage after initially providing recommendations. For our sample period, and consistent with earlier research, we find that affiliated analysts provide significantly more favorable recommendations for issuing companies than are provided by unaffiliated analysts. In addition, affiliated analysts are slower to downgrade from Buy and Hold ratings and are significantly faster to upgrade from Hold, suggesting that they are not an unbiased source of information to investors. Taken together, the findings indicate that reform efforts must carefully weigh the incentives of affiliated and unaffiliated analysts to initiate coverage and communicate the results of their research.

Lastly, our findings are relevant for understanding analysts' role in providing information to investors, particularly in the IPO market. Our findings indicate that banking ties substantially motivated analysts to cover newly public companies, but also suggest the ties motivate them to delay releasing bad news about clients. Two open questions are whether investors were aware of these influences on research coverage during our sample period and how ongoing reform efforts will influence the information environment of newly public firms in the future.

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