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The Quiet Period Goes out with a Bang

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ABSTRACT

We examine the expiration of the IPO quiet period, which occurs after the 25th calendar day following the offering. For IPOs during 1996 to 2000, we find that analyst coverage is initiated immediately for 76 percent of these firms, almost always with a favorable rating. Initiated firms experience a five-day abnormal return of 4.1 percent versus 0.1 percent for firms with no coverage. The abnormal returns are concentrated in the days just before the quiet period expires. Abnormal returns are much larger when coverage is initiated by multiple analysts. It does not matter whether a recommendation comes from the lead underwriter or not.

COMPANIES PARTICIPATING in an initial public offering (IPO) face numerous regulatory restrictions that prohibit certain activities while the company is "in registration." After completion of an IPO, a firm is still considered to be in registration for an additional period of time. During this time, 25 days during our sample period which is termed the post-IPO "quiet" period, firms may make statements of fact regarding business developments and may respond to inquiries from analysts and shareholders regarding factual matters. However, U.S. Securities and Exchange Commission (SEC) regulations generally prohibit firms and their underwriters from publishing opinions concerning valuation and from making forward-looking statements regarding earnings, revenues, and similar items. The logic behind the SEC's quiet period regulations is that all material information should be contained in the prospectus.

Although there is an extensive literature concerning equity IPOs, this paper appears to be the first to specifically examine events surrounding the end of the quiet period.[1] For 1,611 IPOs over the period 1996 to 2000, we find that analyst coverage is initiated immediately 76 percent of the time following quiet period

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[1] We have recently learned of two other studies that examine the end of the quiet period. Carter, Piwowar, and Strader (2001) examine the quiet period for a relatively limited sample in 1999 and Ofek and Richardson (2003) focus exclusively on Internet-related firms. The results in both papers are consistent with ours.

expiration, almost always with a "buy" or "strong buy" rating. The percentage of firms with coverage initiated rises over the period we study, reaching 95 percent by 2000.

Firms that have coverage initiated experience a significant, positive market-adjusted return of 4.1 percent in a $(-2,+2)$-day window surrounding the end of the quiet period, compared to 0.1 percent for firms that do not have coverage initiated. Very commonly, more than one analyst will initiate coverage. To evaluate the impact of multiple initiations, we introduce and test the "confirmation" hypothesis, which posits that market reactions will be more pronounced when multiple banks initiate coverage at the same time. We find strong support for this conjecture. Five-day cumulative market-adjusted returns for firms with three or more analysts initiating coverage average 6.4 percent, compared to 1.7 percent for firms with a single analyst.

Previous research suggests that market reactions to the initiation of coverage may depend on whether or not the lead underwriter is involved. Michaely and Womack (1999), for example, find that the market tends to react less positively to lead underwriter recommendations, which they interpret as evidence in favor of the "conflict of interest" hypothesis. In our sample, after controlling for the number of analysts initiating, the presence or absence of the lead underwriter makes no difference.

We also find that most of the abnormal returns experienced by firms with coverage initiated occur in the days *before* the quiet period expires. There is a pronounced run-up in the last several days of the quiet period, and the largest average abnormal returns are observed on the last day of the quiet period. In contrast, volume is largest in the days following expiration. We suggest that the abnormal returns/volume pattern is consistent with investors following the standard Wall Street dictum of "buy on the rumor, sell on the news."

The pre-event run-up is more pronounced for firms that ultimately receive multiple initiations, so the market is evidently able to predict not only which firms are likely to have coverage initiated, but also which ones will have multiple initiations. We show that the number of managing underwriters in a syndicate is a very good indicator of this. As with previous studies of IPO lockup expirations, these results raise a significant market efficiency issue, since the end of the quiet period is known well in advance with complete certainty.

We also evaluate whether the abnormal returns depend on ratings strength. We document that the preevent run-up is most closely related to the number of eventual initiations as opposed to ratings strength. However, firms that receive "strong buy" ratings earn significant incremental abnormal returns when the initiations occur, so there is perceived information in these recommendations.

In addition to being the first paper to investigate the stock market reaction to analyst initiations at the end of the quiet period, we also make several other contributions. Using data on analyst recommendations from a number of sources, we report that almost all IPOs in recent years have coverage initiated at the end of the quiet period. In contrast, prior studies have reported a much lower level of analyst coverage. We also report recommendations of analysts during 1999 to

2000, a period that has recently been the focus of criticism of analyst recommendations (see, e.g., Elkind (2001)).

To more closely explore what types of firms have coverage initiated, we examine a multilevel logistic regression model, where the dependent variable equals the number of initiations. We find that the likelihood of coverage increases for firms with (1) venture capital backing, (2) Nasdaq listing, (3) more managing underwriters, (4) greater size (in terms of market capitalization), and (5) more initial underpricing.

The remainder of this paper is organized as follows. The next section discusses previous research on market reactions to the initiation of analyst coverage and also provides background concerning the quiet period. Section II describes the data and presents preliminary analyses. Section III examines the impact of the initiation of coverage at the end of the quiet period, and Section IV evaluates the determinants of coverage. Section V concludes the paper.

I. Background

In this section, we review previous studies concerning market reaction to analyst recommendations and the hypotheses that have been advanced to explain that behavior. We then provide some basic institutional background on the IPO quiet period.

A. Previous Studies of Analyst Recommendations

Several recent studies examine market reactions to analyst recommendations, focusing on analysts affiliated with the lead underwriter compared to nonlead analysts. As discussed in Michaely and Womack (1999), there are two primary competing hypotheses: (1) the "conflict of interest" hypothesis and (2) the "superior information" hypothesis.

The conflict of interest hypothesis posits that lead underwriters have an incentive to issue positively biased recommendations for the firms they underwrite. Alternatively, the superior information hypothesis states that the lead underwriter's recommendation should be more informative than other analyst recommendations because the lead underwriter gains valuable information from the due diligence and selling process. A related conjecture, the "certification" hypothesis, suggests that the lead underwriter has reputational incentives to issue accurate depictions of the true value of the firm (e.g., Carter and Manaster (1990) and Megginson and Weiss (1991)).

Michaely and Womack (1999) find strong evidence for the conflict of interest hypothesis. In their sample of IPOs from 1990 to 1991, they document four supportive findings. First, looking at "buy" recommendations only, 50 percent more "buys" come from lead underwriters than nonlead underwriters in the first two months following the IPO. Second, prices for firms recommended by lead underwriters have fallen before a recommendation is made while firms recommended by nonlead underwriters have risen, which is consistent with the lead underwriter attempting to prop up the price for IPOs they have recently underwritten.

Third, they find that announcement period abnormal returns are smaller when lead underwriters initiate compared to nonlead underwriters, indicating that the market discounts lead underwriter recommendations. Finally, the long-term stock performance of the firms that lead underwriters recommend is worse than the long-term performance of the firms that nonlead underwriters recommend.

Several other papers investigate the affiliation of investment banks and issuing firms. Lin and McNichols (1998) and Branson, Guffey, and Pagach (1998) find that the market reacts similarly to lead and nonlead underwriter "buy" recommendations, contrary to Michaely and Womack (1999). Thus, conflicting evidence exists on this issue.

B. The IPO Quiet Period

The IPO quiet period begins on or before a firm files its preliminary registration with the SEC, and, for firms that list on a major market, during our sample period it ends 25 calendar days after the IPO. In July, 2002, the SEC changed this to 40 calendar days. The precise beginning date is intentionally not specified by the SEC, but it is generally understood that a firm is "in registration" by the time it reaches an agreement with its lead underwriter, and possibly as early as when the firm's board approves an IPO.

What a firm can and cannot do during the quiet period is outlined in SEC Release #5180, *Guidelines for the Release of Information by Issuers whose Securities Are in Registration* (U.S. Securities and Exchange Commission, 1971), which states:

> It has been suggested that the Commission promulgate an all inclusive list of permissible and prohibited activities in this area. This is not feasible for the reason that determinations are based upon the particular facts of each case. However, the Commission as a matter of policy encourages the flow of factual information to shareholders and the investing public. Issuers in this regard should:
>
> (1) Continue to advertise products and services.
> (2) Continue to send out customary quarterly, annual and other periodic reports to stockholders.
> (3) Continue to publish proxy statements and send out dividend notices.
> (4) Continue to make announcements to the press with respect to factual business and financial developments; i.e., receipt of a contract, the settlement of a strike, the opening of a plant, or similar events of interest to the community in which the business operates.
> (5) Answer unsolicited telephone inquiries from stockholders, financial analysts, the press and others concerning factual information.
> (6) Observe an "open door" policy in responding to unsolicited inquiries concerning factual matters from securities analysts, financial analysts, security holders and participants in the communications field who have a legitimate interest in the corporation's affairs.
> (7) Continue to hold stockholder meetings as scheduled and to answer shareholders' inquiries at stockholder meetings relating to factual matters.

In order to curtail problems in this area, issuers in this regard should avoid:

(1) Issuance of forecasts, projections, or predictions relating but not limited to revenues, income, or earnings per share.
(2) Publishing opinions concerning values.

Because the end of the quiet period marks the first opportunity for firms and their underwriters to make forward-looking statements and give valuation opinions, it makes an excellent laboratory for the study of market reactions to information release.[2] The lead underwriter has, at this point, a very close relationship with the newly public firm. If there is pressure on analysts to issue favorable recommendations, then that pressure may be particularly acute immediately after an underwriter takes a firm public. At the same time, the underwriter has just completed the due diligence and selling process, so its informational advantage, if any, may be particularly large.

In addition, because the firms we study have been public for a very short time, and often have a relatively short operating history, there is considerable uncertainty regarding their values. This uncertainty is heightened by the fact that the firm has been in a quiet period for an extended time, implying that the flow of information to investors has been limited to purely factual matters. Once the quiet period ends, there is the possibility for significant share price revisions as investors receive new information.

Anecdotal evidence from the financial press (Scott (1999)) suggests that the end of the quiet period can have dramatic repercussions for shareholders:

> It's hard not to notice quiet periods these days. They're so noisy. In theory, the so-called quiet period is a time around a company's initial public offering when neither the company nor its IPO underwriters can talk up the stock. That could be considered shareholder fraud under securities laws.
>
> Last week, the Linux software outfit called Red Hat (RHAT) came out of its quiet period with a bang by issuing three press releases and receiving three Buy recommendations from its IPO underwriters' firms. That was Tuesday, the day the stock shot up from 87 to 108, or 24%.

Comments similar to this one are quite common, and numerous Web sites now track the end of the quiet period. Trading strategies that involve buying a stock just before the quiet period ends are widely touted, but hard evidence on the returns from such strategies is lacking.

Although the end of the quiet period does not appear to have been specifically studied in previous research, several recent studies have examined the

[2] Although SEC regulations prohibit the public dissemination of earnings forecasts during the quiet period (unless they are in the prospectus), it is standard practice in road show presentations to institutional investors to orally disclose the earnings forecasts of the lead underwriter's analyst.

expiration of IPO lockup agreements. These agreements act to prohibit insider sales before a prespecified date, usually 180 calendar days after the IPO. Since insiders often own a majority of the firm, and the lockup expiration represents the first opportunity for insiders to sell, the potential for an increase in the supply of tradable shares following lockup expiration could have a significant effect on the value of the stock. Bradley et al. (2001), Field and Hanka (2001), and Brav and Gompers (2002) document significant negative abnormal returns of approximately two percent around lockup expiration.

What is puzzling about this finding is that the expiration date is known in advance. For any given firm, positive or negative abnormal returns may occur if market participants infer unexpectedly good or bad news from perceived insider selling, but, on average, the abnormal returns should be zero in an efficient market.[3] Like the lockup period, the quiet period ends on a particular calendar date that is known well in advance. Price increases or decreases at its expiration are the subject of our next section.

II. Data and Preliminary Analyses

A. Data

Our IPO data are from the Thomson Financial Securities Data U.S. Common Stock Initial Public Offerings database, covering a period of five years, January 1996 through December 2000. According to Thomson Financial, there were 2,767 U.S. initial common stock offerings during this time. Consistent with previous IPO research, we eliminate closed-end funds, depositary shares, real estate investment trusts (REITs), spinoffs, unit issues, reverse leveraged buyouts, banks, and savings and loans. We also eliminate shares with original file range midpoints under eight dollars and firms with missing stock return data in the Center for Research in Securities Prices (CRSP) database, leaving a final sample of 1,611 observations.[4]

B. Sample Statistics

Table I provides descriptive statistics on offering characteristics. As shown, the average amount of gross proceeds is $71.6 million. The average first-day return, based on the offer price to the first CRSP-reported closing price, of 37.3 percent is larger than that found in most previous research, reflecting the generally

[3] Announcement effects, measured over a several-day window, are typically not sensitive to the estimation model. Thus, the joint hypothesis problem that plagues studies of long-term abnormal returns is not an important consideration.

[4] CRSP covers Nasdaq, AMEX, and NYSE issues, but excludes foreign firms listed on Nasdaq. We also delete 32 firms for which analysts initiated coverage before the end of the quiet period. In most cases, these firms were subject to public reporting requirements prior to the IPO, and thus were not subject to quiet period regulations. For example, United Parcel Service (UPS), which was already subject to public reporting requirements because it had more than 500 pre-IPO shareholders, went public on November 10, 1999. On November 18 and 19, at least a dozen banks, including the lead underwriter, initiated coverage.

Table I
Descriptive Statistics

This table provides descriptive statistics on IPO offering characteristics. Offer amount is defined as the global number of shares offered, not including any overallotment option, times the offering price. Initial return is defined as the percentage change in the first day closing price relative to the offer price. Number of managing underwriters is the number of lead and co-managers involved in the IPO. Lead underwriter market share is the average equity IPO market share (domestic IPOs only, proceeds plus any overallotment option, with full credit given to co-leads) of the lead underwriter in the year of the IPO. IPO data are from the Thomson Financial Securities Data U.S. Common Stock Initial Public Offerings database from January 1, 1996 to December 31, 2000. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample. Closing stock price data to calculate first-day returns are from CRSP.

Variable	*N*	Mean	Std. dev.	Minimum	Maximum
Offer amount (mil $)	1,611	71.6	145.3	5.4	2,925.6
Initial return (%)	1,611	37.3	65.6	− 43.3	697.5
Number of managing underwriters	1,611	2.9	1.08	1	14
Lead underwriter market share (%)	1,611	4.84	5.95	0.00	24.5

high initial returns in the latter part of the 1990s, especially in 1999 and the first half of 2000. The average number of managing underwriters is 2.9. The average market share of the lead underwriter, calculated based on total equity IPO proceeds in the year of the IPO, is 4.84 percent.[5]

C. Initial Event Study Results

If firms systematically announce positive material information, or if analysts systematically issue favorable recommendations at the time the quiet period expires, market participants should anticipate these announcements, and, on average, we should not observe a significant abnormal return at the end of the quiet period. This observation leads to our first testable hypothesis. On average, firms will not experience significant abnormal returns at the expiration of the quiet period.

Although our null hypothesis is that the average firm will not experience an abnormal return, some firms will naturally experience a positive surprise if the information released is better than expected, and vice versa. Nonetheless, if expectations are unbiased, the average should be insignificantly different from zero.

[5] More precisely, we calculate each lead underwriter's market share in each year, where market share is based on the proceeds from domestic IPOs (including any overallotment options that are exercised) with full credit given to coleads. For the purpose of averaging across IPOs, this value is assigned to every IPO led by that underwriter in the calendar year. For IPOs with colead managers, the market share of the underwriter with the highest market share is assigned to the IPO.

To test this hypothesis, we rely on standard event study methods. Given that the event date is only 26 calendar days after the IPO, we use market-adjusted returns (*MAR*s) as our measure of abnormal returns. Because almost 90 percent of our sample is Nasdaq-listed, we use the Nasdaq Composite (from CRSP) as our market index.[6]

Panel A of Table II provides results for the entire sample. Day 0 is the first trading day after the 25th calendar day since trading commenced. There is a clear clustering of significant abnormal returns in the days surrounding the end of the quiet period. Panel B shows that the average cumulative market-adjusted return (*CMAR*) for the five-day $(-2,+2)$ window is 3.12 percent, which is highly significant.[7] Nonparametric results, as indicated by the positive to negative proportions test, support the parametric findings.

Table II also shows that significant abnormal returns begin to occur several days before the end of the quiet period. The second and third lines of Panel B decompose the $(-2,+2)$ window into a $(-2,-1)$ pre-event window and a $(0,+2)$ post-event window. As shown, out of a total five-day *CMAR* of 3.12 percent, 2.32 percent occurs in the two-day pre-event period. The single largest daily abnormal return, 1.50 percent, occurs on day -1, and abnormal returns are positive and significant on every day in the $(-5,-1)$ window. In contrast, the *CMAR* for the three-day $(0,+2)$ window is only 0.80 percent, which is significant at the five percent level.[8]

As with the price drops associated with lockup expirations, the significant abnormal returns in Table II at the end of the quiet period appear to be inconsistent with market efficiency because the relevant dates are known ahead of time with complete certainty. The fact that the abnormal returns occur in advance of the event date is similarly puzzling. Another important aspect of the results in Table II is that, although the average abnormal returns are positive and significant in the period surrounding the event window, the median abnormal returns are much smaller, reflecting positive skewness in the distribution of the abnormal returns. In other words, it may be that the abnormal returns are driven by a subset of the firms in the sample. We explore this possibility next.

[6] We have also calculated abnormal returns using the CRSP equal-weighted and value-weighted indices as a robustness check. None of our qualitative conclusions are affected by the choice of index.

[7] Many of our five-day *CMAR*s overlap, and there is industry clustering in our sample, so we do not assume independence. To control for dependence, we use the time-series portfolio approach with a 100-day post-event estimation period beginning on day +20. With this approach, a single variance is estimated for the entire portfolio rather than combining individual variances. Using this approach with a shorter $(-13,-3)$-day pre-event window produces similar results. See, for example, Brown and Warner (1980, pp. 251–252) for details on this approach.

[8] Our five-day *CMAR*s have a slight positive bias relative to a five-day buy-and-hold market-adjusted return because of the daily rebalancing bias. Specifically, a stock that goes up 10.00 percent one day and then down 9.09 percent the next will have a two-day cumulative return of 0.91 percent, even though the ending price is the same as the starting price. The magnitude of this bias is less than 0.2 percent for our five-day *CMAR*s.

Table II
Event-Study Results: Entire Sample

This table provides event-study results for the entire sample of 1,611 firms with data available from CRSP. Day 0 marks the end of the IPO quiet period, which is the 26th calendar day following the IPO (or the first trading day thereafter). The generalized sign z tests the null hypothesis that the percentage of positive returns is the same as in the estimation period assuming independence. Panel A presents market-adjusted returns using the Nasdaq Composite index. Panel B presents cumulative market-adjusted returns using the Nasdaq Composite index. IPO data for January 1, 1996 to December 31, 2000 are from Thomson Financial. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

Panel A: Market-adjusted Returns (*MAR*s)

Day	Average *MAR* (%)	*t*-statistic	*N*	Median *MAR* (%)	Positive/ negative	Generalized sign *z*
−5	0.66	3.29	1,611	0.11	1.05	3.88
−4	0.49	2.45	1,611	−0.06	0.96	2.23
−3	0.57	2.85	1,611	0.02	1.03	3.48
−2	0.83	4.17	1,611	0.11	1.06	4.08
−1	1.50	7.52	1,611	0.46	1.22	6.88
0	0.62	3.10	1,611	−0.12	0.93	1.48
1	0.26	1.29	1,611	−0.29	0.88	0.48
2	−0.07	−0.37	1,611	−0.41	0.81	−1.27
3	−0.22	−1.11	1,611	−0.43	0.78	−1.92
4	−0.27	−1.33	1,611	−0.45	0.81	−1.22
5	−0.43	−2.16	1,611	−0.58	0.75	−2.67

Panel B: Cumulative Market-adjusted Returns (*CMAR*s)

Window	Average *CMAR* (%)	*t*-statistic	*N*	Median *CMAR* (%)	Positive/ negative	Generalized sign *z*
(−2,+2)	3.12	7.03	1,611	1.56	1.39	9.52
(−2,−1)	2.32	8.26	1,611	0.84	1.32	8.52
(0,+2)	0.80	2.33	1,611	−0.13	0.97	2.38

III. The Impact of Analyst Recommendations

A. Analyst Initiations at the End of the Quiet Period

To investigate the abnormal returns documented in the previous section more closely, we examine information released at the end of the quiet period. Specifically, for each firm in our sample, we searched the Dow Jones Publications Library for all newswire items and articles containing the firm's name published in the (−2,+2) trading day window surrounding the end of the quiet period. When coverage is initiated, we recorded the investment bank and the rating. We also recorded information on earnings announcements, insider transactions, and any other news.

The Dow Jones Publications Library ceased to provide information on analyst coverage after July 1999, so we turned to two other sources, the industry

publication *IPO Reporter* and the web site Briefing.com, both of which have usable data on initiations beginning in January 1998, but not before. For the period January 1998 to July 1999, these three sources overlap, and we collected data from all three. Finally, for January through December 2000, we also used IPO Monitor for data on initiations. Because we use multiple data sources beginning in January 1998, the comprehensiveness of our sample is better for 1998 to 2000 than it is for 1996 to 1997.[9]

Of the 1,611 companies in our sample, 1,229, or 76 percent, have at least one analyst initiating coverage in the five-day period surrounding the expiration of the quiet period. Because we only consider the $(-2,+2)$-day window, firms that receive analyst coverage after day +2 are not considered as initiated at the end of the quiet period, so this 76 percent may be conservative. Although we begin our search on day -2 to capture all news items in the $(-2,+2)$ window, all recommendations occur on days 0, +1, and +2. By way of comparison, Michaely and Womack (1999) and Rajan and Servaes (1997) report noticeably smaller coverage frequencies, and the time periods in these studies range from one to three years after the IPO. For example, Rajan and Servaes report analyst coverage for 56 percent of their sample from 1975 to 1987 during the first three years following the IPO. However, only one-third of these are during the first year following the IPO.[10] Industry professionals tell us that the higher frequency of coverage in our sample is both because the frequency of analyst recommendations has increased significantly, and the data sources used in prior studies are less complete than ours.

Table III provides summary statistics for analyst ratings. There are a total of 2,747 recommendations made for the 1,229 firms that have coverage initiated at the end of the quiet period.

Unfortunately, analyst ratings are not fully standardized. In our appendix, we provide a listing of the numerical scores that we assign to the ratings of the more prominent brokerage firms. In general, 1 = "strong buy," 2 = "buy," 3 = "accumulate," 4 = "hold," and 5 = "sell." A number of firms do not use the term "strong buy," and we assign a rating of 1 to their strongest recommendation. Thus, we assign a rating of 1 to a "buy" if it comes from Bear Stearns; Donaldson, Lufkin & Jenrette; Lehman; or J.P. Morgan, but we use a 2 if the rating comes from Alex Brown; Credit Suisse First Boston; or Hambrecht & Quist. First Call and I/B/E/S do the same. In the text, we will refer to the highest rating from an underwriter as a "strong buy" and the second highest as a "buy," whether or not the broker uses these terms.

Panel A of Table III provides the number of analyst ratings in each category. The average rating across all groups is 1.72. Consistent with previous studies,

[9] We compared our data to two additional sources, I/B/E/S and First Call. In both cases, our sample is significantly more complete. In January 1996, for example, First Call has 4 initiations compared to 18 in our sample. By 2000, however, First Call's coverage captures over 90 percent of our initiations.

[10] Chen and Ritter (2000, Table IV) report coverage during the year after issuance for IPOs from 1985 to 1997. In their subperiod analysis, there is a slight increase in I/B/E/S coverage between 1985 to 1987 and 1988 to 1994, but no further increase between 1988 to 1994 and 1995 to 1997.

Table III

Analyst Ratings and Coverage Frequency at the End of the Quiet Period

This table provides descriptive statistics on analyst ratings and coverage frequency. In Panel A, analyst ratings are based on a five-point scale (i.e., 1 is the best possible rating, "strong buy," and 5 is the worst, "sell"). Panel B presents information on coverage frequency. Panel C provides ratings based on the affiliation of the investment bank issuing a recommendation (lead versus nonlead). All ratings occur at the end of the quiet period. Analyst data are from the Dow Jones Publications Library from January 1996 to July 1999, the *IPO Reporter* and Briefing.com from January 1998 to December 2000, and IPO Monitor from January 2000 to December 2000. Unit issues, REITs, closed – end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

Panel A: Analyst Ratings

		Ratings				
N ratings	Average rating	1 (Strong buy)	2 (Buy)	3 (Accumulate)	4 (Hold)	5 (Sell)
2,747	1.72	896	1,731	119	1	0

Panel B: Coverage Frequency

		Number of analysts initiating coverage				
N firms	Ratings per firm	0	1	2	3	4+
1,611	1.71	382	355	378	371	125

Panel C: Ratings Based on Affiliation of the Investment Bank (Lead vs. Nonlead)

			Ratings				
Affiliation	*N* ratings	Average rating	1 (Strong buy)	2 (Buy)	3 (Accumulate)	4 (Hold)	5 (Sell)
Lead/Co-lead	1,089	1.65	412	644	33	0	0
Nonlead	1,658	1.76	484	1,087	86	1	0

initial recommendations are generally positive. About 96 percent of all recommendations are either "strong buy" or "buy" (63 percent are "buy"). Out of 2,747 ratings, there is only one rating of "hold" and not a single "sell" rating.

Panel B of Table III provides the number of analysts initiating coverage. Out of 1,611 firms in all, 382 do not have coverage initiated within our five-day window, leaving 1,229 with coverage by at least one analyst. For the firms that have coverage initiated, a roughly equal number have coverage initiated by either one, two, or three analysts, and these three categories account for about 30 percent each. The largest number of initiations observed is seven, which occurs in only two cases (LendingTree and Webvan).

If lead underwriters issue positively biased recommendations relative to nonlead underwriters, as suggested by the conflict of interest hypothesis, then it should be the case that, on average, lead underwriters issue higher ratings. To examine this issue, Panel C of Table III classifies ratings based on whether the initiating bank was the lead underwriter. As shown, the average ratings are similar, 1.65 versus 1.76, with leads slightly more bullish. Lead-bank analysts rate issues as either "strong buy" or "buy" 97 percent of the time, compared to 95 percent for nonlead analysts. Thus, lead underwriters do give higher ratings, on average, but the difference is small.

We now turn to the impact of the initiation of analyst coverage at the end of the quiet period. We focus on four specific questions:

1. Do firms receiving analyst coverage experience the same abnormal returns as firms with no coverage initiated?
2. Do firms receiving coverage that includes the lead underwriter experience the same abnormal returns as other firms receiving coverage?
3. Do firms receiving coverage from multiple analysts experience the same abnormal returns as firms receiving coverage from a single analyst?
4. Do firms receiving stronger ratings experience the same abnormal returns as firms receiving weaker ratings?

B. Event Study Results Partitioned by Analyst Coverage

To investigate whether analyst coverage is driving the abnormal returns previously documented, we partition our sample based on whether or not coverage is initiated and repeat our event-study analysis. The average abnormal return for the 1,229 firms that have coverage initiated is 4.1 percent during the $(-2,+2)$-day event window, which is highly significant. The average abnormal return for the noninitiations category in the same window is 0.1 percent.

Figure 1 summarizes this analysis by plotting the *CMAR*s for the initiations and noninitiations subsamples over a 21-day $(-10,+10)$ window. As shown, the cumulative market-adjusted increase in value of the initiations group is about six percent. The *CMAR* for the noninitiations group over this period is an insignificant negative one percent. Thus, it appears that analyst coverage is driving the abnormal returns documented in Table II.

Figure 1 also reinforces our earlier observations regarding the pre-event run-up in prices. From day -10 through day -1, the average firm with coverage

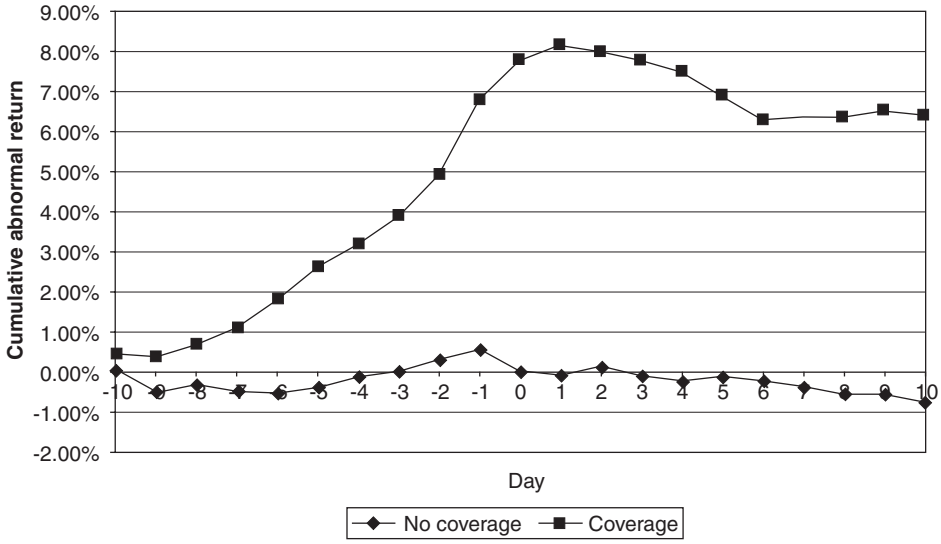

Figure 1. Cumulative market-adjusted returns: Initiation and noninitiation samples. This figure plots cumulative market-adjusted returns for the initiation and noninitiation samples surrounding the end of the quiet period. Day 0 is the event day. The window $(-10,+10)$ is plotted. The average abnormal return for the 1,229 firms that have coverage initiated is 4.1 percent during the $(-2,+2)$-day event window, which is highly significant. The average abnormal return for the noninitiations category in the same event window is 0.1 percent, which is not significantly different from zero. IPO data are from the Thomson Financial database from January 1, 1996, to December 31, 2000. Analyst data are from the Dow Jones Publications Library from January 1996 to July 1999, the *IPO Reporter* and Briefing.com from January 1998 to December 2000, and IPO Monitor from January 2000 to December 2000. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

initiated experiences a *CMAR* of almost seven percent. Over the same period, the noninitiations group has a *CMAR* of almost exactly zero. This result is especially striking because no firms in our sample have coverage initiated before day 0, so market participants are evidently able to ascertain which firms will ultimately receive coverage.

Two potential (and nonexclusive) explanations for the market's apparent clairvoyance regarding initiations are (1) analyst behavior is highly predictable and (2) there is information leakage.[11] We explore the predictability issue in a subsequent section. Information leakage does seem to occur, at least to some extent. For example, CNBC commentators will on occasion remark that a particular bank is "expected" to initiate coverage after the close of trading and will even suggest what the rating is going to be.

[11] Of course, a third explanation is that analysts tend to initiate coverage on firms that have increased in value toward the end of the quiet period. We explore the relation between stock price performance and the initiation of coverage in a subsequent section.

The zero *CMAR* experienced for firms that do not have coverage initiated is also of interest. Conceivably, analysts tend to not initiate coverage on firms when they are unwilling to issue a positive recommendation. If this were true, then we might expect firms with no coverage to decline in value. We call this the "no news is bad news" hypothesis, but, as Figure 1 shows, there is little evidence of this. However, our noninitiations sample includes an unknown number of firms that actually do have coverage initiated, but are not identified as such in our data sources, or who initiate more than three days after the end of the quiet period. As a result, the apparent lack of reaction in this sample may be the product of a mixture of firms that do and do not have coverage initiated.

A potential issue with our analysis thus far is the possibility that firm-specific news releases may occur around the time of analyst initiations. In our sample, there were 439 firms with some kind of other information released in the five-day event window. We simply deleted these firms and repeated the analysis. After the deletions, there are 885 firms with coverage initiated. In unreported results, we find that these firms experience a highly significant average five-day *CMAR* of 3.9 percent compared to an insignificant 0.2 percent for the 287 firms that do not have coverage initiated. Thus, our conclusions remain the same after deleting potentially confounding observations.

C. Multiple Initiations and the Confirmation Hypothesis

As we noted in a previous section, a majority (about 70 percent) of the firms in our initiations sample have coverage initiated by more than one analyst. It does not appear that the effect of simultaneous multiple initiations has been specifically considered in previous studies. We therefore introduce the "confirmation" hypothesis, which posits that market participants will find recommendations more informative when there are multiple initiations.

Confirmation may be important for at least two reasons. First, if lead banks tend to issue positively biased recommendations, as suggested by Michaely and Womack (1999), then another opinion from a nonlead bank could be useful to market participants for assessing whether a particular lead bank recommendation is biased. In contrast, if lead banks have superior information, then nonlead banks have incomplete information. If the lead bank does not initiate coverage, multiple initiations by nonlead banks may carry greater weight than a single initiation, particularly if market participants believe that the nonlead banks have differential information.

To examine whether market reactions depend on the number of analysts initiating, Panel A of Table IV further partitions our sample by reporting the five-day *CMAR*s based on the number of analysts that initiate coverage in each year. Two apparent patterns emerge. First, consistent with the confirmation hypothesis, the *CMAR*s tend to be larger, on average, when more than one analyst initiates coverage. For example, looking across all five years, the five-day *CMAR* is 6.5 percent when three analysts initiate coverage compared to 3.2 percent for two analysts and 1.7 percent for a single analyst. Within each individual year, the *CMAR*s are generally increasing in the number of initiations. Second, multiple initiations become more common through time (on a percentage basis). In 1996, single

Table IV

Average Cumulative Five-day Returns Categorized by the Number of Analyst Initiations

This table provides information on the number of analysts initiating coverage and the associated average cumulative market-adjusted return (*CMAR*). Cumulative market-adjusted returns in the (−2,+2)-day trading window surrounding the end of the quiet period are presented above the number of IPOs. The average cumulative raw return for all firms in the five-day trading window surrounding the end of the quiet period is denoted as *RAW*. Panel A includes the entire sample, by year. Panel B categorizes firms as large or small based on whether the firm is above or below the median market capitalization on day −3 of firms going public in its calendar year. IPO data for January 1, 1996 to December 31, 2000 are from Thomson Financial. Analyst data are from the Dow Jones Publications Library from January 1996 to July 1999, the *IPO Reporter* and Briefing.com from January 1998 to December 2000, and IPO Monitor from January 2000 to December 2000. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

Panel A: By Calendar Year of Issue

	Number of analysts initiating					Mean cumulative five-day returns	
Year	0	1	2	3	4+	*CMAR*	*RAW*
1996	1.2%	1.3%	4.6%	6.2%	4.0%	2.0%	2.0%
	209	178	90	14	5	496	496
1997	1.2%	2.7%	3.5%	3.3%	6.0%	1.5%	1.7%
	107	97	73	24	1	302	302
1998	0.8%	0.5%	5.6%	5.4%	8.2%	4.2%	4.3%
	26	27	64	50	10	177	177
1999	−3.2%	0.6%	2.0%	8.0%	4.3%	4.5%	6.2%
	28	33	75	161	66	363	363
2000	−0.5%	4.1%	0.8%	5.6%	8.6%	4.3%	4.4%
	12	20	76	122	43	273	273
All years	0.1%	1.7%	3.2%	6.5%	6.1%	3.1%	3.6%
	382	355	378	371	125	1,611	1,611

Panel B: By Market Capitalization of Firms, All Years Combined

	Number of analysts initiating					Mean cumulative five-day returns	
	0	1	2	3	4+	CMAR	*RAW*
Large firms	−0.2%	2.2%	3.5%	6.2%	4.4%	3.4%	3.7%
	152	163	179	220	90	804	804
Small firms	0.3%	1.3%	3.0%	7.0%	10.4%	2.9%	3.4%
	230	192	199	151	35	807	807

initiations occurred 62 percent of the time (for firms that had coverage). By 2000, this percentage had fallen to eight percent. Part of this increase in multiple initiations is probably attributable to an increase in the comprehensiveness of our sample and/or increased disclosure to the general public of analyst recommendations.

Implicit in our use of market-adjusted returns throughout the analysis to this point is the assumption that the typical IPO has a beta of 1.0 (relative to the Nasdaq Composite). If this beta is too small, then our abnormal returns are overstated, since the average market return is positive during our sample period. However, the last two columns of Table IV show that even if the average IPO in our sample had a Nasdaq-relative beta of 2.0, the average five-day *CMAR* would only change by approximately 0.5 percent. Thus, the relatively large *CMAR*s do not appear to be an artifact of a faulty risk adjustment procedure. Although we only report results for 1996 to 2000, the average five-day *CMAR* is at least 1.1 percent in every single year from 1990 to 2000, including 1990, 1994, and 2000, the three years during which the Nasdaq index fell.

In Panel B of Table IV, we divide firms into two groups based on size. Because stock market valuations grew substantially over the five years we study, we classify a firm as "large" if its total market capitalization on day -3 (including all classes of stock) was above the median size in its calendar year, and vice versa for "small" IPOs. As shown, small firms are more likely to have no coverage. However, the *CMAR*s are of similar magnitudes for a given number of analysts initiating. Most noticeably, in both cases, there is a clear tendency for the *CMAR*s to be larger when multiple banks initiate coverage.

Figure 2 provides some additional evidence on this point by plotting the *CMAR*s over the 21-day $(-10,+10)$ window based on the number of analysts initiating. The plots show a relatively clear pattern of larger abnormal returns for firms with multiple initiations, with most of the returns occurring before day 0. Over the $(-10,-1)$ period, firms that ultimately receive coverage from three or more analysts have an abnormal gain of approximately 11 percent, compared to 6 percent for firms with two analysts initiating and 3 percent for firms with single coverage. Thus, the market evidently anticipates not only which firms will have coverage, but, to at least some extent, the number of analysts who will initiate as well.

Figure 3 is similar to Figure 2, except that average daily share turnover is plotted rather than abnormal returns. We calculate turnover for a particular firm on a given day as the total trading volume (in shares) for the day divided by the number of shares offered in the IPO. We examine turnover rather than raw volume to control for the widely differing number of shares in the public float among the firms in our sample.

As shown in Figure 3, the behavior of volume generally mirrors that of the abnormal returns in that firms with multiple initiations have greater turnover than firms with single or no initiations. However, unlike the abnormal returns, the largest values for turnover are observed on days 0, +1, and +2, that is, the days on which the recommendations are formally announced.

Taken together, the patterns exhibited in Figures 2 and 3 are consistent with the conventional Wall Street wisdom of "buy on the rumor, sell on the news." In

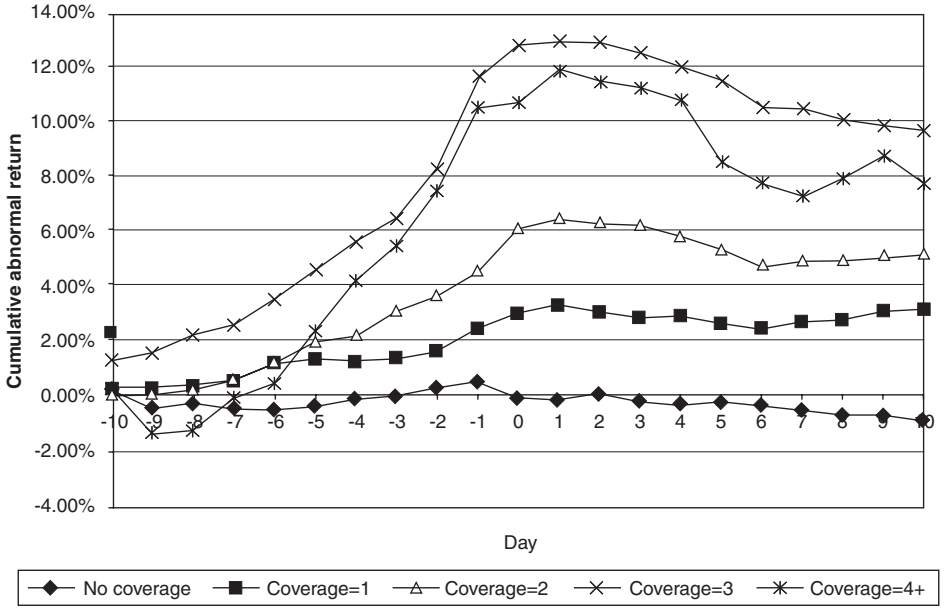

Figure 2. Cumulative market-adjusted returns by coverage frequency. This figure plots cumulative market-adjusted returns by coverage frequency at the end of the quiet period. Day 0 is the event day. The window $(-10,+10)$ is plotted. IPO data are from the Thomson Financial database from January 1, 1996 to December 31, 2000. Analyst data are from the Dow Jones Publications Library from January 1996 to July 1999, the *IPO Reporter* and Briefing.com from January 1998 to December 2000, and IPO Monitor from January 2000 to December 2000. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

other words, one simple explanation is that at least some investors begin to accumulate shares in anticipation of coverage, leading to the observed preevent, positive abnormal returns. Once the recommendations are made, these same investors liquidate positions, leading to the volume spike on days 0, +1, and +2. An even more likely scenario is that institutional investors who were allotted shares in the IPO postpone their selling until after coverage is initiated. In fact, a number of hedge fund managers have told us that this is exactly the strategy that they pursue, having noticed the preexpiration run-up that we document. This behavior would also account for the pattern of negative abnormal returns observed postevent.[12]

In Table V, we examine the impact of initiations by the lead underwriter, and we also evaluate more formally the effect of multiple initiations. To begin, using all

[12] It should also be noted that the exercise date for overallotment options is almost always 30 calendar days after the IPO, and that "penalty bids," which discourage selling, are typically no longer enforced after 25 to 30 days.

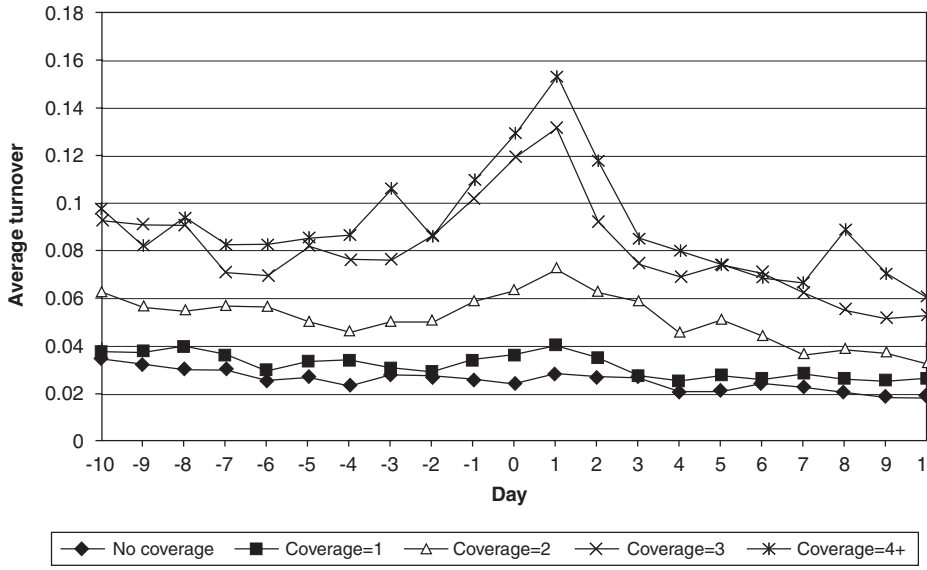

Figure 3. Turnover by coverage frequency. This figure plots the average turnover by coverage frequency at the end of the quiet period. Turnover is defined as volume scaled by the number of shares offered in the IPO. Day 0 is the event day. The window $(-10,+10)$ is plotted. IPO data are from the Thomson Financial database from January 1, 1996, to December 31, 2000. Analyst data are from the Dow Jones Publications Library from January 1996 to July 1999, the *IPO Reporter* and Briefing.com from January 1998 to December 2000, and IPO Monitor from January 2000 to December 2000. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

the firms in our sample, including those that do not have coverage initiated, we first estimate the following regression:

$$CMAR(-2,+2)_i = b_0 + b_1 \cdot INIT_i + \varepsilon_i, \tag{1}$$

where

$CMAR(-2,+2)_i$ = five-day $CMAR$ for firm i;

$INIT_i$ = dummy variable equal to one if coverage is initiated for firm i, zero otherwise; and;

ε_i = OLS residuals.

In equation (1), the intercept of the regression is the event window abnormal return for firms that are not initiated. The dummy variable *INIT* captures the incremental effect from initiation.

As shown in regression 1 in Panel A of Table V, the abnormal return for firms that have coverage initiated is 3.98 percent more ($p < 0.001$) than the 0.1 percent intercept for firms that do not have coverage initiated.

Regression 2 in Table V adds another dummy variable, *LEAD*, which takes on a value of one if a lead underwriter initiates coverage, and zero otherwise.

The estimated coefficient is 3.17 percent ($p = 0.005$), indicating that the abnormal return is significantly higher when a lead initiates. This result appears to support the superior information hypothesis as opposed to the conflict of interest hypothesis.

Regression 3 in Table V evaluates the effect of multiple initiations by dropping *LEAD* and adding the dummy variable *MULT*, which equals one if more than one bank initiates, and zero otherwise. As shown, the incremental impact from a multibank initiation relative to a single-bank initiation is economically large, 3.31 percent, and highly significant ($p < 0.001$).

Regression 4 includes both *LEAD* and *MULT* to evaluate the relative importance of the two effects. The coefficient on *MULT* is still almost 3 percent and highly significant, but *LEAD* drops from 3.17 to 1.76, and is no longer statistically significant ($p = 0.16$). Thus, once we account for the effect of multiple initiations, the presence or absence of the lead appears to make little or no difference. This result suggests that, in regression 2, *LEAD* is mainly proxying for multiple initiations.

Regression 5 further examines the confirmation effect by dropping *LEAD* and adding *PLUS*, which takes on a value of one if three or more analysts initiate, and zero otherwise. With this variable added, *MULT* now measures the impact of moving from one to two analysts, and *PLUS* evaluates the effect of moving from two to three or more. The average abnormal return for firms that have more than two underwriters initiating coverage (the sum of all the coefficients in regression 5) is a substantial 6.39 percent.

Regression 6 returns *LEAD* to the regression and also adds two control variables. The first control variable, *EARN*, is one if there is an earnings announcement during the five-day event window, and zero otherwise. The second, *LSIZE*, is the natural logarithm of the IPO offer size. Including these variables has a relatively minor impact. Notably, however, the coefficient on *LEAD* is still insignificant ($p = 0.30$).

In regression 7, we change the dependent variable from the five-day $(-2,+2)$ *CMAR* to the two-day, $(-2,-1)$ preevent *CMAR*. Consistent with the plots in Figure 2, the coefficient on *PLUS* is larger and highly significant. Finally, in regression 8, we repeat the analysis using the three-day $(0,+2)$ *CMAR*. No variable is significant at even the 10 percent level.

A potential drawback to the analysis in Panel A of Table V is that we do not consider ratings strength. In other words, we implicitly treat all initiations the same and therefore do not differentiate between, for example, "strong buy" and "buy" recommendations. One way to control for this is to eliminate firms that receive any recommendation other than "buy." Doing so reduces our sample size by 45 percent, from 1,611 to 878. It also changes the composition in an important way. The percentage of firms with three or more initiations drops from 31 percent of the sample to 13 percent.

Panel B of Table V repeats the last three regressions in Panel A using the "buy"-only subsample. The results in regression 9 are broadly similar to those in regression 6 for the whole sample. The coefficient on *LEAD* is now negative, which is consistent with the conflict of interest hypothesis, but it remains insignificant

TableV

Regressions with the Number of Initiations as Independent Variables

This table provides regression results (with *p*-values in parentheses) on the impact of lead versus nonlead initiations and multiple initiations of analyst coverage. The dependent variable is the percentage cumulative market-adjusted return, *CMAR*, centered on the quiet period expiration date. Regressions 1 to 6 and 9 use a $(-2,+2)$-day window period. Regressions 7 and 10 use a $(-2,-1)$-day window period, and regressions 8 and 11 use a $(0,+2)$-day window period. A dummy variable equal to one if coverage is initiated, and zero otherwise, is denoted as *INIT*. A dummy variable equal to one if coverage is initiated by a lead underwriter, and zero otherwise, is denoted as *LEAD*. A dummy variable equal to one if coverage is initiated by more than one analyst, and zero otherwise, is denoted as *MULT*. A dummy variable equal to one if coverage is initiated by more than two analysts, and zero otherwise, is denoted as *PLUS*. The natural log of the offer size (global gross proceeds) is *LSIZE*. A dummy variable equal to one if an earnings announcement was made in the event window, and zero otherwise, is denoted as *EARN*. Panel A presents results for all analyst ratings for 1,611 IPOs while Panel B is restricted to the 878 IPOs with either no initiations or where all of the ratings are "buy." IPO data for January 1, 1996, to December 31, 2000, are from Thomson Financial. Analyst data are from the Dow Jones Publications Library from January 1996 to July 1999, the *IPO Reporter* and Briefing.com from January 1998 to December 2000, and IPO Monitor from January 2000 to December 2000. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

Panel A: All Ratings

Dep. variable	Regression	Intercept	*INIT*	*LEAD*	*MULT*	*PLUS*	*LSIZE*	*EARN*	Adj. R^2
$(-2,+2)$	1	0.10	3.98						
		(0.905)	(0.001)						0.013
$(-2,+2)$	2	0.10	1.30	3.17					
		(0.905)	(0.312)	(0.005)					0.017
$(-2,+2)$	3	0.10	1.63		3.31				
		(0.904)	(0.125)		(0.001)				0.020
$(-2,+2)$	4	0.10	0.55	1.76	2.73				
		(0.904)	(0.678)	(0.159)	(0.006)				0.021
$(-2,+2)$	5	0.10	1.63		1.53	3.13			
		(0.904)	(0.124)		(0.151)	(0.001)			0.026

(−2,+2)	6	0.17	0.92	1.31	1.39	3.43	−0.95	0.46	
		(0.065)	(0.483)	(0.297)	(0.219)	(0.001)	(0.065)	(0.701)	0.027
(−2,−1)	7	8.13	0.06	0.83	0.19	3.69	−0.47	1.03	
		(0.201)	(0.945)	(0.289)	(0.784)	(0.001)	(0.223)	(0.165)	0.044
(0,+2)	8	10.63	0.83	0.54	1.14	−0.36	−0.64	−0.55	
		(0.159)	(0.459)	(0.613)	(0.234)	(0.673)	(0.143)	(0.584)	0.002
Panel B: Buy-only Ratings									
(−2,+2)	9	11.75	1.19	−0.50	2.19	2.11	−0.69	2.98	
		(0.245)	(0.351)	(0.712)	(0.099)	(0.159)	(0.238)	(0.032)	0.018
(−2,−1)	10	7.54	0.71	−0.60	1.53	3.72	−0.41	1.94	
		(0.240)	(0.381)	(0.489)	(0.090)	(0.001)	(0.263)	(0.028)	0.048
(0,+2)	11	4.21	0.48	0.10	0.66	−1.61	−0.27	1.03	
		(0.616)	(0.650)	(0.933)	(0.547)	(0.196)	(0.570)	(0.369)	0.000

($p = 0.71$). At the same time, the coefficients on *MULT* and *PLUS* are of the same order of magnitude as in our Panel A regressions, suggesting that confirmation is important for these firms. The coefficient on the simultaneous earnings announcement dummy becomes much larger and significant ($p = 0.03$).

The buy-only sample results based on the preevent *CMAR*s (regression 10) and postevent *CMAR*s (regression 11) generally mirror those for the full sample in regressions 7 and 8. Overall, whether the full sample or the smaller, buy-only sample is used, the basic conclusions are not greatly affected, so ratings strength does not have a strong influence on these results. Whether ratings strength matters at all is examined in our next subsection.

In summarizing our findings to this point, several things seem clear. Firms with coverage initiated experience much larger abnormal returns than firms with no coverage, and much of the effect occurs prior to the end of the quiet period. We also find relatively strong evidence in favor of the confirmation hypothesis; firms that ultimately have multiple initiations experience significantly larger abnormal returns than firms that have single or no initiations. However, after controlling for multiple initiations, we find no evidence that the market reacts differently when the lead underwriter initiates coverage, so our results favor neither the conflict of interest hypothesis nor the superior information hypothesis.

There is a potentially important caveat concerning this last conclusion. As it turns out, virtually all of the analyst recommendations in our sample (97 percent) come from either the lead underwriter or one of the comanagers in the syndicate. As a result, when we compare analyst recommendations by lead versus nonlead underwriters, what is actually compared is mostly lead versus comanagers. Michaely and Womack (1999) argue that the lead bank is still in a unique position even when there are comanagers in the deal, so this fact does not necessarily invalidate such comparisons, but it does mean that virtually all of our recommendations are coming from analysts at banks with at least some stake in the IPO. Because we have almost no truly unaffiliated banks making recommendations, the argument could be made that most of our initiations come from entities with varying degrees of conflict of interest.

D. Does Ratings Strength Matter?

In this section, we more closely examine the effect of ratings strength. As our previous analysis indicates, the number of analysts initiating coverage is important. However, it is not clear from that analysis whether there is any additional effect from higher versus lower ratings.

Evaluating whether ratings strength matters is complicated by the existence of multiple initiations. One obvious tactic would be to compute the average (or perhaps median) rating for each firm in our sample and use it as an explanatory variable. The drawback to this approach is that it treats a firm with a single "buy" rating the same as a firm with multiple, identical "buy" ratings. Our previous analysis shows that doing so is inappropriate. Using the average also ignores potential information in any spread in ratings. For example, a firm with a single "buy"

rating is not distinguished from a firm with two ratings, one of "strong buy" and one of "accumulate." Finally, the use of a simple average rating implicitly treats the one-point intervals in our ratings scale as meaningful.

To address these issues, we evaluate the effect of ratings strength while controlling for the categorical nature of the data by estimating the following regression:

$$CMAR(t_1, t_2)_i = b_0 + \sum_{j=1}^{3} b_{1,j} \cdot STRONG_j + \sum_{j=1}^{3} b_{2,j} \cdot BUY_j + \sum_{j=1}^{2} b_{3,j} \cdot SUB_j + \varepsilon_i \quad (2)$$

where

$CMAR(t_1, t_2)_i$ = $CMAR$ for firm i over the (t_1, t_2) window;

$STRONG_j$ = dummy variable equal to one if firm i receives j or more "strong buy" recommendations, j = 1,2,3, and zero otherwise;

BUY_j = dummy variable equal to one if firm i receives j or more "buy" recommendations, j = 1,2,3, and zero otherwise;

SUB_j = dummy variable equal to one if firm i receives j or more sub-"buy" recommendations, j = 1,2, and zero otherwise; and

ε_i = OLS residuals.

With this setup, $STRONG_1$ measures the impact of a single "strong buy" rating, and $STRONG_2$ ($STRONG_3$) captures the incremental impact of a second (third) "strong buy" (holding all other ratings constant). The variables for the BUY_j and SUB_j ratings can be interpreted in the same way. We do not estimate a coefficient for three or more sub-buy ratings because so few firms receive such negative ratings. Compared to using the average rating, the approach in equation (2) has the advantage that it distinguishes between, for example, firms with varied ratings and firms with only one type of rating. It also does not assume that the ratings scale is numerically meaningful, and it allows us to estimate the incremental effects of multiple ratings of a particular type.

Beginning with the $(-2, -1)$ preevent window, the results in Table VI show that four of the variables, $STRONG_1$, $STRONG_3$, BUY_2, and BUY_3, are positive and significant at conventional levels, while one of the variables, SUB_2, is significantly negative. Two additional variables, BUY_1 and SUB_1 are positive and significant at the 10 percent level.

The results for the preevent window also show that the biggest incremental impact (5.06 percent) is observed for firms that ultimately receive three or more "strong buy" ratings, and the most negative incremental impact (-8.45 percent) occurs for firms that receive two or more "sub-buy" ratings.[13]

[13] Interestingly, only one IPO, that of Goldman Sachs in May 1999, received more than three "sub-buy" ratings. At the expiration of the quiet period, Goldman, which was the lead underwriter in its own IPO, did not initiate coverage. Five other major banks did, with one rating of 3 ("accumulate") and four ratings of 4 ("hold"), by far the most negative overall evaluation of any firm in our sample. The Goldman Sachs IPO had an unusually large 13 managers. Ironically, Goldman had superior long-term performance, with a 45 percent return from the end of May 1999 through March 2002, a period during which the S&P 500 fell 13 percent.

Table VI

Regressions with Ratings as the Explanatory Variables

This table provides regression results of analyst ratings. The dependent variable is the cumulative market-adjusted return, *CMAR*, measured over the preannouncement period (−2, −1), the announcement period (0,+2), or the entire quiet period expiration period (−2,+2). A dummy variable equal to one if one or more ratings of strong buy are given, and zero otherwise, is denoted as $Strong_1$. A dummy variable equal to one if two or more ratings of strong buy are given, and zero otherwise, is denoted as $Strong_2$. A dummy variable equal to one if three or more ratings of strong buy are given, and zero otherwise, is denoted as $Strong_3$. Ratings for *buy* and *sub-buy* are defined in the same manner. IPO data for January 1, 1996 to December 31, 2000, are from Thomson Financial. Analyst data are from the Dow Jones Publications Library from January 1996 to July 1999, the IPO Reporter and Briefing.com from January 1998 to December 2000, and the IPO Monitor from January 2000 to December 2000. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

Variable	*CMAR* (−2, −1)	*p*-value	*CMAR* (0,+2)	*p*-value	*CMAR* (−2,+2)	*p*-value
Intercept	0.20	0.611	−0.10	0.854	0.10	0.870
$Strong_1$	1.11	0.032	2.01	0.004	3.12	0.001
$Strong_2$	1.10	0.182	1.34	0.226	2.44	0.063
$Strong_3$	5.06	0.004	6.35	0.007	11.41	0.001
Buy_1	0.98	0.074	0.50	0.504	1.48	0.093
Buy_2	1.72	0.006	−0.89	0.293	0.83	0.404
Buy_3	2.02	0.020	−0.15	0.900	1.87	0.175
Sub_1	1.59	0.090	−3.31	0.009	−1.72	0.250
Sub_2	−8.45	0.016	−2.71	0.565	−11.17	0.046
Observations	1,611		1,611		1,611	
Adjusted R^2	0.042		0.023		0.046	

The second set of results in Table VI focuses on the (0,+2) postevent period. If the market fully anticipates initiations, then none of the coefficients should be significant, meaning that the actual public announcements have no incremental information on average. We find, however, that $STRONG_1$, $STRONG_2$, and $STRONG_3$ are positive, relatively large, and, for two of the coefficients, significant at conventional levels. Furthermore, both SUB_1 and SUB_2 are negative. Thus, revealed ratings strength does matter, and there is imperfect anticipation of these ratings.

The final set of estimates in Table VI covers the entire $(-2,+2)$-day window. Notice that, by construction, the coefficients are simply the sum of the preevent and postevent coefficients and therefore combine the impact of preevent anticipation and postevent revelation. They summarize the overall conclusions we draw from our analyses, which is that the significant *CMAR*s observed in the days surrounding the expiration of the quiet period are the sum of two effects. The first effect is the preevent run-up. The market seems to anticipate which firms will have initiations, and, further, which firms will have multiple initiations. However, the market does not fully anticipate what the actual recommendations will be, so there is a further postevent adjustment.

IV. How Predictable Is Analyst Coverage?

Our results in previous sections show that the initiation of coverage is anticipated by market participants. The market can, to at least some degree, discern which firms will have coverage initiated and the extent of multiple initiations, but not necessarily the overall ratings strength. Our goal in this section is to examine the degree of preevent predictability regarding the initiation of coverage.

A. The Number of Managers and the Predictability of Coverage

As we discussed previously, virtually all of the initiations in our sample come from a deal manager, meaning either the lead manager or a comanager. Market participants know both the number of managers and their identity well in advance of the quiet period expiration, and this information may be useful in predicting both which firms are likely to have coverage initiated and also which firms are more likely to have multiple initiations.

Table VII presents some evidence on this issue. For each year, we divide the IPOs in our sample into groups based on the number of managing underwriters, where the number ranges from 1 to 6+. For each group, we provide the percentage of firms with coverage initiated at the end of the quiet period, the average number of managers initiating coverage, and the number of IPOs. Examining the table, several patterns are apparent. First, there has been a general increase in the number of managers. In 1996 and 1997, the mode is two managers. In 1998, having three managers is more common than two, and in 1999 and 2000, three managers is the norm.

As shown in the last column of Table VII, as we move from 1996 to 2000, the percentage of firms with coverage initiated rises from 57.9 percent to 95.6

Table VII

Analyst Coverage Partitioned by the Number of Managing Underwriters

This table presents analyst coverage partitioned by the number of managers (lead manager(s) and comanager(s)) participating in the IPO and by year. The percentage of IPOs with at least one initiation of research coverage within three trading days of the end of the quiet period is denoted as % coverage. Mean initiations is the average number of analysts initiating coverage. IPO data for January 1, 1996 to December 31, 2000 are from Thomson Financial. Analyst data are from the Dow Jones Publications Library from January 1996 to July 1999, the *IPO Reporter* and Briefing.com from January 1998 to December 2000, and IPO Monitor from January 2000 to December 2000. Price data are from CRSP. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

	Number of Managers Participating in an IPO						
	1	2	3	4	5	6+	All IPOs
			Panel A: 1996				
% coverage	17.1	56.0	66.9	65.1	57.1	75.0	57.9
Mean initiations	0.17	0.73	1.04	1.16	1.43	1.50	0.85
Number of IPOs	35	241	166	43	7	4	496
			Panel B: 1997				
% coverage	23.5	62.9	76.5	54.5	75.0	50.0	64.6
Mean initiations	0.24	0.85	1.48	1.14	1.75	1.50	1.06
Number of IPOs	17	159	98	22	4	2	302
			Panel C: 1998				
% coverage	33.3	86.2	93.3	87.0	71.4	100.0	85.3
Mean initiations	0.33	1.43	2.29	2.74	2.57	2.50	1.95
Number of IPOs	12	58	75	23	7	2	177
			Panel D: 1999				
% coverage	11.1	87.8	95.8	94.3	94.4	100.0	92.3
Mean initiations	0.11	1.54	2.57	2.96	3.06	3.40	2.56
Number of IPOs	9	41	167	123	18	5	363
			Panel E: 2000				
% coverage	66.7	69.2	95.7	100.0	100.0	100.0	95.6
Mean initiations	0.33	1.38	2.42	2.99	2.81	3.44	2.60
Number of IPOs	3	13	139	93	16	9	273
			Panel F: All Years				
% coverage	21.1	64.4	85.1	88.5	86.5	90.9	76.3
Mean initiations	0.22	0.93	1.95	2.57	2.60	2.82	1.69
Number of IPOs	76	512	645	304	52	22	1,611

percent, and the average firm moves from 0.85 to 2.60 analysts initiating.[14] As we have previously noted, to some extent this increase in coverage reflects the more comprehensive public reporting of initiations as time goes by, along with the growth in different data sources available to us. In other words, the quality of our data probably improves over time, but it seems unlikely that this is the sole reason for the sharp increase in coverage.

The trend towards more managers is probably due in part to the increased size of IPOs over our sample period. However, anecdotal evidence suggests that firms going public, particularly in the later years of our sample, specifically sought multiple managers.[15] One specific reason commonly cited was to increase the amount of analyst coverage (Krigman, Shaw, and Womack (2001)), and Table VII clearly shows that, on average, firms with more managers do generally receive more coverage. Figure 4 presents some evidence on this point by plotting *CMAR*s over the $(-10,+10)$-day window for four groups based on whether the underwriting syndicate has one, two, three, or four or more managers.

Examining Figure 4, there is a clear tendency for firms with more managers to have greater abnormal returns. In fact, this figure bears a very strong overall resemblance to Figure 2, which is based on the number of actual initiations. However, the preevent abnormal returns are consistently larger in Figure 2, so the number of managers alone does not entirely explain the market's apparent ability to anticipate initiations. We also note that this figure only deepens the efficient markets issue raised by Figure 2 because a single, easily observable value (the number of managers) has such strong predictive power.

B. Underwriter Identity

In addition to the number of managers in an IPO, the identity of the specific underwriters involved may also convey useful information. Conceivably, certain underwriters are more predictable than others in terms of their behavior, both in terms of the probability of an initiation and the likely rating. To give an example, consider the investment banking unit of Robertson Stephens. Over the five years covered by our study, this unit appears under four different organizational names

[14] In 1999 and 2000, most of the IPOs where we record no analyst coverage in fact did have analysts initiating coverage, but outside of our three-day window following the end of the quiet period. Some initiated a day or two later, and some IPOs from early December saw the end of the quiet period falling between Christmas and New Year's Day, and coverage was not initiated until after New Year's Day.

[15] Conventional wisdom at the time further suggested that three underwriters, "one on the left, one in the middle, and one on the right" (referring to the appearance of the prospectus) was desirable. There was even the suggestion that one of the underwriters should be a well-established, high prestige bank with a large institutional customer base, the second might be more of a "boutique" bank specializing in the relevant industry, and the third might be a bank with a large retail base. How important or prevalent these notions were is not something we can specifically address; however, Table VII does show a trend toward having three or four managers. In 1999 and 2000, a fourth or fifth manager was frequently an "e-manager" such as E-Offering. Such e-managers have a low propensity to initiate coverage, which partly explains why moving from four to five or more managers has little impact on the mean number of initiations.

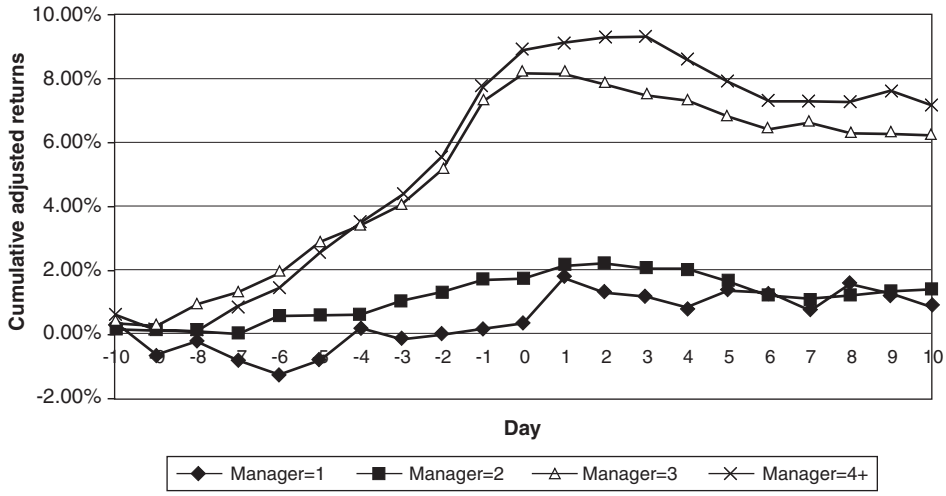

Figure 4. Cumulative market-adjusted returns by number of managing underwriters. This figure plots cumulative market-adjusted returns by the number of managing underwriters at the end of the quiet period. Day 0 is the event day. The window $(-10,+10)$ is plotted. IPO data are from the Thomson Financial database from January 1, 1996 to December 31, 2000. The number of managers is equal to the number of lead and comanagers involved in the IPO. Analyst data are from the Dow Jones Publications Library from January 1996 to July 1999, the *IPO Reporter* and Briefing.com from January 1998 to December 2000, and IPO Monitor from January 2000 to December 2000. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

(Robertson Stephens, BancAmerica Robertson Stephens, BancBoston Robertson Stephens, and FleetBoston Financial Robertson Stephens). Taken together, in our sample, these entities led a total of 120 IPOs. They initiated coverage in 103 of these, with a "buy" recommendation in every case except for one offering in 1996. Other lead underwriters with little or no cross-sectional variation in the ratings that they initiated at are DLJ, with its top rating in 53 out of 56 cases; Lehman, with a "strong buy" in 44 out of 48 cases; Montgomery Securities, with a "strong buy" in 18 out of 18 cases; and JP Morgan, with its top rating in 20 out of 20 cases. In general, this lack of variation for these banks is also present when they are comanagers as well.[16]

Because of the extensive mergers and acquisition activity in the investment banking industry, many of the investment banks in our sample did not maintain an unchanged organizational identity. These changes make it difficult to track a particular bank through time, and, as a result, we are limited in our ability to directly examine the question of whether some banks are more predictable in their behavior than others. Table VIII therefore presents only some indirect sum-

[16] Recall that not all banks use the exact term "strong buy," and, in our analyses, "strong buy" actually means "strongest observed recommendation in our sample."

mary evidence on this point, focusing on the lead bank. In the table, for each year in our sample, we identified the top five banks in terms of the number of deals led. For each bank and for each year, we report (1) the number of deals led, (2) the percentage of cases in which the lead initiates, (3) summary details on ratings, (4) the lead bank market share, and (5) the average cumulative market-adjusted return at the expiration of the quiet period.

Table VIII illustrates that, not surprisingly, there is an increase in the frequency with which the lead bank initiates. In the 1998 to 2000 period, the typical lead bank initiates about 90 percent of the time. In the next section, we expand on this analysis by considering a broader set of variables that may be useful in predicting initiations.

C. A Logistic Model of Analyst Initiations

In this final section, we explore the predictability of initiations using a logistic regression model. The multilevel dependent variable takes on values of zero, one, two, or three, where the values are the number of analysts initiating coverage (a value of three indicates three or more analysts). The specific independent variables we examine are all measurable and publicly known before the end of the quiet period. Thus, we examine the extent to which analyst coverage can be predicted using information known ex ante to market participants.

Table IX presents the results of our logistic regressions. The independent variables are

VC = dummy variable equal to one if the firm is VC-backed, and zero otherwise;

NAS = dummy variable equal to one if the firm is Nasdaq-listed, and zero otherwise;

MAN = number of managing underwriters in the IPO syndicate;

LSIZE = log of total market capitalization on day -3;

TURN = turnover, defined as the average trading volume over a 10-day interval ending on day -3 divided by the total number of shares offered in the IPO;

SHARE = the proceeds weighted IPO market share of the lead underwriter in percent in the calendar year the firm went public;

TECH = dummy variable equal to one if the firm is in a high-tech industry, and zero otherwise;[17]

PERFORM = percentage gain or loss from the first day close to day -3 close; and

UNDER = underpricing calculated as the percentage difference from the offer price to the first day close.

Some of these variables are observable as early as the IPO file date (e.g., *VC*), while others are observable either on the IPO date (e.g., *UNDER*) or just before the quiet period expires (e.g., *PERFORM*). The use of market share (*SHARE*) as a proxy for underwriter reputation or prestige, introduced by Megginson and

[17] In the SDC database, certain firms are classified as high-tech based on four-digit SIC codes, but the application is somewhat inconsistent. We obtained the underlying codes from SDC and applied them to our sample. The full list of codes is available on request.

Table VIII

Characteristics of the Top Five Underwriters in Each Year

The number of IPOs in our sample on which the underwriter was the lead or colead underwriter is denoted as "Deals led." The percentage of times the lead bank initiated coverage is denoted as "% lead coverage." The average rating of the lead bank (with one being the most positive rating) is denoted "Average rating." The maximum and minimum ratings given by the lead bank are denoted, respectively, as "Max rating" and "Min rating." The average equity IPO market share (domestic IPOs only, proceeds plus any overallotment option, with full equal credit given to coleads) of the lead underwriter in the year of the IPO is denoted as "Market share (%)." The average cumulative market-adjusted return in the five-day $(-2,+2)$ trading window surrounding the end of the quiet period is denoted as *CMAR* IPO data for January 1, 1996 to December 31, 2000 are from Thomson Financial. Analyst data are from the Dow Jones Publications Library from January 1996 to July 1999, the *IPO Reporter* and Briefing.com from January 1998 to December 2000, and IPO Monitor from January 2000 to December 2000. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

Bank	Deals led	% lead coverage	Average rating	Max rating	Min rating	Market share (%)	*CMAR* (%)
1996							
Alex Brown	37	67.6	1.80	1	3	5.3	0.9
Montgomery	27	40.7	2.00	2	2	2.8	−0.8
H&Q	26	57.7	1.80	1	2	2.0	0.4
Merrill Lynch	26	57.7	1.93	1	3	6.5	2.6
Robertson Stephens	26	76.9	2.05	2	3	2.6	8.3
1997							
Alex Brown	20	85.0	1.53	1	2	1.7	1.1
Montgomery	18	44.4	2.00	2	2	1.7	2.6
Goldman Sachs	16	25.0	1.75	1	2	15.6	0.4
DLJ	16	37.5	1.00	1	1	5.1	1.6
H&Q	13	92.3	1.83	1	2	1.2	1.1
1998							
Goldman Sachs	16	81.3	1.85	1	2	7.4	10.4
BT Alex Brown	14	100.0	1.50	1	2	2.2	2.3
Morgan Stanley	13	69.2	1.67	1	3	22.0	7.4
BA Robertson	12	91.6	2.00	2	2	1.3	6.8
Salomon Smith	11	72.7	1.75	1	2	7.4	2.3

1999							
CSFB	42	83.3	1.74	1	2	8.9	8.0
BancBoston	41	95.1	2.00	2	2	3.5	1.6
Goldman Sachs	36	97.2	1.76	1	3	19.6	3.7
DLJ	30	93.3	1.00	1	1	5.9	5.9
Morgan Stanley	28	67.8	2.29	2	3	19.4	5.7
2000							
CSFB	44	84.0	1.72	1	2	9.9	5.4
Goldman Sachs	30	86.7	1.73	1	2	24.5	2.1
Fleet Boston	29	82.8	2.00	2	2	3.4	−2.0
Chase H&Q	24	87.5	1.86	1	2	2.8	4.4
Morgan Stanley	22	81.2	1.94	1	3	12.4	−3.4

Table IX

Logistic Regression Results

This table provides logistic regression results. The p-values are in parentheses and odds ratios are in italics. The dependent variable is a multilevel variable that equals one if coverage is initiated by one analyst, two if coverage is initiated by two analysts, three if coverage is initiated by more than two analysts, and zero otherwise. A dummy variable equal to one if the firm is venture capital backed, and zero otherwise, is denoted as *VC*. A dummy variable equal to one if the firm is Nasdaq listed, and zero otherwise, is denoted as *NAS*. The number of managing underwriters in the IPO syndicate is denoted as *MAN*. The natural logarithm of market capitalization (in millions) of the firm on day −3, where day 0 is the expiration of the quiet period, is denoted as *LSIZE*. Turnover (*TURN*) is average volume over a 10-day interval ending on day −3 scaled by shares offered in the IPO. The average IPO market share (domestic IPOs only, proceeds plus any overallotment option, with full credit given to coleads) of the lead underwriter in the year of the IPO is denoted as *SHARE*. A dummy variable equal to one if the firm is in a high-tech industry, and zero otherwise, is denoted as *TECH*. The percentage difference between the first post-IPO closing price and the closing price on day −3 is denoted as *PERFORM*. The initial return, defined as the percentage difference between the offer price and the closing price on the first day of trading, is denoted as *UNDER*. The intercepts are not reported and year dummies are included but not reported. IPO data for January 1, 1996, to December 31, 2000, are from Thomson Financial. Analyst data are from the Dow Jones Publications Library from January 1996 to July 1999, the IPO Reporter and Briefing.com from January 1998 to December 2000, and the IPO Monitor from January 2000 to December 2000. Price data are from CRSP. Unit issues, REITs, closed-end funds, depositary shares, reverse LBOs, spinoffs, banks, savings and loans, firms with original file range midpoints less than eight dollars, firms with missing return data from CRSP, and firms with initiations before the end of the quiet period are not included in our sample.

Years	*N*	*VC*	*NAS*	*MAN*	*LSIZE*	*TURN*	*SHARE*	*TECH*	*PERFORM*	*UNDER*	$Pr > \chi^2$
All	1,611	0.491	0.817	0.723	0.244	1.742	0.001	0.174	0.204	0.388	0.0001
		(0.001)	(0.001)	(0.001)	(0.001)	(0.104)	(0.939)	(0.113)	(0.337)	(0.003)	
		1.63	*2.26*	*2.06*	*1.28*	*5.71*	*1.00*	*1.19*	*1.23*	*1.47*	
1996–1998	975	0.499	0.707	0.657	0.317	1.308	−0.015	0.258	−0.101	−0.046	0.0001
		(0.001)	(0.001)	(0.001)	(0.001)	(0.406)	(0.324)	(0.058)	(0.788)	(0.843)	
		1.65	*2.03*	*1.93*	*1.37*	*3.70*	*0.99*	*1.30*	*0.90*	*0.96*	
1999–2000	636	0.413	0.979	0.818	0.166	2.352	0.013	0.088	0.318	0.553	0.0001
		(0.041)	(0.011)	(0.001)	(0.187)	(0.122)	(0.420)	(0.648)	(0.252)	(0.003)	
		1.52	*2.27*	*2.27*	*1.18*	*10.50*	*1.01*	*1.09*	*1.37*	*1.74*	

Weiss (1991), is very common. "Day −3" refers to the third trading day before the end of the quiet period, which is the last trading day before our (−2,+2) window.

Using these independent variables, Table IX presents three sets of estimates. The first covers all years in our sample. The second and third regressions cover the 1996 to 1998 and 1999 to 2000 subperiods, respectively. Parameter estimates and their associated *p*-values and odds ratios are reported, along with a chi-square test for overall significance.

Examining the first regression in Table IX, which includes the full sample, a number of the variables are highly significant. In particular, the VC-backing dummy (*VC*), the Nasdaq-listing dummy (*NAS*), the number of managing underwriters (*MAN*), size (*LSIZE*), and underpricing (*UNDER*) have *p*-values of 0.003 or smaller. Turnover is significant at the 11 percent level. Our measure of the lead bank's prestige (*SHARE*) is not significant.

Table IX also shows that post-IPO stock price performance (*PERFORM*) is not significant, indicating that the likelihood of analyst coverage does not depend on secondary market performance. This result indicates that cause and effect are not reversed in our earlier discussions, that is, it is not the case that analysts initiate coverage at the end of the quiet period simply because a stock has run up in value following the offer. Also, there is no support for the conjecture that analysts attempt to prop up poorly performing issues with favorable recommendations. The subperiod results in the second and third regressions in Table IX generally mirror those for the overall sample. The most noticeable difference is that underpricing is insignificant in the first subperiod.

Taken together, the results in Table IX indicate that initiation of coverage is more likely for firms that are (1) VC-backed, (2) Nasdaq-listed, (3) associated with more managing underwriters, (4) larger (in terms of market capitalization), and (5) more underpriced. Underwriter reputation and post-IPO performance (exclusive of initial underpricing) appear to be of limited use. Consistent with conventional wisdom among practitioners, the single most important variable for predicting the number of initiations of coverage is the number of managing underwriters.

V. Concluding Remarks

We examine the expiration of the IPO quiet period for 1,611 firms over the period 1996 to 2000. Analyst coverage is initiated immediately for 76 percent of these firms, with this frequency having increased to over 90 percent in 1999 to 2000. The recommendations are almost always favorable, with a "buy" or "strong buy" rating occurring 96 percent of the time. Firms with coverage initiated experience a significant, positive abnormal return of 4.1 percent in a five-day (−2,+2) window surrounding the end of the quiet period, compared to an insignificant 0.1 percent for firms that do not have coverage initiated. For all IPOs, irrespective of whether coverage is initiated or not, the average five-day cumulative market-adjusted return of 3.1 percent is difficult to reconcile with market efficiency, since the end of the quiet period is known in advance. This evidence, in conjunction with the positive stock price reaction when firms are added to the S&P 500 index and the negative stock price reaction at the end of the lockup period, suggests that supply

and demand effects that are unrelated to information can have a material impact on stock prices.

We introduce and test two new hypotheses. The "confirmation" hypothesis suggests that market reactions will be stronger when multiple banks simultaneously initiate coverage. We find significant support for this conjecture; abnormal returns are much larger when more than one analyst initiates. The "no news is bad news" hypothesis predicts that a lack of coverage following the expiration of the quiet period will be interpreted as a negative signal. We find no evidence that this is the case.

We investigate the "conflict of interest" hypothesis, which suggests that market participants will discount recommendations made by the lead underwriter, and the "superior information" hypothesis, which predicts just the opposite. We find little or no support for either. After controlling for multiple initiations, the presence or absence of the lead underwriter has no significant impact in our sample.

The abnormal returns experienced by firms with coverage initiated are concentrated in the days before the quiet period expires. The pre-event run-up is more pronounced for firms that ultimately receive multiple initiations. This is consistent with a pre-expiration cessation of selling activity and information leakage. We also evaluate whether the abnormal returns depend on ratings strength. We find that the pre-event run-up is more closely related to the number of eventual initiations than to the strength of the recommendations. However, firms receiving "strong buy" ("sub-buy") ratings earn significant positive (negative) incremental postevent abnormal returns, so there is perceived information in these recommendations.

To more closely explore what types of firms are likely to have coverage initiated, we examine a multilevel logistic regression model where the dependent variable equals the number of initiations. Logistic regressions indicate that the probability of multiple initiations is greater for firms that are (1) VC-backed, (2) Nasdaq-listed, (3) associated with more managing underwriters, (4) larger (in terms of market capitalization), and (5) more underpriced initially. Of these influences, the number of managing underwriters appears to be the most important. In addition, we find that there has been a substantial increase in the number of managing underwriters in recent years. This growth is consistent with the conventional wisdom among practitioners that issuing firms are buying research coverage when they add additional comanagers to their underwriting syndicates.

Appendix: Rating Scheme for Select Investment Banks

Table AI gives the numerical coding of analyst ratings for selected investment banks used in this paper. In general, analyst ratings can be placed on a five-point scale (1 being the best rating and 5 the worst). This five-point scale for a typical investment bank is as follows: 1 = "strong buy," 2 = "buy," 3 = "accumulate," 4 = "hold," and 5 = "sell." However, some investment banks stray from the traditional scale and use a rating scheme unique to that bank. We present our numerical coding of recommendations issued by those investment banks that appear most frequently in our sample. Only recommendations that appear in our sample are shown.

Table AI
Rating Scheme for Select Investment Banks During 1996–2000

	Numerical code			
Bank	1	2	3	4
Alex Brown	Strong buy	Buy	Neutral, Outperform, Perform	
Bear Stearns	Buy	Attractive		
CSFB	Strong buy	Buy	Hold, Outperform	
DLJ	Buy	Attractive, Outperform	Market perform	
Goldman Sachs	Recommended list, Trading buy	Outperform	Market perform	
Hambrecht & Quist	Strong buy	Buy		
JPM Organ	Buy			
Lehman Brothers*	Buy	Outperform, Venture buy	Neutral	
Merrill Lynch**	Buy/Buy	Accumulate/Buy	Accumulate/Accumulate	
MSDW	Strong buy	Outperform	Neutral	
USB Piper Jaffrey	Strong buy	Buy		
Prudential	Strong buy	Buy	Accumulate	
Robertson Stephens	Strong buy	Buy	Long-term attractive	
Salomon	Strong buy	Buy	Outperform	Neutral

*We identified one instance in 1996 in which Lehman appears to have used a "strong buy" rating. We code this as a 1. Our coding of "buy" recommendations by Lehman is consistent with I/B/E/S. In 2002, Lehman announced a switch to a rating system of overweight, equal-weight, and underweight, as did Morgan Stanley (MSDW). Goldman Sachs and others also switched rating systems in 2002.
**Merrill Lynch issues both a near-term and long-term recommendations. We code both a near-term and long-term "buy" as a 1, either a near-term or long-term "buy" combined with either a near-term or long-term "accumulate" as a 2, and both a near-term and long-term "accumulate" as a 3. In 2002, Merrill Lynch announced a switch to a rating system with just buy, hold, and sell ratings for a 12-month horizon, with no separate long-term rating given.

REFERENCES

Bradley, Daniel J., Bradford D. Jordan, Ivan C. Roten, and Ha-Chin Yi, 2001, Venture capital and IPO lockup expiration: An empirical analysis, *Journal of Financial Research* 24, 465–494.

Branson, Bruce, Daryl Guffey, and Donald Pagach, 1998, Information conveyed in announcements of analyst coverage, *Contemporary Accounting Research* 15, 119–143.

Brav, Alon, and Paul Gompers, 2003, The role of lock-ups in initial public offerings, *Review of Financial Studies*, forthcoming.

Brown, Stephen J., and Jerold B. Warner, 1980, Measuring security price performance, *Journal of Financial Economics* 8, 205–258.

Carter, Richard B., and Steven Manaster, 1990, Initial public offerings and underwriter reputation, *Journal of Finance* 45, 1045–1067.

Carter, Richard B., Michael Piwowar, and Troy Strader, 2001, Shhh! The quiet period, Working paper, Iowa State University.

Chen, Hsuan-Chi, and Jay R. Ritter, 2000, The seven percent solution, *Journal of Finance* 55, 1105–1131.

Elkind, Peter, 2001, Where Mary Meeker went wrong, *Fortune* May 14, 69–82.

Field, Laura C., and Gordon Hanka, 2001, The expiration of IPO share lockups, *Journal of Finance* 56, 471–500.

Krigman, Laurie, Wayne Shaw, and Kent Womack, 2001, Why do firms switch underwriters?, *Journal of Financial Economics* 60, 245–284.

Lin, Hsiou-Wei, and Maureen McNichols, 1998, Underwriting relationships, analysts' earnings forecasts and investment recommendations, *Journal of Accounting and Economics* 25, 101–127.

Megginson, William L., and Kathleen Weiss, 1991, Venture capitalist certification in initial public offerings, *Journal of Finance* 46, 879–903.

Michaely, Roni, and Kent Womack, 1999, Conflict of interest and the credibility of underwriter analyst recommendations, *Review of Financial Studies* 12, 653–686.

Ofek, Eli, and Mathew Richardson, 2003, Dotcom mania: The rise and fall of Internet stock prices, *Journal of Finance*, forthcoming.

Rajan, Raghuram, and Henri Servaes, 1997, Analyst following of initial public offerings, *Journal of Finance* 52, 507–529.

Scott, Cintra, 1999, The unquiet period, *Dow Jones News Service*, September 13.

U.S. Securities and Exchange Commission, 1971, *Guidelines for the Release of Information by Issuers Whose Securities Are in Registration*, SEC Release #5180.