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Analysts' decision on initiating or discontinuing coverage and future firm performance

Abstract

This study examines the association between analysts' decision on initiating or discontinuing coverage and future firm performance. We use both accounting earnings and stock return to measure firm performance. First, we find that the initiation coverage event itself signals for more favorable information on future earnings performance of newly added stocks with non-negative ratings of "Buy" or "Hold", and more favorable information on excess stock return for the first post-rating month of newly added stocks with non-negative ratings of "Strong Buy", "Buy", or "Hold". Second, we find that future earnings performance significantly differentiates between those two or five ordinal categories of final ratings on subsequently dropped stocks, and that the more negative the final ratings, the lower the future earnings performance. Third, we find that the discontinuation coverage event itself signals for some unfavorable information on future earnings performance that has not been reflected in the final ratings of "Strong Buy", "Buy", "Hold", or "Sell" on subsequently dropped stocks. Overall, this study documents evidence that analysts' initiating or discounting coverage activity itself has incremental informativeness on future firm performance of the newly added stocks or subsequently dropped stocks. These results provide somewhat implications for investors that it may be beneficial to incorporate analysts' initiating or discounting coverage activity into investment portfolios.

Keywords: analyst rating, initiating coverage, discontinuing coverage, future firm performance.
JEL Classification: G11, G24.

Introduction

Financial analysts play an important intermediary role in capital markets. Around the beginning of the 21st century, more than 3,000 analysts were working for over 350 sell-side investment firms in the U.S. (Krische and Lee, 2000). Analysts provide services of issuing earnings forecasts and making stock recommendations. Prior research (e.g., Stickel, 1995; Womack, 1996) finds that analysts' recommendations have investment value, suggesting that investors can benefit from analysts' services.

McNichols and O'Brien (1997) seminally investigate how analysts make decisions on initiating or discontinuing coverage. They find that analysts' ratings on *newly added stocks* (hereafter, NAS) are more favorable than their ratings on *continuously covered stocks* (hereafter, CCS), while final ratings on *subsequently dropped stocks* (hereafter, SDS) prior to discontinuing coverage are more unfavorable than ratings on CCS. Moreover, they show that future earnings performance is higher for NAS than for CCS, and is lower for SDS than for CCS. Their results suggest that the analyst initiating or discontinuing coverage event itself may signal for some private information that analysts acquire through their research activities. Irvine (2003) examines the incremental impact of analyst initiating coverage on the market reaction to rating announcements. He finds that the market reacts more positively to non-negative rating announcements for NAS than for CCS. His results suggest that market participants may perceive analyst initiation as a positive signal.

Overall, prior research rarely examines the value of analysts' ratings when adding or dropping stocks compared to that of analysts' ratings on stocks with ongoing coverage. Thus, it is warranted to conduct more research on this topic in order to enhance our understanding of the process of analysts' coverage decision-making. Unlike McNichols and O'Brien (1997) and Irvine (2003), this study examines the association between analysts' coverage decisions including initiation or discontinuation of coverage and future firm performance by comparing accounting earnings and stock return between NAS or SDS and CCS conditional upon a specific rating category. It is important to control for the rating category in comparing NAS or SDS with CCS because the comparison will more precisely examine whether the NAS or SDS decision itself signals for favorable or unfavorable information about future firm performance.

This study contributes to the literature as follows. First, we examine whether analyst initiating coverage activity itself has incremental informativeness on future firm performance of NAS. This issue is examined by comparing future firm performance between NAS and CCS conditional upon either non-negative or negative ratings. We find that the initiation coverage event itself signals for more favorable information on future earnings performance of NAS with non-negative ratings of "Buy" or "Hold", and more favorable information on excess stock return for the first post-rating month of NAS with non-negative ratings of "Strong Buy", "Buy", or "Hold".

On the other hand, the initiation coverage event itself does not signal for more unfavorable information on both future earnings performance and post-recommendation stock return performance of NAS with negative ratings of "Sell" or "Strong Sell".

Second, we investigate whether final ratings on SDS prior to discontinuing coverage can signal for information on future firm performance. This is tested through a comparison in future firm performance of SDS between the five ordinal rating categories such as "Strong Buy", "Buy", "Hold", "Sell" and "Strong Sell", or between the two categories such as "Non-negative" and "Negative" ratings. We find that future earnings performance significantly differentiates between those two or five ordinal categories of final ratings on SDS, and that the more negative the final ratings, the lower the future earnings performance. These results suggest that final ratings are useful to investors for predicting future earnings performance. In addition, we find that the six-month post-dropping excess stock return significantly differentiates between the two or five ordinal rating categories, although the one-month post-dropping excess stock return does not, suggesting that final ratings may be useful for investors to predict post-dropping long-term market performance.

Third, we examine whether analyst discontinuing coverage activity itself has incremental informativeness on future firm performance of SDS. We test this question by comparing future firm performance between SDS and CCS conditional upon each rating category. We find that the discontinuation coverage event itself signals for some unfavorable information on future earnings performance that has not been reflected in the final ratings of "Strong Buy", "Buy", "Hold", or "Sell" on SDS. However, we document mixed evidence on this issue when post-dropping stock return is used as a firm performance measure.

Overall, this study provides evidence that analysts' initiating or discounting coverage activity itself has incremental informativeness on future firm performance of the newly added stocks or subsequently dropped stocks. These results provide somewhat implications for investors that it may be beneficial to incorporate analysts' initiating or discounting coverage activity into investment portfolios.

1. Literature review

There is a long history for the research that investigates whether analysts' recommendations have investment value. Early studies in the 1970s indicate that most analysts' recommendations do not generate abnormal returns (Diefenbach, 1972; Logue and Tuttle, 1973; Bidwell, 1977). However, researchers in the 1980s suggest that investors can benefit from analysts' recommendations. For example, Bjerring, Lakonishok, and Vermaelen (1983) find that investors can earn significantly positive abnormal returns by adopting the recommendations on both US and Canadian stocks made by a major Canadian brokerage house. Elton, Gruber, and Grossman (1986) also find that analysts' recommendations can yield excess stock returns for the calendar month of advice and the first month after advice. Although these studies suggest that analysts provide valuable services to their customers, they have been criticized for sample bias or imprecise data (Womack, 1996).

Thanks to the availability of refined databases on analysts' recommendations in the 1990s, researchers have been able to re-examine this issue more comprehensively. Barber and Loeffler (1993) document positive abnormal returns of 4%, nearly twice the level of abnormal returns provided in previous research on analysts' recommendations, for two days following the publication of analysts' recommendations in the monthly "Dartboard" column of the *Wall Street Journal*. Stickel (1995) demonstrates that price changes associated with the strength of recommendations seem to be permanent information effects. Womack (1996) finds that analysts' recommendation revisions significantly affect stock prices not only on the announcement date but also in post-event months. He finds that the mean one-month post-event size-adjusted stock return is 2.4% for "added-to-buy" recommendation changes, while the mean six-month post-event size-adjusted stock return is – 9.1% for "added-to-sell" recommendation changes. Kim, Lin, and Slovin (1997) find that the intraday stock price positively and strongly adjusts in response to initial coverage with buy recommendations that have been issued to important clients before the stock market opens.

Juergens (1999) investigates the investment value of analysts' recommendations by considering recommendations that are released concurrently with other information. Her study shows that analysts' recommendations are still informative to investors after allowing for other public news sources. Krische and Lee (2000) find that analysts' stock recommendations have incremental investment value after controlling for other concurrently available variables that also have predictive power for stock returns. Barber et al. (2001) examine whether investors can profit from analysts' recommendations by taking a more investor-oriented, calendar-time perspective instead of the analyst and event-time perspective used in Stickel (1995) and Womack (1996). They demonstrate that investors can still earn excess stock returns from analyst recommendations after controlling for portfolio characteristics including market risk, size, book-to-market, and price momentum.

Moreover, Chen and Cheng (2002) find explicit evidence that institutions allocate more (less) assets in response to favorable (unfavorable) stock recommendations.

In summary, prior studies provide evidence that analysts' stock recommendations have investment value. However, there is little research that addresses analysts' initiating or discontinuing coverage activity. McNichols and O'Brien (1997) examine the association between stocks' future prospects and analysts' decisions on initiating or discontinuing coverage. They find that future earnings performance is higher for NAS than for CCS, and is lower for SDS than for CCS. Irvine (2003) examines the incremental impact of analyst initiating coverage on the market reaction to rating announcements. He finds that the market responds more strongly to analysts' initial non-negative ratings on NAS than to non-negative ratings on CCS. Overall, little research has been conducted to distinguish the investment value of analysts' recommendations on newly added stocks or subsequently dropped stocks from that of recommendations on stocks with ongoing coverage.

2. Hypotheses development

2.1. Initiating coverage and future firm performance. Prior research suggests that analysts' advice is an appropriate proxy for private information (Juergens, 1999), and that analyst ratings are informative about future firm performance (Womack, 1996; Barber et al., 2001). The evidence on the investment value of analyst ratings is consistent with the theory that informed investors should earn excess returns to compensate for their costs of acquiring information (Grossman and Stiglitz, 1980).

McNichols and O'Brien (1997) find that the distribution of ratings is more favorable for NAS than for CCS and that the rank distribution of future return on equity is higher for NAS than for CCS, suggesting that analysts initially select stocks that will have better performance. When analysts initiate coverage of a stock, they usually issue a rating on the stock. As prior studies have shown, the rating itself can signal for future firm performance. An interesting issue is whether the same rating on NAS and on CCS signals for the same future firm performance. If the two ratings signal differently, analyst initiating coverage activity itself may be incrementally informative on future firm performance. To examine the potential incremental informativeness of initiating coverage activity, future firm performance will be compared between NAS and CCS conditional upon a specific category of ratings.

Prior studies suggest that analysts may invest more in initiating coverage activity than in ongoing coverage activity. Hayes (1998) develops an analytical model in which adding a stock is more costly than continuously covering a stock. McNichols and O'Brien (1997) find that analysts allocate more effort to NAS than to CCS, and that analyst earnings forecasts are more accurate for NAS than for CCS. These findings suggest that analysts expend more effort on initiating coverage activity and therefore, they may acquire more private information on NAS through initiating coverage activity.

If analysts' incremental private information can be reflected in the ratings on NAS, these ratings may be sounder than the same ratings on CCS. In this case, analyst initiating coverage event itself may indicate higher predictability of analysts' ratings on added stocks. Thus, it is expected that the initiating coverage activity makes non-negative ratings on added stocks more precise in reflecting better future firm performance, and makes negative ratings on added stocks more precise in reflecting worse future firm performance.

Initiating coverage activity can help analysts to issue sound ratings on NAS. However, analysts may not be consistent in issuing ratings because of incentives. For instance, generating larger revenues by adding coverage is important for brokerage firms. Analysts consume more resources to cover new stocks, and consequently, analysts in brokerage firms are pressured to generate more benefits from their activities in order to further their career prospects (Mikhail, Walther, and Willis, 1999; Hong, Kubik, and Solomon, 2000; Li, 2002). Brokerage firms expend more for analysts to follow new stocks and hence, they expect to benefit more from analysts' initiation activities. Commission revenues generated from precise advice be enough to compensate analysts for the effort expended in gathering precise information (Hayes, 1998). This may confound the soundness of the ratings on NAS. Even if analysts are well informed about future firm performance via their initiation activities, they may not fully or immediately release the private information through initial ratings on NAS. In this case, the initiating coverage activity itself may signal for some unreleased information that is not reflected in the ratings alone.

To justify the incremental information content of analyst initiation activity, Irvine (2003) argues that analysts initiate a stock because they can tell a compelling story about why the stock's fundamental value is different from its current price. He finds that market reactions to recommendation announcements are stronger for NAS than for CCS conditional upon non-negative ratings, suggesting that market participants may perceive that analysts possess more private information on NAS than on CCS. This perception may imply that analyst initiating coverage activity itself is also informative on future firm performance.

This study examines whether analyst initiating coverage activity itself has incremental informativeness for both future earnings performance and future market performance. The possibility of the incremental informativeness is tested by comparing future firm performance between NAS and CCS conditional upon a specific category of ratings. It is conjectured that future firm performance is higher for NAS than for CCS conditional upon non-negative ratings. Therefore, the first hypothesis is developed as follows:

H1: Analyst initiating coverage activity itself signals for some incremental favorable information on future firm performance of newly added stocks with non-negative ratings.

On the other hand, analysts may issue negative ratings on NAS although the proportion of such ratings is very small. Analysts are reluctant to issue negative ratings because the implicit costs of disseminating unfavorable ratings are greater than providing favorable ones (Womack, 1996). Hayes (1998) suggests that more precise information on stocks investors will sell is less attractive for analysts to gather and release because it may decrease the number of shares sold. She finds that analysts' incentives to gather information are not strong for stocks that are expected to perform poorly, and consequently, earnings forecasts for those stocks are likely to be less accurate than for stocks that are expected to perform well. An interesting issue is whether analyst initiating coverage activity itself signals for the incremental information on NAS for negative ratings in a similar way as it does for non-negative ratings. More precise negative ratings on NAS imply that future firm performance should be lower for NAS than for CCS conditional upon negative ratings. Even if negative ratings on NAS are not sounder than those on CCS, the initiating coverage activity itself may still signal for some information on future firm performance which is not reflected in negative ratings on NAS. Thus, the following hypothesis will be tested:

H2: Analyst initiating coverage activity itself signals for some incremental unfavorable information on future firm performance of newly added stocks with negative ratings.

2.2. Discontinuing coverage and future firm performance. Relatively, analysts' dropping coverage decision process has been less addressed than analysts' adding coverage decision process in the literature. Thus, we need to know more about why analysts drop stocks from the recommendation list. McNichols and O'Brien (1997) find that the distribution of analysts' final ratings prior to dropping is less favorable than that of ratings on CCS, and that future earnings performance is lower for SDS than for CCS. Their findings suggest that analysts may drop stocks that will have worse fundamental performance.

Unlike initiating coverage activity, analysts do not publicly issue any ratings when they discontinue coverage of a stock. Investors are not able to know analysts' implicit ratings on stocks they dropped. Moreover, McNichols and O'Brien (1997) find that the coverage intensity of stocks tends to be lower just before these stocks are dropped, indicating that analysts may allocate less effort to stocks prior to dropping coverage. Therefore, investors may obtain less information on SDS from analysts. Investors may make use of final ratings for investment decision-making. Since discontinuing coverage is visible to investors with a lag and the time difference between the dropping date and the date on which the final ratings are issued may be large, the usefulness of final ratings in signalling future firm performance is concerned. If final ratings are informative about future firm performance, it is expected that the more negative the final ratings, the more unfavorable the future firm performance. Thus, the third hypothesis will be tested:

H3: Analysts' final ratings prior to discontinuing coverage are informative on future firm performance of subsequently dropped stocks.

Analysts are more willing to cover stocks with better future performance since they hope to show their ability to pick better stocks. To maintain their reputation of being able to pick good stocks, they need to drop stocks with worse future performance. The McNichols and O'Brien's (1997) findings suggest that analysts are more likely to drop stocks with unfavorable prospects. As discussed, final ratings prior to dropping coverage may have some predictability of future firm performance. However, final ratings themselves may not sufficiently reflect future performance of SDS. An interesting issue is whether analyst discontinuing coverage activity itself has incremental informativeness on future firm performance. This issue is tested by comparing future firm performance between SDS and CCS conditional upon a specific category of ratings. If the drop event itself is incrementally informative on unfavorable prospects, it is expected that future firm performance is lower for SDS than for CCS conditional upon each rating category. Thus, the fourth hypothesis is formulated as follows:

H4: Analyst discontinuing coverage activity itself signals for some incremental unfavorable information on future firm performance of subsequently dropped stocks.

3. Research design

3.1. Data source and sample selection. We use the analyst data from McNichols and O'Brien (1997) in which the analyst data was acquired from a database provided by *Research Holdings, Ltd.* The database covers the period from July 1987 to December 1994. The analyst forecast or recommendation, its issuing date, and other types of records are available in the database. An analyst recommendation is coded by a scale from 1 to 5, where 1, 2, 3, 4, and 5 denote "Strong Buy", "Buy", "Hold", "Sell", and "Strong Sell" ratings, respectively. Since the database does not explicitly indicate a newly added stock, it is necessary to distinguish between an initially covered stock and a stock which first appears in the database but has been continuously followed by an analyst.

McNichols and O'Brien (1997) identify stocks as NAS only if those stocks first appear more than six months after the analyst's first appearance. SDS can be explicitly identified from the database as those stocks which have been coded and verified by *Research Holding Ltd.* McNichols and O'Brien (1997) define a group of *CUSIP* and initial rating observations for NAS as "Added" coverage group, and a group of *CUSIP* and final rating observations for SDS as "Dropped" coverage group. They also define a group of *CUSIP* and subsequent rating observations as "Previous" coverage group for CCS, and a group of *CUSIP* and previous rating observations as "Subsequent" coverage group for CCS. "Subsequent" ratings are randomly selected, with one observation per analyst-stock, from ratings of stocks that previously received ratings by the same analyst. "Previous" ratings are randomly selected, with one observation per analyst-stock, from ratings of stocks that subsequently received ratings by the same analyst. The difference between the "Previous" and "Subsequent" group is ratings and timing rather than CCS.

In the process of sample selection, McNichols and O'Brien (1997) randomly selected 541 analysts (about 30%) from 1,832 analysts who satisfied the longevity and coverage restrictions, and were not affiliated with *Value Line, Duff and Phelps, or Standard & Poor's*. After redundancies were eliminated, the sample consists of 523 analysts who reported on 3,774 different stocks, and generates 13,258 analyst-stock observations. The frequency and proportion distributions of analyst recommendations in different coverage classifications such as "Added", "Dropped", "Previous", and "Subsequent" coverage group are reported in Table 1. The "Added" group consists of 4,008 first ratings of stocks by sample analysts that occur more than six months after the analyst's first appearance in the database and occur on a date with no more than two other new stocks. These observations are matched with the *Compustat* database for return on equity data and the *CRSP* database for stock return data, resulting in a final sample of 3,577 and 3,901 observations, respectively. The "Dropped" group consists of 3,663 final ratings of stocks prior to analyst decisions to discontinue coverage. Matching with the *Compustat* and *CRSP* reduces the final sample to 3,308 and 3,554 observations, respectively. The "Previous" group includes 7,065 subsequent ratings of stocks that previously received ratings by the same analyst. Matching with the *Compustat* and *CRSP* reduces the final sample to 6,489 and 6,922 observations, respectively. The "Subsequent" group consists of 7,065 previous ratings of stocks that subsequently received ratings by the same analyst. Matching with the *Compustat* and *CRSP* reduces the final sample to 6,468 and 6,917 observations, respectively.

3.2. Future return on equity measure. Future return on equity is used as a measure of future firm performance. Return on equity is defined as income before extraordinary items and the results of discontinued operations divided by the average of beginning and end-of-period shareholders' equity. To control for industry effect, industry-adjusted return on equity is used for testing the hypotheses. Following McNichols and O'Brien (1997), industry-adjusted return on equity is calculated by deducting the median return on equity for all firms in the same two-digit SIC code for that *Compustat* year from return on equity for a stock. Return on equity of "Added" or "Dropped" stocks is computed for the first fiscal year ending after adding or dropping coverage. For either "Previous" or "Subsequent" stocks, return on equity is calculated for the first fiscal year ending after subsequent or previous ratings on those stocks are made, respectively.

Table 1. Distribution frequencies and proportions of analysts' recommendations

Coverage classification	Rating					
	1	2	3	4	5	1-5
Added	1,756	996	1,160	55	41	4,008
	43.8%	24.9%	28.9%	1.4%	1.0%	100.0%

Table 1 (cont.). Distribution frequencies and proportions of analysts' recommendations

Coverage classification	Rating					
	1	2	3	4	5	1-5
Previous	1,676	1,798	2,911	394	286	7,065
	23.7%	25.5%	41.2%	5.6%	4.1%	100.0%
Dropped	826	624	1,820	178	215	3,663
	22.6%	17.0%	49.7%	4.9%	6.0%	100.0%
Subsequent	2,159	1,857	2,496	347	206	7,065
	30.6%	26.3%	35.3%	4.9%	2.9%	100.0%

First, for testing *H1* or *H2*, Wilcoxon rank-sum tests are used to examine whether the rank distribution of future return on equity measure is significantly higher or lower for "Added" stocks than for "Previous" stocks conditional upon each non-negative or negative rating category, respectively. For testing *H3*, Kruskal-Wallis tests are used to examine whether rank distributions of future return on equity measure differentiate significantly among the five ordinal categories such as "Strong Buy", "Buy", "Hold", "Sell" and "Strong Sell", or between the non-negative and negative categories of final ratings on "Dropped" stocks. For testing *H4*, Wilcoxon rank-sum tests are also used to examine whether the rank distribution of future return on equity is significantly lower for "Dropped" stocks than for "Subsequent" stocks conditional upon each rating category.

Second, the following regression model is also used to test *H1, H2*, and *H4*:

$$FFP = a_0+a_1AD\times SB+a_2AD\times B+a_3AD\times H+$$
$$+a_4AD\times S+a_5AD\times SS +a_6SB+a_7B+a_8H+a_9S+\varepsilon,$$

where *FFP* is future firm performance, *AD* is equal to 1 if a stock is added (dropped) or 0 if a stock is continuously covered, *SB* is is equal to 1 for a "Strong Buy" rating or 0 otherwise, *B* is is equal to 1 for a "Buy" rating or 0 otherwise, *H* is 1 for a "Hold" rating or 0 otherwise, *S* is 1 for a "Sell" rating or 0 otherwise, and *SS* is 1 for a "Strong Sell" rating or 0 otherwise. Under *H1* and *H2*, a_1, a_2, and a_3 are expected to be positive, while a_4 and a_5 are expected to be negative. Under *H4*, a_1, a_2, a_3, a_4, and a_5 are expected to be negative.

For testing *H3*, the regression analysis is conducted again:

$$FFP = b_0+b_1FR+\varepsilon,$$

where *FR* is the scale of ratings for the five rating categories (i.e., 1 = "Strong Buy", 2 = "Buy", 3 = "Hold", 4 = "Buy", or 5 = "Strong Buy"), or measured as 0 for a non-negative rating or 1 otherwise. Under *H3*, b_1 is expected to be negative.

3.3. Future stock return measure. Post-event stock return is also used as a measure of future firm performance. For "Added" stocks, the event date is the date on which an initial rating was issued. For "Previous" stocks, the event date is the date on which a subsequent rating is issued. For "Dropped" stocks, the event date is the date on which *Research Holding Ltd*. encoded a drop in the database. For "Subsequent" stocks, the event date is the date on which a previous rating is issued. Following Womack (1996), we choose the 1st month, 3-month period and 6-month period beginning on the second day after the event date as alternative testing windows.

The one-month, three-month or six-month actual return is measured as the compounded return over the period of one, three, or six months, respectively, beginning on the second day after the event date. A formula calculating the actual return is expressed as follows:

$$AR^j = \prod_t \left(1 + r_t^i\right) - 1,$$

where AR^j is the actual return on stock *j*, and r_t^i is the raw return on stock *j* on day *t*.

Following Womack (1996), Barber et al. (2001), and Irvine (2003), we use size-adjusted stock return as a measure of excess stock return. Size-adjusted stock return is calculated by subtracting the compounded return on *CRSP* market capitalization size decile over a testing window from the actual return. The formula is written as follows:

$$SAR^j = AR^j - \left[\prod_t \left(1 + r_t^{size}\right) - 1\right],$$

where SAR^j is the size-adjusted return on stock *j*, and r_t^{size} is the return on the matching *CRSP* market capitalization size decile for day *t*. For testing *H1*, *H2*, *H3*, and *H4* in terms of post-event market performance, our approach corresponds to the tests on future earnings performance.

4. Empirical results

4.1. Incremental informativeness of initiating coverage. Table 2 and Table 4 report results for testing *H1* using future earnings performance. Wilcoxon rank-sum tests indicate that the future industry-adjusted return on equity (hereafter, FIROE) is significantly higher for NAS than for CCS conditional upon "Buy" or "Hold" rating categories, respectively (z = 4.83, 3.44). Also, a_2 and a_3 are significantly positive (p = 0.07, 0.00). There is no significant difference in FIROE between NAS in the "Buy" category and CCS in the "Strong Buy" category (z = 0.89, non-tabulated), indicating that "Buy" ratings on NAS reflect the same favorable future earnings performance as "Strong Buy" ratings on CCS do. Also, there is no significant difference in FIROE between NAS in the "Hold" category and CCS in the "Buy" category (z = 0.58, non-tabulated), suggesting that "Hold" ratings on NAS reflect the same favorable future earnings performance as "Buy" ratings on CCS do. All these results support hypothesis 1, and show that analyst initiating coverage activity itself signals for some incremental favorable information on future earnings performance of NAS in the "Buy" or "Hold" category. However, Wilcoxon rank-sum test indicates that the difference in FIROE between NAS and CCS is not significant conditional upon the "Strong Buy" rating category (z = 0.43). Similarly, a_1 is not significantly different from zero (p = 0.12).

As discussed, a possible reason for this incremental informativeness is the incremental soundness of non-negative ratings on NAS. However, an interesting point in Table 2 is that initiating coverage activity itself would not incrementally signal favorable future earnings performance for "Strong Buy" ratings on NAS. An explanation for this result is that "Strong Buy" ratings on CCS may have been precise enough with respect to future earnings performance so that no incremental informativeness can be inferred from "Strong Buy" ratings on NAS.

Table 2. Comparison in earnings performance between "Added" coverage group and "Previous" coverage group with non-negative ratings for testing *H1* and *H2*

Panel A: Median return on equity						
	1	2	3	4	5	1-5
Added	0.1430	0.1511	0.1279	0.1284	0.0762	0.1399
	(1,557)	(888)	(1,048)	(44)	(40)	(3,577)
Previous	0.1481	0.1313	0.1229	0.0933	0.0805	0.1292
	(1,548)	(1,665)	(2,677)	(342)	(257)	(6,489)
Panel B: Median industry-adjusted return on equity						
	1	2	3	4	5	1-5
Added	0.0639	0.0695	0.0466	0.0565	0.0057	0.0600
	(1,557)	(888)	(1,048)	(44)	(40)	(3,577)
Previous	0.0629	0.0498	0.0363	0.0086	0.0030	0.0435
	(1,548)	(1,665)	(2,677)	(342)	(257)	(6,489)
Panel C: Wilcoxon z-statistics for "Added" coverage group vs. "Previous" coverage group						
	1	2	3	4	5	1-5
ROE	-1.0722	5.5602	1.8228	0.9273	-0.4414	6.0805
	(0.1418)	(0.0001)	(0.0342)	(0.1769)	(0.3295)	(0.0001)
Industry-adjusted ROE	-0.1648	4.8324	3.4444	1.5030	-0.1484	7.2185
	(0.4346)	(0.0001)	(0.0003)	(0.0664)	(0.4410)	(0.0001)

Another competitive reason for the incremental informativeness is that, for some incentives, analysts may not fully or immediately release private information on future earnings performance via initial ratings on NAS. As an illustration of incentives, analysts may underrate NAS that will have favorable earnings performance in order to easily issue positive rating changes after a while. This possibility is enhanced by the non-tabulated results that there is no significant difference in FIROE between the "Strong Buy" and "Buy" categories of NAS (z = 1.04), possibly indicating that some NAS should be rated "Strong Buy" but have been underrated as "Buy" in terms of future earnings performance. This argument may explain why FIROE is not significantly different between NAS and CCS conditional upon the "Strong Buy" category.

Table 3 and Table 4 provide results for testing *H1* using post-event stock return. First, Wilcoxon rank-sum tests indicate that the one-month size-adjusted stock return (hereafter, SR1) is significantly higher for NAS than for CCS conditional upon "Strong Buy", "Buy", or "Hold" category, respectively (z = 1.47, 1.63, 1.77). Also, a_1, a_2, and a_3 are significantly positive (p = 0.02, 0.02, 0.00). These findings are consistent with the results regarding incremental market reactions to initial rating announcements in the event study by Irvine (2003). The non-tabulated results (z = -0.99) show no significant difference in SR1 between NAS in the "Buy" category and CCS in the "Strong Buy" category, indicating that "Buy" ratings on NAS reflect the same post-rating market performance as "Strong Buy" ratings on CCS do. Also, there is no significant difference in SR1 between NAS in the "Hold" category and CCS in the "Buy" category (z = -1.04, non-tabulated), indicating that "Hold" ratings on NAS reflect the same post-rating market performance as "Buy" ratings on CCS do. These results support hypothesis 1, and show that analyst initiating coverage activity itself signals for some incremental favorable information on one-month post-rating market performance of NAS in the "Strong Buy", "Buy", or "Hold" category. The results have implications for investment. Given that investors choose NAS or CCS with the same ratings, investors may earn more stock return if they buy NAS with non-negative ratings on the second day after ratings, and then sell those stocks after holding for a month than they would had held CCS for the same period.

Table 3. Comparison in stock return performance between "Added" coverage group and "Previous" coverage group with non-negative ratings for testing *H1* and *H2*

Panel A: Median stock return measures for "Added" coverage group							
	Period	1	2	3	4	5	1-5
Size-adjusted return	1-month	0.0123	0.0041	-0.0057	-0.0153	-0.0269	0.0044
	3-month	0.0171	0.0004	-0.0119	0.0093	-0.0503	0.0027
	6-month	-0.0013	0.0030	-0.0231	-0.0573	-0.0507	-0.0079
		(1,706)	(973)	(1,132)	(51)	(39)	(3,901)
Panel B: Median stock return measures for "Previous" coverage group							
	Period	1	2	3	4	5	1-5
Size-adjusted return	1-month	0.0079	0.0001	-0.0074	-0.0089	-0.0022	-0.0016
	3-month	0.0183	-0.0018	-0.0163	-0.0002	-0.0280	-0.0043
	6-month	0.0154	-0.0074	-0.0286	-0.0408	-0.0516	-0.0138
		(1,651)	(1,764)	(2,855)	(376)	(276)	(6,922)
Panel C: Wilcoxon z-satistics for "Added" vcoverage group vs. "Previous" coverage group							
	Period	1	2	3	4	5	1-5
Size-adjusted return	1-month	1.4728	1.6254	1.7749	-0.4897	-0.5588	4.6116
		(0.0704)	(0.0520)	(0.0380)	(0.3122)	(0.2882)	(0.0001)
	3-month	-0.7707	0.3763	0.7884	0.4371	-0.2789	2.1562
		(0.2204)	(0.3534)	(0.2152)	(0.3310)	(0.3902)	(0.0155)
	6-month	-1.7460	1.3480	1.3236	0.1010	-0.2132	2.1867
		(0.0404)	(0.0888)	(0.0928)	(0.4598)	(0.4156)	(0.0144)

In this case, SR1 is significantly lower for "Buy" ratings on NAS than for "Strong Buy" ratings on either NAS or CCS (z = -1.47, -2.11, non-tabulated), reducing the possibility that ratings on NAS do not fully or immediately reflect analysts' private information on post-ratings market performance. Therefore, it seems more appropriate to use the soundness of ratings on NAS to explain this incremental informativeness on one-month post-event market performance.

Second, Wilcoxon rank-sum tests indicate no significant difference in the three-month size-adjusted stock return (hereafter, SR3) between NAS and CCS conditional upon "Strong Buy", "Buy", or "Hold" rating category (z = -0.77, 0.37, 0.79). Additionally, a_1 and a_2 are not significantly different from zero, but a_3 is significantly positive (p = 0.44, 0.25, 0.08). Overall, there is no enough evidence to support hypothesis 1 with respect to SR3.

Table 4. Regression results for testing *H1* and *H2*

	Expected sign	Dependent variable			
		FIROE	SR1	SR3	SR6
N		(10,066)	(10,823)	(10,823)	(10,823)
Intercept		-0.0139	-0.0081	-0.0103	-0.0218
		(0.0362)	(0.0969)	(0.1774)	(0.0980)
ADxSB	+	-0.0187	0.0076	0.0010	0.0022
		(0.1177)	(0.0166)	(0.4385)	(0.4084)
ADxB	+	0.0270	0.0087	0.0049	0.0197
		(0.0701)	(0.0173)	(0.2532)	(0.0388)
ADxH	+	0.0543	0.0096	0.0093	0.0220
		(0.0004)	(0.0043)	(0.0755)	(0.0125)

Table 4 (cont.). Regression results for testing *H1* and *H2*

	Expected sign	Dependent variable			
		FIROE	SR1	SR3	SR6
ADxS	-	0.0509	-0.0202	0.0123	0.0195
		(0.2354)	(0.0953)	(0.3267)	(0.3203)
ADxSS	-	-0.0638	-0.0068	-0.0055	-0.0233
		(0.1968)	(0.3503)	(0.4312)	(0.3131)
SB		0.0759	0.0210	0.0412	0.0615
		(0.0053)	(0.0009)	(0.0003)	(0.0004)
B		0.0524	0.0115	0.0195	0.0352
		(0.0380)	(0.0427)	(0.0505)	(0.0261)
H		0.0375	0.0007	-0.0028	0.0034
		(0.0961)	(0.4597)	(0.4043)	(0.4232)
S		-0.0285	0.0036	0.0137	0.0051
		(0.2166)	(0.3286)	(0.1736)	(0.4084)
Adj. R^2		0.0028	0.0091	0.0085	0.0070

Third, Wilcoxon rank-sum tests indicate that the six-month size-adjusted stock return (hereafter, SR6) is significantly higher for NAS than for CCS conditional upon the "Buy" or "Hold" category, but significantly lower upon the "Strong Buy" category (z = 1.35, 1.32, -1.75). Moreover, a_2 and a_3 are significantly positive, but a_1 is not significantly different from zero (p = 0.04, 0.01, 0.41). The Wilcoxon z-statistic for the "Strong Buy" category is significantly negative and has an unexpected sign, but such unexpected significant difference disappears in regression analysis. Overall, these results support hypothesis 1, and show that initiating coverage activity itself signals for incremental favorable information on SR6 of NAS with "Buy" or "Hold" ratings.

Table 2 and Table 4 also present results for testing *H2* using future earnings performance. Wilcoxon rank-sum tests indicate that FIROE is significantly higher for NAS than for CCS conditional upon the "Sell" category, but no significant difference in FIROE exists between NAS and CCS conditional upon the "Strong Sell" category (z = 1.50, -0.15). Moreover, a_4 and a_5 are not significantly different from zero (p = 0.24, 0.20). These results do not support hypothesis 2. The non-tabulated results show that the difference in FIROE between "Sell" and "Hold" ratings category is not significant for NAS (z = -0.72), but is significant for CCS (z = -4.30). These results suggest that analysts do not issue sounder "Sell" ratings for NAS than for CCS in terms of signalling future earnings performance. Thus, the higher FIROE for NAS than for CCS in the "Sell" category could be explained by the assumption of underrating NAS with respect to future earnings performance.

Table 5. Comparison in earnings performance among categories of final ratings prior to dropping coverage for testing *H3*

Panel A: Median return on equity measures for rating categories							
	1	2	3	4	5	1-3	4-5
ROE	0.1315	0.1318	0.1127	0.0723	0.0850	0.1221	0.0774
	(744)	(566)	(1,635)	(164)	(199)	(2,945)	(363)
Industry-adjusted ROE	0.0508	0.0432	0.0251	0.0058	0.0094	0.0353	0.0068
	(744)	(566)	(1,635)	(164)	(199)	(2,945)	(363)
Panel B: Mean Wilcoxon scores for five rating categories							
	1	2	3	4	5	$\chi^2(4)$	*p*-value
ROE	1807.0	1818.5	1596.3	1273.3	1410.2	80.88	0.0001
Industry-adjusted ROE	1809.2	1784.7	1586.6	1372.2	1496.5	58.08	0.0001
Panel C: Mean Wilcoxon scores for two rating categories							
		1-3		4-5		$\chi^2(1)$	*p*-value
ROE		1692.2		1348.4		41.90	0.0001
Industry-adjusted ROE		1680.9		1440.3		20.50	0.0001

Table 3 and Table 4 also report results for testing *H2* using post-event stock return. Wilcoxon rank-sum tests indicate no significant difference in SR1, SR3, or SR6 between NAS and CCS conditional upon the "Sell" or "Strong Sell" category, respectively (z = -0.49, -0.56, 0.44, -0.28, 0.10, -0.21). Moreover, a_5 is not significantly different from zero for SR1, SR3 or SR6 (p = 0.35, 0.43, 0.31), while a_4 is not significantly different from zero for SR3 or SR6 but is significantly positive for SR1 (p = 0.33, 0.32, 0.10). Overall, the evidence is not enough to support hypothesis 2. This may be explained by Hayes' (1998) theoretical findings that analysts have no strong incentives to report accurately if the information about the stock is relatively unfavorable. Our results are consistent with Irvine's (2003) findings that there do not exist significant incremental market reactions to the announcement of negative ratings on NAS.

Table 6. Comparison in stock return performance among categories of final ratings prior to dropping coverage for testing *H3*

Panel A: Median stock return measures for rating categories								
	Period	1	2	3	4	5	1-3	4-5
Size-adjusted return	1-month	0.0000	-0.0045	-0.0064	0.0027	-0.0169	-0.0045	-0.0096
	3-month	-0.0046	0.0028	-0.0056	-0.0062	-0.0082	-0.0042	-0.0076
	6-month	-0.0143 (802)	-0.0107 (610)	-0.0191 (1,773)	-0.0713 (164)	-0.0130 (205)	-0.0165 (3,185)	-0.0379 (369)
Panel B: Mean Wilcoxon scores for five rating categories								
	Period	1	2	3	4	5	$\chi^2(4)$	*p*-value
Size-adjusted return	1-month	1815.7	1786.3	1768.4	1832.3	1636.7	5.62	0.2291
	3-month	1795.5	1834.2	1770.7	1737.2	1629.3	6.72	0.1517
	6-month	1817.3	1830.8	1761.2	1566.8	1772.4	10.23	0.0368
Panel C: Mean Wilcoxon scores for two rating categories								
	Period		1-3		4-5		$\chi^2(1)$	*p*-value
Size-adjusted return	1-month		1783.7		1723.6		1.13	0.2865
	3-month		1789.1		1677.3		3.93	0.0475
	6-month		1788.7		1681.0		3.64	0.0563

4.2. Incremental informativeness of discontinuing coverage. Table 5 and Table 7 provide results for testing *H3* using future earnings performance. FIROE realized for the fiscal year-end following the analyst's decision to discontinue coverage is 5.08%, 4.32%, 2.51%, 0.58% or 0.94% for "Strong Buy", "Buy", "Hold", "Sell" or "Strong Sell" ratings, and 3.53% or 0.68% for non-negative or negative ratings on SDS, respectively. Kruskal-Wallis tests indicate that differences in FIROE are significant among the five ordinal rating categories, or between the non-negative and negative rating category (χ^2 = 50.08, 20.50). The non-tabulated results show that FIROE is significantly lower (greater) for "Hold" ratings than for "Buy" ("Sell") ratings (z = 4.33, 2.81), whereas there are no significant differences in FIROE between "Strong Buy" and "Buy" ratings and between "Sell" and "Strong Sell" ratings (z = 0.59, -1.23). Moreover, b_1 is significantly negative for the two or five categories, respectively (p = 0.04, 0.00). The more negative the final ratings prior to discontinuing coverage, the lower the FIROE of SDS. These results support hypothesis 3 in terms of future earnings performance. The existing association between final ratings prior to discontinuing coverage and future return on equity measures suggests that those ratings still can reflect, to a certain extent, the future fundamental performance of SDS.

Table 6 and Table 7 report results for testing *H3* using post-dropping stock return. Kruskal-Wallis tests indicate that differences in SR6 are significant among the five rating categories and between the non-negative and negative rating category (χ^2 = 10.23, 3.64). The non-tabulated results show that SR6 is significantly lower (greater) for "Hold" ratings than for "Buy" ("Sell") ratings (z = 1.47, 2.34), whereas there is no significant difference in SR6 between "Strong Buy" and "Buy" ratings, but SR6 is significantly lower for "Sell" ratings than for "Strong Sell" ratings (z = 0.40, -1.85). Also, b_1 is significantly negative for SR6 under the two or five rating categories (p = 0.03, 0.09). Overall, these results support hypothesis 3 with respect to SR6. Additionally, Kruskal-Wallis tests indicate that SR3 significantly differentiates between the two rating categories (χ^2 = 3.93), but does not among the five rating categories (χ^2 = 6.72). The non-tabulated results show that SR3 is significantly lower for "Hold" ratings than for "Buy" ratings (z = 1.33), whereas there are no significant differences in SR3 between "Strong Buy" and "Buy" ratings, between "Hold" and "Sell" ratings, and between "Sell" and "Strong Sell" ratings (z = -0.25, 0.42, 0.96). However, b_1 is significantly negative for SR3 for both the five and the two rating categories (p = 0.04, 0.04). Overall, these results nearly support hypothesis 3 with respect to SR3. Nevertheless, Kruskal-Wallis tests indicate that differences in SR1 are not significant among the two or five rating categories (χ^2 = 5.62, 1.13). Similarly, b_1 is not significantly different from zero (p = 0.16, 0.26). These results do not support hypothesis 3 with respect to SR1. An interesting conclusion from these results is that final ratings prior to dropping coverage may be more useful for investors to predict SR6 or SR3 than to predict SR1.

Table 7. Regression results for testing *H3*

Panel A: Future industry-adjusted return on equity					
		N	Intercept	b_1	Adj. R^2
Five rating categories		3,308	0.0289 (0.1430)	-0.0171 (0.0404)	0.0006
Two rating categories		3,308	-0.0049 (0.3297)	-0.0890 (0.0041)	0.0018
Panel B: Future excess stock return					
	Period	N	Intercept	b_1	Adj. R^2
Five rating categories	1-month	3,554	0.0053 (0.1342)	-0.0017 (0.1592)	-0.0000
	3-month	3,554	0.0119 (0.0397)	-0.0042 (0.0444)	0.0005
	6-month	3,554	0.0252 (0.0190)	-0.0080 (0.0343)	0.0007
Two rating categories	1-month	3,554	0.0013 (0.2536)	-0.0039 (0.2610)	-0.0002
	3-month	3,554	0.0028 (0.1529)	-0.0153 (0.0382)	0.0006
	6-month	3,554	0.0070 (0.0802)	-0.0209 (0.0875)	0.0002

Table 8. Comparison in earnings performance between "Dropped" coverage group and "Subsequent" coverage group for testing *H4*

Panel A: Median return on equity						
	1	2	3	4	5	1-5
Dropped	0.1315 (744)	0.1318 (566)	0.1127 (1,635)	0.0723 (164)	0.0850 (199)	0.1184 (3,308)
Subsequent	0.1442 (1,976)	0.1452 (1,683)	0.1287 (2,308)	0.1086 (316)	0.0783 (185)	0.1362 (6,468)
Panel B: Median industry-adjusted return on equity						
	1	2	3	4	5	1-5
Dropped	0.0508 (744)	0.0432 (566)	0.0251 (1,635)	0.0058 (164)	0.0094 (199)	0.0321 (3,308)
Subsequent	0.0618 (1,976)	0.0583 (1,683)	0.0440 (2,308)	0.0149 (316)	0.0091 (185)	0.0510 (6,468)
Panel C: Wilcoxon z-statistics for dropped vs. subsequent						
	1	2	3	4	5	1-5
ROE	-2.9540 (0.0016)	-2.9932 (0.0014)	-6.6715 (0.0001)	-3.1097 (0.0009)	0.2572 0.3985	-9.8749 (0.0001)
Industry-adjusted ROE	-2.3848 (0.0085)	-2.4391 (0.0074)	-6.3142 (0.0001)	-1.8803 (0.0300)	0.4219 0.3366	-8.5390 (0.0001)

Table 8 and Table 10 present results for testing *H4* using future earnings performance. Wilcoxon rank-sum tests indicate that FIROE is significantly lower for SDS than for CCS conditional upon the "Strong Buy", "Buy", "Hold" or "Sell" category, respectively, and is not significantly different between SDS and CCS for the "Strong Sell" category (z = -2.38, -2.44, -6.31, -1.88, 0.42). Also, a_1, a_2, a_3, and a_4 are significantly negative, but a_5 is not significantly different from zero (p = 0.00, 0.05, 0.00, 0.00, 0.18). The non-tabulated results do not reveal significant difference in FIROE between "Strong Buy" or "Buy" ratings on SDS and "Hold" ratings on CCS (z = 1.03, 0.25), between "Hold" ratings on SDS and "Sell" ratings on CCS (z = 0.84) and between "Sell" ratings on SDS and "Strong Sell" ratings on CCS (z = -0.86). These results support hypothesis 4, and show that analyst discontinuing coverage activity itself signals some unfavorable information on future earnings performance that has not been reflected in the final "Strong Buy", "Buy", "Hold", or "Sell" ratings on SDS prior to discontinuing coverage.

Table 9 and Table 10 provide results for testing *H4* using post-event stock return. Wilcoxon rank-sum tests indicate that SR1 and SR3 are significantly lower for SDS than for CCS conditional upon "Strong Buy" ratings (z = -2.28, -1.81), and that

SR3 and SR6 are significantly lower for SDS than for CCS conditional upon "Hold" ratings (z = -1.89, -3.11). SR6 is significantly lower for SDS than for CCS conditional upon "Sell" ratings but is significantly higher conditional upon "Strong Sell" ratings (z = -2.54, 1.96). Similarly, a_1 is significantly negative for SR1 and SR3 (p = 0.02, 0.02), while a_3 is significantly negative for SR3 and SR6 (p = 0.07, 0.01). Moreover, a_4 or a_5 is significantly negative or positive for SR6, respectively (p = 0.06, 0.07). However, there is no significant difference in post-event stock return measure between SDS and CCS in other cases. The unexpected result is that the significant difference in SR6 between SDS and CCS is positive for the "Strong Sell" category. Overall, the results are mixed for supporting hypothesis 4. The predictability of final ratings on SDS may affect the test of this hypothesis. The finding that evidence supporting hypothesis 4 is weaker for post-event stock return measures than for future earnings is probably due to the lower ability of final ratings for predicting post-event stock return than for predicting future earnings.

Table 9. Comparison in stock return performance between "Dropped" coverage page and "Subsequent" coverage group for testing *H4*

Panel A: Median stock return measures for "Dropped" coverage group							
	Period	1	2	3	4	5	1-5
Size-adjusted return	1-month	0.0000	-0.0045	-0.0064	0.0027	-0.0169	-0.0050
	3-month	-0.0046	0.0028	-0.0056	-0.0062	-0.0082	-0.0048
	6-month	-0.0143 (802)	-0.0107 (610)	-0.0191 (1773)	-0.0713 (164)	-0.0130 (205)	-0.0174 (3554)
Panel B: Median stock return measures for "Subsequent" coverage group							
	Period	1	2	3	4	5	1-5
Size-adjusted return	1-month	0.0063	-0.0001	-0.0022	-0.0044	-0.0212	-0.0004
	3-month	0.0094	0.0043	0.0007	-0.0006	-0.0540	0.0031
	6-month	-0.0053 (2,115)	-0.0067 (1,824)	-0.0046 (2,444)	-0.0098 (333)	-0.0781 (201)	-0.0069 (6,917)
Panel C: Wilcoxon z-statistics for "Dropped" coverage group vs. "Subsequent" coverage group							
	Period	1	2	3	4	5	1-5
Size-adjusted return	1-month	-2.2796 (0.0113)	-1.1774 (0.1195)	-1.0815 (0.1397)	0.7403 (0.2296)	0.6488 (0.2582)	-2.8129 (0.0025)
	3-month	-1.8078 (0.0353)	-0.0618 (0.4754)	-1.8929 (0.0292)	-0.4706 (0.3190)	0.6327 (0.2635)	-2.6958 (0.0035)
	6-month	-0.5972 (0.2752)	-0.4292 (0.3339)	-3.1079 (0.0009)	-2.5364 (0.0056)	1.9574 (0.0251)	-2.9696 (0.0015)

Conclusion

Based on the analyst data from McNichols and O'Brien (1997), this paper comprehensively examines whether analyst initiating or discontinuing coverage activity itself has incremental informativeness on future firm performance. It shows that the adding coverage event itself signals more favorable information on future earnings performance of NAS with non-negative ratings of "Buy" or "Hold", and more favourable information on one-month post-recommendation excess stock return of NAS with non-negative ratings of "Strong Buy", "Buy" or "Hold". Moreover, the dropping coverage event itself signals for some unfavorable information on future earnings performance that has not been reflected in final ratings of "Strong Buy", "Buy", "Hold", or "Sell" on SDS. Additionally, this study examines whether final ratings on SDS prior to discontinuing coverage can signal information on future firm performance. The results show that future earnings performance and six-month post-dropping excess stock return significantly differentiate among the five ordinal categories, as well as between the non-negative and negative categories of final ratings on SDS.

Table 10. Regression results for testing *H4*

		Dependent variable			
	Expected sign	FIROE	SR1	SR3	SR6
N		(9,780)	(10,471)	(10,471)	(10,471)
Intercept		-0.0855 (0.0095)	-0.0183 (0.0068)	-0.0132 (0.1401)	-0.0431 (0.0132)
ADxSB	-	-0.0635 (0.0015)	-0.0091 (0.0189)	-0.0156 (0.0151)	-0.0018 (0.4372)
ADxB	-	-0.0404 (0.0467)	-0.0025 (0.3032)	-0.0020 (0.4015)	0.0017 (0.4464)
ADxH	-	-0.0435 (0.0033)	-0.0019 (0.2824)	-0.0082 (0.0658)	-0.0213 (0.0065)

Table 10 (cont.). Regression results for testing *H4*

		Dependent variable			
	Expected sign	FIROE	SR1	SR3	SR6
ADxS	-	-0.1523 (0.0007)	0.0084 (0.2010)	0.0008 (0.4802)	-0.0415 (0.0569)
ADxSS	-	0.0467 (0.1783)	0.0070 (0.2505)	-0.0125 (0.2343)	0.0399 (0.0719)
SB		0.1421 (0.0001)	0.0302 (0.0001)	0.0318 (0.0065)	0.0601 (0.0016)
B		0.1472 (0.0001)	0.0219 (0.0026)	0.0223 (0.0418)	0.0581 (0.0023)
H		0.1160 (0.0011)	0.0209 (0.0034)	0.0227 (0.0376)	0.0643 (0.0007)
S		0.0771 (0.0466)	0.0183 (0.0261)	0.0166 (0.1425)	0.0571 (0.0101)
Adj. R^2		0.0059	0.0019	0.0013	0.0010

This study has several limitations. First, an endogeneity issue may exist for the use of future stock return as a measure of predictability. Because future stock return could be caused by analyst advice, the results concerning the analyst predictability of stock return may be confounded. This causation issue may exist since the results of testing hypothesis 4 using earnings are inconsistent with the results using stock returns. Further investigation is needed into the cause of this inconsistency. Second, this study only provides some implications for investors. No practical trading portfolios have been constructed to measure the investment value of analyst initiating or discontinuing coverage. Moreover, transaction costs are not accounted for. Third, the drop event is not immediately observable to investors. It may reduce the usefulness of our results on dropped stocks for investment decision-making. Fourth, some unexpected results could not be explained compellingly.

Overall, this study enriches the research on analysts' adding or dropping stock coverage. It also provides some implications for investors' decision-making. An interesting question for further research inferred from this study is what private information do analysts use in their adding or dropping coverage decision-making, and how do they use it.

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