行政院國家科學委員會專題研究計畫 成果報告

分析師對於高地緣變數敏感度產業納入報導決策與股價/盈餘預測績效之研究

研究成果報告(精簡版)

計 畫 類 別 ：個別型
計 畫 編 號 ：NSC 95-2416-H-002-022-
執 行 期 間 ：95 年 08 月 01 日至 96 年 07 月 31 日
執 行 單 位 ：國立臺灣大學國際企業學系暨研究所

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處 理 方 式 ：本計畫可公開查詢

中 華 民 國 96 年 12 月 19 日

分析師對高地緣變數敏感性證券納入報導決策與股價/盈餘預測績效之研究

The aim of this paper is to examine U.S. security analysts' coverage and performance for securities in the sectors to which micro-location variables are the key value drivers.

We conjecture that the difference in analysts' specialty for micro-location variables may be more pronounced with respect to at least the following two sectors of securities. First, we aim at public utilities. Note that regulatory agencies, most importantly the Public Utilities Commissions (hereafter the PUCs), within the geographical region play an ongoing and significant role in determining earnings of utility firms. Above all, the Commissions can enforce re-regulations or de-regulations, altering the firm's competitive environment. Moreover, a utility firm is required to reduce its current rates whenever it is regarded by the PUC as making excessive profits. Ultimately, without the PUCs' approval, utilities may not increase any rate or charge. Second, we believe that the geographical factors are also important to the sector of real estate investment trusts (REITs). REITs serve as a handy sample because it is easy to observe the underlying real estate market.

This paper is among the first to examine the explanatory power of location to analysts' add/drop decisions and price/earnings forecast errors. We conjecture that analyst coverage decision as well as the forecast accuracy is highly related with the geographical location of the target firm/property for certain industries. For instance, an analyst needs to frequently and physically visit the counties where the power plant is located in order to obtain the environmental or rate regulatory information. Similarly, for certain real estate investment trust securities, analyst located in different cities may need to incur differential monitoring costs following each piece of property. In this study, we first document the extent local economy can explain variation in earnings and market prices of the sample securities. Our conjecture is consistent with the notion that cost of collecting the information of firms serve to explain analysts' comparative advantages and therefore their coverage decisions. We then test the hypotheses of analyst's being strategic in providing forecasts and recommendations for client companies with the geographic location variables being controlled.

Analyst optimism studies have been prevalent in the accounting field. Important recent pieces of work include Gu and Wu (2003), Kolasinski and Kothari (2005) and Kolasinski and Kothari (2005). Gu and Wu (2003) document that part of the observed analyst forecast bias could be a result of analysts' efforts to improve accuracy when the earnings distribution is skewed. Kolasinski and Kothari (2005) find no evidence that M&A clients coax analysts into providing desirable coverage. Ackert and Athanassakos (2005) suggest that greater prior uncertainty leads to higher analyst optimism, which in turn causes market overvaluation and

profitable portfolio strategies. In contrast, focusing on a cross-section of industries, prior studies by Lin and McNichols (1993), Lin and McNichols (1998), and Dugar and Nathan (1993) document that security analysts offer optimistic forecasts and recommendations for client companies. Consistently, Dechow et al. (2000) find that analyst optimism explains much of the unusually low stock returns following equity offerings.

However, these underwriter analyst studies may provide insufficient evidence for discriminating between the following two competing explanations. On the one hand, it may be that an analyst biases his report to maintain good relations with utility executives. On the other, that non-strategic analyst forecast bias leads to the brokerage firm's pursuing the underwriting deals is always a competing explanation to the observed bias in affiliated analyst forecasts/recommendations.

With the REITs during or immediately after the IPO stage as an experimental group, we expect that the existing REITs would serve to form a nearly perfect comparison group. If an analyst provides optimistic forecasts/recommendations immediately before or after the issuance of REITs but less optimistic forecasts/recommendations for the REITs within the same geographical regions, we may conclude that he behaves strategically.

Likewise, we expect that our study on public utilities may help discriminate between the two competing explanations. Specifically, there may be more versus less stringent rate regulatory agencies. In certain states in the U.S., the Commission may allow a substantial return on investment to the utility firms. We may find that in some other states, nevertheless, a small sign of positive abnormal returns may trigger the regulator's intervention. Such difference among the states may facilitate the test to discriminate between the competing explanations: recognizing the significant impacts of earnings forecasts on regulators' decisions, strategic executives may prefer a downward biased earnings forecast in certain states. Accordingly, we may conduct the following tests: for utility firms located in stringent states, we investigate whether affiliated analysts' forecasts would tend to be pessimistic, especially during the periods in which the firms have substantial excess quarterly returns.

The topics may interest researchers in the related fields. Security analysts, as a group, are both representatives of sophisticated investors and primary information intermediaries in the capital market. We further document analysts' contribution to investors for these firms by the location variable. Specifically, we explore the extent an analysts' superiority comes from their abilities in gathering private information and the extent from their abilities in analyzing the data.

Analysts may prefer to follow firms within the same geographical region

In spite of the relative homogeneity of accounting data in public utility industry, Chatfield, Hein and Moyer (1990) document that analyst forecasts of long-term earnings growth are more accurate than forecasts from extrapolative models for these firms. Moreover, the find that investors place the greatest weight on utility firm forecasts from Value Line.

PUCs within the geographical region play an ongoing and significant role in determining earnings of utility firms. As Joskow (1976) and Wolak (1992) emphasize, the public utility regulators' major goal is price-setting. Each PUC starts the rate setting process by estimating a utility's reasonable expenses and revenues, then adding a "fair" rate of return on its investment. First, the Commission estimates the utility's future customer demands and operating expenses such as wages, taxes, supplies, and depreciation, often using the master data files submitted with the firm's rate change application as references. Second, the Commission computes the *rate base*, or the aggregate book value of the firm's plants and equipment devoted to public use. Finally, after examining the utility's interest on borrowed funds and dividends on preferred stock as well as exploring a reasonable allowance for a return on common equity, it determines the level of fair rate of return, namely, the fair percentage of returns to providers of the funds that support the *rate base*.

Analysts do not pick the firms they follow at random. Prior studies document that analysts with positive information about their abilities attempt to demonstrate their self-confidence by going against market trend (Avery and Chevalier, 1999). Due to the concerns of either reputations or careers, analysts may have incentives to improve earnings forecast accuracy. Hong et al. (2000), for example, find that poor forecast performance decreases the probability of being promoted by about two percent. This implicitly suggests that forecast accuracy may affect analysts' career. Thus, analysts prefer to follow firms where there is greater forecast accuracy (Alford and Berger, 1998). Nevertheless, in order to achieve the same level of quality in their research reports, analysts may need to expend greater efforts to cover a distant company. Under the career and efforts concerns, therefore, analysts may have weaker incentives to follow these firms.

The results of prior studies are generally consistent with the notion that security analysts differ in their forecasting abilities. Stickel (1992) documents that members of the Investor All-American Research Team are more accurate in forecasting earnings and forecast more frequently. In addition, the upward forecast revisions of All-American analysts have a greater impact on stock prices than do Non All-Americans. Sinha et al. (1997), replicating O'Brien

(1990) with more stringent controls for forecast recency, find that systematic ex-post differences exist in analysts forecast accuracy. They also examine ex-ante forecast accuracy and find that analysts identified as superior in one period continue to be superior in subsequent periods while analysts classified as inferior in one period do not necessarily continue to be inferior in subsequent periods. While Stickle and Sinha et al. identify differences in forecast accuracy, they do not explain why the differences exist. Mikhail et al. (1997) examine factors that contribute to analysts' forecast accuracy. Using a time series approach, they find that a decline in analysts' forecast errors as an analyst's company-specific experience increases. However, the results of Mikhail et al. may not be generalizable since they limit their initial sample to analysts who continuously forecast the same firm for at least thirty-two quarters. This requirement excludes about ninety-seven percent of potential observations. Moreover, their sample may be subject to time-series clustering which may have affected their results. Moreover, Jacob et al. (1999) investigate the contribution of experience and brokerage house variables on analyst forecast attributes including forecast accuracy, frequency, and horizon. They find that employer size is associated with forecast accuracy. They also find that forecast accuracy is positively associated with the degree of industry specialization of brokerage house and is negatively related with brokerage house turnover. However, Jacob et al. do not find evidence that forecast accuracy improves with experience. Clement (1999) also examines the factors which influence analyst forecast accuracy. The results indicate that forecast accuracy is positively associated with analyst ability and skill, and available resources. He also finds that the forecast accuracy is negatively related to task complexity measured by the number of firms and industries followed by the analyst.

Our study is related to Barth, Kasznik, and McNichols's (2001), who suggest that analysts weigh cost of following the companies against the benefits. Barth, Kasznik, and McNichols's, nevertheless, associate both costs and benefits with the features of the companies. Our proposed study, in contrast, associates the costs with the characteristics of the analyst. We conjectured that the more the value of a piece of property moves with the macroeconomic as opposed to the micro-geographic factors, the more frequent forecasts/recommendations offered for a REIT distant analysts would be observed.

The Categorical Variable of Location

An indicator variable (*LOCA*), which equals one if the headquarter of firm and the headquarter/branch offices of the company or the property are at the same regions, and zero otherwise. We expect that analysts will choose to follow a firm at the same region as the

brokerage house. Take the public utility firms as an example. An analysts whose brokerage is located at the same region as the utility companies may feel easier to visit the rate regulatory committees, interview environmentalists, and confirms information with the managers.

Control Variables for analyst coverage

To reduce the possibility of model misspecification due to missing variables, we control for additional variables in the regression.

1. Firm Size *(MV)*

Previous studies find that firm size and analysts following are related (e.g., Barth et al., 2001; Bhushan, 1989; Brennan and Hughes, 1991; Lang and Lundholm, 1996; O'Brien and Bhushan, 1990). Ceteris paribus, the demand for analyst services is likely to be an increasing function of firm size. On the other hand, analysts have incentives to focus on larger firms since they are more widely held and stimulate the interest of a large number of investors with more potential transactions business (Bhushan, 1989). We use logarithm of market value of equity to proxy size.

2. Dummy variable for firms issuing public debt or equity in the prior, current, or subsequent year (DISSUE)

This control variable is applied for our public utility tests. The public utility firms issue corporate bonds quick frequently. We expect that analyst following will be greater for companies that access capital markets more frequently, because such companies are more likely to generate investment banking fees for the brokerage house. DISSUE is an indictor variable that equals one if the firm issues public debt or equity in the prior, current, or subsequent year, and zero otherwise.

3. Trading volume (VOL)

Analysts are expected to help generate underwriting and investment banking deals (Schipper, 1991) and earn additional compensation for doing so. Typically, an analyst's bonus may be one to three times his base salary (Siconolfi and Raghavan, 1995). Therefore, analysts have incentives to follow companies that have a high level of investor interest as reflected in trading volume. We expect that analyst following to be positively associated with trading volume (VOL). VOL is measured by trading volume for the current year, in millions of shares.

4. Concurrent price performance (RETURN)

Price performance may be another key factor that affects analyst following. Analysts prefer to cover stocks that have performed well. Our proxy for price performance is the industry-adjusted return, RETURN, which is the difference between the continuously compounded return on the stock and the industry return.

5. Earnings volatility (RISK)

This control variable is applied for our tests for REITs. We expect that the REITs that are subject to greater level of risks are with differential analyst coverage. The direction is not clear yet. On the one hand, analysts prefer to follow firms where there is greater forecast accuracy (Alford and Berger, 1998). On the other, we expect that the differences of analysts' abilities will affect the decision of analyst follow a firm. Accordingly, we do not aim to simply treat *RISK* as a control variable. Specifically, *RISK* may be highly correlated with analyst specialty variables such as micro-location.

Experimental and Comparison Group for REITs

We identify the REITs immediately before or after the IPO stage via handpicked data from both www.nyse.com and SDC Database. Moreover, we identify the comparison group observation by the REITs within the same geographical location. The comparison observation must have its IPO date at least one year before the corresponding experimental group security-year.

Timeliness and Forecast Horizon

Other than forecast errors and bias, we also examine the differences between neighboring and distant analysts in timeliness and forecast horizon**.** We use the measure of forecast horizon introduced by Lin and Chen (2005), who adopt three states (i.e., states 0-2) to represent an increasing length of forecast horizon. State 0 describes that analyst j only provides FQ1 or FQ2 for firm i at year t. State 1 represents analyst j provides FQ1/FQ2 and FY1/FY2 only. State 2 is differentiated from States 0-1 insofar as analyst j provides FQ1/FQ2 and any other types forecast horizons.

DATA

This study classifies regulated industries with the same definition used in O'Brien and Bhushan (1990). Specifically, these are Trucking, Broadcasting, Utility Services, Savings Institutions, Security Brokers, Insurance, Nursing and Personal Care, and Health. These industries are required to submit detailed reports to regulatory agencies.

We retrieve the data for the number of analysts providing earnings forecasts from the Institutional Broker Estimate System (I/B/E/S) Detail History tape for years 1997-2005. We retrieve the data for the number of analysts offering investment recommendations from First Call for years 1997-2005.The data of risk-weighted assets and accounting data will be from the performance reports and the quarterly consolidated financial statements on COMPUSTAT and/or laser disclosure. Data on individual security returns, trading volume and market index returns will be drawn from the Center for Research in Securities Prices (CRSP) tape. Data on distribution factors and split dates for events of changes in number of shares such as stock split and stock dividends and security returns for firms listed on NYSE/AMEX or NASDAQ are also provided by the CRSP tape. We learn the features of each individual equity REIT from both current and past issues of NAREIT (National Association of REIT) Real Estate Chart Book. Finally, data on IPO date and size will be provided by SDC.

TEST RESULTS

Consistent with the notion that the location of security analysts has incremental explanatory power to analyst coverage decision, Table 2 shows that the coefficient for indicator variable *LOCA* is statistically significant. The un-tabulated results for tests regarding public utility firms lead to a similar conclusion.

TABLE 1
Number of analyst forecasts by horizons and by years

Years		FY1	FY2	FY3	Long-term growth	FQ1	FQ2	FQ3	FQ4
1997	Mean	7.28	7.61	1.47	2.41	5.32	4.07	3.72	3.03
	Standard Deviation	9.30	9.70	2.12	3.99	7.72	5.89	5.34	4.08
	Median	3.00	3.00	1.00	1.00	2.00	1.00	1.00	1.00
1998	Mean	7.15	7.14	1.22	2.25	5.87	4.52	4.11	3.63
	Standard Deviation	9.29	9.42	1.98	3.61	7.97	6.23	5.78	5.07
	Median	3.00	3.00	0.00	1.00	2.00	2.00	1.00	1.00

1999	Mean	7.22	7.43	1.04	2.01	6.82	5.29	4.50	3.83
	Standard Deviation	9.41	9.73	1.76	3.13	8.94	7.24	6.27	5.17
	Median	3.00	3.00	0.00	1.00	3.00	2.00	2.00	1.00
2000	Mean	7.51	7.52	0.79	2.05	6.75	5.72	5.14	4.41
	Standard Deviation	9.70	9.78	1.42	3.34	8.99	7.66	6.89	5.94
	Median	3.00	3.00	0.00	0.00	2.00	2.00	2.00	2.00
2001	Mean	7.72	7.73	1.21	2.72	7.30	6.54	5.94	5.14
	Standard Deviation	9.41	9.16	1.99	3.68	8.91	7.95	7.38	6.42
	Median	4.00	4.00	0.00	1.00	4.00	3.00	3.00	3.00
2002	Mean	7.40	7.50	0.98	2.55	7.27	6.62	6.19	5.59
	Standard Deviation	8.25	8.50	1.77	2.90	8.47	7.68	7.23	6.62
	Median	4.00	4.00	0.00	1.00	4.00	3.00	3.00	3.00
2003	Mean	8.41	8.61	1.98	2.66	8.28	6.62	6.19	6.69
	Standard Deviation	8.26	8.61	1.88	2.91	8.48	8.68	8.23	6.62
	Median	4.11	4.11	1.11	1.11	4.11	3.11	3.11	3.11
2004	Mean	7.72	7.73	1.21	2.72	7.30	5.55	5.95	5.15
	Standard Deviation	9.51	9.15	1.99	3.58	8.91	7.95	7.38	5.52
	Median	5.00	5.00	0.00	1.00	5.00	3.00	3.00	3.00
2005	Mean	7.15	7.14	1.22	2.25	5.87	4.52	4.11	5.65
	Standard Deviation	9.29	9.42	1.98	5.61	7.97	6.25	5.78	5.07
	Median	5.00	5.00	0.00	1.00	2.00	2.00	1.00	1.00

Table 2
Analyst Coverage and Company Location (REITs)

Variables	1997 n = 682	1998 n = 1062	1999 n = 1385	2000 n = 1396	2001 n = 1385	2002 n = 1335
Intercept	3.28 (0.00)	0.68 (0.36)	1.75 (0.01)	3.35 (0.00)	3.59 (0.00)	5.38 (0.00)
LOCA	0.33 (0.03) **	0.56 (0.00) ***	0.36 (0.01) ***	0.65 (0.02) **	0.23 (0.08) *	0.38 (0.03) **
DISSUE	0.05 (0.38)	0.25 (0.00)***	0.15 (0.00)***	0.15 (0.00) ***	0.13 (0.01)***	0.29 (0.00)***
RISK	0.03 (0.97)	-0.30 (0.63)	1.16 (0.07)	-1.20 (0.06)*	-1.77 (0.01)***	-2.37 (0.00)***
LR	-0.03 (0.56)	0.03 (0.62)	-0.05 (0.18)	0.09 (0.03)**	0.05 (0.25)	0.09 (0.23)
GROWTH	1.13 (0.20)	0.13 (0.61)	0.06 (0.83)	0.15 (0.65)	-0.02 (0.97)	0.13 (0.83)
MV	0.07 (0.61)	0.23 (0.03)**	0.03 (0.77)	0.06 (0.32)	0.18 (0.13)	0.02 (0.89)

RETURN	-0.37 (0.15)	0.17 (0.38)	0.19 (0.61)	-0.87 (0.00)***	0.58 (0.08)*	-0.31 (0.07)*
VOL	-0.03 (0.83)	-0.03 (0.75)	0.05 (0.58)	0.003 (0.93)	-0.01 (0.96)	0.02 (0.85)
χ^2	8.99	62.67	33.99	28.19	23.03	36.28

*** p < 0.01 (two tailed). ** p < 0.05 (two tailed). * p < 0.1 (two tailed).

Indicator variable *LOCA* equals one if the headquarter of firm and the headquarter/branch offices of the company or the property are at the same regions, and zero otherwise.

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