

## Revealing the Insights of the Online Research Recommendations of Professional Financial Institutions by Investigating their Trading Behavior

Chaochang Chiu<sup>1+</sup>, Yuanling Hsu<sup>2</sup>, Hannming Haung<sup>1</sup>, Rueijiau Sung<sup>1</sup>, Chi-I Hsu<sup>3</sup>

<sup>1</sup>Department of Information Management  
Yuan Ze University, Chungli, Taiwan

<sup>2</sup>Department of Finance  
Shih Hsin University, Taipei, Taiwan

<sup>3</sup>Department of Information Management  
Kainan University, Taoyuan, Taiwan

**Abstract.** One of the most important sources of information that individuals investors retrieve and reference is the research recommendations from professional financial institutions. This paper aims to study the insights behind the research recommendations of professional financial institutions by investigating their trading behaviors. Moreover, it also examines the consistent effects on future stock returns by collecting research reports from cnYES.com and money.udn.com for the retrieval of useful and important information. This paper finds that professional financial institutions tend to publish buying recommendations. Many inconsistencies have been revealed about professional financial institutions' recommendation and actual trading behavior. We compare the actual trading times, buy-sell ratios, and accumulated trade amount before and after an investment recommendation was released.

**Keywords:** Investment strategy, research recommendation insights, trading behavior.

### 1. Introduction

In Taiwan's stock market, approximately 77% of equity investments are traded directly by individual investors. The information asymmetry, market transactions on the two sides to deal with the subject or content of information in terms of quantity and quality is not equal, between professional financial institutions and individual investors resulting in the value of securities prices and the departure from. Thus, individual investors often select the research reports as a importance source of transaction information provided by so-called stock market experts. Most of the prior studies focused on the effects of analyst's recommendations, such as whether investors can obtain surplus returns. In recent years, investors face the financial crisis and the credit and cash card crisis. The financial ethics issue catch the world's attention. Institution investors are profit-making organizations, they gain from the securities exchange. Why do they invest lots of resources to produce a research report and release to the public if the research report can make high profits by themselves? Is the research report's recommendation true or not?

In this study, we collected the released research report including buy and sell recommendations of the stocks from April 2009 to March 2010. Then, we observed the actual trading behaviors of the institution investors, both before and after the release of research reports, to find out if the professional financial institutions' recommendations consistent with their actual trading behaviors.

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<sup>1+</sup> Corresponding author. Tel.: +(886-955073838); fax: +(886-34352077).  
E-mail address: 101chiu@gmail.com

## 2. Literature

Most of prior studies focused on comparing the analysts' recommendations if they can gain the surplus profits from the market and the analysts' bias. Ramnah et al. examined the role of financial analysts in capital markets [1], and found that analysts develop expertise in obtaining and analyzing information from various sources to produce earnings forecasts, target price forecasts, and stock recommendations. Inefficiencies create predictable forecast errors by analysts, as their research outputs depend on regulatory and institutional factors, which vary over time, as well as analysts' economic incentives and behavioral biases.

Many studies have suggested that analysts' recommendations do not reflect their true beliefs. The main discussions include (1) cognitive bias: analysts are prone to cognitive biases; for example, overoptimistic in earnings signs, firm size, activities, prior returns, growth status, analyst coverage, and forecast horizon; (2) managerial relations: analysts have the incentive to maintain good relations with management as management is the most important source of non-public information; and (3) compensation: brokerage or investment-banking firms compensate analysts for their research services in stimulating brokerage commissions or securities-issue commissions. (e.g., [2], [3], [4], [5])

By mid-2000, the percentage of buy recommendations reached 74 percent of the total outstanding recommendations, while the percentage of sell recommendations falling to 2 percent prior to the implementation of the NASD Rule 2711, Research Analysts, and Research Reports, in early 2002 [6].

## 3. Methodology

In this study, we collected the buy and sell recommendations on the research reports released by 7 brokerage firms and investment banks in Taiwan. We observe these 7 brokerage firms and investment banks' recommendation to buy or sell the stock and their actual trading behavior on these stocks. **Fig. 1** shows the research procedure. Other, Table 1 summarizes the recommendation of the research reports within a given period.

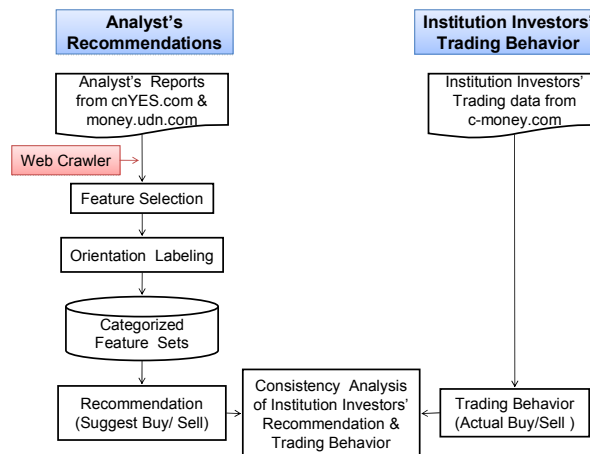


Fig. 1. Procedure Model

Table 1. Recommendation of the research reports

Brokerage	Strongly Buy	Buy	Neutral	Sell	Strongly Sell	Sum of Brokerage
Brokerage A	0	331	31	0	0	362
Brokerage B	14	284	358	0	0	656
Brokerage C	0	7	11	0	0	18
Brokerage D	0	51	157	0	0	208
Brokerage E	3	402	372	0	0	777
Brokerage F	0	106	60	1	0	167
Brokerage G	6	17	3	1	0	27
Sum of recommendation	23	1198	992	2	0	2215
Recommendation percentage	1.04%	54.09%	44.79%	0.09%	0.00%	100%

A crawler was used to extract research reports from cnYES.com and money.udn.com. Then, we had the domain exports to select the feature words, labeling recommendations of specific stocks into strongly buy, buy, neutral, sell, and strongly sell according the research reports' headlines and contents.

We also collected the daily transactions data of these 7 institution investors through the C-MONEY. Then, we summarized the net trade amount for 20-day before and after the release of research reports, and observe these activities with their buy and sell recommendations. Due to the data sources we can get from web, this study did not incorporate the information about foreign institution investors.

This study analyzed the consistencies of the institution investors' recommendations and actual trading times, accumulated trading amount, and the buy-sell ratio within 5-days, 10-days, 20-days before and after the the research reports were released. The buy-sell ratio is shown as follows:

$$R_t = \frac{B_t - S_t}{B_t + S_t} \times 100\% \quad (1)$$

Where  $R_t$  denotes the buy-sell ratio within the observation period  $t$ ,  $B_t$  denotes the buy times within the observation period  $t$ , and  $S_t$  denotes the sell times within the observation period  $t$ .  $R_t$  value from +1 and -1. When  $R_t > 0$  means that the institution investors show the consistent behaviors within the observation period. When  $R_t < 0$  means that the institution investors show the inconsistent behaviors within the observation period.

#### 4. 4. Experiments & Results

We have collected the research reports from April 1, 2009 to March 31, 2010 from cnYES.com and money.udn.com. There are 7 institution investors and 2,215 research reports. The research reports were labeled into strongly buy, buy, neutral, sell, and strongly sell. We find that most of the research reports focus on buy (54.09%) or neutral (44.79%) recommendations, which account for 98.88 percent of the reports. If neutral recommendations are not considered, 99.84 percent (1,221 reports) of the reports suggested buy recommendations, only 0.16 percent (2 reports) of the reports suggested sell recommendations.

We find that brokerage A and brokerage B show quite consistent behavior. But brokerage C, brokerage D and brokerage E show inconsistent behavior that these 3 institution investors release the buy recommendation but actually their sell times over buy times, as shown in **Table 2**.

**Table 3** shows the buy-sell ratio, which indicate that the recommendation released by brokers is quite unbalanced. Only two research reports proposed sell recommendations. We find that brokerage A and brokerage B bought the stocks on the day of buy recommendation was released and continuously bought stocks afterwards. The two institution investors' recommendations and trading behaviors were quite consistent. Brokerage C and brokerage D, buy-sell ratio was plus value before the day of the buy recommendations released and minus value after, actually bought the stocks before they released buy recommendation and sold after the release day. We also find these 2 institutions show arbitrage behavior to investors. Brokerage E and brokerage G, buy-sell ratio was keep minus value before and after the day they released the buy recommendations, show that these 2 institutions released the fault recommendation to investors.

Further, we observe the accumulated trading values and activities of the brokers for consistency and inconsistency in the recommendations and trading behaviors. However, the trading values may be affected by differences prices and amounts of deal. This could make some noises about real situation. But we believe it still can provide more information for individual investors to observe the institution investors' behavior. For example, brokerage A and brokerage F, the accumulated trading values are higher when the recommendation is inconsistent with actual trading behavior. It is suspected that these 2 institutions bought the stocks before the buy recommendation released and sold the stocks after, as shown in **Fig. 2** and **3**. Brokerage B's buy and sell times are consistent between recommendation and actual trading behavior, but when the recommendations are not consistent with actual trading behavior, the accumulated trading values are higher than they are consistent. It is suspected that when the recommendations released conflicts with the institution's interests, they will buy or sell inconsistent with their recommendations as shown in **Fig. 4**

Table 2. Suggest and actual trading times

Actual Suggestion	t=-20~-1		t=-10~-1		t=-5~-1		t=0		t=0~5		t=0~10		t=0~20	
	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy
<b>Brokerage A</b>														
Strongly Buy	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buy(331)	176	153	184	145	195	134	149	170	158	173	159	172	159	172
Neutral(31)	15	16	21	10	18	13	11	19	13	18	19	12	18	13
Sell	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Brokerage B</b>														
Strongly Buy	5	9	9	5	9	5	2	12	5	9	5	9	5	9
Buy(284)	131	145	127	148	137	131	92	182	110	172	124	160	136	148
Neutral(358)	187	169	185	167	179	171	149	173	170	186	182	176	179	179
Sell	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Brokerage C</b>														
Strongly Buy	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buy(7)	2	5	1	6	1	6	4	3	5	2	5	2	6	1
Neutral(11)	6	5	4	7	5	6	7	4	5	6	6	5	6	5
Sell	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Brokerage D</b>														
Strongly Buy	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buy(51)	23	25	24	24	23	25	18	27	31	19	30	20	30	20
Neutral(157)	87	70	82	75	83	74	70	84	70	87	76	81	85	72
Sell	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Brokerage E</b>														
Strongly Buy	0	3	2	1	0	3	2	1	1	2	1	2	1	2
Buy(402)	225	172	194	201	199	196	208	186	216	185	217	184	219	182
Neutral(372)	182	190	184	188	184	188	176	190	176	196	184	188	196	176
Sell	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Brokerage F</b>														
Strongly Buy	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buy(106)	42	60	50	50	48	48	40	34	52	46	48	53	50	54
Neutral(60)	26	29	24	30	18	35	21	20	25	28	29	25	25	34
Sell(1)	1	0	1	0	1	0	1	0	0	1	0	1	0	1
<b>Brokerage G</b>														
Strongly Buy	1	5	1	5	1	5	3	3	3	2	4	2	4	
Buy(17)	10	7	6	11	9	8	6	10	10	7	10	7	10	7
Neutral(3)	2	1	1	2	1	2	3	0	2	1	1	2	2	1
Sell(1)	1	0	1	0	1	0	1	0	1	0	1	0	1	0

\* ( ) is the total numbers of suggestion  
 t=0 the publish day of the research paper  
 t=0~5 the 5 days period from the publish day of the research paper

Table 3. Buy-Sell ratio

	t=-20~-1	t=-10~-1	t=-5~-1	t=0	t=0~5	t=0~10	t=0~20
Brokerage A	-0.070	-0.119	-0.185	0.066	0.045	0.039	0.039
Brokerage B	0.051	0.076	-0.022	0.328	0.220	0.127	0.042
Brokerage C	0.429	0.714	0.714	-0.143	-0.429	-0.429	-0.714
Brokerage D	0.042	0.000	0.042	0.200	-0.240	-0.200	-0.200
Brokerage E	-0.134	0.018	-0.008	-0.056	-0.077	-0.082	-0.092
Brokerage F	0.176	0.000	0.000	-0.081	-0.061	0.050	0.038
Brokerage G	-0.176	0.294	-0.059	0.250	-0.176	-0.176	-0.176

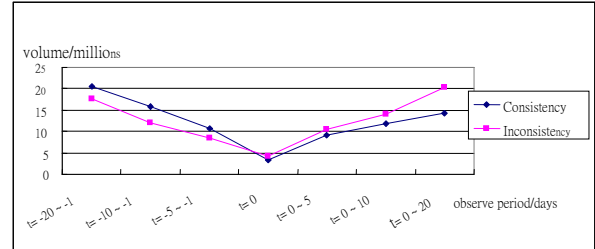


Fig. 2 Brokerage A's accumulated trading amount

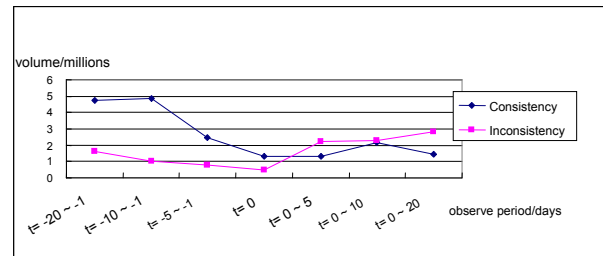


Fig. 3 Brokerage F's accumulated trading amount

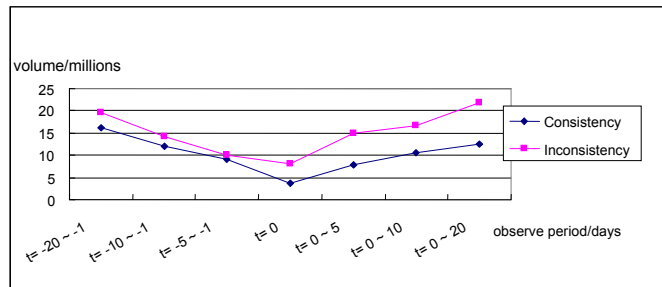


Fig. 4 Brokerage B's accumulated trading amount

## 5. 5. Discussion & Conclusion

This study observes the consistency between recommendations and actual trading behaviors of institution investors. The institution investors tend to release buy recommendations, which is consistent with previous studies. In addition, this study analyzed actual trading times, buy-sell ratios, and accumulated amounts of the investment institutions before and after the release of investment recommendations. The results show that different institution investors' consistency of recommendations and actual trading behaviors have great differences. Some institution investors began to buy stocks before the buy recommendations was released and sold stocks after. Their recommendations and trading behaviors are not consistent, which suggests that individual investors should not follow their recommendations. The individual investors should be more carefully to select the recommendations of professional financial institutions for stock investment.

In future study, we will adopt social network analysis to analyze the relationship between institution investors and the companies to further understand their relationship and the bias of professional financial institutions.

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