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Master Thesis

券商研究報告之價值 – 以台灣為例
The Value of Analyst Recommendations –
Evidence in Taiwan



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本論文係周漢文（R98723019）在國立臺灣大學財金學系、所完成之碩士學位論文，於民國 100 年 6 月 20 日承下列考試委員審查通過及口試及格，特此證明

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Chou, Han-Wen (Vincent)

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摘要

券商發布之個股研究報告是導引台灣證券市場資金流動的重要推手。本論文探討本土與外國券商，對於 40 檔台灣上市公司所發布研究報告之價值。本研究發現美系券商在買進建議上有優於歐系、亞系及本土券商的表現；各系在賣出建議上並無特別優勢。在產業別上，美系在電子、金融及傳產業皆有較佳的表現。另外，美系券商並未利用上市公司發布獲利資訊時調整買賣建議，以取得較佳表現。

關鍵字：研究建議；券商報告；券商研究



Abstract

Equity research has been an important driver of capital flows in Taiwanese stock market. This paper examines the value of analyst recommendations issued by local and foreign brokerage houses for 40 stocks traded in Taiwanese stock market. I find that the stock rating upgrades issued by American brokerage houses have superior performance over European, Asian, and Taiwanese competitors; no advantage is seen regarding downgrades. The outperformance of American brokerage houses is seen in technological, financial, and traditional industries studied. Also, I find no support that American brokerage houses time their issuance of recommendation revisions around earnings announcements to achieve better performance.



Keywords: analyst recommendation; equity research; brokerage house

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1. Introduction

The main agenda of this paper is to evaluate the value added by security analysts in equity research papers, and to make comparisons across brokerage houses. Equity research plays an important part in capital markets around the world. Brokerage houses regularly issue research reports, containing stock recommendation, target price level, forecast of key accounting figures (revenue, net income, capital expenditure, etc.) and supplemental text. With equity research reports in abundant supply, whether some contain more valuable information than the others remains an issue. Based on the theory of market efficiency, it is possible to add value if the stock market is less than perfectly efficient, because the analyst might possess information not yet reflected in the market.

Another reason that makes the reports issued by brokerage firms worthy of closer examination is the competency of their role as investment advisors. Past research, such as Jegadeesh (2004) and Dhiensiri et al (2005), indicate that analysts prefer issuing favorable recommendations, while sell and strong sell recommendations are rarely issued. One explanation for this phenomenon is that sell recommendations are only relevant to investors who already own the stock, while buy recommendations can help the brokerage house generate more business from potential buyers. This is supported by Irvine (2000), which finds evidence that sell-side analysts' choice to cover a stock is positively related to its potential to generate commission for the firm. Another possible reason is that analysts may be reluctant to issue sell recommendations in order to avoid infuriating stock owners and loss business.

An equally serious problem concerns the potential conflict of interest for analyst employed by lead underwriters. Anecdotal evidence has suggested that an analyst's objectivity is compromised in the presence of investment banking ties. Michael and Womack (1999) discovers that the performance of firms recommended by underwriter

analysts, despite having more information about these firms, are worse than the performance of firms recommended by other brokerage houses. However, McNichols et al (2005) gives a different story, stating that the affiliated analysts' buy recommendations after IPOs earn returns at par with those from the unaffiliated.

In addition to the issues noted above, analysts' performance has been a subject to review by many earlier papers, while focusing on different parts of research reports. One early paper is Womack (1996), which suggests that stock prices are influenced by analysts' recommendation changes, both at the time of the announcement and in subsequent months. Jegadeesh and Kim (2006) investigates the value of analyst recommendations in G7 countries by measuring stock price reactions around recommendation revisions. They find that US analyst's recommendations add more value than those by analysts in other countries. Bae, Stulz and Tan (2008) concludes that local analyst advantage is prevalent in most of the 32 countries studied, and that such advantage is related to analyst characteristics as well as firm characteristics. Higgins (1998) finds an association between target firms' level of disclosures and analysts' ability to forecast earnings per share¹.

As for Taiwanese stock market, Huan (2004) documents investment recommendations by foreign agencies do have information content. This paper finds that positive recommendations lead to positive abnormal returns, while negative recommendations are followed by negative abnormal returns. Chih and Shiao (2005) reports that recommendation changes have robust prediction power, and that sell recommendations have more significant impact than buy recommendations. Kao (2006) studies the stock recommendations issued during October 2004 and September 2005, and draws the conclusion that buy recommendations issued by U.S. and European firms bring more value, while Asian firms perform better at sell recommendations.

¹ See also Bae, Stulz and Tan (2008) for support of this finding

My research will focus on recommendation levels, which is the most recognized part of a research report prepared by an analyst. Moreover, to measure the impact of the “value” of an analyst’s recommendation, my paper will only examine “revisions” of recommendations. A revision is made when the prospect of the target company changes, leading the analyst to believe that the previous recommendation needs to be revised. Hence, to make either a recommendation upgrade or downgrade, the analyst must have supplied incremental information in his revised research reports, which is the “value” I would like to capture.

Before delving into value measurement, the first task will be to examine the characteristics of analysts’ recommendations. I observe that Taiwanese brokerage houses are more inclined to issue buy and strong buy recommendation, while avoiding unfavorable ones. A related finding is that Taiwanese brokerage houses also like to make drastic rating changes. Next we will turn our attention to the value of these recommendations by conducting event-time analysis. Comparisons will be made with four region groups, namely American, Asian, European, and Local brokerage houses. Foreign institutions (QFII) have been actively participating in Taiwanese equity market, with holdings of Taiwanese stocks reaching 33% as of April 2011². Therefore, foreign brokerage houses also have had broad coverage of Taiwanese stocks over the last decade. Brokerage houses originated from different regions have different operating scales, research teams, sources of information, and welfare packages. Moreover, inherent traits such as corporate culture and attitude toward investment also vary across regions, making it reasonable to make segmentation based on region groups. Existing literatures documenting analyst’s recommendations for Taiwanese public companies focus on relatively short time span. To fill the gap, this paper expands the sample period to more than 5 years, covering from 2006 to early 2011. I

² Based on a weekly report by Taiwan Stock Exchange (TSE), the stock holdings by foreign institutions, as of 4/22/2011, reached NTD 7.87 trillion, making up 33.25% of total market value of Taiwanese stocks.

discover that regarding rating upgrades only, American brokerage houses on average have outperformed the other three region groups. Conversely, no advantage is seen in any region group when it comes to rating downgrades.

What further distinguishes my research from the existing papers is the comparison on value of recommendations in different industries. This part of study is conducted in order to provide a possible explanation to the outperformance of American brokerage houses. Specifically, the sample will be broadly divided into technological, financial, and traditional industry. I conclude that the superior performance of American brokerage houses is not industry-dependent, but rather comes from all three industries. To test on another possibility, I will look into the issue of revisions after earnings announcements. It is worth examining whether American brokerage houses add value either by issuing recommendation revisions at a later time than did their competitors, or by taking advantage of post-earnings announcement drift. I find no support for this hypothesis.

The layout of this paper will be organized as follows: Section 2 describes the sample data and its sources; Section 3 evaluates the recommendations made by four region groups; Section 4 compares the value of recommendations by conducting event-time analysis. Section 5 comments on the possible sources of outperformance found in previous section and Section 6 concludes the research.

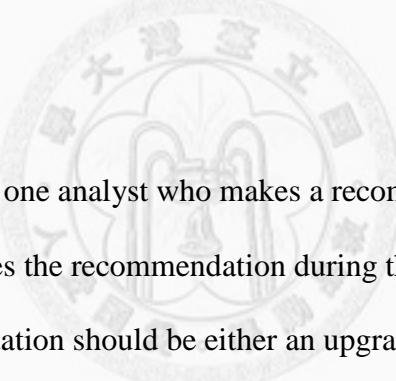
2. Sample Description

The stock recommendation data were retrieved from Institutional Brokers Estimate System (IBES) “Detailed File” section at Wharton Research Data Services (WRDS). The IBES database contains consensus and detailed forecasts made by security analysts, including earnings per share, cash flow, revenue, and stock recommendation. The sample period is from January 1, 2006 to March 15, 2011; Taiwan Capitalization Weighted Stock

Index (TAIEX) was obtained from Taiwan Economic Journal (TEJ).

The selection of public companies to be included in our sample is done by choosing the top 40 constituents in MSCI Taiwan Index. MSCI Taiwan Index is a market capitalization weighted index designed to track the performance of Taiwanese securities listed on Taiwan Stock Exchange and GreTai Securities Market. Therefore, the listed companies usually receive extensive reviews by local and foreign brokerage houses. Furthermore, to ensure that the selected companies have received reviews over most of the sample period, another criterion is imposed: The selected companies must have remained on the MSCI Taiwan Index since 2003. Appendix 1 gives the descriptions for the 40 selected companies.

After finalizing the company list, all the analyst's recommendations in our sample satisfy the following criteria³:



- (1) There should be at least one analyst who makes a recommendation for the target company and then revises the recommendation during the sample period.
- (2) The revised recommendation should be either an upgrade or a downgrade from the previous recommendation by the same analysts.
- (3) The analyst's code should be available on IBES.
- (4) The stock return data throughout the sample period should be available.
- (5) The name of the brokerage house issuing the recommendation should be recognizable.

These criteria are imposed for the purpose of leaving only recommendation revisions. Hence, initiations for the target companies as well as reiterations will not be included in the sample. The recommendation revisions were provided by 43 brokerage houses. Each

³ The screening criteria closely resemble those adopted by Jegadeesh and Kim (2006).

brokerage house is assigned to one of four region groups (American, Asian, European, and Local) based on the country where it was founded. For example, ABN AMRO Taiwan is classified as a European brokerage house. Appendix 2 summarizes the brokerage houses included in this research.

3. Distribution of Recommendations

This section addresses the properties of recommendations by securities analysts. Analysts rate stocks at different recommendation levels. Although there are some frequently seen labels such as “strong buy”, “buy”, “hold”, “sell” and “strong sell”, analysts use other synonyms such as “market outperform”, “weak buy”, “neutral”, “underweight” and etc. To align these fairly complex labels, IBES adopts a standardized numerical scores ranging from 1 to 5, with 1 represents “strong buy”, 2 as “buy”, 3 as “neutral”, 4 as “sell”, and 5 as “strong sell”. Every label corresponds to one of these scores. These numerical scores will serve as the tool for analysis throughout this section.

The detailed distributions of analysts’ recommendations after revisions across different years are shown in Table 1. Each revision is count as one observation. That is, if an analyst makes an upgrade recommendation for his target company and then downgrades it, then two observations will be recorded. During the year 2006 to 2010, there were a total of 2,086 revisions from all brokers. Also, recommendations by local brokerage houses on average have made up about 33.9% of total recommendations during year 2006 to 2010, with a trend toward increasing proportion.

Notice that starting from year 2006, analysts in local brokerage houses have issued the highest proportion of favorable recommendations every year (“buy” and “strong buy”) than those in foreign brokerage houses. Around 55% of recommendations issued by local brokers were favorable, with year 2008 as the only exception when the subprime mortgage

Table 1 Distribution of Recommendation Revisions

This table shows the distribution of analysts' recommendation revisions. Panel A presents the distribution of ratings after revisions. Panel B shows the proportions of each rating level within a region group in a given year. The sample period is from 2006/1/1 to 2011/3/15.

	Panel A						Panel B					
	Total	2006	2007	2008	2009	2010-	Total	2006	2007	2008	2009	2010-
<i>American</i>												
Strong Buy	40	8	8	9	7	8	9.80%	9.88%	8.89%	8.82%	9.21%	13.56%
Buy	125	28	37	17	31	12	30.64%	34.57%	41.11%	16.67%	40.79%	20.34%
Hold	164	35	36	41	24	28	40.20%	43.21%	40.00%	40.20%	31.58%	47.46%
Sell	59	8	4	28	9	10	14.46%	9.88%	4.44%	27.45%	11.84%	16.95%
Strong Sell	20	2	5	7	5	1	4.90%	2.47%	5.56%	6.86%	6.58%	1.69%
Total	408	81	90	102	76	59						
<i>European</i>												
Strong Buy	55	15	8	9	17	6	11.60%	18.07%	9.20%	8.82%	16.50%	6.06%
Buy	132	23	36	18	33	22	27.85%	27.71%	41.38%	17.65%	32.04%	22.22%
Hold	216	35	38	52	40	51	45.57%	42.17%	43.68%	50.98%	38.83%	51.52%
Sell	49	3	3	20	10	13	10.34%	3.61%	3.45%	19.61%	9.71%	13.13%
Strong Sell	22	7	2	3	3	7	4.64%	8.43%	2.30%	2.94%	2.91%	7.07%
Total	474	83	87	102	103	99						
<i>Asian</i>												
Strong Buy	66	14	25	13	10	4	13.17%	17.72%	25.77%	8.72%	8.70%	6.56%
Buy	164	27	37	43	39	18	32.73%	34.18%	38.14%	28.86%	33.91%	29.51%
Hold	133	19	19	42	34	19	26.55%	24.05%	19.59%	28.19%	29.57%	31.15%
Sell	113	15	15	41	27	15	22.55%	18.99%	15.46%	27.52%	23.48%	24.59%
Strong Sell	25	4	1	10	5	5	4.99%	5.06%	1.03%	6.71%	4.35%	8.20%
Total	501	79	97	149	115	61						
<i>Local</i>												
Strong Buy	225	43	36	28	76	42	32.01%	34.13%	31.30%	19.86%	42.94%	29.17%
Buy	149	25	38	28	25	33	21.19%	19.84%	33.04%	19.86%	14.12%	22.92%
Hold	272	51	38	60	63	60	38.69%	40.48%	33.04%	42.55%	35.59%	41.67%
Sell	19	4	1	3	6	5	2.70%	3.17%	0.87%	2.13%	3.39%	3.47%
Strong Sell	38	3	2	22	7	4	5.41%	2.38%	1.74%	15.60%	3.95%	2.78%
Total	703	126	115	141	177	144						

crisis was at its peak. About 40% of reports written by European and American brokers were favorable. These figures can be compared with those of G7 countries studied in Jegadeesh and Kim (2006). With buy and strong buy recommendations averaging 49.1% in G7 countries, Taiwanese brokerage houses appear to have issued a higher proportion. However, it is still significantly lower than US (62.2%) and Canada (58.0%). On the other hand, the proportion of favorable reports by foreign brokerage houses is roughly comparable to that of Germany (38.6%) and Italy (39.2%). Local brokerage houses also issue the least proportion of sell and strong sell recommendations combined. During the last two years, only 7.9% of total recommendations by local brokerage houses fell in this category. All foreign competitors have made higher proportion of unfavorable recommendation, with Asian being the highest (27.1%). Also note that all brokers issued a considerable amount of hold recommendations.

The average post-revision ratings are presented in Figure 1. It is evident from the table that local brokerage houses tend to issue more favorable recommendations (the average rating from 2006 to 2010 is 2.28) than all American, European, and Asian brokerage houses (2.73, 2.68 and 2.72, respectively). If compared with G7 countries, only US analysts have made similar average recommendations.

As mentioned in the introduction section, analysts tend to issue favorable recommendations for a number of reasons. However, the propensity for local brokerage houses to issue more favorable and few unfavorable reports than their competitors deserves special attention. Most foreign financial institutions operate on a global basis and have diversified sources of revenue. It is possible, therefore, that foreign institutions are less prone to negative impact from issuing sell or strong sell recommendations. In contrast, local financial institutions operate on a smaller scale and may have to rely on good recommendations that attract potential investors to boost their business, and therefore are

under pressure to make positive recommendations and avoid negative ones.

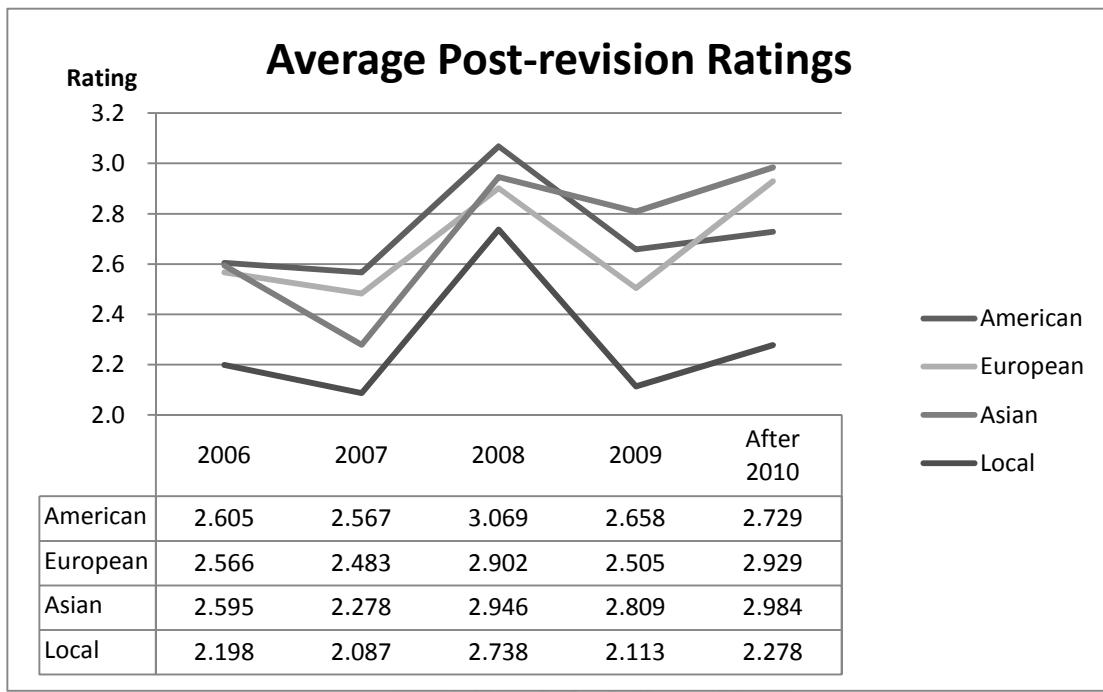


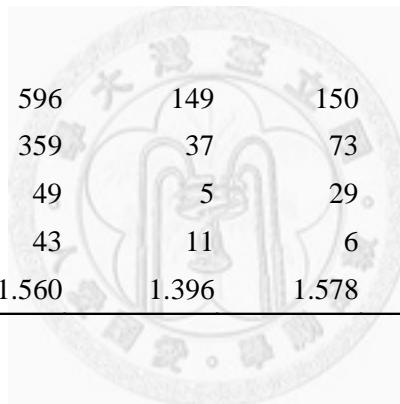
Fig 1. Average post-revision ratings of four region groups. Ratings are calculated using IBES-standardized score, ranging from 1 as “strong buy” to 5 as “strong sell”. This chart is compiled using the same data as seen in Table 1. Sample period is 2006/1/1 to 2011/3/15.

Another crucial piece of information is the magnitude of recommendation revisions, which is presented in Table 2. “Magnitude” refers to the difference between post-revision rating and pre-revision rating made by the same analyst. For example, “-4” in the leftmost column counts the revisions that were made from “strong sell” to “strong buy” within each region group. At both rating upgrades and downgrades, local brokerage houses have made more drastic rating changes than did foreign brokerage houses. From a strategic perspective, it might be that Taiwanese brokerage houses issue drastic revisions in order to send stronger signals to investors about the certainty of such revisions. On the other hand, it is also possible that these equity reports simply have more information content than those delivered by foreign brokerage houses.

Table 2 Distribution of Magnitude of Recommendation Revisions

This table presents the distributions of magnitude of recommendation revisions for each region group. The magnitude of each revision is calculated using the IBES standardized numerical scores, with 1 as "strong buy", 2 as "buy" and so on. The figures in the leftmost column represent the post-revision rating minus pre-revision rating. Average magnitude for each region group is shown at the bottom of each panel.

	Total	American	Asian	European	Local
<i>Upgrades</i>					
-4	50	15	9	7	19
-3	39	5	23	5	6
-2	360	41	62	71	186
-1	587	145	148	148	146
Average	-1.568	-1.466	-1.558	-1.442	-1.714
<i>Downgrades</i>					
1	596	149	150	153	144
2	359	37	73	75	174
3	49	5	29	7	8
4	43	11	6	8	18
Average	1.560	1.396	1.578	1.465	1.709



4. Event-time Analysis

This section examines the post-recommendation return of the analyst's target company. Specifically, I will compute T-day cumulative market-adjusted return, or $CR_k(T)$ as follows⁴:

$$CR_k(T) = \prod_{t=0}^T (1 + R_{k,t}) - \prod_{t=0}^T (1 + R_{mkt,t}),$$

where t is the revision date for stock k , $R_{k,t}$ and $R_{mkt,t}$ are the day t return for stock k and TAIEX, respectively. Trading days, not calendar days, are used for calculation. Four

⁴ This formula is consistent with Jegadeesh and Kim (2006)

different time periods subsequent to recommendation revisions are used: two-day abnormal return is chosen to measure short-term impact; ten-day for intermediate; three- and six-month for long-term, which is more consistent with the nature of equity reports that usually specify longer time periods. Obtaining the cumulative abnormal return for each recommendation allows us to calculate arithmetic mean within each region group. After that, mean differences and p-values are calculated on a pair-wise basis. These outputs are presented in triangular-shaped tables.

4.1 All upgrades

First, we examine the post-revision value for upgrades only. An upgrade is recorded when the analyst revises upward his recommendations, giving a positive signal for the target company. We do not take into account the magnitude of revisions. For example, we do not differentiate between buy recommendations revised from sell and neutral rating.

The results are shown in Table 3. We can see from the Panel A that American brokerage houses have the highest means at all time periods, followed by European's. Panel B supplies the mean difference calculated from Panel A, and p-value. The superior performance of American brokerage houses over Asian and Local competitors is confirmed at 95% or 99% confidence level over most time periods.

4.2 Upgrades to strong buy

It is worth separating those revisions that rate the target company as “strong buy”. A strong buy recommendations is issued when an analyst believes that the stock is either significantly undervalued, or that it has great potential for future growth. Therefore, it is very likely that the analyst rating a stock as strong buy has more confidence on his recommendation than rating it otherwise. The results for upgrades to strong buy are shown

in Table 4. American brokerage houses dominate the competitors in the other three region groups by having the highest means amongst four region groups. Panel B suggests that such superior performance is at a greater degree than seen at “all upgrades” section, as evidenced by more paired comparisons showing statistically significant outperformance at high confidence level. Interestingly, we also see that the average mean abnormal return for European brokerage houses is -2.7% compared with market index, indicating the analysts’ inability to pick stocks that are expected to outperform the market.

4.3 All downgrades

A recommendation downgrade, as opposed to an upgrade, is made when the analyst believes that the future value of the stock no longer justifies the previous recommendation level and hence makes a downward revision. Again, I do not take into account the magnitude of revisions. Table 5 presents the cumulative abnormal returns for this section. It is apparent that there’s no region group that possesses meaningful advantage over the others at all time periods, except for small outperformance seen at American brokerage houses over two-day period. Another finding is that, over long-term period, the mean cumulative abnormal returns for all region groups are positive. A possible explanation can be found at the aforementioned discussion on distribution of recommendations. That is, security analysts rarely downgrade a stock to sell or strong sell, but rather to neutral. This fact is likely to cause such revisions to have only short-term impact.

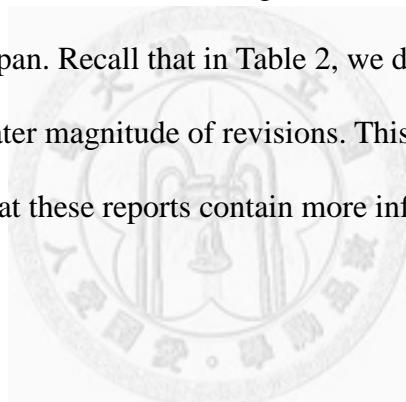
4.4 Downgrades from strong buy

A stock rated as strong buy can be downgraded when the analyst believes that the factors upholding the company at the forecasted target price have changed in a negative way. As previously mentioned, a change concerning the highest rating category possibly reflects the

analyst's strong confidence over his recommendation. The results are given in Table 6. Again, no statistically significant outperformance is observed for any region group at all time periods, which is opposite to the results seen at "upgrades to strong buy" section.⁵

4.5 Summary

The most important characteristic observed from the previous four studies is the asymmetric nature of the cumulative abnormal returns after recommendation revisions. Whereas American brokerage houses have delivered more value in equity reports regarding recommendation upgrades than their competitors at all time periods studied, every region group seems to have similar performance at downgrades, except for American's small advantage over shorter time span. Recall that in Table 2, we discover that local brokerage houses issue reports with greater magnitude of revisions. This part of study, however, does not support the speculation that these reports contain more information content.



⁵ It is equally informative to separate "Upgrades from Strong Sell" and "Downgrades to Strong Sell" for study, since these two categories also reflect analyst's strong confidence on his revision. However, the sample size of "strong sell" is too small to conduct meaningful research.

Table 3

Mean Cumulative Abnormal Returns after Recommendation Revisions – All Upgrades

This table presents the cumulative buy-and-hold abnormal returns subsequent to recommendation revisions. Cumulative abnormal return is defined as the difference between cumulative return for the individual stock and cumulative market index return over the specified time period. Arithmetic mean is then calculated within each region group and shown in Panel A, which also contains the number of observations, and standard deviation. Panel B supplies the mean difference and p-value (in parentheses). Mean difference is calculated by subtracting the mean value represented by left column from the mean value represented by upper row. Sample period is from 2006/1/1 to 2011/3/15.

Panel A

2 days				10 days				3 months				6 months			
	Obs	Mean	Std Dev												
American	206	0.011	0.037	American	206	0.016	0.062	American	202	0.047	0.129	American	199	0.073	0.189
Asian	242	0.002	0.030	Asian	242	0.003	0.062	Asian	242	0.026	0.141	Asian	230	0.025	0.190
European	231	0.009	0.030	European	231	0.009	0.055	European	229	0.029	0.136	European	219	0.045	0.198
Local	357	0.005	0.032	Local	357	0.010	0.061	Local	357	0.022	0.125	Local	333	0.019	0.170

Panel B

2 days					10 days					3 months					6 months				
	American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local
American					American					American					American				
Asian	0.009*** (0.004)				Asian	0.013** (0.023)				Asian	0.021 (0.102)				Asian	0.048*** (0.009)			
European	0.002 (0.449)	-0.007** (0.014)			European	0.007 (0.200)	-0.006 (0.255)			European	0.018 (0.168)	-0.003 (0.789)			European	0.028 (0.141)	-0.020 (0.270)		
Local	0.006** (0.028)	-0.003 (0.332)	0.004 (0.102)		Local	0.006 (0.292)	-0.007 (0.134)	-0.001 (0.75)		Local	0.025** (0.031)	0.004 (0.768)	0.007 (0.547)		Local	0.054*** (0.001)	0.006 (0.671)	0.026* (0.100)	

Table 4

Mean Cumulative Abnormal Returns after Recommendation Revisions – Upgrades to Strong Buy

This table presents the cumulative buy-and-hold abnormal returns subsequent to recommendation revisions. Cumulative abnormal return is defined as the difference between cumulative return for the individual stock and cumulative market index return over the specified time period. Arithmetic mean is then calculated within each region group and shown in Panel A, which also contains the number of observations, and standard deviation. Panel B supplies the mean difference and p-value (in parentheses). Mean difference is calculated by subtracting the mean value represented by left column from the mean value represented by upper row. Sample period is from 2006/1/1 to 2011/3/15.

Panel A

2 days				10 days				3 months				6 months			
	Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev
American	40	0.023	0.030	American	40	0.027	0.061	American	40	0.071	0.124	American	40	0.087	0.182
Asian	66	0.005	0.033	Asian	66	-0.005	0.061	Asian	66	0.034	0.154	Asian	65	0.046	0.219
European	55	0.008	0.027	European	55	0.000	0.056	European	55	0.000	0.133	European	53	-0.027	0.176
Local	224	0.005	0.033	Local	224	0.011	0.064	Local	224	0.024	0.126	Local	207	0.018	0.169

Panel B

2 days					10 days					3 months					6 months				
	American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local
American					American					American					American				
Asian	0.018*** (0.006)				Asian	0.032** (0.012)				Asian	0.037 (0.176)				Asian	0.041 (0.310)			
European	0.015** (0.011)	-0.003 (0.696)			European	0.027** (0.033)	-0.005 (0.639)			European	0.071*** (0.009)	0.034 (0.198)			European	0.114*** (0.003)	0.073** (0.048)		
Local	0.018*** (0.001)	0.000 (0.891)	0.003 (0.512)		Local	0.016 (0.145)	-0.016* (0.069)	-0.011 (0.213)		Local	0.047** (0.032)	0.010 (0.643)	-0.024 (0.226)		Local	0.069** (0.032)	0.028 (0.344)	-0.045* (0.100)	

Table 5

Mean Cumulative Abnormal Returns after Recommendation Revisions – All Downgrades

This table presents the cumulative buy-and-hold abnormal returns subsequent to recommendation revisions. Cumulative abnormal return is defined as the difference between cumulative return for the individual stock and cumulative market index return over the specified time period. Arithmetic mean is then calculated within each region group and shown in Panel A, which also contains the number of observations, and standard deviation. Panel B supplies the mean difference and p-value (in parentheses). Mean difference is calculated by subtracting the mean value represented by left column from the mean value represented by upper row. Sample period is from 2006/1/1 to 2011/3/15.

Panel A

2 days				10 days				3 months				6 months			
	Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev
American	202	-0.010	0.034	American	202	-0.007	0.063	American	202	0.020	0.146	American	196	0.032	0.201
Asian	258	-0.005	0.035	Asian	258	-0.009	0.064	Asian	258	0.013	0.153	Asian	246	0.008	0.202
European	243	-0.004	0.033	European	243	-0.003	0.061	European	243	0.009	0.136	European	224	0.011	0.179
Local	344	-0.004	0.032	Local	344	-0.003	0.063	Local	343	0.010	0.136	Local	323	0.011	0.190

Panel B

2 days					10 days					3 months					6 months				
	American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local
American					American					American					American				
Asian	-0.005* (0.100)				Asian	0.002 (0.738)				Asian	0.007 (0.638)				Asian	0.024 (0.229)			
European	-0.006* (0.055)	-0.001 (0.779)			European	-0.004 (0.455)	-0.006 (0.252)			European	0.011 (0.433)	0.004 (0.758)			European	0.021 (0.280)	-0.003 (0.864)		
Local	-0.006** (0.038)	-0.001 (0.757)	0.000 (0.997)		Local	-0.004 (0.496)	-0.006 (0.269)	0.000 (0.907)		Local	0.010 (0.427)	0.003 (0.775)	-0.001 (0.962)		Local	0.021 (0.243)	-0.003 (0.885)	0.000 (0.970)	

Table 6

Mean Cumulative Abnormal Returns after Recommendation Revisions – Downgrades from Strong Buy

This table presents the cumulative buy-and-hold abnormal returns subsequent to recommendation revisions. Cumulative abnormal return is defined as the difference between cumulative return for the individual stock and cumulative market index return over the specified time period. Arithmetic mean is then calculated within each region group and shown in Panel A, which also contains the number of observations, and standard deviation. Panel B supplies the mean difference and p-value (in parentheses). Mean difference is calculated by subtracting the mean value represented by left column from the mean value represented by upper row. Sample period is from 2006/1/1 to 2011/3/15.

Panel A

2 days				10 days				3 months				6 months			
	Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev
American	32	-0.009	0.026	American	32	0.000	0.047	American	32	0.005	0.130	American	31	-0.002	0.206
Asian	92	-0.003	0.039	Asian	92	-0.003	0.062	Asian	92	0.031	0.172	Asian	88	0.025	0.228
European	70	-0.005	0.030	European	70	0.003	0.064	European	70	0.011	0.125	European	62	0.015	0.163
Local	224	-0.003	0.034	Local	224	0.003	0.067	Local	224	0.005	0.134	Local	213	0.008	0.195

Panel B

2 days					10 days					3 months					6 months				
	American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local
American					American					American					American				
Asian	-0.006 (0.399)				Asian	0.003 (0.772)				Asian	-0.026 (0.366)				Asian	-0.027 (0.541)			
European	-0.004 (0.599)	0.002 (0.694)			European	-0.003 (0.851)	-0.006 (0.608)			European	-0.006 (0.820)	0.020 (0.386)			European	-0.017 (0.683)	0.010 (0.758)		
Local	-0.006 (0.323)	0.000 (0.992)	-0.002 (0.623)		Local	-0.003 (0.796)	-0.006 (0.487)	0.000 (0.972)		Local	0.000 (0.997)	0.026 (0.186)	0.006 (0.716)		Local	-0.010 (0.796)	0.017 (0.540)	0.007 (0.770)	

5. Possible Explanations

5.1 Industry Study

To further understand the sources of relative performance of all region groups, the companies in sample data are divided into three industries: technology, finance, and tradition. Industry characteristics are likely to play a role in explaining the discrepancies in performances. For example, differences in transparency of information flows can limit the ability of analysts in a specific industry to grasp undisclosed yet valuable information. All companies studied fall into one of the three industries, with 18 as technology, 10 as finance, and 12 as tradition. Technological industry has been the centerpiece of Taiwanese stock market and understandably receives more coverage by analysts. Around 58% of total recommendation revisions were for tech companies, followed by 23% for traditional industry, and 19% for financial sector.

The following sections present the study concerning each industry. Both upgrades and downgrades will be discussed in each section.

5.1.1 Technological Industry

Since technology sector makes up the most weight in our sample data, it is natural to form the hypothesis that the outperformance of American brokerages houses largely comes from the outperformance in this sector. The results are shown in Table 7. For upgrades, American brokerage houses do have produced the highest mean abnormal returns amongst the four region group. However, although significant outperformance still exists in short and intermediate time periods, the degree is less striking than observed at aggregate rating upgrades. Table 8 gives the output for downgrades, showing that no region group has had superior performance. To summarize, the study here does not provide strong support for the hypothesis that advantage at technology industry is the main driver for outperformance of

American brokerage houses.

5.1.2 Financial Industry

Financial industry has traditionally been a highly regulated sector. This increases the difficulty of accurate forecast by analysts, but may be advantageous to analysts who, besides having a thorough understanding of the target company's operations, make accurate predictions of government policy. Again, we expect that American brokerage houses will outperform the other three region groups regarding recommendation upgrades. Based on Table 9, we see that this is the case, especially at six-month time period. European group appears to be the runner-up, followed by Local and Asian competitors. Table 10 presents the figures for downgrades. An intriguing finding is that local brokerage houses have actually done a better job detecting financial companies that underperformed the market over long-term period.

5.1.3 Traditional Industry

Although some companies labeled as traditional industry have more or less gone international, many are still operating domestically. Hence, brokerage houses can collect most information needed for building models without such effort as visiting factories overseas. In contrast to the previous two industries, we form the expectation that local brokerage houses possess the highest mean abnormal return at rating upgrades, reflecting the likelihood that Taiwanese brokerage houses are more able to gain knowledge about the operations of the target companies. Table 11 summarizes the results. Panel A indicates that American brokerage houses still have done better, with exceptional outperformance seen at two-day and six-month time horizon. Also note that on a long-term basis, local brokerage houses underperformed all foreign competitors by a substantial margin. When it comes to

downgrades, Table 12 shows that all region groups have not done a good job, as evidenced by large positive mean abnormal returns over intermediate and longer time span.

5.1.4 Summary

By conducting the industry study, it is evident that the outperformance of American brokerage houses regarding recommendation upgrades comes from superior abnormal returns of all three industries studied. Although the degree of outperformance is not always statistically meaningful, the highest mean abnormal returns are very commonly seen, even in such sectors as traditional industry where local brokerage houses should have had some advantage. In the next section, I will link the revisions of stock recommendations to earnings announcements made by target companies.



Table 7

Mean Cumulative Abnormal Returns after Recommendation Revisions – All Upgrades (Technology)

This table presents the cumulative buy-and-hold abnormal returns subsequent to recommendation revisions. Cumulative abnormal return is defined as the difference between cumulative return for the individual stock and cumulative market index return over the specified time period. Arithmetic mean is then calculated within each region group and shown in Panel A, which also contains the number of observations, and standard deviation. Panel B supplies the mean difference and p-value (in parentheses). Mean difference is calculated by subtracting the mean value represented by left column from the mean value represented by upper row. Sample period is from 2006/1/1 to 2011/3/15.

Panel A

2 days				10 days				3 months				6 months			
	Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev
American	110	0.012	0.040	American	110	0.017	0.066	American	107	0.042	0.142	American	105	0.047	0.188
Asian	141	0.004	0.034	Asian	141	-0.001	0.067	Asian	141	0.026	0.154	Asian	132	0.024	0.205
European	129	0.009	0.030	European	129	0.006	0.059	European	127	0.015	0.147	European	123	0.024	0.190
Local	220	0.006	0.034	Local	220	0.004	0.062	Local	220	0.013	0.130	Local	206	0.022	0.180

Panel B

2 days					10 days					3 months					6 months				
	American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local
American					American					American					American				
Asian	0.008*				Asian	0.018** (0.034)				Asian	0.016 (0.396)				Asian	0.023 (0.369)			
European	0.003 (0.430)	-0.005 (0.204)			European	0.011 (0.169)	-0.007 (0.376)			European	0.027 (0.150)	0.011 (0.537)			European	0.023 (0.366)	0.000 (0.991)		
Local	0.006 (0.165)	-0.002 (0.519)	0.003 (0.463)		Local	0.013* (0.073)	-0.005 (0.531)	0.002 (0.721)		Local	0.029* (0.077)	0.013 (0.408)	0.002 (0.919)		Local	0.025 (0.266)	0.002 (0.937)	0.002 (0.925)	

Table 8

Mean Cumulative Abnormal Returns after Recommendation Revisions – All Downgrades (Technology)

This table presents the cumulative buy-and-hold abnormal returns subsequent to recommendation revisions. Cumulative abnormal return is defined as the difference between cumulative return for the individual stock and cumulative market index return over the specified time period. Arithmetic mean is then calculated within each region group and shown in Panel A, which also contains the number of observations, and standard deviation. Panel B supplies the mean difference and p-value (in parentheses). Mean difference is calculated by subtracting the mean value represented by left column from the mean value represented by upper row. Sample period is from 2006/1/1 to 2011/3/15.

Panel A

2 days				10 days				3 months				6 months			
	Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev
American	99	-0.014	0.038	American	99	-0.014	0.066	American	99	0.021	0.153	American	96	0.023	0.215
Asian	169	-0.009	0.036	Asian	169	-0.013	0.066	Asian	169	0.014	0.164	Asian	162	0.008	0.210
European	143	-0.006	0.032	European	143	-0.002	0.061	European	143	-0.007	0.133	European	128	0.005	0.188
Local	203	-0.006	0.032	Local	203	-0.008	0.059	Local	203	0.006	0.139	Local	189	0.002	0.191

Panel B

2 days					10 days					3 months					6 months				
	American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local
American					American					American					American				
Asian	-0.005 (0.282)				Asian	-0.001 (0.945)				Asian	0.007 (0.746)				Asian	0.015 (0.580)			
European	-0.008 (0.106)	-0.003 (0.512)			European	-0.012 (0.172)	-0.011 (0.128)			European	0.028 (0.150)	0.021 (0.215)			European	0.018 (0.521)	0.003 (0.914)		
Local	-0.008* (0.067)	-0.003 (0.380)	0.000 (0.860)		Local	-0.006 (0.496)	-0.005 (0.464)	0.006 (0.350)		Local	0.015 (0.425)	0.008 (0.613)	-0.013 (0.385)		Local	0.021 (0.423)	0.003 (0.793)	0.003 (0.885)	

Table 9

Mean Cumulative Abnormal Returns after Recommendation Revisions – All Upgrades (Finance)

This table presents the cumulative buy-and-hold abnormal returns subsequent to recommendation revisions. Cumulative abnormal return is defined as the difference between cumulative return for the individual stock and cumulative market index return over the specified time period. Arithmetic mean is then calculated within each region group and shown in Panel A, which also contains the number of observations, and standard deviation. Panel B supplies the mean difference and p-value (in parentheses). Mean difference is calculated by subtracting the mean value represented by left column from the mean value represented by upper row. Sample period is from 2006/1/1 to 2011/3/15.

Panel A

2 days				10 days				3 months				6 months			
	Obs	Mean	Std Dev												
American	45	0.006	0.040	American	45	0.008	0.053	American	45	0.029	0.112	American	44	0.060	0.187
Asian	47	-0.004	0.034	Asian	47	-0.007	0.051	Asian	47	-0.011	0.101	Asian	44	-0.047	0.158
European	52	0.016	0.030	European	52	0.014	0.058	European	52	0.034	0.119	European	51	0.036	0.177
Local	53	0.004	0.034	Local	53	0.019	0.060	Local	53	0.027	0.116	Local	46	-0.024	0.151

Panel B

2 days					10 days					3 months					6 months				
	American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local
American					American					American					American				
Asian	0.010*				Asian	0.015				Asian	0.040*				Asian	0.107***			
European	-0.010 (0.142)	-0.020*** (0.002)			European	-0.006 (0.563)	-0.021* (0.053)			European	-0.005 (0.839)	-0.045** (0.048)			European	0.024 (0.520)	-0.083** (0.018)		
Local	0.002 (0.637)	-0.009 (0.170)	0.012* (0.065)		Local	-0.011 (0.323)	-0.026** (0.020)	-0.005 (0.677)		Local	0.002 (0.934)	-0.038* (0.086)	0.007 (0.769)		Local	0.084** (0.022)	-0.023 (0.485)	0.060* (0.077)	

Table 10

Mean Cumulative Abnormal Returns after Recommendation Revisions – All Downgrades (Finance)

This table presents the cumulative buy-and-hold abnormal returns subsequent to recommendation revisions. Cumulative abnormal return is defined as the difference between cumulative return for the individual stock and cumulative market index return over the specified time period. Arithmetic mean is then calculated within each region group and shown in Panel A, which also contains the number of observations, and standard deviation. Panel B supplies the mean difference and p-value (in parentheses). Mean difference is calculated by subtracting the mean value represented by left column from the mean value represented by upper row. Sample period is from 2006/1/1 to 2011/3/15.

Panel A

2 days				10 days				3 months				6 months			
	Obs	Mean	Std Dev												
American	51	-0.004	0.028	American	51	0.000	0.063	American	51	0.000	0.154	American	49	0.029	0.192
Asian	35	0.000	0.032	Asian	35	-0.012	0.040	Asian	35	-0.001	0.098	Asian	31	-0.036	0.160
European	57	-0.005	0.031	European	57	-0.012	0.059	European	57	0.024	0.118	European	56	-0.008	0.144
Local	57	-0.002	0.032	Local	57	-0.000	0.054	Local	56	-0.026	0.099	Local	54	-0.069	0.149

Panel B

2 days					10 days					3 months					6 months				
	American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local
American					American					American					American				
Asian	-0.004 (0.473)				Asian	0.012 (0.285)				Asian	0.001 (0.965)				Asian	0.065 (0.105)			
European	0.001 (0.983)	0.005 (0.468)			European	0.012 (0.305)	0.000 (0.987)			European	-0.024 (0.383)	-0.025 (0.284)			European	0.037 (0.266)	-0.028 (0.425)		
Local	-0.002 (0.732)	0.002 (0.676)	-0.003 (0.721)		Local	0.000 (0.963)	-0.012 (0.251)	-0.012 (0.277)		Local	0.026 (0.300)	0.025 (0.239)	0.050** (0.017)		Local	0.098*** (0.005)	0.033 (0.357)	0.061** (0.032)	

Table 11

Mean Cumulative Abnormal Returns after Recommendation Revisions – All Upgrades (Tradition)

This table presents the cumulative buy-and-hold abnormal returns subsequent to recommendation revisions. Cumulative abnormal return is defined as the difference between cumulative return for the individual stock and cumulative market index return over the specified time period. Arithmetic mean is then calculated within each region group and shown in Panel A, which also contains the number of observations, and standard deviation. Panel B supplies the mean difference and p-value (in parentheses). Mean difference is calculated by subtracting the mean value represented by left column from the mean value represented by upper row. Sample period is from 2006/1/1 to 2011/3/15.

Panel A

2 days				10 days				3 months				6 months			
	Obs	Mean	Std Dev												
American	51	0.013	0.036	American	51	0.019	0.059	American	51	0.072	0.113	American	50	0.141	0.181
Asian	54	0.003	0.023	Asian	54	0.019	0.054	Asian	54	0.056	0.129	Asian	54	0.087	0.155
European	50	0.002	0.025	European	50	0.009	0.039	European	50	0.061	0.116	European	45	0.115	0.227
Local	84	0.001	0.029	Local	84	0.021	0.055	Local	84	0.044	0.116	Local	81	0.034	0.150

Panel B

2 days					10 days					3 months					6 months				
	American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local
American					American					American					American				
Asian	0.010* (0.073)				Asian	0.000 (0.965)				Asian	0.016 (0.511)				Asian	0.054 (0.109)			
European	0.011* (0.072)	0.001 (0.923)			European	0.010 (0.296)	0.010 (0.282)			European	0.011 (0.631)	-0.005 (0.848)			European	0.026 (0.539)	-0.028 (0.492)		
Local	0.012** (0.040)	0.002 (0.711)	0.001 (0.803)		Local	-0.002 (0.866)	-0.002 (0.815)	-0.012 (0.137)		Local	0.028 (0.170)	0.012 (0.563)	0.017 (0.410)		Local	0.107*** (0.001)	0.053** (0.050)	0.081** (0.035)	

Table 12

Mean Cumulative Abnormal Returns after Recommendation Revisions – All Downgrades (Tradition)

This table presents the cumulative buy-and-hold abnormal returns subsequent to recommendation revisions. Cumulative abnormal return is defined as the difference between cumulative return for the individual stock and cumulative market index return over the specified time period. Arithmetic mean is then calculated within each region group and shown in Panel A, which also contains the number of observations, and standard deviation. Panel B supplies the mean difference and p-value (in parentheses). Mean difference is calculated by subtracting the mean value represented by left column from the mean value represented by upper row. Sample period is from 2006/1/1 to 2011/3/15.

Panel A

2 days				10 days				3 months				6 months			
	Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev		Obs	Mean	Std Dev
American	52	-0.009	0.029	American	52	-0.002	0.055	American	52	0.037	0.124	American	51	0.051	0.182
Asian	54	0.004	0.031	Asian	54	0.005	0.069	Asian	54	0.019	0.148	Asian	53	0.037	0.200
European	43	0.004	0.039	European	43	0.007	0.063	European	43	0.043	0.162	European	40	0.059	0.188
Local	84	-0.001	0.034	Local	84	0.006	0.076	Local	84	0.042	0.144	Local	80	0.086	0.187

Panel B

2 days					10 days					3 months					6 months				
	American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local		American	Asian	European	Local
American					American					American					American				
Asian	-0.013** (0.033)				Asian	-0.007 (0.572)				Asian	0.018 (0.495)				Asian	0.014 (0.717)			
European	-0.013* (0.077)	0.000 (0.981)			European	-0.009 (0.446)	-0.002 (0.854)			European	-0.006 (0.846)	-0.024 (0.453)			European	-0.008 (0.824)	-0.022 (0.581)		
Local	-0.008 (0.164)	0.003 (0.374)	0.003 (0.459)		Local	-0.008 (0.449)	-0.001 (0.895)	0.001 (0.948)		Local	-0.005 (0.827)	-0.023 (0.366)	0.001 (0.979)		Local	-0.035 (0.291)	-0.049 (0.161)	-0.027 (0.473)	

5.2 Revisions after earnings announcements

Public companies usually make earnings announcements on a regular basis. With new information being disclosed in conference calls, analysts can decide whether to change the ratings for these companies. There is, inevitably, a trade-off between timely forecast and accuracy: short time interval between new information and issuance of research report allows the security firm to attract first attention and grasp more business, but at the expense of sacrificing accuracy due to less time to make detailed examination for new information. Early revisions also give up the opportunity of reading other analysts' forecasts (Kim and Song, 2009). Therefore, it is possible that the superior performance of American brokerage houses is a product of revising recommendations at a later time.

On the other hand, past literature has revealed the existence of “post-earnings announcement drift”. That is, the announcements of positive earnings surprises lead to positive abnormal returns, while negative earnings surprises result in negative abnormal returns (Bernard and Thomas, 1989). In a recent study, Jegadeesh et al. (2004) finds that analysts are inclined to upgrade stocks after positive earnings surprises and downgrade those with negative earnings surprises. Is American brokerage houses' outperformance influenced by such announcement drift?

To evaluate the explanations, I isolate recommendation revisions made within one week after earning announcements. There are a total of 105 recommendations within the specified time period, making up 5.03% of sample data shown in Table 1. This proportion is small relative to the whole sample, and is lower than what were found in G7 countries in Jegadeesh (2006), where 80% to 92% of revisions were done outside the 3-day time window following earnings announcements. Although American brokerage houses on average did make revisions later than Asian, European and Taiwanese brokerage houses (3.77 days as opposed to 2.61, 3.39 and 2.79 days, respectively), such difference is not

statistically significant. In unreported results, American brokerage houses maintain superior performance after excluding the 105 recommendation revisions. To summarize, the superior performance of American brokerage houses is not a result of making recommendation changes after earnings announcements.⁶

6. Conclusion & Future Research Suggestion

6.1 Conclusion

This paper evaluates the recommendation revisions made by brokerage houses. As a review of the nature of analyst recommendations, this paper shows that Taiwanese brokerage houses tend to issue favorable recommendations, while avoiding unfavorable ones. Also, Taiwanese brokerage houses tend to issue drastic revisions. Regarding to the centerpiece of this study, I find that the stock rating upgrades issued by American brokerage houses have superior performance over European, Asian, and Taiwanese competitors at most time periods studied. The degree of outperformance is larger when considering only upgrades to strong buy rating. There's no advantage seen regarding downgrade revisions.

To understand whether the advantage is industry-dependent, the recommendation revisions are divided into technological, financial, and traditional industry. I find that even though at a different degree, American brokerage houses outperform their competitors in these industries regarding stock upgrades. Also, revisions around earnings announcements do not explain the superior performance.

⁶ There are some other possible explanations that are likely to lead to the difference in performance. For instance, the payroll received and welfare enjoyed as an analyst might very well explain such difference. Also, the reputation of the brokerage house can affect the impact of the equity research reports issued. These factors, however, are difficult to quantify.

6.2 Future Research Suggestion

It will be informative to understand the value of analyst recommendations from an investor's perspective. That is, trading strategies can be incorporated into the framework. Some interesting questions are like: will investor profits, net of trading costs, even when buying the most favorably recommended stocks and shorting the least favorably recommended? After reading an equity research report, how much time does an investor have before the profit is gone?



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Appendix 1 List of Securities

MSCI Code	Security Name	Chinese Name	Price	Weight%	Ticker
1839001	TAIWAN SEMICONDUCTOR MFG	台灣積體電路製造股份有限公司	70.3	13.69	2330
1865901	HON HAI PRECISION IND CO	鴻海科技集團	112.5	7.74	2318
1554401	FORMOSA PLASTIC CORP	台灣塑膠工業股份有限公司	98.2	3.09	1301
1556301	NAN YA PLASTIC	南亞塑膠工業股份有限公司	82.5	3.08	1303
1553401	CHINA STEEL CORP COMMON	中國鋼鐵股份有限公司	34.35	2.76	2002
2390001	CHUNGHWA TELECOM CO	中華電信股份有限公司	88.4	2.66	2412
2789001	MEDIATEK INC	聯發科技股份有限公司	336	2.49	2454
1552201	CATHAY FINANCIAL HLDGS	國泰金融控股股份有限公司	46.05	2.41	2882
1554301	FORMOSA CHEMICAL FIBERS	台灣化學纖維股份有限公司	104	2.34	1326
1693201	DELTA ELECTRONICS	台達電子工業股份有限公司	124	1.76	2308
1865401	CHINATRUST FINL HLDGS	中國信託金融控股公司	24.05	1.71	2891
1865801	FUBON FINANCIAL HOLDING	富邦金融控股股份有限公司	37.85	1.54	2881
2390701	AU Optronics Corp	友達光電股份有限公司	25.8	1.53	2409
1558801	UNITED MICROELECTRONICS	聯華電子股份有限公司	14.6	1.43	2303
2516801	ACER	宏碁股份有限公司	70	1.42	2353
2391201	MEGA FINANCIAL HLDG(CTB)	兆豐金融控股股份有限公司	22	1.35	2886
1552001	ASE	日月光半導體製造股份有限公司	31.8	1.22	2311
2255101	ASUSTEK COMPUTER	華碩電腦股份有限公司	251.5	1.12	2357
1556701	UNI-PRESIDENT ENT.	統一企業股份有限公司	38.45	1.11	1216
2286001	COMPAL ELECTRONICS	仁寶電腦工業股份有限公司	32.15	1.07	2324

Appendix 1 List of Securities (Cont.)

2286201	QUANTA COMPUTER	廣達電腦股份有限公司	53.6	1.06	2382
2781901	TAIWAN MOBILE	台灣大哥大股份有限公司	67.6	1	3045
1554001	FAR EASTERN NEW CENTURY	遠東新世紀股份有限公司	42.2	0.95	1402
1554101	FIRST FINANCIAL HLDG CO	第一金融控股股份有限公司	23.75	0.91	2892
1841001	SILICONWARE PRECISION	矽品精密工業股份有限公司	36.4	0.85	2325
1557701	TAIWAN CEMENT CORP	臺灣水泥股份有限公司	31.75	0.82	1101
1552901	CHINA DEV FINANCIAL HLDGS	中華開發金融控股股份有限公司	10.8	0.77	2883
1554801	HUA NAN FINANCIAL HLDGS	華南金融控股股份有限公司	20.85	0.66	2880
1552301	CHANG HWA COMMERCIAL BK	彰化商業銀行股份有限公司	21.4	0.63	2801
2285701	SYNNEX TECHNOLOGY INT'L	聯強國際股份有限公司	65.5	0.62	2347
2428601	LITE-ON TECHNOLOGY CORP	光寶科技股份有限公司	36.3	0.59	2301
2817501	LARGAN PRECISION CO	大立光電股份有限公司	791	0.59	3008
1552501	CHENG SHIN RUBBER IND	正新橡膠工業股份有限公司	65.4	0.59	2105
2518401	SINOPAC HOLDINGS	永豐金融控股股份有限公司	12.55	0.56	2890
2286301	PRESIDENT CHAIN STORE	統一超商股份有限公司	131.5	0.54	2912
1866101	MACRONIX INTERNATIONAL	旺宏電子股份有限公司	18.95	0.5	2337
2389301	TAISHIN FINANCIAL HLDGS	台新金融控股股份有限公司	15.3	0.5	2887
1551801	ASIA CEMENT CORP	亞洲水泥股份有限公司	31.9	0.47	1102
2285401	POU CHEN CORP	寶成工業股份有限公司	25.7	0.44	9904
1559201	WALSIN LIHWA CORP	華新科技股份有限公司	15	0.39	1605

Note: "Weight%" refers to the weight of the company in MSCI Taiwan Index as of Mar 15, 2011.

Appendix 2 List of Brokerage Houses

The names of the brokerage houses are presented in alphabetic order.

Region	Brokerage House
American	Avian Securities
	Bear Stearns Companies, Inc. ¹
	Chardan Capital Markets, LLC
	Citigroup Inc.
	FGS Investments
	Goldman Sachs Group, Inc.
	Jefferies & Company, Inc.
	JPMorgan Chase
	Morgan Stanley
	Pacific Crest Securities
European	Susquehanna International Group of Companies
	Abn Amro Securities LLC
	Arete Research (UK)
	Barclays Capital
	Berenberg Bank (Germany)
	Credit Suisse Securities
	Deutsche Bank AG
	Dresdner Bank AG
	Fox-Pitt Kelton ²
	Independent International Investment Research plc (UK)
Asian	JP Invest & Partner (Germany)
	Schroder Investment Management (Hong Kong)
	UBS Warburg
	CLSA Asia-Pacific Markets
	Daiwa Securities Group Inc.
	Macquarie Securities
	Mirae Asset Securities
	Nomura Securities
	Primasia
	Samsung Securities
	SG Securities

Appendix 2 List of Brokerage Houses (Cont.)

Local	Barits International Securities (倍利國際證券) ³
	Capital Securities (群益證券)
	E.SUN SECURITIES (玉山證券)
	Fubon Securities (富邦證券)
	Jih Sun Securities (日盛證券)
	KGI Securities (凱基證券)
	Masterlink Securities (元富證券)
	Mega Securities (兆豐證券)
	Polaris Securities (寶來證券)
	SinoPac Securities (永豐金證券)
	Taiwan International Securities (金鼎證券)
	Yuanta Securities (元大證券)

Note

1. Bear Stearns was sold to JP Morgan Chase in May 2008. The company name was discontinued in 2010.
2. Macquarie Capital completed the acquisition of Fox-Pitt Kelton Cochran Caronia Waller December 2009.
3. The name “Barits International Securities” was replaced by “Mega Securities” in June 2006.