

Are Local Chinese Analysts More Optimistic? More Accurate?*

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Abstract

The market for China A-shares provides a unique setting in which to study the differences between local and foreign analyst coverage. Until recently, foreign brokerage firms were prevented from offering trading and investment banking services in China unless they established a joint venture with a local firm. In addition, foreign analysts faced more disadvantages gaining access to management than local analysts. We provide evidence that local Chinese analysts are significantly more optimistic than their foreign peers and that, surprisingly, local analysts are more accurate than their foreign peers with respect to earnings forecasts. We find inconsistent evidence as to whether or not investors are cognizant of local analysts' optimistic bias and/or improved accuracy when reacting to revisions of earnings forecasts, target prices, or recommendations.

Keywords: Comparing Chinese and Foreign Analysts, Analyst Optimism, Analyst Accuracy

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I. Introduction

A long line of academic research documents analyst optimism. Analyst stock recommendations are concentrated in the “strong buy”, “buy”, and “hold” categories, with too few “sell” and “strong sell” recommendations. There was early evidence that analysts issue optimistic earnings forecasts at the beginning of the fiscal year, which are subsequently revised downward. More recent evidence, however, does not reflect this phenomenon. However, there is little research regarding systematic differences between local and foreign analysts, mainly because it is difficult to distinguish which analysts are local and which are foreign.

We study systematic differences between local and foreign analysts in local Chinese stock exchanges. Our research design matches foreign analysts’ target prices, stock recommendations, and earnings forecasts with local analysts’ target prices, stock recommendations, and earnings forecasts issued during the same ± 10 -day period. This ensures that both foreign and local analysts used the same public information and economic factors in their reports. We find local analysts to be 9-10% more optimistic in their target prices than their foreign peers, and 17-25% more optimistic in their stock recommendations. These biases are highly significant in a statistical sense.

Surprisingly, despite optimistic bias with respect to target prices and stock recommendations, we do not find that local analysts are more optimistic in their earnings forecasts. Furthermore, local analysts are, on average, more accurate in their earnings forecasts than their foreign peers, likely due to better access to management and improved knowledge of local economic factors that affect Chinese firms.

Several unique characteristics make the Chinese market an attractive setting in which to study the differences between local and foreign analysts. Until recently, foreign brokerage firms were prevented from establishing local operations that generated significant trading or investment banking revenues in the Chinese market, unless they established a joint venture (JV) with a local firm. Furthermore, access to management was much easier for local analysts than foreign analysts, due to typical restrictions placed on foreign firms’ operations in China, as well as both language and cultural barriers. Thus, the main motivations for analyst optimism (i.e. increasing trading revenues, generating investment banking, and providing access to management) were severely attenuated for foreign analysts who covered Chinese firms. Hence, we expect local Chinese analysts to be more optimistic than their foreign peers.

Furthermore, the requirement that foreign brokerage firms establish a JV with a local Chinese firm makes the identification of foreign and local analysts much easier. It is easy in the Chinese market to examine the location of a brokerage firm through its website and determine whether it is a local or foreign firm. In our sample period, we did not find any analyst movements between foreign and local brokerage firms, but only within them; it seems that local analysts move only to other local firms and foreign analysts move only to other

foreign firms.

Our study contributes to a growing literature on the Chinese economy and financial institutions. As the world's second largest economy and stock market, with one of the fastest economic growth engines in the world and a central government with strong levels of control over the financial markets, China provides a unique setting in which to examine many structures that were not developed by the free-market forces of developed economies. Our study also sheds some light on the question of analyst optimistic bias and its relation to accuracy. Finally, we broaden the scant academic evidence on the differences between local and foreign analysts.

The next section gives an overview of the prior literature and provides our predictions about the relative magnitude of analyst optimism from both local and foreign analysts. Section III describes our data sources and research design. Section IV provides our results. The last section summarises the study and provides our conclusions.

II. Literature Review and Predictions

Academic literature has extensively documented the optimism of sell-side analysts (see Stotz, 2017, for a comprehensive recent sample across countries). There are three main reasons for this optimistic bias: (i) inducing investment banking relationships, which are lucrative to analyst brokerage firms (see Lin and McNichols, 1998; Michaely and Womack, 1999; Dechow *et al.*, 2000; O'Brien *et al.*, 2005; and Dambra *et al.*, 2018); (ii) access to management, which may allow the analyst to obtain better information from management, as well as the ability to provide management access to the buy side (Horton and Serafeim, 2009; see also Hovakimian and Saenyasiri (2010), regarding the effect of Reg FD on analyst optimism due to reduced access to private information); and (iii) increasing brokerage firm trading commission revenues, which also increase analyst compensation (Cowen *et al.*, 2006; Agrawal and Chen, 2012).

Several studies have attempted to examine different analyst characteristics in order to determine potential explanations for their optimism. Groysberg *et al.* (2007) compare sell-side and buy-side analysts and find that buy-side analysts tend to be less accurate and more optimistic, probably due to the lower quality of buy-side analysts' coverage. However, more recent evidence by Allee *et al.* (2020) provides opposing conclusions. Ertimur *et al.* (2011) look at recommendation initiations at the "buy" and "strong-buy" levels, and conclude that strong recommendation initiations are related to general analyst reasons for optimism. Firth *et al.* (2013) show that optimism increases when analysts are likely to obtain greater trading commissions from affiliated mutual funds.

Some recent studies have also documented similar analyst bias in the China A-share market. Qian *et al.* (2019) find that underwriter-affiliated analysts make overly optimistic forecasts about IPO clients, but these forecasts are associated with poorer long-term stock

performance. Similarly, Gu *et al.* (2013) examine Chinese analyst optimism bias and relate it to the pressures placed on them by mutual funds through brokerage fees. They do not compare local and foreign analysts. Bartholdy *et al.* (2010) show that the earnings forecasts of Chinese local analysts have become more accurate. They also show that, contrary to evidence from other countries, Chinese analysts affiliated with brokerage firms that enjoy investment banking fees actually have greater accuracy. Investors seem to understand these differences and react to them. Chi (2018) finds that Chinese analyst recommendations are predictive of future stock returns, especially for smaller firms. Zhou and Wu (2016) argue that star analysts tend to be more optimistic than ordinary analysts, and their biased opinions influence other analysts who partake in analyst herding behavior. However, Lu *et al.* (2019) find through surveys of Chinese firms that company managers do not place much faith and emphasis on analyst forecasts; in fact, many doubt analyst forecasts entirely.

An interesting perspective on Chinese analysts, as compared to foreign analysts, concerns whether or not there are fundamental differences due to language and cultural issues. Du *et al.* (2017) examine the accuracy and market impact of Chinese-named (foreign) analysts on Chinese companies traded in the US. They find that Chinese-named analysts have more accurate forecasts and stronger market reactions associated with their forecasts than other analysts. They attribute this to a stronger cultural understanding of these companies. Li *et al.* (2020) document that the likelihood of being voted a star analyst depends on gender and beauty, but differs between US and Chinese analysts. Cho *et al.* (2020) provide evidence about the importance of language and culture on analyst forecasts of cross-listed firms. It does not address China separately. Thus, differences between local and foreign analysts can stem from language and cultural issues.

In a study related to ours, Lai and Teo (2008) examine the differences in recommendation bias between local and foreign analysts and conclude that local analysts tend to be more biased than foreign analysts. They also find that domestic equity issues in emerging Asian markets (not including China) are dominated by local underwriters, which indicates that local analysts face much stronger investment banking pressures than foreign analysts in these markets. In the Chinese context of dually-listed firms, Jia *et al.* (2015) examine foreign and local investors' reactions to analyst forecasts of dually-listed (H and A) Chinese firms. They find stronger reactions by foreign investors to foreign analysts and local investors to local analysts.

Our study focuses on the unique China A-share market to parse the differences between local and foreign analysts. This market is particularly interesting as, until recently, foreign brokerage firms in China suffered from severely reduced incentives, compared to their local peers. Foreign brokerage firms could not enjoy trading commission revenues in China A-shares unless they partnered with a local brokerage firm. We classified analysts working for such firms as local. Besides the potential cultural and language barriers facing foreign underwriters, they also had to form a JV with their local competitors, and could not hold a

controlling ownership in the JV in order to undertake investment banking deals in China A-shares. Therefore, foreign brokerage firms were much smaller players in this unique market. They also did not enjoy the same level of access to corporate management as local analysts in China, due to limited personal connections. As a result, traditional explanations for analyst optimism are irrelevant to foreign analysts covering the China A-share market. A comparison of optimism by local and foreign analysts addresses all three reasons for optimism bias in one natural experiment.

We make the following predictions about foreign and local analysts who follow China A-share firms:

- (1) Local analysts are likely to assume a higher expected rate of return (target price divided by current market price) than their foreign peers.
- (2) Local analysts are likely to issue more favorable stock recommendations than their foreign peers.
- (3) Local analysts are likely to issue higher earnings forecasts than their foreign peers.

These predictions are based on our assumption that local analysts have greater incentives to issue more optimistic forecasts than their foreign counterparts. A related question that we wish to examine is whether or not local optimistic bias necessarily implies lower accuracy in earnings forecasts. Having a one-sided bias, such as optimism, may not necessarily lead to greater inaccuracy if the optimistic forecasts are based on superior information. Consider, for example, two analysts who make predictions about a firm's future earnings. Analyst A has easy access to management and enjoys superior information from management, which is likely biased upward. Analyst B relies only on sources outside the firm. Analyst A may have an optimistic bias, which means that, on average, these forecasts tend to result in more frequent "misses", where actual earnings fall short of A's forecasts. However, because A has superior information, the differences between A's forecasts and actual firm earnings may be smaller, on average, than for those of analyst B. Because we believe that local analysts have better access to management in China and are in a better position to assess local economic forces than foreign analysts are, we predict that local analysts also have more accurate earnings forecasts than their foreign peers.

An immediate question that comes to mind is whether or not investors realise that there is potential inflation in local analysts' estimates or recommendations, and therefore discount local analysts' optimistic forecasts. To address this question, we focus on market reactions to revisions of earnings forecasts, target prices, or recommendations. Given that A-shares trading is dominated by retail investors in China, we expect that markets will react more strongly to revisions of local analysts than foreign analysts.

III. Data and Research Design

The sources of our analyst forecasts and recommendations are I/B/E/S and Wind

Information (Wind). The latter is a Chinese local data provider with comprehensive financial data about China A-shares. As we show below, the Wind data have substantially more forecasts and recommendations than the I/B/E/S data, a fact we believe stems from Wind's local ties and focus. The Wind data include smaller Chinese companies that are not covered by I/B/E/S. Both I/B/E/S and Wind analyst pools have local and foreign analysts covering Chinese companies. We use three main inputs from these data sources: annual earnings forecasts, 12-month target prices, and recommendations. For our market reaction tests, we use daily return data from Datastream. The study period is from 2009 to 2019.

3.1 Analyst Classifications

Since our study focuses on whether a systematic bias exists between local and foreign analysts, it is important to accurately categorise analysts into these two groups. We performed this classification manually for the I/B/E/S and Wind samples separately. The classification was independently performed by two Chinese-speaking researchers (the authors of this paper) and cross-checked to validate the final categorisation.

We used a manual two-step procedure to classify the analyst affiliation. First, we classified all brokerage firms covered by the data vendor (either I/B/E/S or Wind) into local and foreign categories. Second, we used the category of the employer brokerage firm to determine analyst affiliation. Analysts move between brokerage houses, but our sample did not include any analysts that moved from a local to foreign brokerage, or vice versa. Thus, the initial classification of brokerage houses was sufficient to classify affiliated analysts as foreign or local.

The manual classification of brokerage firms was straightforward for the Wind database—brokerage firms with English names were directly classified as foreign, and all analysts working for them were categorised as foreign analysts. Most brokerage firms with very typical Chinese names were easily recognised as local and all their analysts classified as local analysts. It should be noted that some foreign brokerage firms (primarily from Taiwan, Hong Kong, and the US) do have Chinese names in the Wind database but, in such cases, we explored these firms' websites and classified them as local or foreign according to the location of their headquarters.

The manual analyst classification was more involved for I/B/E/S, since all brokerage firms covering China A-share equities in the I/B/E/S database had English names. Fortunately, about 50% of those brokerage firms were easily identified as local or foreign by further analysing their names in English (i.e. local Chinese brokerages with names that are literal translations from Chinese to English, compared with well-known foreign brokerage firms). For the remaining 50%, we manually checked their company websites to determine their category based on the location of their headquarters and primary operating region.

3.2 Variables

To measure analyst optimism, we focused on the three most common outputs of analyst work: target prices, stock recommendations, and earnings forecasts. Analysts forecast the stock price 12 months into the future; this is the target price. We used the ratio of the target price to the price on the day before the announcement of the target price as an analyst's implied or expected rate of return on the stock. The higher the ratio, the more optimistic the analyst.

In a similar manner, analysts make stock recommendations that are transformed by vendors into a five-rung scale: strong buy = 1; buy = 2; market perform or hold = 3; sell = 4; and strong sell = 5. Analysts are considered to be more optimistic if their recommendation ranking is lower. Analysts are also considered to be more optimistic if their forecasts for annual (FY1) Earnings Per Share (EPS) is higher.

To measure market reactions, we identified revisions in all three variables so we could gauge short-window market reactions to changes in these measures. In order to standardise the magnitude of revisions across companies, we scaled the change in target price by its value in the prior period, the change in EPS forecast by the absolute value of the prior EPS forecast, and the change in recommendation rank by -4 .⁵ We measured market reactions to the revision by the buy-and-hold return in the window $[-1, +1]$, where day zero is the revision announcement day, minus the buy and hold return on the MSCI China A Onshore Investable Market Index.

3.3 Tests

Because there are fewer foreign analysts than local analysts in both I/B/E/S and Wind databases, we began by identifying the date on which a foreign analyst published a target price. We then found all of the target prices published by local analysts within a 21-day period $[-10, +10]$ of the foreign analyst announcement for the same company.⁶ In this manner, we ensured that the local and foreign analysts made their target price forecasts using the same information about the company and the economy. Next, we calculated the average of the expected returns (target price divided by prior-day price) of all the local analysts during the 21-day period around the foreign analyst announcement date (day zero), minus the expected return of the foreign analyst. We performed tests on all differences using a one-sample t-test. If local analysts are more optimistic, the average differences are likely to be positive and significantly different from zero. We used a similar procedure to match foreign analyst recommendations and earnings forecasts.

Market reaction tests are based on Fama and MacBeth (1973) style regressions. We ran monthly cross-sectional regressions of the short-window, above-market returns as the

⁵ The recommendation revision is maxed at 4 (from 1 to 5 or 5 to 1). Dividing by negative 4 inverts the scale to show improvement in recommendations as positive.

⁶ We also use five-day and 21-day periods on either side as robustness checks; the results are very similar to those reported in the table below.

dependent variable. The two independent variables are the scaled revision variable, and the scaled revision times a dummy variable, which obtains the value of 1 for local analysts and zero for foreign analysts. We expect the coefficient on the scaled revision variable to be positive and significant. Improvements in forecasted target prices and earnings should be considered positive news to investors, just as improvements in stock recommendations should be. A positive coefficient on the interaction variable indicates that the market reacts more strongly to revisions made by local analysts.

Panel A of Table 1 provides information about the number of brokerage houses that we identified in the I/B/E/S and Wind databases, as well as their breakdown into foreign or local categories. We found about 50% more brokerage firms in the Wind database than in the I/B/E/S database for all three measures. The I/B/E/S database is also more balanced between foreign and local brokerage firms, whereas the Wind database has about five times more local brokerage firms as foreign firms. This shows the advantage of using specialised local resources to study the differences between local and foreign analysts.

Table 1 Number of Brokerage Firms Covering China A-Share Companies

Panel A presents the number of local and foreign brokerage firms that issue target price, recommendations, and earnings forecasts for China A-share securities. Panel B presents the average number of analysts per local and foreign brokerage firm. Panel C presents the total number of observations regarding target price, recommendations, and earnings forecasts issued by local and foreign analysts in the Wind and I/B/E/S databases. The sample consists of constituents of the MSCI China A Onshore Investable Market Index (IMI) during the period from December 2009 to June 2019, with either valid target price, recommendations or earnings forecasts.

Panel A: Number of Brokerage Firms		Local	Foreign	Total
Target Price	I/B/E/S Database	48	34	82
	Wind Database	109	26	135
Recommendations	I/B/E/S Database	50	35	85
	Wind Database	109	26	135
Earnings Forecasts	I/B/E/S Database	53	38	91
	Wind Database	113	23	136

Panel B: Average Number of Analysts per Brokerage Firm		Local	Foreign	Local/Foreign Combined
Target Price	I/B/E/S Database	63	14	43
	Wind Database	39	13	34
Recommendations	I/B/E/S Database	55	11	37
	Wind Database	39	13	34
Earnings Forecasts	I/B/E/S Database	31	10	22
	Wind Database	39	14	34

Panel C: Number of Observations				
		Local Analysts	Foreign Analysts	Total
Target Price	I/B/E/S	48,435	8,267	56,702
	Database			
	Wind Database	142,410	7,809	150,219
Recommendations	I/B/E/S	59,289	4,670	63,959
	Database			
	Wind Database	305,414	8,917	314,331
Earnings Forecasts	I/B/E/S	113,248	11,196	124,444
	Database			
	Wind Database	462,455	9,043	471,498

Sources: I/B/E/S, Wind, and MSCI China A-Share IMI Index. As of 11/10/2020.

Panel B of Table 1 reports the average number of analysts per brokerage and their breakdown between local and foreign firms. Local firms have, on average, about three-to-five times as many analysts as foreign brokerage firms. These results were as expected, considering the expected benefits and costs for a larger staff of analysts.

Panel C of Table 1 provides the number of observations on the three measures in each of the databases. As expected, the number of earnings forecasts is the largest among the three measures, followed by recommendations, and then target prices. There is about the same number of observations classified as foreign for target prices and earnings forecasts between the I/B/E/S and Wind databases, despite the fact that there are about twice as many foreign brokerage firms in the I/B/E/S database than in the Wind database. This occurs because there are also substantially more observations in the Wind database than in the I/B/E/S database, again suggesting the potential superiority of a local data vendor in accessing wider local coverage.

IV. Results

4.1 Tests of Optimism

Table 2 provides evidence of optimism from local and foreign analysts, as measured by their expected returns (ratio of target price to current price). The mean foreign analyst in the Wind database expected prices to increase by 77% in the next 12 months (1.7712 in the table). Local analysts who made target price predictions expected prices to increase by 121%. The I/B/E/S database shows less optimism from both foreign and local analysts, with local analysts expecting an average return of 33%, as compared to 28% by their foreign peers. To further explore why the analysts in the Wind database seem to be so much more optimistic than those in the I/B/E/S database, we examined the coverage of Chinese companies in the two databases along the dimension of size. We found that the Wind database covers many small firms that are not covered by the I/B/E/S database. It is logical to assume that growth rates of smaller

companies will be higher than larger companies. This highlights the need to constrain the comparisons to the same companies and similar economic conditions, which we do in Panel C.

Table 2 Average Expected Returns of Local and Foreign Analysts for China A-Share Firms

Expected returns are calculated as the 12-month target price divided by the stock price on the trading day before the issuance of the target-price forecast. Panels A and B include all the target price observations in the Wind and I/B/E/S databases, respectively. Panel C presents average differences between pairs constructed as the average expected return of all local analysts in the 21-day window [-10, +10] around the publication of a target price by a foreign analyst, minus the expected return of that foreign analyst. The numbers in parentheses in Panel C represent the t-statistics of the differences, using all pairs.

Panel A: Wind Database										
	Local Analysts			Foreign Analysts						
Mean Expected Return	2.2130			1.7712						
Number of Observations	142,410			7,809						
Panel B: I/B/E/S Database										
	Local Analysts			Foreign Analysts						
Mean Expected Return	1.3277			1.2773						
Number of Observations	48,435			8,267						
Panel C: Matched Sample Comparison										
	Local Analysts	Foreign Analysts	Average Difference	Detailed Statistics						
				Number of Pairs	Std Dev	Min	1Q	2Q	3Q	Max
Wind Database	1.8471	1.7768	0.0703 (15.27)	5,674	0.3470	-2.3731	-0.0909	0.0654	0.2197	2.3143
I/B/E/S Database	1.2557	1.1256	0.1297 (30.83)	3,905	0.2628	-1.7743	-0.0599	0.0541	0.1492	1.5135

Sources: I/B/E/S, Wind, MSCI China A Onshore Investable Market Index, and QMA analysis. As of 11/10/2020.

Panel C of Table 2 is more illuminating in regard to the greater optimism of local analysts. Here, local analysts were matched to the foreign analyst target price announcements in the same time window of 21 days [-10, +10], so all of the analysts came up with target prices using very similar information. We find that the average difference between local and foreign analysts is about 7% (0.703) in the Wind database, with a t-statistic of 15.3. This indicates a high probability of rejecting the null hypothesis that there are no differences between local and foreign analysts. Similarly, the I/BE/S database shows that local analysts had an average of 13% higher expected increases in target price than their foreign peers, with a highly statistically significant t-statistic of 30.8. Thus, the results in Table 2 clearly show that local analysts are significantly more optimistic than their foreign peers when setting their expectations for future price increases over the next 12 months.

We next turn to recommendations, and ask: Are local analysts more optimistic with their

stock recommendations than foreign analysts? Panels A and B of Table 3 show the distribution of recommendation rankings for local and foreign analysts. Using the Wind database in Panel A, less than 6% of the local analysts made a recommendation at the “hold” level or below. In comparison, foreign analysts made about 30% of all their recommendations at the “hold” level or below. Similarly, with the I/B/E/S data in Panel B, fewer than 10% of the local recommendations came in at the level of “hold” or lower, as compared to close to 50% of the foreign recommendations. These data encompass the entire set of recommendations. Panel C provides more precise comparisons, where every foreign recommendation is matched with local recommendations in the 21-day period surrounding it [-10, +10]. In both databases, local analysts are more optimistic, as the average rank for local analysts is lower (more favorable) than for foreign analysts. The differences are statistically and significantly different from zero, as shown by the high t-statistics of -27.6 and -22.7. Thus, local analysts are more optimistic than their foreign peers in regard to stock recommendations.

Table 3 Stock Recommendations of Local and Foreign Analysts for China A-Share Firms

Panels A and B present the percentage of each recommendation rank for local and foreign analysts in the Wind and I/B/E/S databases, respectively. Panel C is based on the construction of pairs, where a foreign analyst recommendation is paired with the average recommendation of all local analysts published in the 21-day window [-10, +10] around the foreign analyst recommendation. Panel C shows the average differences between the local and foreign recommendations in each pair (with t-statistics in parentheses).

Panel A: Frequency of Each Recommendation Category in the Wind Database

	1 (Strong Buy)	2 (Buy)	3 (Hold)	4 (Sell)	5 (Strong Sell)
Local Analysts	52.22%	42.59%	5.01%	0.16%	0.01%
Foreign Analysts	46.81%	22.80%	21.88%	5.19%	3.32%

Panel B: Frequency of Each Recommendation Category in the I/B/E/S Database

	1 (Strong Buy)	2 (Buy)	3 (Hold)	4 (Sell)	5 (Strong Sell)
Local Analysts	40.48%	49.98%	9.15%	0.24%	0.15%
Foreign Analysts	21.79%	29.61%	38.94%	9.11%	0.53%

Panel C: Matched Sample Comparison

	Local Analysts	Foreign Analysts	Average Difference	Detailed Statistics						
				Number of Pairs	Std Dev	Min	1Q	2Q	3Q	Max
Wind Database	1.5792	1.9087	-0.3299 (-27.61)	7,399	1.0277	-4.0000	-1.0000	0.0000	0.5000	3.0000
I/B/E/S Database	1.6759	2.2700	-0.5941 (-22.74)	1,746	1.0916	-4.0000	-1.3333	-0.5557	0.0000	3.0000

Sources: I/B/E/S, Wind, MSCI China A Shares Onshore IMI Index, and QMA analysis. As of 11/10/2020.

Let us now turn to earnings forecasts. We examined whether local analysts are more optimistic than their foreign peers in this area as well. We first identified a foreign analyst's earnings forecast and matched it with the average forecasts of all local analysts in the 21-day period $[-10, +10]$ around the foreign forecast. Table 4 provides information about the average differences in local forecasts minus foreign forecasts. For the Wind database, which has substantially more local analysts than foreign ones, the average difference is positive, but it is statistically and insignificantly different from zero. In contrast, the average difference in the I/B/E/S database is positive and highly statistically significant, with a t-statistic of 7.99. Thus, we find that the earnings forecasts of local analysts are more optimistic than those of their foreign peers, but only for the I/B/E/S database. We do not find the same to be the case for the Wind database.

Table 4 Earnings Forecasts by Local and Foreign Analysts for China A-Share Firms

The table is based on pairs constructed by identifying the earnings forecasts of a foreign analyst and all the local analysts who published earnings forecasts in the 21-day window $[-10, +10]$ around the foreign analyst. For each pair, we calculate the average earnings forecast of all local analysts minus the earnings forecast of the foreign analyst. The table reports the average of the differences across all pairs (with t-statistics in parentheses).

	Local Analysts	Foreign Analysts	Average Difference	Detailed Statistics						
				Number of Pairs	Std Dev	Min	1Q	2Q	3Q	Max
Wind Database	1.2635	1.2608	0.0026 (0.96)	6,239	0.2165	-2.4300	-0.0408	0.0000	0.0482	5.5300
I/B/E/S Database	1.2561	1.2323	0.0238 (7.99)	6,036	0.2314	-3.1500	-0.0280	0.0125	0.0665	6.5461

Sources: I/B/E/S, Wind, MSCI China A Onshore Investable Market Index, and QMA analysis. As of 11/10/2020.

4.2 Accuracy of Earnings Forecasts

To examine whether or not foreign analysts who are less optimistic in their earnings forecasts have more accurate forecasts, we follow the same methodology as before. We first identify all foreign earnings forecasts with an actual earnings number reported in the I/B/E/S or Wind databases. We then calculate the scaled forecast error as actual EPS minus forecasted EPS, divided by the absolute value of actual EPS. Because the denominator can be small, we winsorise all scaled errors at the 1% and 99% level. We then match each foreign earnings forecast with all the local forecasts made during the 21-day period $[-10, +10]$ around the foreign forecast day (day zero). We calculate the local scaled forecast error as the average scaled forecast error of all local forecasts in that window. Table 5 reports the comparison of scaled forecast errors between local and foreign analysts.

Table 5 Accuracy of Analyst EPS Predictions (EPS Actual - EPS Forecast)

$$\frac{1}{n} \sum_{j=1}^n \left[\frac{1}{m_j} \sum_{i=1}^{m_j} \frac{ActualEPS_j - EstEPS_i}{|ActualEPS_j|} \right]$$

There are n pairs of EPS forecasts where there is at least one foreign analyst forecast and one local analyst forecast in the 21-day window around the foreign analyst forecast. There are m_j local analyst forecasts in the 21-day period around the foreign analyst forecast of pair j .

Panel A: I/B/E/S Matched Sample Comparison [-10, 10]

	Local Analysts	Foreign Analysts	Average Difference	T-stat	W-Stat	Detailed Statistics					
						Number of Pairs	Min	1Q	2Q	3Q	Max
All	-0.1085	-0.0745	-0.0341	(-7.10)	(3.60)	5,073	-5.3914	-0.0784	-0.0172	0.0271	5.0219
Miss Earnings	-0.5216	-0.5283	0.0067	(0.61)	(0.57)	2,357	-8.2345	-0.0718	0.0000	0.0789	7.7940
Beat Earnings	0.2127	0.2814	-0.0687	(-19.03)	(6.37)	2,716	-1.7540	-0.0829	-0.0254	0.0067	0.8423

Panel B: WIND Matched Sample Comparison [-10, 10]

	Local Analysts	Foreign Analysts	Average Difference	T-Stat	W-Stat	Detailed Statistics					
						Number of Pairs	Min	1Q	2Q	3Q	Max
All	-0.3818	-0.3932	0.0141	(2.55)	(1.15)	6,003	-5.5955	-0.0588	0.0000	0.0627	5.9669
Miss Earnings	-0.6235	-0.6669	0.0433	(6.07)	(3.03)	4,136	-7.3160	-0.0397	0.0198	0.1006	7.3287
Beat Earnings	0.0593	0.1344	-0.0752	(-16.25)	(5.81)	1,867	-2.1426	-0.0965	-0.0314	0.0012	0.6585

Sources: I/B/E/S, Wind, MSCI China A Onshore Investable Market Index, and QMA analysis. As of 11/10/2020.

In Panel A of Table 5, which provides the results for the I/B/E/S sample, we see that the average (scaled) forecast error of the local analysts is -0.1085, which means that, on average, local analysts in the I/B/E/S database overestimated EPS by about 11%, whereas their foreign peers overestimated earnings by only 7% on average, consistent with the optimistic bias of local analysts. The difference in forecast errors is statistically significant, with a t-statistic of -7.1. To delve further into the source of the differences between local and foreign analysts, Panel A splits the 5,073 matched pairs of foreign and local analyst forecasts into two groups: forecasts that overestimate (“miss”) and forecasts that underestimate (“beat”) actual earnings. We find slightly more instances in which the foreign analyst underestimated earnings (2,716 pairs) than overestimated earnings (2,357 pairs). When actual EPS was greater than the foreign analyst forecast (i.e. where actual earnings beat the forecast), the foreign analyst scaled forecast error was 0.2814, meaning actual earnings beat the foreign forecasts by 28% on average. In contrast, the local average forecast error was 0.2127, or 21%, as local forecasts were more optimistic, on average; this is closer to the even-higher actual EPS. The difference

between local and foreign scaled forecast errors was significant, with a t-statistic of -19.0. A different picture emerges for the cases where the foreign analysts overestimated EPS (i.e. the middle row, “miss”, of Panel A). Here, both scaled forecast errors are close to each other, with no statistical differences between local and foreign analysts. Thus, the overall superiority of local analysts’ forecast accuracy is primarily driven by cases in which foreign analysts underestimated actual earnings (i.e. where foreign analysts were not optimistic enough and local analysts were more accurate because they were more optimistic than their foreign peers).

Panel B of Table 5 reports the same information for the Wind database. Unlike the I/B/E/S database, the Wind database shows that there were substantially more cases where foreign analysts overestimated actual earnings (4,136 pairs) than underestimated actual earnings (1,867). As we saw for the I/B/E/S sample, when foreign analysts underestimated actual earnings, the local (and more optimistic) analysts had a significantly lower rate of forecast errors (6% compared to 13% of foreign analysts), which was statistically significant with a t-statistic of -16.3. However, when the foreign analysts overestimated actual earnings by about 6.7%, the local analysts overestimated by a similar magnitude but a smaller amount of 6.2%; the difference is statistically significant, with a t-statistic of 6.1. Thus, even in those cases where foreign analysts were too optimistic, the local analysts came closer to actual earnings, on average. This seems counterintuitive if we assume that local analysts are more optimistic. The data show that local analysts are a lot more optimistic when the actual EPS beats their forecasts, but they are less optimistic when the actual EPS fell short of foreign analyst predictions. This seems to indicate that local analysts may have an information advantage over foreign analysts.

Table 6 presents data about the mean squared error of the scaled forecast. We first calculate the squared forecast error as the actual EPS minus the foreign analyst forecast of EPS scaled by actual EPS and square it. We then average these squared (scaled) forecast errors over all pairs of foreign analysts, to obtain the mean squared error (MSE) of the foreign analysts. We follow a similar procedure for local analysts whose forecasts fell in the 21-day period around the foreign forecasts; however, we first averaged all the squared scaled forecast errors of the local analysts in that time period. We then averaged the squared scaled forecast errors of all the pairs to obtain the MSE of the local analysts.

The data reported in Table 6 are very clear-cut. The local analysts had smaller MSEs than their foreign peers, regardless of whether or not the actual EPS was higher than the foreign analysts’ forecasts (“beat”) or lower (“miss”). These differences were all highly statistically significant, with t-statistics mostly over 20. This was true for both the I/B/E/S and the Wind databases. Thus, local analysts’ EPS forecasts came closer to the actual EPS, as measured by MSE, showing substantially higher accuracy. This is likely the result of either better access to management or a superior understanding of local economic factors.

4.3 Market Reactions

Table 6 Mean Square Error of Analyst EPS Predictions (EPS Actual - EPS Forecast)

$$\sqrt{\left[\frac{1}{m_j} \sum_{i=1}^{m_j} \left(\frac{\text{ActualEPS}_j - \text{EstEPS}_i}{\text{ActualEPS}_j} \right)^2 \right]} \quad j = 1, 2, \dots, N \text{ (total number of pairs)}$$

There are n pairs of EPS forecasts where there is at least one foreign analyst forecast and one local analyst forecast in the 21-day window around the foreign analyst forecast. There are m_j local analyst forecasts in the 21-day period around the foreign analyst forecast of pair j. W-stat stands for the Wilcoxon nonparametric test.

Panel A: I/B/E/S Matched Sample Comparison [-10, 10]

	Local Analysts	Foreign Analysts	Average Difference	T-Stat	W-Stat	Detailed Statistics					
						Number of Pairs	Min	1Q	2Q	3Q	Max
All	0.2750	0.3872	-0.1122	(-20.90)	(20.36)	5,073	-4.8991	-0.1562	-0.0417	0.0099	3.2481
Miss Earnings	0.3925	0.5225	-0.1300	(-11.85)	(6.32)	2,357	-6.8905	-0.1454	-0.0278	0.0194	5.2967
Beat Earnings	0.1973	0.2792	-0.0875	(-28.02)	(7.18)	2,716	-1.2491	-0.1613	-0.0559	0.0017	0.8460

Panel B: WIND Matched Sample Comparison [-10, 10]

	Local Analysts	Foreign Analysts	Average Difference	T-Stat	W-Stat	Detailed Statistics					
						Number of Pairs	Min	1Q	2Q	3Q	Max
All	0.2662	0.4903	-0.2243	(-26.49)	(15.26)	6,003	-8.3982	-0.2041	-0.0583	-0.0037	3.4961
Miss Earnings	0.3645	0.6653	-0.3008	(-23.78)	(12.05)	4,136	-9.1845	-0.2859	-0.0898	-0.0119	4.2587
Beat Earnings	0.0747	0.1346	-0.0599	(-15.96)	(4.81)	1,867	-1.5261	-0.0902	-0.0291	0.0060	0.6762

Sources: I/B/E/S, Wind, MSCI China A Onshore Investable Market Index, and QMA analysis. As of 11/10/2020.

To measure market reactions to the three main analyst outputs, we focused on revisions made to earnings forecasts, target prices, and stock recommendations. Table 7 provides information on the number of revisions, as well as the distribution of up- and down-revisions for local and foreign analysts. As expected, there are substantially more revisions of earnings and target prices than recommendations. Surprisingly, there are twice as many down earnings revisions in the Wind database as up-revisions for both local and foreign analysts. This is not the case for the I/B/E/S database, where the number of up and down earnings revisions are more balanced. The other interesting finding shown in Table 7 is that foreign analysts are more prone to downgrading their recommendations than local analysts. This is consistent with the more optimistic bias of local analysts.

Table 8 provides information about short-window [-1, +1] reactions to revisions of the three measures. Panel A provides the average coefficients of cross-sectional monthly regressions, where the dependent variable is the short-window return and the independent variables are the EPS revision scaled by the absolute value of the prior EPS forecast. The

Table 7 The Number of Up- and Down-Revisions of Local and Foreign Analysts

This table presents the total number of up- and down-revisions of earnings forecasts (Panel A), target prices (Panel B), and recommendations (Panel C) issued by local and foreign analysts for the sample of China A-share securities listed in the MSCI China A Onshore Investable Market Index. The sample period is from December 2009 to June 2019.

Panel A: Earnings Forecasts

	Local Analysts		Foreign Analysts	
	Up-Revisions	Down-Revisions	Up-Revisions	Down-Revisions
Wind Database	27,879	44,393	689	1,122
I/B/E/S Database	16,515	17,395	2,096	1,903

Panel B: Target Price Revisions

	Local Analysts		Foreign Analysts	
	Up-Revisions	Down-Revisions	Up-Revisions	Down-Revisions
Wind Database	27,054	26,731	1,496	1,486
I/B/E/S Database	13,447	12,076	2,844	2,411

Panel C: Recommendation Revisions

	Local Analysts		Foreign Analysts	
	Up-Revisions	Down-Revisions	Up-Revisions	Down-Revisions
Wind Database	9,968	8,355	225	355
I/B/E/S Database	4,799	4,438	523	707

Sources: I/B/E/S, Wind, MSCI China A Onshore Investable Market Index, and QMA analysis. As of 11/10/2020.

latter's variable times a dummy variable is set to one for local analysts and zero for foreign analysts. The coefficient on the EPS revision variable is positive and significant, indicating, as expected, that positive earnings revisions are accompanied by positive market reactions. In contrast, the coefficient on the interaction term is negative and statistically significant. This negative interaction coefficient implies that market reactions to local analysts' earnings revisions are statistically smaller than those of foreign analysts. This is true regardless of whether we use the Wind database or the I/B/E/S database. We can expect a weaker market reaction to earnings revisions made by a local analyst if the analyst is perceived to be more optimistically biased or possesses less information. This is inconsistent with the accuracy results that we documented in the prior section, where local analysts seem to have more accurate forecasts, on average. We do not have a simple explanation for this result.

Panel B of Table 8 provides a similar analysis regarding the target price revisions. The coefficient on the target price revision variable is positive and statistically significant, indicating that positive revisions of target prices are associated with positive returns above the market. However, when we examine the coefficient of the interaction variable, the results are far from clear-cut. For the Wind database, where we showed that local analysts have stronger optimistic bias than their foreign peers, market reactions to target price revisions are stronger for local analysts (a positive interaction variable), but not significantly so. In contrast,

for the I/B/E/S database, the coefficient of the interaction variable is negative and statistically significant, indicating that market returns are weaker for target price revisions made by local analysts, essentially signaling that market participants understand the greater optimistic bias of local analysts and attenuate market reactions to these more optimistic target prices.

Panel C of Table 8 provides a similar analysis regarding recommendation revisions. We first note that the coefficient on the recommendation revision is positive and statistically significant for both the Wind and I/B/E/S databases, as expected. However, we find more ambiguous results for the interaction variable. It is positive and statistically significant for the Wind database, indicating stronger market reactions to local analysts, but the results for the I/B/E/S database are insignificant. Thus, based on evidence for the three measures in Table 8, it seems that market reactions to local analyst revisions can either be weaker or stronger than those made by foreign analysts. We cannot draw any conclusions about investors realising the more optimistic bias of local analysts or greater accuracy from their differential market reactions to the revisions.

Table 8 Market Reactions to Earnings Forecasts, Target Price, and Recommendation Revisions

This table presents the results of stock market reactions to earnings forecast revisions (Panel A), target price revisions (Panel B), and recommendation revisions (Panel C) for the sample of China A-share securities in the MSCI China A Onshore Investable Market Index. The sample period is from December 2009 to June 2019. Each row of the table lists the means of the coefficients of monthly cross-sectional regressions on the revision variable and their interactions with a dummy variable that attains the value of one for local analysts and zero for foreign analysts. The EPS revision is scaled by the absolute value of the prior EPS value. The target price revision is scaled by its prior value. The recommendation revision is scaled by -4. The dependent variable is the security return (in excess of the market) during the window [-1, 1] around the revision day (day zero).

Panel A: Earnings Forecasts Revisions

	Average Number of Observations	Intercepts	EPS Revisions	EPS Revisions*Local
Wind Database	964	0.0118 (6.23)	0.0275 (3.35)	-0.0214 (-2.59)
I/B/E/S Database	405	0.0056 (7.40)	0.0203 (3.48)	-0.0170 (-2.96)

Panel B: Target Price Revisions

	Average Number of Observations	Intercepts	Target Price Revisions	Target Price Revisions*Local
Wind Database	565	0.0123 (11.72)	0.0143 (2.35)	0.0062 (1.00)
I/B/E/S Database	303	0.0084 (10.20)	0.0253 (4.69)	-0.0128 (-2.52)

Panel C: Recommendation Revisions

	Average Number of Observations	Intercepts	Recommendation Revisions	Recommendation Revisions*Local
Wind Database	196	0.0083 (6.58)	0.0222 (4.32)	0.0332 (5.34)
I/B/E/S Database	122	0.0034 (3.07)	0.0104 (1.99)	0.0004 (0.06)

Sources: I/B/E/S, Wind, MSCI China A Onshore Investable Market Index, FactSet, and QMA analysis. As of 11/10/2020.

4.4 Robustness Tests

Table 9 examines the optimism bias of local analysts when, instead of a 21-day period [-10, +10] around the foreign analyst forecast or recommendation, we use 11-day, 41-day, or 61-day time periods. The results unambiguously show that local analysts are more optimistic in all of these windows.

Table 9 Robustness Check: Matched Sample Comparisons with Different Time Window Sizes

This table presents the average expected returns (target price scaled by price), recommendation rankings, and earnings forecasts of local and foreign analysts in the Wind and I/B/E/S databases for securities listed in the MSCI China A Onshore Investable Market Index from December 2009 to June 2019. In all cases, we first match a foreign forecast or recommendation with all forecasts or recommendations by local analysts in the 10-day [-5, + 5], 40-day, and 50-day period around the foreign forecast or recommendation. The table reports the average differences between all pairs, as well as t-statistics in parentheses.

Panel A: Target Price									
	Window [-5, 5]			Window [-20, 20]			Window [-30, 30]		
	Local Analysts	Foreign Analysts	Average Difference	Local Analysts	Foreign Analysts	Average Difference	Local Analysts	Foreign Analysts	Average Difference
Wind Database	1.8473	1.7796	0.0678 (13.38)	1.8488	1.7800	0.0687 (15.58)	1.8451	1.7745	0.0706 (16.79)
I/B/E/S Database	1.2570	1.1269	0.1301 (27.88)	1.2602	1.1225	0.1376 (35.92)	1.2601	1.1201	0.1400 (39.36)
Panel B: Recommendations									
	Window [-5, 5]			Window [-20, 20]			Window [-30, 30]		
	Local Analysts	Foreign Analysts	Average Difference	Local Analysts	Foreign Analysts	Average Difference	Local Analysts	Foreign Analysts	Average Difference
Wind Database	1.5798	1.9090	-0.3291 (-25.48)	1.5793	1.9254	-0.3461 (-30.43)	1.5845	1.9335	-0.3490 (-31.25)
I/B/E/S Database	1.6897	2.2200	-0.5303 (-16.88)	1.6638	2.3106	-0.6468 (-29.94)	1.6704	2.3294	-0.6589 (-52.35)
Panel C: Earnings Forecasts									
	Window [-5, 5]			Window [-20, 20]			Window [-30, 30]		
	Local Analysts	Foreign Analysts	Average Difference	Local Analysts	Foreign Analysts	Average Difference	Local Analysts	Foreign Analysts	Average Difference
Wind Database	1.2767	1.2732	0.0035 (1.16)	1.2415	1.2407	0.0008 (0.30)	1.2296	1.2291	0.0005 (0.20)
I/B/E/S Database	1.2736	1.2479	0.0255 (7.73)	1.2339	1.2113	0.0227 (8.31)	1.2086	1.1851	0.0235 (9.50)

Sources: I/B/E/S, Wind, MSCI China A Onshore Investable Market Index, and QMA analysis. As of 11/10/2020.

We also examined market reactions to revisions in the three measures where we used both the revision from the prior value and the revision from the consensus forecast or recommendations in the prior 90 days by all analysts. The main results in Table 8 remain unchanged.

Other robustness checks were performed with respect to outlier treatments. These provided no material differences than what was reported above.

V. Summary and Conclusion

This study compares the optimism in analyst earnings and target price forecasts, as well as in stock recommendations of local and foreign analysts following China A-shares. We postulate that local analysts should exhibit more optimism than foreign analysts, since foreign brokerage firms cannot expect the benefits of investment banking or commission revenues that local brokerage firms enjoy. Local analysts are also better positioned in their access to managers of local Chinese firms. Thus, we expect local Chinese analysts to be more optimistic than their foreign peers.

We find that local analysts are significantly more optimistic than their foreign peers in terms of earnings forecasts, target price-implied returns, and stock recommendations. Further analysis shows that local analysts' earnings forecasts are more accurate than their foreign peers, likely because they enjoy better access to management, or because they are better able to assess the local economic factors that affect future earnings. In contrast, our analysis indicates that investors react less strongly to the earnings forecast revisions of local analysts, as compared to their foreign peers, and, to some extent, to their revisions of target prices as well. However, market reactions to recommendation revisions are stronger for local analysts than foreign analysts. We do not have a good explanation for the differences in market reactions to these three measures of revisions.

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