Who are the Best? Local Versus Foreign Analysts on the Latin American Stock Markets

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WHO ARE THE BEST? LOCAL VERSUS FOREIGN ANALYSTS ON THE LATIN AMERICAN STOCK MARKETS

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Abstract

This paper investigates the relative performance of local and foreign financial analysts on Latin American emerging markets. There is strong evidence that foreign financial analysts outperform local analysts on these markets. Foreign analysts produce more timely and more accurate forecasts. A significant price reaction is observed following their downward forecast revisions. Therefore foreign investors do not necessarily need to open relations with local financial analysts when they want to trade on these markets. The results are consistent with previous evidence that documents a better information and greater sophistication on the part of foreign investors on overseas markets.

Keywords: analysts' forecasts, home bias, international diversification, emerging markets, herding behaviour.

JEL Classification**:** G14, G15, G24

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Executive Summary

Practitioners generally share the idea that analysts have a better information about nearby firms than distant firms. Consequently, analysts employed by local brokerage houses should be better at analyzing the situation of emerging market firms than those employed by foreign brokerage houses which, very often, have centralized research department located outside of the country. However, this idea has not been investigated by the empirical literature on analysts to date. This paper is the first to investigate the relative performance of local and foreign analysts on Latin American emerging markets.

We measure analysts' relative performance with three dimensions: (1) forecast timeliness, (2) forecast accuracy and (3) impact of forecast revisions on security prices. Overall, our results suggest that foreign analysts are better at analyzing the situation of emerging market companies than local analysts. First, we show that foreign analysts are more timely than local analysts. Local analysts tend to release their forecast revisions shortly after other analysts have released their own revisions. Inversely, foreign analysts do not release their forecasts shortly after other analysts and their forecasts induce other analysts to revise their forecasts.

Second, foreign analysts are more accurate than local analysts. For all Latin American countries, excepting Venezuela, earning per share forecasts produced by local analysts are less accurate than those produced by their foreign counterparts. This results is robust to the size of the companies under study. We draw the same conclusions for companies having U.S. exchange listing (ADR's).

Finally, we show that foreign analysts' forecast revisions provides more information to the market than local analysts' revisions. The incremental information contained in downward revisions by foreign analysts has a significant negative impact on stock prices. There is no price reaction following local analysts' revisions. Upward revisions released by both group of analysts do not impact stock prices at all.

The consistency between the results given by the various performance measures indicates that there is no reason to question the superior ability of foreign financial analysts. This

superiority may be linked to the superior resources available to analysts who work for important international brokerage houses, to the better international expertise of these analysts, to their greater talent, and to conflict of interest faced by analysts employed by local banks, which offer commercial banking activities.

Beside their contribution to the existing academic literature, our results have an important practical implication: Investors should rely more heavily on foreign financial analysts' forecasts than on local ones when they invest in Latin American markets.

1 Introduction

Past research suggests that geographic proximity is related to information flow. However, the empirical evidence on the impact of geographic proximity on the quality of investors' information is mixed. Brennan and Cao (1997) report that US investors are less informed about foreign markets conditions than are local investors. Kang and Stulz (1997) find no evidence that foreign investors outperform in Japan. Using US mutual fund holdings, Coval and Moskowitz (2001) show that investors located near potential investments have significant informational advantages relative to the rest of the market. Choe, Kho and Stulz (2000) show that foreign investors on the Korean market are disadvantaged relative to domestic individual investors. Inversely, Seasholes (2000) reports that foreigners act like informed traders in emerging markets. He finds that foreign investors profits come from trading stocks of large firms with low leverage and liquid shares. Similarly, Grinblatt and Keloharju (2000) find that foreign investors on the Finnish stock market generate superior performance than local investors.

The objective of the present paper is to investigate the relative performance of local and foreign analysts on Latin American emerging markets. As such, our research directly contributes to the debate on the impact of geographic proximity on the quality of information since practical evidence suggests that foreign analysts are more distant from the firms they follow than their local counterparts. However, our investigation differs from previous research since we do not focus on the relative performance of investors but on the relative performance of individuals located at the upstream side of them.

Ex-ante, it is difficult to foresee which group of analysts is better at analyzing Latin American markets companies. On one hand, foreign analysts may have superior resources and better international expertise that provide them an advantage on their local counterparts. Furthermore, being more distant from the analyzed firms, they may be less subject to agency problems such as conflict of interest. On the other hand, residence may give local analysts a better access to private information. Furthermore, a better knowledge of the institutional context in which companies evolve as well as the low cultural, geographical, and lingual distance between local analysts and the firms may induce an informational advantage for local analysts.

We measure analysts' relative performance with three dimensions: (1) forecast timeliness, (2) forecast accuracy and (3) impact of forecast revisions on security prices. Latin American markets were chosen for three reasons. First, for geographical considerations, Latin American markets have always presented a great interest for US institutional investors. As a consequence, they create an important demand for financial analysts services on these markets. Second, Latin American countries are in the same time zone as the United States. Consequently, the information set available to most of the foreign analysts at a given time is the same as that available to local analysts. Finally, as underlined by Choe et al. (2002), private information is likely to be more important on emerging stock markets than on developed ones.

Our results can be summarized as follows. First, although local financial analysts appear to be more active than foreign ones, there is a strong evidence that analysts who work for foreign brokerage houses supply timelier forecasts than their local counterparts. Using Cooper et al. (2001) leader to follower ratio in order to distinguish between timely analysts (leaders) and less timely ones (followers), we detect a greater number of leaders among foreign analysts than among local analysts. This finding suggests that local analysts have a tendency to revise their earnings forecasts in order to accommodate the opinions of foreign analysts.

Second, we find strong evidence that foreign analysts produce less biased forecasts than local analysts. This result holds for almost all Latin American countries and is robust to the size of the companies under study. We find that lead analysts, whatever their origin, produce more accurate forecasts than other analysts suggesting that leaders have an important informational advantage over other analysts.

Finally, abnormal returns following earnings forecasts revisions suggest that foreign analysts' revisions impact prices more than local analysts' revisions. We find that foreign financial analysts' downward revisions have a significant impact on stock returns while local analysts' revisions have no impact on stock returns. This suggests that the market considers forecast revisions provided by foreign analysts as more informative than the revisions provided by their local counterparts.

Our paper complements previous research in three ways. First, we contribute to the literature on the importance of geography in economics by showing that location has an impact on the quality of the information provided by analysts. If foreign (local) investors rely

mostly on foreign (local) analysts' research in order to take their investment decisions, our results may explain the superior performance of foreign investors on some markets; see Seasholes (2000) and Grinblatt and Keloharju (2000). Second, by showing that analysts' location/affiliation has a significant impact on their forecast accuracy, we contribute to the large amount of literature which investigates the origins of financial analysts forecasts' bias. Third, we provide a contribution to the research that investigates agency problems in financial analysis; see Michaely and Womack (1999) and Lin and McNichols (1998). If local banks have more commercial and investment banking relationship with local companies, the higher optimistic bias documented for local analysts may partly be caused by the conflict of interest they face.

The paper proceeds as follows: Section 2 presents the data used in this study; Section 3 investigates the relative timeliness of financial analysts; Section 4 tests for differences in forecast accuracy; Section 5 investigates the impact of forecast revisions on security prices; and Section 6 concludes.

2 Data and overview statistics

The analysts' forecasts[3] are provided by Institutional Broker Estimate System (I/B/E/S) for 7 Latin American emerging markets: Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. One year earning per share (EPS) forecasts are used from 1993 to 1999. Brokers are classified as local or foreign according to their country of origin. All brokerage houses with headquarters located in one of the 7 countries under study are classified as local. Other brokerage houses are classified as foreign. Stock prices are extracted from Datastream. To be included in the sample, a forecast should meet the following conditions:

1. Realized EPS has to figure in the I/B/E/S Actual File.

2. The forecast must be issued between the end of previous fiscal year and current year earning reporting date.

3. The company for which the forecast is issued must be followed by at least 3 foreign and 3 local analysts.

[3] Note that we make no distinction between individual analysts and team of analysts.

[INSERT TABLE 1 HERE]

The last condition restricts the sample to big and medium-sized companies. The final sample includes 71'597 EPS forecasts. Table 1 shows that local analysts have produced 44% more forecasts than their foreign counterparts. The number of analysts and brokerage houses active on Latin American markets has sensibly increased between 1993 and 1999. This is due to the increasing coverage of the I/B/E/S database but also to the increasing attractiveness of these markets for foreign investors.

[INSERT TABLE 2 HERE]

Table 2 shows that most of the forecasts (73%) are concentrated on Brazil and Mexico. In addition, in each country, foreign analysts tend to be more numerous than local ones. However, from Table 1, we see that this finding is reversed at the aggregated level. Thus, foreign analysts tend to follow several different markets while local analysts are more focused on their respective local markets. Firms from 10 different industries are represented in the sample[4]. The most important industrial sectors in terms of number of forecasts are Basic Industries with 21% of the forecasts, Utilities and Consumer Non-Durables with 18%, and 15% of the forecasts, respectively. There is no evidence that a particular industrial sector is more followed by a given group of analysts.

Non-tabulated results indicate that the average number of analysts employed by foreign brokerage houses amounts to 7.9 while it amounts to 5.5 for local ones suggesting that, on average, foreign brokerage houses are bigger than local ones[5]. Foreign analysts follow higher market value companies than local analysts. The average market value of a company followed by a foreign analyst is approximately USD 2.2 billion while it amounts to USD 1.9 billion for local analysts. This evidence is observed for each individual year. It is consistent with the hypothesis that foreign investors favor bigger companies when they invest in emerging markets. Finally, 91 different companies out of 450 have quoted American Depositary Receipts (ADR). Lang et al. (2002) show that non-U.S. companies listed on U.S. exchanges have different characteristics than other non-U.S. firms: they display greater analyst coverage and increased forecast.

[4] The industry classification is based on the I/B/E/S industry grouping codes.

[INSERT TABLE 3 HERE]

Table 3 shows that local analysts are slightly more active than foreign ones. On average, they produce a forecast every 76 day while their foreign peers do it every 71 day. Local analysts revise more often than their foreign counterparts: on average 1.41 times per firm each year against 1.16 times.

[INSERT FIGURE 1 HERE]

Figure 1 shows financial analysts' average portfolio turnover by month of the year. The portfolio turnover for a given analyst is the sum of all forecast revisions done during the month divided by the total number of companies he follows. The turnover of local analysts is rather regular through the year. Moreover, it is greater than the turnover of foreign analysts during all months of the year. Foreign financial analyst revisions seem to follow a cyclical pattern. Analysts tend to revise more frequently during the months of January, March and July. Although the frequency of forecast revisions gives an insight on the activity of financial analysts, this does not indicate that more active analysts have advantages in collecting and processing information. They may simply change their mind several times to accommodate the opinions of others. Therefore, in the subsequent section, we propose to measure analysts' relative activity with their timeliness.

3 Analysts' timeliness

3.1 Empirical design

Cooper, Day and Lewis (2001) show that timely analysts' (leaders) forecast revisions provide greater value to investors than other analysts' (followers) forecasts. They argue that timeliness is an important and necessary indicator of financial analysts' relative performance. Using forecast accuracy alone to assess the relative performance of financial analysts can lead to misclassification errors because less informed analysts can improve the accuracy of their forecasts by simply mimicking timely skilled analysts.

[5] Previous research shows that the number of analysts is a good proxy for the size of the brokerage house; see Stickel (1995).

The leader to follower ratio developed by Cooper et al. (2001) is used to distinguish leaders from followers. This ratio is computed for each analyst/firm/year unit. It is distributed as $F_{(2KH,2KH)}$[6], where H is the number of other analysts following a particular firm in a given year and K is the total number of forecasts provided by the analyst during the year for that firm. Similar to Cooper et al. (2001), analysts having LFR significantly greater than 1 at the 10% level are considered as leaders. Moreover, each analyst is required to produce at least 3 forecasts per year for the firm under consideration. As mentioned by Cooper et al. (2001), this restriction minimizes the possibility for an analyst to be classified as leader thanks to a single lucky forecast.

In order to test whether a group (local or foreign) tends to lead the other one, we compare the number of local leaders to the foreign ones. However, since the total number of analysts is different between the 2 groups, such a comparison is not directly possible. Thus, the proportion of leaders in a given group g, L_g, is compared to the proportion of analysts in group g in the sample, P_g. In order to determine whether a group of analysts has significantly more (less) leaders than its proportion in the population suggests, we test the following hypothesis:

$$H_0 : L_g = P_g \; vs \; H_1 : L_g \neq P_g .$$

Consequently, the following normally distributed statistic is computed:

$$Time_g = \frac{\left(L_g - P_g\right)}{\sqrt{P_g \cdot \left(1 - P_g\right)}} \cdot \sqrt{N} ,$$

where:

$$L_g = \frac{Number\ of\ leaders\ in\ group\ g}{Total\ number\ of\ leaders} ,$$

$$P_g = \frac{Number\ of\ observations\ from\ group\ g}{N} ,$$

[6] Cooper et al. (2001) derive the distribution of the *LFR* by assuming that the time elapsed between the arrival of two subsequent revisions follows an exponential distribution.

$N = Total\ number\ of\ observations$.

3.2 Results for analysts' timeliness

According to the LFR statistic, 172 leaders out of 2'203 observations are detected. This represents 118 different analysts from 52 different brokerage houses. One analyst is classified 8 times as leader whereas two analysts are classified 5 times. There are 91 out of 203 different companies for which a leader is identified.

[INSERT TABLE 4 HERE]

Table 4 shows the breakdown of the leaders according to their origin. The proportion of local analysts within the leaders is significantly smaller than their proportion within the full sample[7]. This result suggests that, on average, foreign analysts lead while local analysts herd. Even if local analysts supply forecasts more often, their forecasts revisions do not induce other analysts to revise their own forecasts and local analysts have a tendency to issue their forecasts shortly after lead foreign analysts have issued forecast revisions.

Panel B of Table 4 identifies the country of origin of the leaders. Foreign analysts working for US, Dutch and German brokerage houses have a significant tendency to produce timely forecasts. On the other hand, Swiss brokerage houses' analysts have a greater tendency to herd than their peers. The more timely local analysts are from Brazil while the less timely ones are working for Mexican, Argentinean, and Chilean brokerage houses.

Table 5 reports the joint distribution of local and foreign lead analysts across companies. There are some segments of the market where only leaders from a particular group can be found. Indeed, there are 37 companies out of 203 (18%) for which only local leaders are identified. Among these firms, 16 are Brazilian. The number of companies for which only foreign leaders are detected equals 24 (12%). Only a few companies (30 out of 203) exhibit leaders from both groups.

[INSERT TABLE 5 HERE]

[7] The inverse is automatically true for foreign leaders.

In summary, the above results indicate that foreign analysts have a greater tendency to lead than local analysts. This is particularly true for U.S., Dutch and German analysts. Moreover, there are segments in the market where one category of analysts systematically leads other analysts. The implications of these findings in terms of forecast accuracy and earnings forecasts' informativeness are investigated in the following two sections.

4 Forecast accuracy

4.1 Empirical design

Forecast accuracy is the most widely used measure of the quality of an analyst's research. Indeed, the more accurate earnings forecast is, the more accurate the price extracted from any valuation model will be. Forecast accuracy is measured using the average percentage forecast error adjusted for the horizon bias[8]. Analyst i's percentage forecast error at date t is,

$$FE_{ijt} = \frac{FEPS_{it} - EPS}{|EPS|},$$

where:

$FEPS_{it} =$ analyst i's EPS forecast for company j at date t,

$EPS =$ reported earning per share at the end of the forecast horizon.

In order to correct for the horizon bias, Cooper et al. (2001) forecast accuracy regression is used. Compared to the matching forecasts methodology used by Stickel (1992), this operation is much less data-consuming and better suited for our study. Each FE_{ijt} is regressed on the length of time from forecast release to earning announcement date. The residuals from this regression are used to measure forecast accuracy. Formally,

$$FE_{ijt} = a + b \cdot T + e_{ijt}, \quad (1)$$

where:

[8] Prior studies such as Kang, O'Brien and Sivaramkarishnan (1994) show that forecast bias increases with forecast horizon.

$T =$ number of days until the earnings announcement date,

$e_{ijt} =$ residual forecast error for analyst i on firm j at date t.

The relative accuracy of each group of analysts is computed in three successive steps. First, for a given firm, the average residual forecast error is computed for each analyst,

$$MFE_{ij} = \sum_{t=1}^{K} \left| e_{ijt} \right| / K ,$$

where:

$MFE_{ij} =$ mean forecast error by analyst i for firm j,

$K =$ number of forecasts issued by analyst i for firm j during a given year.

Second, for each firm/year, individual analysts' mean forecast errors are averaged over all analysts of a given group g,

$$MGFE_{gj} = \sum_{i \in g} MFE_{ij} / N ,$$

where:

$MGFE_{gj} =$ mean group forecast error for firm j,

$N =$ number of analysts from group g following firm j during a given year.

Finally, the mean difference forecast error between 2 groups is computed as

$$MDFE = \sum_{j=1}^{J} \left[MGFE_{Fj} - MGFE_{Lj} \right] / J$$

where J is the number of company/year units. In order to assess whether one group of analysts produces more (less) accurate forecasts than the other, the following hypothesis is tested:

$$H_0 : MDFE = 0 \; vs \; H_1 : MDFE \neq 0 .$$

A parametric mean test, a Wilcoxon sign rank test of equality of medians as well as a non-parametric binomial sign test are performed to test the hypothesis.

4.2 Results for forecast accuracy

Table 6 reports the descriptive statistics for the absolute value of percentage forecast errors. These numbers are not corrected for the horizon bias[9]. Consequently, no statistical test is run on them since it would not be accurate to compare forecasts issued at different horizons. Despite this limitation, some interesting conclusions can be drawn from this table. First, their magnitude and variability are larger than those obtained by previous studies on developed markets. This reflects the difficulty for analysts to issue forecasts in countries characterized by important potential information asymmetries and unrestrictive corporate disclosure requirements. The lower means and standard deviations obtained for American Depositary Receipts are consistent with this explanation. Second, considering the median forecast error across countries, there does not seem to be particular countries for which analysts produce significant more accurate forecasts. Third, consistent with previous research on developed markets (see Brown, 1997), financial analysts seem to produce more accurate forecasts for higher market capitalization companies. Finally, leaders' earnings forecasts are more precise and display less dispersion.

[INSERT TABLE 6 HERE]

The estimation results for equation (1) (not shown) are consistent with Cooper et al. (2001) findings. The slope equals 0.01 and is significantly different from zero. Emerging market analysts' bias decreases significantly with the distance between forecast release date and earnings announcement date. The intercept is not statistically different from zero.

Hypothesis tests and descriptive statistics for the mean difference forecast errors (*MDFE*) are reported in Table 7. Panel A reports the differences in *MDFE* between local and foreign analysts for the whole sample as well as for each country. Excepting for Brazil and Venezuela, the average *MDFE* 's are positive implying that foreign analysts outperform local analysts. This average is statistically significant in Columbia and only marginally in Mexico. However,

[9] A clear economic interpretation of horizon bias-corrected forecast errors remains so far an open question in the litterature.

looking at the distribution of *MDFE* 's, we see that some extreme observations may bias the results of our parametric test. Therefore, a non-parametric approach appears much more appropriate. In this case, excepting for Venezuela, the null hypothesis is rejected for all countries, at conventional statistical levels. Thus, there is a strong evidence that foreign analysts are more accurate than local analysts on Latin American emerging markets. Panel B indicates that the superior ability of foreign analysts to predict firms earnings does not depend on size. Surprisingly, this superior ability is the lowest for American Depositary Receipts, which have a richer information environment and are the least distant firms for foreign analysts. Conflicts of interest due to increased investment and commercial banking relationship with foreign banks following U.S. exchange listing may explain this finding.

[INSERT TABLE 7 HERE]

As reported in panel C, there is a strong evidence that leaders produce more accurate forecasts than follower analysts. The leader-follower criterion appears more important than the geographical one. However, no comparison is performed between local and foreign leaders as the number of firm/year units for which leaders of both types are simultaneously identified is very low. Two important conclusions can be drawn about the behavior of financial analysts on Latin American markets. First, contrary to what has been documented by Cooper et al. (2001), leader analysts do not "trade accuracy for timeliness". Indeed, they are able to release timelier and more accurate forecasts. Second, follower analysts do not exactly reproduce the earnings per share forecasts issued by leader analysts. Even if their forecast releases closely follow leader analysts' ones, they avoid to reproduce exactly the information released by leader analysts.

Overall, this section shows that emerging markets companies' fundamentals are predicted with a great amount of noise. In this context, foreign analysts have a better ability to analyze Latin American firms' earnings potential than their local peers. This finding shows that the information asymmetries that can arise due to the distance (geographical, cultural or lingual) between the foreign analysts and the companies is more than compensated by their resources, expertise and/or talent. These results also show that the group of analysts that revises more frequently is the less accurate one. Finally, timely analysts are also shown to be the most accurate ones. Consequently, lead analysts do not give up forecast accuracy when releasing more timely forecasts.

5 Impact of forecast revisions on security prices

5.1 Empirical design

This section investigates whether one group of analysts' revisions provides more information to investors. The objective is to determine whether the stock price reaction following forecast revisions differs between the different groups of analysts. The reaction around forecast revisions for a given firm is proxied by the cumulative excess return during the forecast release period (days 0 and +1). This cumulative excess return is computed as the difference between the buy-and-hold returns for the firm's common stock and the value-weighted Datastream country index.

Similar to Cooper et al. (2001), the incremental information content of each revision is measured by the scaled distance relative to the consensus forecast. More precisely:

$$FSUR_{ijt} = \frac{FEPS_{ijt} - CF_{jt-1}}{s\,(CF_{jt-1})}$$

where:

$FSUR_{ijt} =$ forecast surprise following analyst i's revision for firm j at date t,

$CF_{jt-1} =$ consensus EPS forecast for firm j at date $t-1$,

$s\,(CF_{jt-1}) =$ standard deviation of the consensus forecast[10] at date $t-1$.

The consensus forecast is based on the average of the forecasts issued by analysts (excluding analyst i) during the 2 months preceding date t. Each analyst is required to provide at least 3 forecasts per year for the firm and each consensus forecast is required to contain at least 3 individual forecasts.

The impact of forecast revisions on security prices is measured by the following cross-sectional regression equations:

[10] Similar to Stickel (1992), a standard deviation less than 0.25 is arbitrarily set to 0.25 to mitigate small denominators. Our results are not affected by this operation.

$$CAR_{jt} = b_0 + b_1 FSUR_{ijt} + b_2 LNSIZE_{jt} + b_3 LOC_i + e_{jt}, \quad (2)$$

$$CAR_{jt} = b_0 + b_1 FSUR_{ijt} + b_2 LNSIZE_{jt} + b_3 LEAD_i + e_{jt}, \quad (3)$$

$$CAR_{jt} = b_0 + b_1 LOC_i \times FSUR_{ijt} + b_2 FOR_i \times FSUR_{ijt} + b_3 LNSIZE_{jt} + e_{jt}, \quad (4)$$

where:

$CAR_{jt} =$ cumulative excess return for firm j during the forecast release period (days 0 and +1),

$LNSIZE_j =$ natural logarithm of the market value (in USD) of common stock at fiscal year end,

$LOC_i =$ dummy variable set to 1 if analyst i is a local one and 0 otherwise,

$LEAD_i =$ dummy variable set to 1 if analyst i is a leader and 0 otherwise,

$FOR_i =$ dummy variable set to 1 if analyst i is foreign and 0 otherwise.

Equations (2) and (3) measure the abnormal return associated with the different groups of analysts' forecast revisions. Equation (4) measures the proportion of abnormal return explained by local and foreign analysts' forecast revisions. The size variable is a proxy for the differences in firms' information environment[11] but also for foreign investors' ownership since they tend to concentrate their investments on high-capitalization liquid firms.

5.2 Results for the impact of forecast revisions on security prices

Table 8 reports the mean cumulative abnormal return during the forecast release period. The price reaction depends on the size of the revision. Strong downward revisions as well as bottom 50% revisions display statistically significant price reactions. Conversely, top 50% and strong upward revisions do not impact on prices. This is consistent with Stickel (1992, 1995) who documents a non-linear relation between forecast revisions and price reactions. Therefore, the regressions are restricted to revisions of a given magnitude.

[INSERT TABLE 8 HERE]

Results for the cross-sectional regressions (2), (3) and (4) are reported in table 9. First, the impact of revisions on prices is larger for bigger firms. This differs from what has been found on developed markets. Small firms are probably characterized by low foreign investor following and low liquidity. This may prevent prices from integrating new information releases quickly[12]. Second, there is a statistically significant relation between forecast surprise and price reaction for large downward and bottom 50% revisions (see panel A and B). Third, panel A shows that the intercept of cross-sectional equation (2) does not differ between local and foreign analysts. This is also the case for leader and follower analysts (see panel B). Fourth, panel C reports that there is a strong link between downward revisions (bottom 10% and bottom 50%) by foreign analysts and cumulative abnormal returns. This link is not found when looking at local analysts. Moreover, the regression coefficient for large downward foreign analysts' revisions is 2.6 times larger than for local analysts. The market incorporates the information embedded in foreign analysts' revisions. Conversely, the information included in local analysts' forecasts is not taken into account by the market. However, the equality of the coefficients cannot be rejected by the F-tests. Finally, for the top 50% as well as for the top 10% (large upward revisions) cut-offs, there is no price reaction at all. For all revision levels, cumulative excess returns following forecast releases are bigger for larger firms.

[INSERT TABLE 9 HERE]

Overall, this section shows that the incremental information contained in large downward and bottom 50% forecasts revisions by foreign analysts has a significant impact on stock prices. On the other hand, prices do not react to forecasts revisions issued by local analysts. This result is consistent with the findings of the two previous sections: foreign analysts produce more accurate and timelier forecasts than local ones. As a consequence, the unexpected component of their forecasts, measured by the forecast surprises, has a greater impact on excess stock return than the corresponding forecast surprises for local analysts. The market does not seem to consider forecasts issued by leader analysts as being more informative than those issued by other analysts. However, the scarcity of the observations for

[11] Stickel (1995), among others, reports that buy and sell recommendations induces a greater price reaction for smaller companies than for larger ones.

[12] The same analysis was conducted using days 0 to 5 cumulative excess returns. The main conclusions remain the same.

which a leader could be identified (972 revisions out of 31'439) may be at the origin of this finding. Finally, there is evidence that emerging markets' investors take into account financial analysts' tendency for overconfidence. Indeed, prices do not react to large upward revisions at all.

6 Conclusions

Foreign financial analysts' EPS forecasts are more timely and more accurate than local financial analysts' forecasts. Building on Cooper et al. (2001) methodology, 172 leader analysts are identified. Out of these 172 leaders, 82 are foreign. This is significantly greater than the proportion of foreign analysts' forecasts in the sample. Conversely, local analysts display a significant tendency to follow the "crowd". The fact that only a few local and foreign leaders are identified simultaneously for a given firm indicates that local and foreign leaders leads other analysts on specific segments of the market. This particularly true for local analysts on the Brazilian market. With the exception of Venezuela, foreign analysts are more accurate in each individual country. Considering all countries, foreign financial analysts' forecasts are more precise in 58% of the cases.

In terms of security price, stocks react negatively to downward revisions released by foreign analysts. There is no price reaction following local financial analysts' revisions. Nevertheless, the evidence is mixed to the extent that the coefficients associated to foreign and local analysts' forecast surprises are not statistically different. Forecasts issued by leaders do not have any significant additional impact on security prices. However, this finding may be due to the low weighting of leaders' revisions in the whole sample.

Overall, the consistency between the results given by the various performance measures indicates that there is no reason to question the superior performance of foreign financial analysts. This superiority may be linked to the superior resources available to analysts who work for important international brokerage houses, to the better international expertise of these analysts, to their greater talent, and to conflicts of interest faced by analysts employed by local banks, which offer commercial or investment banking activities. The present results are consistent with a better information and greater sophistication on the part of foreign investors. Indeed, foreigners' portfolio profits on emerging markets, such as those documented by Seasholes (2000), may be driven by the better ability of foreign analysts at analyzing firms'

situation for their clients. However, further research is needed to understand which category of investors (foreign or domestic) trade around foreign and local analysts' revisions. Moreover, this study shows that financial analysts' forecasts on Latin American emerging markets share some common properties with forecasts issued on developed markets: On average, they are too optimistic, their bias decreases as the result's release date narrows and the forecast errors are influenced by some firm characteristics such as size, and information environment (ADR's). Finally, the practical implication of this investigation is that investors should rely more heavily on foreign financial analysts' forecasts than on local ones when they invest in Latin American markets.

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Table 1 : Summary statistics by year

Year	No. of Forecasts		No. of Analysts		No. of Brokers		No. of Stocks
	Local	Foreign	Local	Foreign	Local	Foreign	
1993	3246	1410	158	99	44	22	151
1994	7257	3393	214	142	59	37	265
1995	7144	3664	354	206	59	41	260
1996	6709	4599	384	298	63	44	264
1997	7016	5977	341	376	59	38	295
1998	6034	5915	328	377	53	31	291
1999	4810	4423	251	287	45	21	216
Total	42216	29381	872	782	105	65	450

This table reports yearly statistics for the data. *No of Forecasts* represents the number of annual earnings forecasts made each year. *No. of Analysst* represents the number of analysts who produced a forecast during the fiscal year *t*. The total number of analysts who produced an earning forecast during the entire period is indicated in the last row. *No. of Brokers* represents the number of banks (or brokerage companies) for which analysts work each year. The total number of brokers identified during the entire period is indicated in the last row. *No. of Stocks* is the number of firms in the sample. The total number of firms for which forecasts were produced during the period is indicated in the last row.

Table 2: Summary statistics by country and industry

Panel A: sample by country

	No. of Forecasts		No. of Analysts		No. of Brokers		No. of Stocks
	Local	Foreign	Local	Foreign	Local	Foreign	
Argentina	6060	4469	165	275	27	41	56
Brazil	16530	10193	346	394	34	47	185
Chile	3156	2373	78	191	13	29	46
Colombia	171	428	6	53	2	17	16
Mexico	15116	10320	277	384	25	44	102
Peru	1042	1237	37	139	12	34	33
Venezuela	141	361	1	81	1	20	12

Panel B: sample by industry

	No. of Forecasts		No. of Analysts		No. of Brokers		No. of Stocks
	Local	Foreign	Local	Foreign	Local	Foreign	
Finance	4822	4589	335	295	93	53	63
Consumer non-durables	6646	4020	380	242	99	50	81
Consumer services	5809	3957	324	233	87	48	54
Consumer durables	1085	559	158	84	68	28	9
Energy	1335	1041	155	116	59	37	11
Transportation	327	223	76	54	42	27	6
Technology	153	63	45	22	26	12	2
Basic industries	9'243	5758	481	348	101	54	89
Capital goods	5739	3591	389	251	87	50	66
Utilities	7057	5580	349	293	103	53	69

This table reports statistics by country and by industry. *No. of Forecasts* represents the number of annual earnings forecasts made each year. *No. of Analyst* represents the number of analysts who produced a forecast during the fiscal year *t*. *No. of Brokers* represents the number of banks (or brokerage companies) for which analysts work each year. *No. of Stocks* is the number of firms in the sample.

Table 3: Frequency of forecast issuance and revision

Panel A: number of calendar days elapsed between forecasts				
	Mean	Min	Median	Max
Local analysts	76.87	1.00	65.00	358.00
Foreign analysts	79.24	1.00	66.00	372.00
Panel B: number of revisions per analyst				
	Mean	Min	Median	Max
Local analysts	1.41	0.00	1.00	23.00
Foreign analysts	1.16	0.00	1.00	11.00

This table reports summary statistics on financial analysts' activity. Panel A presents statistics about the number of calendar days that separate two consecutive forecasts by analyst for a particular company in a given year. Panel B reports statistics on the number of revisions by analyst for a particular company in a given year.

Table 4: Financial analysts' timeliness

Panel A: local analysts' LFR vs. foreign analysts' LFR

	No. of observations N	No. of leaders	% leaders L_g	% observations P_g	Difference
Local	1334	90	52.3	60.6	-8.2 ***
Foreign	869	82	47.7	39.4	8.2 ***
	2203	172	100.0	100.0	0.0

Panel B: LFR by analysts' country of origin

Country of origin	No. of observations N	No. of leaders	% leaders L_g	% observations P_g	Difference
USA	399	50	29.1	18.1	11.0 ***
Mexico	705	45	26.2	32.0	-5.8 ***
Brazil	316	27	15.7	14.3	1.4 *
Netherlands	71	12	7.0	3.2	3.8 ***
Germany	73	7	4.1	3.3	0. **
Switzerland	240	7	4.1	10.9	-6.8 ***
Argentina	112	7	4.1	5.1	-1.0 **
Chile	154	5	2.9	7.0	-4.1 ***
	2203	172	100.00	100.00	0.00

This table reports the number of analysts identified as leaders as well as the test of the null hypothesis, which is stating that the proportion of leaders in a given group equals the proportion of analysts from the given group in the total sample. The last column represents the difference between the percentage of leaders in a given group, L_g, and the percentage of analysts from the given group, P_g. The significance of this difference is determined by the following normally distributed statistic: $Time_g = \frac{\left(L_g - P_g\right)}{\sqrt{P_g \cdot \left(1 - P_g\right)}} \cdot \sqrt{N}$. Panel A reports results for all Latin American markets. Panel B reports results by analysts' country of origin. Results for countries with less than 50 observations are not shown.

***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 5: Foreign and local leaders distribution across firms

	No. of local leaders					
No. of foreign leaders	0	1	2	3	4	5
0	112	33	3	0	0	1
1	17	13	4	0	0	0
2	6	3	2	2	1	0
3	1	2	0	1	0	0
4	0	1	1	0	0	0

This table reports the number of different firms for which a given number of leaders was identified. Column headers are the number of local leaders, whereas row headers corresponds to the number of foreign leaders. The elements of the table are the number of different firms for which a given number of foreign leaders is identified conditional on the fact that a given number of local leaders is identified.

Table 6: Mean absolute forecast errors

Sample	N	Analysts	Mean	Stdev	Min	Median	Max
Panel A: Forecast accuracy for Latin America							
Latin America	1741	Local	1.61	12.93	0.00	0.28	387.99
		Foreign	1.54	10.96	0.00	0.29	355.71
Panel B: Forecast accuracy by country							
Argentina	260	Local	1.47	8.32	0.00	0.23	119.01
		Foreign	1.40	7.89	0.00	0.22	112.54
Brazil	667	Local	1.52	10.87	0.00	0.30	250.22
		Foreign	1.48	7.84	0.00	0.35	141.75
Chile	180	Local	0.94	3.07	0.00	0.26	32.76
		Foreign	0.88	3.28	0.00	0.18	38.87
Mexico	461	Local	1.54	9.58	0.00	0.29	170.05
		Foreign	1.47	7.17	0.00	0.30	108.90
Peru	113	Local	1.04	2.87	0.01	0.29	23.47
		Foreign	0.98	2.50	0.00	0.32	18.74
Colombia	39	Local	0.25	0.40	0.01	0.14	2.22
		Foreign	0.33	0.62	0.00	0.15	3.75
Venezuela	20	Local	0.59	1.13	0.02	0.21	5.19
		Foreign	0.58	0.96	0.00	0.30	4.40
Panel C: Forecast accuracy by company characteristics							
High MV	594	Local	1.34	16.25	0.00	0.19	387.99
		Foreign	1.44	15.50	0.00	0.21	355.71
Small MV	576	Local	2.26	13.33	0.00	0.43	250.22
		Foreign	2.02	9.39	0.00	0.51	141.75
ADR	330	Local	0.87	1.93	0.00	0.22	16.58
		Foreign	0.83	1.90	0.00	0.21	17.64
Panel D: Forecast accuracy for leaders							
Leaders	84	Local	0.77	1.94	0.00	0.20	15.45
	77	Foreign	0.78	1.81	0.00	0.20	10.62

This table reports descriptive statistics for the absolute forecast errors (abs[*FEPS*]). Panel A presents descriptive statistics on absolute forecast error for all Latin American countries. Panel B reports statistics for individual countries. Panel C reports statistics on forecast errors for different companies' characteristics while Panel D presents descriptive statistics for companies for which a leader is identified. Market values are computed in USD. High market value (MV) companies are companies with fiscal year end market capitalization located in the top 33% of the distribution. Small market value (MV) companies are companies with fiscal year end market capitalization located in the bottom 33% of the distribution. The identity of the companies with American Depositary Receipts as well as their first quotation date were taken from the New York Stock Exchange web site (http//www.nyse.com/listed). Note that the forecast errors are not corrected for the horizon bias.

Table 7: Financial analysts relative forecast accuracy

	Distribution of the Mean Difference Forecast Errors (*MDFE*)						Sign of *MDFE*
	N	Mean	Stdev	Min	Median	Max	% Local > Foreign
Panel A: Difference in forecast accuracy by companies' country of origin							
Latin America	1741	0.14	4.16	-97.38	0.08 ***	110.70	58.07 ***
Argentina	260	3.30	16.55	0.25	1.72 **	251.78	57.69 **
Brazil	668	-0.03	4.30	-97.38	0.07 **	31.65	56.59 ***
Chile	180	0.06	2.07	-26.16	0.15 ***	3.43	63.89 ***
Mexico	461	0.24 *	3.07	-8.49	0.06 **	60.77	55.75 **
Peru	113	0.02	1.37	-11.98	0.16 **	3.29	62.83 ***
Colombia	39	0.44 ***	0.77	-1.35	0.40 ***	3.10	76.92 ***
Venezuela	20	-0.09	0.83	-1.98	0.04	1.60	50.00
Panel B: Differences in forecast accuracy by companies' characteristics							
High Market Value	594	-0.02	4.27	-97.38	0.10 ***	31.65	59.43 ***
Small Market Value	576	0.28	5.1	-26.16	0.08 ***	110.70	56.60 ***
ADR	330	0.06	0.86	-8.10	0.06 **	7.73	55.15 *
Panel C: Differences in forecast accuracy by analysts' timeliness							
							% Leaders > Others
Local leaders vs. local followers	82	-0.38 ***	0.77	-5.23	-0.44 ***	1.11	0.24 ***
Foreign leaders vs. foreign followers	75	-0.44 ***	0.67	-2.11	-0.41 ***	1.65	0.27 ***
Local leaders vs. foreign followers	84	-0.33 ***	1.11	-6.13	-0.27 ***	4.70	0.30 ***
Foreign leaders vs. local followers	77	-0.67 ***	1.08	-6.55	-0.54 ***	0.88	0.21 ***

This table presents descriptive statistics as well as hypothesis tests for the Mean Difference in Forecast Errors (*MDFE*). In Panel A, the third column reports the average difference between local analysts' forecast errors and foreign analysts' forecast errors. Column 6 reports the median difference between local analysts' forecast errors and foreign analysts' forecast errors. Column 8 reports the percentage of firm/year units for which the average forecast error of local analysts was greater than the average forecast error of foreign ones. A parametric mean test is performed on column 3 numbers, a Wilcoxon signed rank test of equality of medians is performed on column 6 numbers, and a non-parametric sign test is performed on column 8 numbers. Panel B reports the same statistics for different companies' characteristics. In Panel C, the third column reports the mean difference in forecast error between leaders and followers. Column 6 reports the median difference between lead analysts' forecast errors and follower analysts' forecast errors. Column 8 reports the percentage of firm/year units for which the average forecast error of lead analysts was greater than the average forecast error of follower ones. The same statistical tests as in Panel A and B are performed.

***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 8: Stock price reactions following forecast surprises

	All FSUR	Bottom 10%	Bottom 50%	Top 50%	Top 10%
Mean (%)	-0.06 **	-0.24 **	-0.11 ***	0.00	-0.01
Standard deviation (%)	4.69	5.08	4.74	4.65	4.63
N	26027	2603	13019	13019	2603

This table reports some descriptive statistics about the cumulative abnormal returns (CARs) following forecasts' revisions. Cumulative abnormal returns are computed as the difference between the buy-and-hold return for the firm's common stock and the value-weighted Datastream country index during the forecast release period (days 0 and 1). The column All FSUR reports statistics on CARs for all forecast surprise level. Bottom 10% reports CARs for forecast surprises located in the top 10% of the distribution. Bottom 50% reports statistics for CAR's located in the bottom 50% of the distribution. In the column Top 50%, statistics are reported for CAR's located in the top 50% of the distribution. Top 10% reports statistics for CAR's located in the top 10% of the distribution.

Table 9: The relation between stock price reactions and analysts' origin

Panel A: $CAR_{jt} = b_0 + b_1 FSUR_{ijt} + b_2 LNSIZE_{jt} + b_3 LOC_i + e_{jt}$

FSUR Cut-off	b_0	b_1	b_2	b_3	N
Bottom 10%	-1.626 ***	0.096 **	0.237 ***	-0.011	2603
	(-2.966)	(1.968)	(3.236)	(-0.054)	
Bottom 50%	-0.943 ***	0.093 ***	0.142 ***	-0.102	13019
	(-4.387)	(2.756)	(4.780)	(-1.208)	
Top 50%	-0.336	-0.009	0.059 **	-0.111	13019
	(-1.590)	(-0.370)	(2.053)	(-1.333)	
Top 10%	-1.225 **	-0.003	0.189 ***	-0.143	2603
	(-2.439)	(-0.103)	(2.778)	(-0.777)	

Panel B: $CAR_{jt} = b_0 + b_1 FSUR_{ijt} + b_2 LNSIZE_{jt} + b_3 LEAD_i + e_{jt}$

FSUR Cut-off	b_0	b_1	b_2	b_3	N
Bottom 10%	-1.641 ***	0.096 **	0.238 ***	0.125	2603
	(-3.114)	(1.963)	(3.253)	(0.223)	
Bottom 50%	-1.008 ***	0.093 ***	0.144 ***	-0.236	13019
	(-4.857)	(2.750)	(4.846)	(-1.016)	
Top 50%	-0.419 **	-0.008	0.062 **	-0.165	13019
	(-2.068)	(-0.318)	(2.150)	(-0.681)	
Top 10%	-1.326 ***	-0.002	0.193 ***	-0.497	2603
	(-2.749)	(-0.056)	(2.844)	(-0.953)	

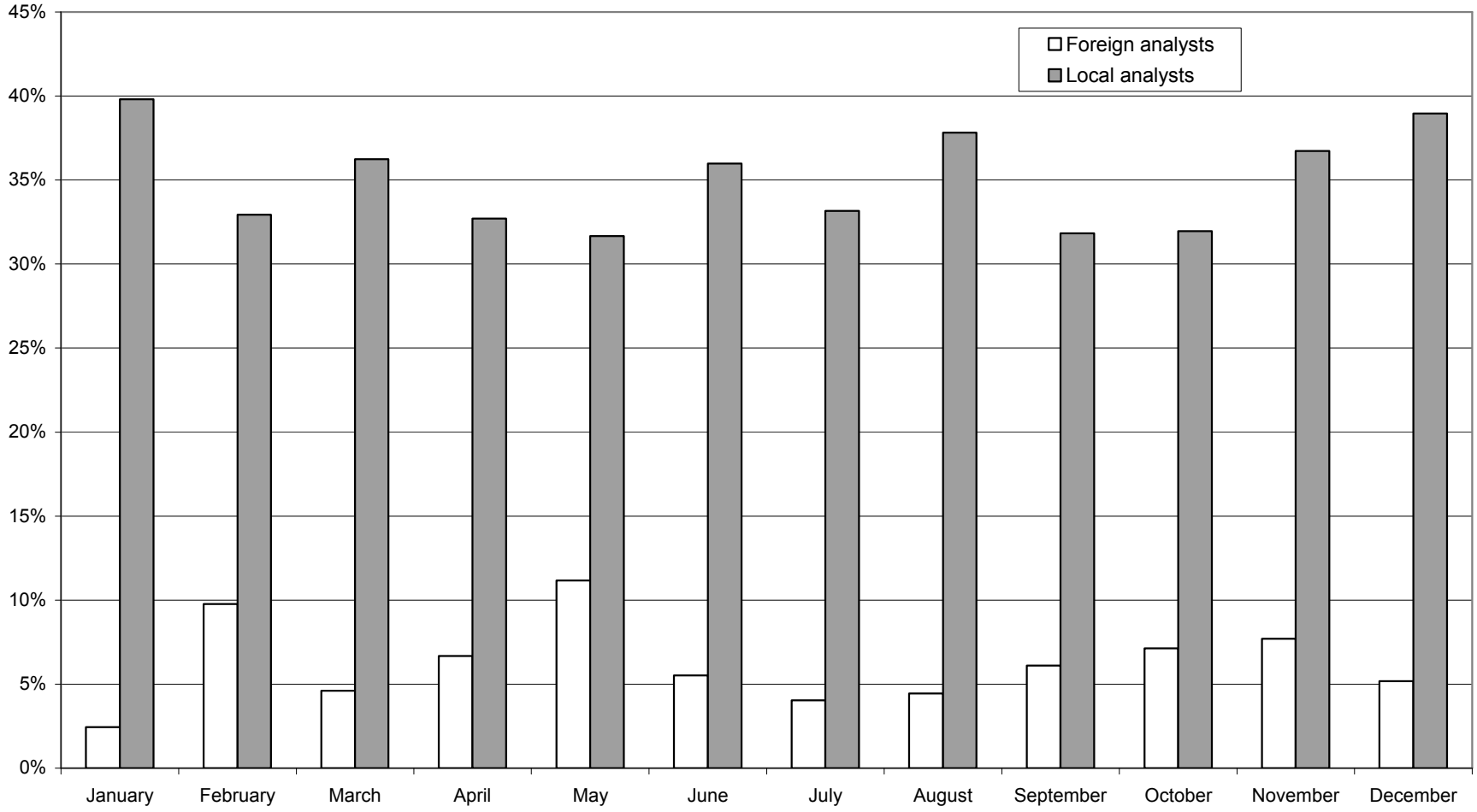
Panel C: $CAR_{jt} = b_0 + b_1 LOC_i \times FSUR_{ijt} + b_2 FOR_i \times FSUR_{ijt} + b_3 LNSIZE_{jt} + e_{jt}$

FSUR Cut-off	b_0	b_1	b_2	b_3	$b_1 = b_2$	N
Bottom 10%	-1.657 ***	0.065	0.169 **	0.246 ***	2.396	2603
	(-3.149)	(1.244)	(2.491)	(3.355)		
Bottom 50%	-1.017 ***	0.068 *	0.138 ***	0.144 ***	1.417	13019
	(-4.901)	(1.711)	(2.715)	(4.870)		
Top 50%	-0.405 **	-0.036	0.002	0.061 **	0.622	13019
	(-1.992)	(-0.831)	(0.085)	(2.102)		
Top 10%	-1.309 ***	-0.015	0.001	0.191 ***	0.089	2603
	(-2.672)	(-0.280)	(0.031)	(2.802)		

This table presents the coefficients obtained by regressing the cumulative abnormal returns following forecast revisions on the magnitude of the revision, firm size, and dummy variables indicating analysts' status. Revisions are dated within the firm's current fiscal year over the 1993-1999 period. CAR_{jt} is the cumulative abnormal return to security i during the release period (days 0 and +1). $FSUR_{ijt}$ is the forecast surprise following analyst i's revision at date t. $LNSIZE_{jt}$ is the natural logarithm of the market value (in USD) of common stock at fiscal year end. FOR_i is a dummy variable that takes a value of 1 if analyst i is employed by a foreign brokerage house and 0 otherwise. LOC_i is a dummy variable that takes a value of 1 if analyst i is employed by a local brokerage house and 0 otherwise. $LEAD_i$ is a dummy variable that takes a value of 1 if analyst i is a leader and 0 otherwise. In the fifth column of panel C, a F test is performed to test the equality of b_1 and b_2. All coefficients are multiplied by 100. T-statistics are based on White (1980) For each regression the adjusted R^2 are less than 0.01.

***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

Figure 1: Analysts' activity across the year



This figure illustrates financial analysts' average portfolio turnover by month of the year. The dashed part measures local analysts' portfolio turnover for each month of the year. The white part measures the difference between local and foreign analysts' portfolio turnover. The months of the year are represented on the *X*-axis. Portfolio turnover for a given analyst is the sum of all forecast revisions done during the month divided by the total number of companies followed.

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More than 13'000 students, the majority being foreigners, are enrolled in the various programs from the licence to high-level doctorates. A staff of more than 2'500 persons (professors, lecturers and assistants) is dedicated to the transmission and advancement of scientific knowledge through teaching as well as fundamental and applied research. The University of Geneva has been able to preserve the ancient European tradition of an academic community located in the heart of the city. This favors not only interaction between students, but also their integration in the population and in their participation of the particularly rich artistic and cultural life. ***http://www.unige.ch***

The University of Lausanne

Founded as an academy in 1537, the University of Lausanne (UNIL) is a modern institution of higher education and advanced research. Together with the neighboring Federal Polytechnic Institute of Lausanne, it comprises vast facilities and extends its influence beyond the city and the canton into regional, national, and international spheres.

Lausanne is a comprehensive university composed of seven Schools and Faculties: religious studies; law; arts; social and political sciences; business; science and medicine. With its 9'000 students, it is a medium-sized institution able to foster contact between students and professors as well as to encourage interdisciplinary work. The five humanities faculties and the science faculty are situated on the shores of Lake Leman in the Dorigny plains, a magnificent area of forest and fields that may have inspired the landscape depicted in Brueghel the Elder's masterpiece, the Harvesters. The institutes and various centers of the School of Medicine are grouped around the hospitals in the center of Lausanne. The Institute of Biochemistry is located in Epalinges, in the northern hills overlooking the city. ***http://www.unil.ch***

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