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# Who to trust? Reactions to analyst recommendations of domestic versus foreign brokerage houses in a developing stock market

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## ABSTRACT

Announcement day abnormal returns around analyst recommendations of upgrades average 35 and downgrades average -45 basis points in Borsa Istanbul. The nationality of the investment bank issuing the recommendation affects the magnitude of the stock market reaction. The absolute magnitude of abnormal returns upon upgrade and downgrade recommendations of foreign investment banks is larger than that of local investment banks. The differential reaction indicates that in a developing market country, Turkey, investors pay closer attention when the source of information is foreign rather than local.

## 1. Introduction

Investors price stocks based on the information they have on the issuing firm. As such, analyst recommendations are essential in conveying information about the prospects of the covered firms. Investors care about the reputation of the information provider as well as the content of the information. Trust and reputation are even more critical in developing countries where the legal and regulatory environment may not be as sufficient as in developed countries to protect investors' rights. Therefore, we focus on analyst recommendations as an important information event in a developing country, Turkey, and investigate whether the nationality of brokerage houses signal quality and affect the short-term stock market reactions to analyst recommendations.

Abnormal returns on the announcement day to analyst recommendations of upgrades average 35 and of downgrades average -45 basis points (bps) in Borsa Istanbul (BIST). Furthermore, when the issuing analyst is from a foreign brokerage house, abnormal returns for upgrades (downgrades) average 57 (-46) bps, and when the analyst is from a local brokerage house, abnormal returns average 29 (-45) bps. The absolute magnitude of abnormal returns on the announcement of upgrade and downgrade recommendations of foreign brokerage houses proves larger than local brokerage houses' recommendations. The differential reaction indicates that investors pay closer attention when the source of information is foreign rather than local in Turkey.

The difference in price reaction shows that investors trade more based on the information conveyed in foreign brokerage houses' recommendations. Investors may be paying closer attention to recommendations of foreign brokerage houses for a combination of reasons. First, investors may perceive foreign brokerage houses to be less biased than local ones (Cheng et al., 2006). Second, foreign brokerage houses may have better access to information and be more sophisticated in using it (Froot and Ramadorai, 2008). Third,

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foreign brokerage houses may better market the results of their reports to both local and international investors compared to local brokerage houses (Elton et al., 1986). We contribute to an extensive literature on the role of analysts in disseminating information in financial markets (Rees et al., 2017; Berkman and Yang, 2019). We focus on and contribute to the literature that examines foreign and domestic intermediaries' role in information dissemination (Jia et al., 2017). To the best of our knowledge, this paper is first in investigating the difference in market reactions to foreign and local analyst recommendations in developing stock market, Borsa Istanbul.

## 2. Sampling framework and data sources

We download the full sample of 3191 sell-side analyst recommendations for 111 stocks listed on BIST between September 2016 to October 2019 from the Matriks Database.<sup>1</sup> Matriks Database reports the announcement date, stock ticker, the industry classification, the brokerage house name, the recommendation category, and the target price for each recommendation.

Table 1 reports the distribution of analyst recommendations according to the industries of the covered firms. The largest number of analyst recommendations are for stocks in the financial sector, corresponding to 28.60 percent of our sample. We further divide our sample into two according to the nationality of brokerage houses. We classify a brokerage house as local if the brokerage house is affiliated with an institution with retail banking operation in Turkey or if it is domiciled in Turkey (Tiniç and Savaser, 2020), foreign otherwise. Table 2 lists the names of the 19 local and 16 foreign brokerage houses in the sample. Our sample leans towards recommendations of local brokerage houses with 2471 local and 720 foreign analyst recommendations.

Brokerage houses use two rating schemes in their recommendations: (1) buy, hold, and sell; (2) outperform, neutral and parallel, and underperform. We exclude 97 out of the 3191 recommendations that do not fall under these rating categories. We use subjective judgment to standardize these rating schemes to compare the recommendations across different brokerage houses. We use the following 3-point scale to categorize ratings. First, we group Buy and Outperform ratings as "Positive News"; second, we group Sell and Underperform rating as "Negative News"; third, we group Hold, Neutral and Parallel ratings as "Neutral News." We also investigate the changes in recommendation ratings. We classify an announcement as "Downgrade" if for a given stock the previous rating from the same brokerage house changes from "Positive News" to "Neutral News" or "Negative News." We classify an announcement as "Upgrade" if for a given stock the previous rating from the same brokerage house changes from "Neutral News" to "Positive News," or from "Negative News" to "Neutral News," or from "Negative News" to "Positive News." We classify an announcement as "No Change" if for a given stock the previous rating from the same brokerage house does not change.<sup>2</sup>

We classify the 803 recommendations for which we could not locate a previous recommendation from the same brokerage house as "N/A." Table 3 reports the breakdown of recommendations in the full sample (Panel A), in the subsample of stocks in the financial services industry (Panel B), and in the subsample of stocks that are not in the financial services industry (Panel C). Panels A, B, and C of Table 3 report the distribution of ratings from the two rating schemes in Section 1, the distribution of our 3-point scheme in Section 2, and the distribution of rating changes from our 3-point scheme in Section 3.

## 3. Research method

As put forth in Brown and Warner (1985), we use the event study method to investigate the stock market reaction to analyst recommendations. We calculate daily returns for the stocks ( $R_{i,t}$ ) covered in analyst recommendations starting 252 trading days before the announcement (event date) and ending 20 trading days after the announcement using adjusted share prices from the Matriks Terminal. We set the event window  $([-20,20])$  to start 20 trading days before the announcement and end 20 days later. The estimation window  $([-252, -30])$  starts 252 days before the announcement and ends 30 days before. We estimate the parameters of the ordinary least squares (OLS) market model<sup>3</sup> in the estimation window. Specifically, abnormal returns ( $A_{i,t}$ ) are calculated as:

$$A_{i,t} = R_{i,t} - \hat{\alpha}_i - \hat{\beta}_i R_{m,t} \quad (1)$$

where  $R_{m,t}$  is the return on market index (BIST-100) on trading day  $t$ . We test the significance of abnormal returns using the t-statistic:

$$t = \bar{A}_t / \hat{S}(\bar{A}_t) \quad (2)$$

<sup>1</sup> Matriks Database is a subscription-based trading platform for Turkish financial markets. Detailed information about the platform is available at <https://www.matriksdata.com/website/>.

<sup>2</sup> The classification for the change in recommendations using the original two recommendation scheme is as "Downgrade" if for a given stock the previous rating from the same brokerage house changes: 1) from BUY or OVERPERFORM to HOLD or NEUTRAL or PARALLEL or SELL or UNDERPERFORM; or 2) from HOLD or NEUTRAL or PARALLEL to SELL or UNDERPERFORM. The change in the recommendation is "Upgrade" if for a given stock the previous rating from the same brokerage house changes: 1) from SELL or UNDERPERFORM or HOLD or NEUTRAL or PARALLEL to BUY or OVERPERFORM; or 2) from HOLD or NEUTRAL or PARALLEL to BUY or OVERPERFORM. The change in the recommendation is "No Change" if, for a given stock, the previous rating from the same brokerage house does not change.

<sup>3</sup> We also use mean-adjusted and market adjusted models to compute expected returns. The results are qualitatively similar and are available upon request.

**Table 1**

Distribution of industries

The table reports the distributions of industries for the stocks covered in the sample.

Industry	Total Number of Stocks	Total Number of Recommendations	Industry	Total Number of Stocks	Total Number of Recommendations
Agricultural	3	11	Industrial	14	231
Airline	4	256	Insurance	4	24
Autve	5	245	Mining	2	16
Banking	9	861	Pharmaceutical	3	28
Beverage	8	143	Retail	10	228
Cement	5	72	Services	1	1
Construction	9	197	Steel	6	130
Defense	2	65	Technology	3	21
Energy	10	256	Telecommunication	2	158
Healthcare	1	2	White Goods	3	67
Conglomerate	6	82	<b>Total</b>	<b>110</b>	<b>3094</b>

**Table 2**

Classification of Brokerage Houses

The table reports the name of local and foreign brokerage houses which issue the recommendations in the sample.

Local Brokerage Houses		
A1 Capital Yatırım	Ahlatçı Yatırım	Ak Yatırım
Alan Yatırım	Ata Yatırım	Bizim Menkul
BNP Paribas	Citi Menkul	Deniz Yatırım
Garanti Yatırım	GCM Yatırım	Gedik Yatırım
Global Menkul	Halk Yatırım	HSBC
ICBC Yatırım	Integral Yatırım	Is Yatırım
Işık Menkul	Oyak Yatırım	QNB Finansinvest
Reel Kapital	Şeker Yatırım	Tacirler Yatırım
Turkish Yatırım	Unlu & Co.	Vakıf Yatırım
Yap Kredi Yatırım	Ziraat Yatırım	
Foreign Brokerage Houses		
Berenberg	BGC Partners	BofAML
Credit Suisse	Deutsche Bank	Erste Group
Goldman Sachs	J.P. Morgan	KBW
Morgan Stanley	NoorCM	Renaissance Capital
Societe Generale	UBS	VTB Capital
WOOD & Company		

$$\bar{A} = \sum_{t=-252}^{-30} \bar{A}_t / 223, \bar{A}_t = \sum_{i=1}^N A_{i,t} / N, \quad (3)$$

where  $\hat{S}(\hat{A}_t) = \sqrt{\sum_{t=-252}^{-30} (\bar{A}_t - \bar{A})^2 / 222}$ , and N corresponds to the number of events.

#### 4. Results

Table 4 reports abnormal returns on the announcement of analyst recommendations in the full sample of stocks (Panel A), in the subsample of stocks in the financial services industry (Panel B), and in the subsample of stocks that are not in the financial services industry (Panel C). Each panel reports abnormal returns for recommendations issued by all brokerage houses (first column), only local brokerage houses (second column), and only foreign brokerage houses (third column). The fourth column reports the t-statistic for the difference in mean abnormal returns between local and foreign brokerage houses. We classify the recommendations by whether the new recommendation is an 'Upgrade', 'Downgrade', 'No change' relative to the same brokerage house's last recommendation. Moreover, for the full sample of stocks, Fig. 1 plots the cumulative average abnormal returns in  $[-20, 20]$  for each rating classification and brokerage house type.

Abnormal returns on announcements of downgrades average  $-45$  bps and of upgrades average  $35$  bps. Abnormal returns upon

**Table 3**

Descriptive Statistics on Recommendations and Rating Changes

The table classifies recommendations according to the two rating schemes in Section 1, according to our standardized 3-point scheme in Section 2, and according to the change in ratings in Section 3. Panel A reports the classification in the full sample, Panel B in the stocks in financial services industry, and Panel C in stocks that are not in the financial services industry.

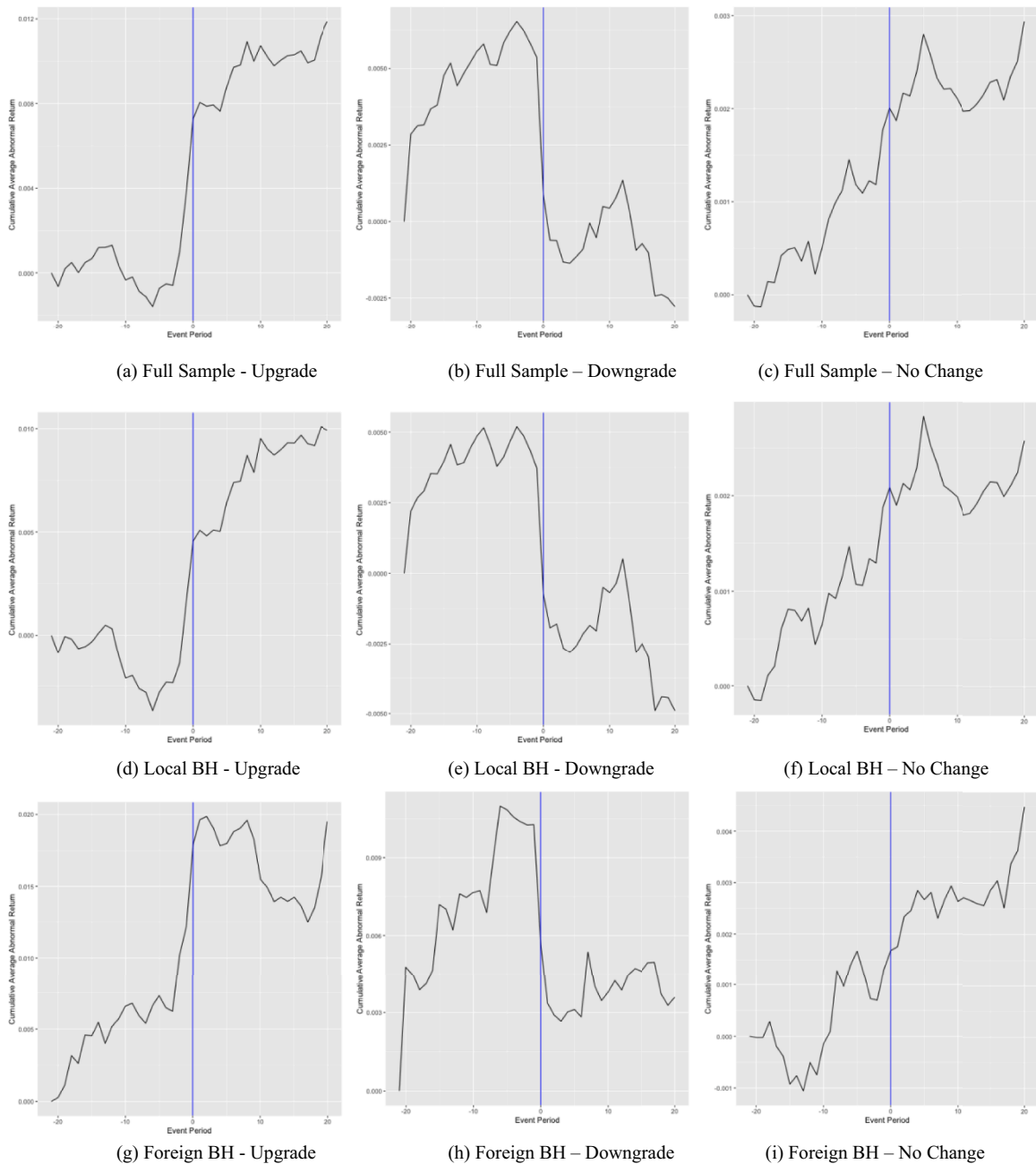
Panel A: Full Sample				Panel B: Stocks in Financial Services Industry			Panel C: Stocks that are not in Financial Services Industry		
	Number of Recommendations from Local and Foreign Brokerage Houses	Number of Recommendations from Local Brokerage Houses	Number of Recommendations from Foreign Brokerage Houses	Number of Recommendations from Local and Foreign Brokerage Houses	Number of Recommendations from Local Brokerage Houses	Number of Recommendations from Foreign Brokerage Houses	Number of Recommendations from Local and Foreign Brokerage Houses	Number of Recommendations from Local Brokerage Houses	Number of Recommendations from Foreign Brokerage Houses
Panel A1: Recommendations in the two rating schemes				Panel B1: Recommendations in the two rating schemes			Panel C1: Recommendations in the two rating schemes		
Buy	1352	1119	233	362	308	54	990	811	179
Hold	571	511	60	217	189	28	354	322	32
Sell	55	28	27	14	6	8	41	22	19
Outperform	471	347	124	119	55	64	352	292	60
Neutral	426	276	150	109	54	55	317	222	95
Parallel	175	116	59	41	22	19	134	94	40
Underperform	44	13	31	23	3	20	21	10	11
Panel A2: Recommendations in the standardized 3-point scheme}				Panel B2: Recommendations in the standardized 3-point scheme}			Panel C2: Recommendations in the standardized 3-point scheme}		
Positive	1823	1466	357	481	363	118	1342	1103	239
Negative	99	41	58	37	9	28	62	32	30
Neutral	1172	903	269	367	265	102	805	638	167
Panel A3: Rating Change}				Panel B3: Rating Change}			Panel C3: Rating Change}		
Upgrade	216	172	44	76	56	20	140	116	24
Downgrade	200	150	50	69	45	24	131	105	26
No Change	1875	1523	352	579	441	138	1296	1082	214
N/A	803	565	238	161	95	66	642	470	172
Total	3094	2410	684	885	637	248	2209	1773	436

**Table 4**

Abnormal Returns and Cumulative Abnormal Returns around Announcements of Analyst Recommendations

The table reports abnormal returns (in percent) on announcement day of analyst recommendations in Panel A and 41-day CARs (cumulative abnormal returns in percent) around announcement day in Panel B. Each panel contains three main sub-panels covering all stocks, covering the stocks in the financial services industry, and covering the stocks that are not in the financial services industry. Each sub-panel contains four columns for all recommendations, recommendations provided by local brokerage houses, recommendations provided by foreign brokerage houses, and the difference between foreign and local brokerage houses. Abnormal returns are calculated using the OLS market model. Corresponding t-statistics are in parenthesis. \*, †, ‡ indicates statistical significance at 1%, 5%, and 10%, respectively.

Panel A: Abnormal return on announcement day												
Full sample				Stocks in Financial Services Industry								
					Yes				No			
	All	Local	Foreign	Dif	All	Local	Foreign	Dif	All	Local	Foreign	Dif
<b>Downgrade</b>	-0.45*	-0.45*	-0.46*	-0.01	-0.30*	-0.38*	-0.16	0.21	-0.53*	-0.48*	-0.73*	-0.25‡
	(-9.14)	(-7.53)	(-4.24)	(-0.07)	(-3.84)	(-4.22)	(-1.06)	(1.22)	(-8.13)	(-6.32)	(-4.98)	(-1.46)
<b>Upgrade</b>	0.35*	0.29*	0.57*	0.28*	0.23*	0.19†	0.34†	0.15	0.42*	0.34*	0.77*	0.43*
	(6.76)	(5.14)	(5.27)	(2.35)	(2.64)	(1.94)	(2.06)	(0.80)	(6.28)	(4.67)	(5.19)	(2.61)
<b>No Change</b>	0.02	0.02	0.04	0.02	-0.03	-0.03	-0.01	0.02	0.05†	0.04‡	0.07	0.02
	(1.22)	(0.96)	(0.91)	(0.35)	(-0.69)	(-0.70)	(-0.16)	(0.28)	(1.82)	(1.47)	(1.27)	(0.41)
Panel B: 41-day CARs (-20,20) around announcement day												
Full sample				Stocks in Financial Services Industry								
					Yes				No			
	All	Local	Foreign	Dif	All	Local	Foreign	Dif	All	Local	Foreign	Dif
<b>Downgrade</b>	-0.40	-0.50‡	-0.08	0.42	-0.28	-0.09	-0.65	-0.56	-0.46	-0.68‡	0.45	1.13
	(-1.26)	(-1.32)	(-0.12)	(0.51)	(-0.56)	(-0.15)	(-0.67)	(-0.50)	(-1.10)	(-1.41)	(0.48)	(1.03)
<b>Upgrade</b>	1.28*	1.11*	1.94*	0.83	1.09†	0.88‡	1.68‡	0.80	1.38*	1.22*	2.16†	0.94
	(3.87)	(3.05)	(2.79)	(1.09)	(1.98)	(1.42)	(1.61)	(0.68)	(3.26)	(2.60)	(2.27)	(0.89)
<b>No Change</b>	0.31*	0.27†	0.51†	0.25	0.06	-0.14	0.69†	0.83†	0.43*	0.43*	0.40	-0.04
	(2.51)	(1.93)	(1.99)	(0.86)	(0.24)	(-0.49)	(1.71)	(1.76)	(2.63)	(2.36)	(1.17)	(-0.09)



**Fig. 1.** Cumulated Abnormal Returns According to the Change in Recommendation

The figures plot the abnormal returns cumulated from 20 trading days before to 20 days after the announcements of upgrades, downgrades, no change. Fig. 1(a) through (c) plots for the full sample of recommendations, (d) through (e) for the recommendations of local brokerage houses (local BH), and (g) through (i) for the recommendations of foreign brokerage houses (foreign BH).

announcements of upgrades and downgrades prove significant, whereas abnormal returns prove insignificant upon no change in recommendation. The significant market reaction when recommendations change and the insignificant reaction when they do not change indicates that investors price new information.<sup>4</sup>

Our findings of positive and significant abnormal returns around upgrades and negative and significant abnormal returns around

<sup>4</sup> We also use alternative event window specifications such as 3-days, 5-days, 7-days, 11-days, and 21-days around announcements. The results are qualitatively similar and are available upon request.

downgrades are in line with the findings in the literature. The magnitude of abnormal returns we document in Turkey is similar to the magnitude of returns the literature finds in emerging markets (Womack, 1996; Jegadeesh and Kim, 2006; Lai and Teo, 2008; Moshirian et al., 2009; Park and Park, 2019)

We investigate whether investors react differently to recommendations issued by foreign brokerage houses relative to local brokerage houses. There is a debate in the literature about whether local agents are better informed than international agents. On the one hand, theoretical studies argue that foreign investors in emerging economies are sophisticated investors with international markets experience. Therefore, they may be better informed compared to local investors (Froot and Ramadorai, 2008). Investors in the Turkish stock market may also perceive foreign brokerage houses long-established in global markets as better informed and better equipped to provide forecasts. Investor trading following foreign brokerage houses' recommendations would then generate a larger stock market reaction compared to recommendations of local brokerage houses.

On the other hand, foreign investors face cultural, legal, and linguistic barriers when entering a new market (Choe et al., 2001). Furthermore, the extensive literature on geographic distance (Uysal et al., 2008; John et al., 2011; Baltakys et al., 2019) examines how physical distance is vital in acquiring and processing information. If investors perceive foreign brokerage houses as distant from local information sources and handicapped with cultural, legal, and linguistic barriers, the magnitude of stock market reaction would be larger for local brokerage houses' recommendations compared to those of foreign brokerage houses.

We find that abnormal returns on announcements of upgrades issued by foreign brokerage houses prove significantly larger (57 bps) than those issued by local brokerage houses (29 bps). When we divide the sample into two according to industry, abnormal returns on announcements of upgrades that foreign brokerage houses issue prove significantly larger (77 bps) than those local brokerage houses issue (34 bps) for firms that are not operating in the financial services industry. Abnormal returns on announcements of downgrades issued by domestic brokerage houses prove significant at (−38 bps) for the financial services industry. Investors seem to be taking the downgrades of local brokerage houses seriously as domestic brokerage houses seldom issue recommendations conveying negative news.

A larger magnitude of stock market reaction following foreign brokerage houses' recommendations supports the theoretical work that investors believe in the information advantage of foreign versus local brokerage houses. Empirical (Stückel, 1995) and theoretical (Cheng et al., 2006) studies find investor portfolio decisions and short-term returns are functions of analyst reputation and unbiasedness. Our results might also indicate that investors use the nationality of brokerage houses (local versus foreign) as a sign of reputation and unbiasedness where investors perceive well-established, foreign brokerage houses issuing recommendations as more reputable and unbiased. Elton et al. (1986) posit whether the price reaction that follows the announcement of analyst recommendations is due to forecasting ability or whether the marketing of brokerage houses leads to the price change. Thus, the larger magnitude of the stock market reaction for foreign brokerage houses' recommendation may also be a function of their greater marketing power and their global clientele of customers. As of 2018, foreign share in free-float market capitalization is 65% in Borsa Istanbul (Borsa İstanbul, 2018). If foreign investors pay more attention to foreign brokerage houses' recommendations, the price reaction following these recommendations would be more significant.

## 5. Conclusion

We examine the market response to the changes in analyst recommendations for all stocks traded in Borsa Istanbul between September 2016 and October 2019. Abnormal returns on the announcement of upgrades average 35 and downgrades average −45 bps in Borsa Istanbul. Furthermore, when the issuing analyst is from a foreign brokerage house, abnormal returns for upgrades and downgrades average 57 and −46 bps, respectively. When the analyst is from a local brokerage house, abnormal returns for upgrades and downgrades average 29 and −45 bps, respectively. The absolute magnitude of abnormal returns on the announcement of recommendations by foreign brokerage houses proves larger than recommendations of local brokerage houses. The differential reaction indicates that investors pay closer attention when the source of information is foreign rather than local in Turkey. Our results might also indicate that investors use the nationality of brokerage houses (local versus foreign) as a sign of reputation and unbiasedness, where investors perceive foreign brokerage houses as more reputable and unbiased. This paper contributes to the extensive literature that examines the role of stock analysts in financial markets. We also contribute to the literature that examines the differences between local and foreign intermediaries in information production. Further research may consider the underlying mechanism as to why there is an asymmetry in the market response to local and foreign brokerage houses' recommendations.

## CRediT authorship contribution statement

**Murat Tiniç:** Formal analysis, Methodology, Software, Writing - original draft. **Başak Tanyeri:** Conceptualization, Writing - review & editing. **Mehmet Bodur:** Data curation, Investigation.

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