PROPERTIES OF INDIVIDUAL ANALYSTS' EARNINGS FORECASTS FOR THE TURKISH STOCK MARKET

MURAT AYDOĞDU*
Bryant University

HAKAN SARAOĞLU*
Bryant University

ABSTRACT

We examine the properties of individual analysts' forecasts of annual earnings for Turkish companies. Using a sample obtained from the Institutional Brokers Estimate System (I/B/E/S) database of earnings forecasts, we measure individual analysts' forecast errors and relative optimism, and test for serial correlation in these measures. We also compare the forecast accuracy of analysts working for Turkish brokerage firms to the forecast accuracy of those employed by non-Turkish firms. An important contribution of this paper is that it is the first study to focus on the earnings forecasts of Turkish companies at the individual analyst level.

Key words: earnings forecasts, analysts, Turkish firms, forecast errors, relative optimism, serial correlation.

TÜRK ŞİRKETLERİ'NİN YILLIK KAR TAHMİNLERİNİN BİREYSEL ANALİST DÜZEYİNDEKİ ÖZELLİKLERİ

ÖZET

Bu çalışmada, analistlerin Türk şirketleri için oluşturdukları yıllık kar tahminlerinin özelliklerini inceledik. The Institutional Brokers Estimate System (I/B/E/S) verilerini kullanarak, analistlerin bireysel bazdaki tahmin hatalarını ve göreli iyimserliklerini ölçüp, bu ölçümlerin seri korelasyonlarını araştırdık. Ayni zamanda, Türk aracı şirketlerin analistleriyle, yabancı aracı şirketlerin analistlerinin tahminlerini doğruluk dereceleri açısından karşılaştırdık. Bu araştırmanın önemli bir katkısı Türk şirketleri için oluşturulan kar tahminlerinin bireysel analist düzeyinde ele alındığı ilk çalışma olmasıdır.

Anahtar kelimeler: kar tahminleri, analistler, Türk şirketleri, tahmin hataları, göreli iyimserlik, seri korelasyon.

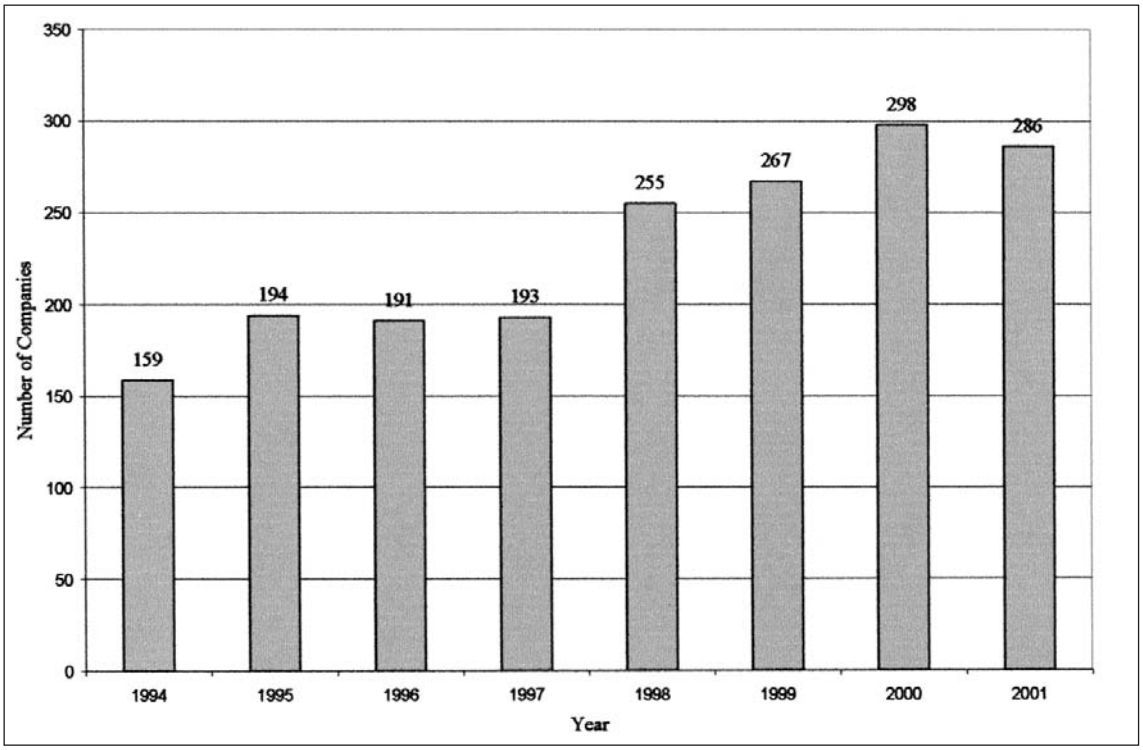
The past decade has seen substantial growth in emerging markets as investors seeking high returns and potential diversification benefits have channeled their funds into assets in these markets. Turkey, which is identified as a big emerging market by the U.S. Department of Treasury (see *Business America*, 1994), has enjoyed substantial growth in its equity market since the inception of the Istanbul Stock Exchange (ISE) in 1986. Sustained growth in the Turkish equity market and its integration with the world capital markets require the availability of timely and accurate information on company

* Murat Aydoğdu is an Assistant Professor in the Department of Finance at Bryant University, 1150 Douglas Pike, Smithfield, RI 02917-1284, U.S.A. E-mail: (maydogdu@bryant.edu)

** Hakan Saraoğlu is an Associate Professor in the Department of Finance at Bryant University, 1150 Douglas Pike, Smithfield, RI 02917-1284, U.S.A. E-mail: (saraoglu@bryant.edu)

performance. Security analysts' forecasts of company earnings are an integral part of the information set for equity investors. The role of analysts' earnings forecasts as a representative of the market's earnings expectations is well documented in the literature (see Brown, 1978; Fried and Givoly, 1982; Rendleman et al., 1982; and Brown et al., 1987). Also, analyst following is a good indicator of interest in and potential growth of an equity market. Figure 1 shows the number of Turkish companies for which analysts reported earnings forecasts to the Institutional Brokers Estimate System (I/B/E/S) for each year during the 1994-2001 period. As is apparent in Figure 1, there was a significant increase in the number of Turkish companies followed by analysts, which can be interpreted as a sign of increased interest in the Turkish equity market.

Figure 1
Number of Turkish Companies Followed by Analysts



There is a rich body of research that focuses on the characteristics of individual analysts' earnings forecasts. Tamura (2002) studies the properties of individual analyst forecasts and finds that an analyst's forecast tends to be influenced by her personality. Cooper et al., (2001) rank individual analyst forecasts and conclude that lead analyst forecasts tend to impact the markets more than the follower analyst forecasts do. On the international analyst forecast side, Firth and Gift (1999) compare the precision of consensus analyst forecasts across countries and find that estimates are more precise for eight countries compared to the U.S. consensus estimates. Allen et al., (1997) find differences in forecast errors between Pacific Basin markets and more developed capital markets. Ang and Ma (2001) document that analysts failed to anticipate the Asian financial crisis. De Bondt and Forbes (1999) find evidence for herding behavior among U.K. analysts.

We aim to accomplish a number of goals in this paper based on individual analysts' forecasts for the Turkish market. First, we want to test empirically whether the findings documented for the U.S. market regarding individual analysts' forecasts hold for the Turkish market. This is important because given that emerging markets' characteristics differ from those of the established ones, the U.S. findings do not necessarily have to hold for emerging markets. Second, we want to test whether the forecasts of Turkish brokerage houses are superior to those of the foreign brokerages. This investigation is motivated by the possibility that informational advantages may exist for the home country analysts. The plan of our study is as follows. A review of our data is provided in section one. In section two, we provide the summary statistics to measure individual earnings forecast characteristics. Then, we discuss the serial correlation in individual analyst forecast errors and the serial correlation in individual analysts' relative optimism in section three. In section four, we investigate the characteristics of individual analysts' forecasts based on the sign of actual earnings. We compare the forecast errors of analysts working for Turkish brokerage firms with the forecast errors of analysts employed by foreign brokerage houses in section five. Section six concludes.

DATA

We use the I/B/E/S International Detail History database, which includes the earnings forecasts of individual analysts. Our initial sample includes 29,361 individual analyst annual earnings forecasts (including revisions) for Turkish companies spanning the period of 1994–2001 (13,358 analyst-stock-year forecasts). We use only the latest revision from an analyst for a stock for a particular year, which leaves us with 13,358 analyst-stock-year forecasts. We remove some of these forecasts from the sample as follows: first, we compute the number of forecasts for a stock/year as well as the mean and standard deviation of these forecasts. Then, we delete a forecast from the sample if it is two standard deviations away from the mean for a stock/year, or if there are less than two forecasts for that stock/year.[1] After this filter, we compute the number of forecasts and the mean forecast again. If, after the first set of deletions, only one observation remains, then we remove it from the sample. The resulting sample has 12,673 forecasts. When we analyze serial correlation in forecast errors and relative optimism, we require that an analyst makes at least one forecast in each of any two consecutive years.

SUMMARY STATISTICS TO MEASURE INDIVIDUAL EARNINGS FORECAST CHARACTERISTICS

In order to measure relative forecast bias of analysts and test for serial correlation in forecast errors, we first compute the individual and consensus forecast errors. Following Tamura (2002), we compute the individual stock forecast error (forecast error of the analyst a in ith stock for the fiscal year end t), $FE^a_{i,t}$ as

$$FE^a_{i,t} = \frac{E_{i,t} - F^a_{i,t}}{P_{i,t}}, \qquad (1)$$

where $E_{i,t}$ is the actual earnings per share of ith stock in the fiscal year end t, $F^a_{i,t}$ is the most recent analyst's forecast, and $P_{i,t}$ is the stock price at the end of the year. In this case, a negative error reflects that the forecast was greater than the actual earnings, and hence optimistic.

In order to investigate the characteristics of individual analysts' forecasts, we calculate the individual analyst forecast error, $FE^a_{i,t}$ as suggested by Tamura (2002):

$$FE_t^a = \frac{1}{n_t^a}\sum_{j=1}^{n_t^a} FE_{j,t}^a, \qquad (2)$$

where n_t^a is the number of stocks covered by this analyst.

Another measure of the characteristics of an individual analyst is her relative optimism, which reflects how she deviates from the consensus forecast. The following equation is used to calculate the relative distance of an individual analyst's forecast to the average consensus:

$$RO_{i,t}^a = \frac{F_{i,t}^a - C_{i,t}^{-a}}{P_{i,t}}, \qquad (3)$$

where $C^{-a}_{i,t}$ is computed by excluding the analyst herself from the analyst population, thus removing her influence on the consensus. $C^{-a}_{i,t}$ is obtained as follows:

$$C_{i,t}^{-a} = \frac{1}{m_{i,t}-1}\sum_{j\neq a}^{m_{i,t}} F_{i,t}^j, \qquad (4)$$

where $m_{i,t}$ is the number of analysts following company i in year t. Average relative optimism in year t, RO^a_t, is defined for each analyst as follows:

$$RO_t^a = \frac{1}{n_t^a}\sum_{j=1}^{n_t^a} RO_{j,t}^a. \qquad (5)$$

Based on this calculation, if an analyst tends to be more optimistic than her counterparts, she will have a positive relative optimism figure.

Table 1
Descriptive Statistics of the Variables Included in the Analysis

Variable	Mean	Standard Deviation	Minimum	Maximum
FE_t^a	-0.0961	0.2926	-2.8757	0.2513
RO_t^a	0.0189	0.1415	-0.5221	2.1011
Q_t^a	2.2692	1.7624	1.0000	29.3333
A_t^a	9.6549	4.5482	1.0000	22.0000
n_t^a	16.0706	13.2881	1.0000	85.0000

FE_t^a : Individual analyst forecast error in year t,
RO_t^a : Average relative optimism in year in year t,
Q_t^a : Number of revisions per forecast by an analyst in year t,
A_t^a : Number of analysts on average that a brokerage house employs in year t,
n_t^a : Number of stocks that an analyst follows per year in the Turkish market in year t.

Table 1 presents the descriptive statistics of these variables, and Table 2 shows their correlation coefficients. In Table 1, a negative mean FE_t^a suggests that analysts' forecasts of Turkish companies tend to be optimistic. Table 1 also shows that an analyst typically submits about two revisions per forecast (Q_t^a) that a brokerage house employs about 10 analysts on average (A_t^a), and that an analyst follows about 16 stocks per year (n_t^a), in the Turkish market. Strong negative correlation between relative optimism (RO_t^a), and forecast error (FE_t^a) in Table 2 merely reflects that if analysts have high relative optimism, then their forecasts will exceed the actual earnings of the companies they are following. Table 2 also shows positive serial correlation in forecast error and relative optimism. We examine the statistical significance of these serial correlations in the next section.

Table 2
Average Correlation Coefficients for the Variables Included in the Analysis

	FE_t^a	RO_t^a	FE_{t-1}^a	RO_{t-1}^a	Q_t^a	A_t^a	n_t^a
FE_t^a	1.0000	-0.6477	0.0450	-0.1737	0.0973	-0.0848	-0.0095
RO_t^a	-0.6477	1.0000	-0.0821	0.2964	-0.0878	0.0171	-0.0457
FE_{t-1}^a	0.0450	-0.0821	1.0000	-0.3679	0.0685	0.0518	0.0032
RO_{t-1}^a	-0.1737	0.2964	-0.3679	1.0000	-0.0600	-0.0934	-0.1309
Q_t^a	0.0973	-0.0878	0.0685	-0.0600	1.0000	0.0666	0.0844
A_t^a	-0.0848	0.0171	0.0518	-0.0934	0.0666	1.0000	0.2085
n_t^a	-0.0095	-0.0457	0.0032	-0.1309	0.0844	0.2085	1.0000

FE_t^a: Individual analyst forecast error in year *t*,
RO_t^a: Average relative optimism in year *t*,
FE_{t-1}^a: Individual analyst forecast error in year *t*-1,
RO_{t-1}^a: Average relative optimism in year *t*-1,
Q_t^a: Number of revisions per forecast by an analyst in year *t*,
A_t^a: Number of analysts on average that a brokerage house employs in year *t*,
n_t^a: Number of stocks that an analyst follows per year in the Turkish market in year *t*.

SERIAL CORRELATION IN INDIVIDUAL ANALYSTS' FORECAST ERRORS AND RELATIVE OPTIMISM

An important topic of interest in analyzing the characteristics of individual analysts' earnings forecasts is serial correlation in forecast errors. In a study of the analysts' consensus forecasts of quarterly earnings, Mendenhall (1991) finds significant positive serial correlation in analysts' forecast errors, and concludes that analysts underestimate the persistence of forecast errors when revising their forecasts. Ali et al., (1992) find a tendency for analysts to provide overoptimistic estimates of annual earnings, and report that forecast errors display significantly positive serial correlation. Easterwood and Nutt (1999) examine the analysts' consensus forecasts of annual earnings, and conclude that analysts underreact to negative information while they tend to overreact to positive information. Ho (1999) and Ho and Tsay (2004) show that the analysts' forecast errors also exhibit significant positive serial correlation for Canadian and Taiwanese firms, respectively. Focusing on the earnings forecasts

of individual analysts following U.S. firms, Tamura (2002) finds significant positive serial correlation in forecast errors.

In order to test for serial correlation in the forecast errors of individual analysts following Turkish companies, we use the following regression:

$$FE_t^a = \alpha_0 + \alpha_1 FE_{t-1}^a + \varepsilon_t^a. \qquad (6)$$

A significant serial correlation in forecast errors can be interpreted as evidence that individual analysts following Turkish companies do not incorporate new information into their earnings forecasts properly. Results of the regression in Equation 6, which we report in Table 3, show that there is no serial correlation in the forecast errors of individual analysts who follow Turkish companies. Based on this finding, we cannot reject the hypothesis that individual analysts' earnings forecasts of Turkish companies are formed efficiently. Tamura (2002) finds significant serial correlation in forecast errors of individual analysts following U.S. companies and interprets this result as evidence that analysts do not incorporate new information into their earnings forecasts properly, and hence their forecasts are not efficient. The fact that we do not find similar evidence of inefficiency for the earnings forecasts of Turkish companies may be related to the differences in analysts' work environment and incentive structures.

Table 3
Serial Correlation in Individual Analysts' Forecast Errors

	Estimate	Standard Error	t Value	Pr > |t|	R^2
α_0	-.0921	.0136	-6.78	.0001	.002
α_1	.0883	.0873	1.01	.3121	

Note: We use the following regression to test for serial correlation in the forecast errors of individual analysts following Turkish companies:

$$FE_t^a = \alpha_0 + \alpha_1 FE_{t-1}^a + \varepsilon_t^a.$$

FE_t^a : Individual analyst forecast error in year t,
FE_{t-1}^a : Individual analyst forecast error in year t-1,
e_t^a : Error term.

A number of studies suggest that analysts' forecasts in the U.S. are affected by their career concerns or conflicts of interest. For example, Dugar and Nathan (1995) show that analyst exhibit greater optimism in their earnings forecasts for firms that are investment-banking clients. Lin and McNichols (1998) show that an analyst whose brokerage firm has an underwriting relationship with a stock may generate more optimistic forecasts than analysts from firms with no underwriting relationship. Hong

and Kubik (2003) find that brokerage houses reward analysts who are optimistic compared to the consensus and generate investment banking business and trading commissions. Also, several studies show evidence that analysts may produce optimistic forecasts to receive favorable treatment from the management of the companies they follow. Francis and Philbrick (1993) posit that the analysts, who operate in a multi-task environment, produce optimistic forecasts to develop or maintain management relations. Das et al. (1998) argue that for firms with less predictable earnings, analysts have more influence on the market's expectations and may produce more optimistic forecasts to obtain informational benefits from management. Lim (2001) finds that analysts show a positive bias in their earnings forecasts in order to improve management access and forecast accuracy. These findings may explain the persistence optimism of the analysts following U.S. companies, and hence the serial correlation in their forecast errors. Further research is necessary to assess the extent to which the work environment and incentive structure affect the forecasts of analysts in the Turkish market.

We also investigate serial correlation in individual analysts' relative optimism by using the following regression:

$$RO_t^a = \alpha_0 + \alpha_1 RO_{t-1}^a + \varepsilon_t^a. \qquad (7)$$

The results of this regression, which are presented in Table 4, show that analysts' relative optimism demonstrates statistically significant positive serial correlation. This finding, which is consistent with the one reported by Tamura (2002) for analysts following U.S. companies, implies that an analyst who is optimistic/pessimistic as compared to her peers tends to persist in that behavior. Tamura (2002) argues that this tendency may be attributed to the analyst's work environment.

Table 4
Serial Correlation in Individual Analysts' Relative Optimism

	Estimate	Standard Error	t Value	Pr > |t|	R^2
a_0	-.0191	.0060	3.18	.0015	.0878
a_1	.5832	.0836	6.97	.0001	

Note: We use the following regression to test for serial correlation in relative optimism of individual analysts following Turkish companies:

$$RO_t^a = \alpha_0 + \alpha_1 RO_{t-1}^a + \varepsilon_t^a.$$

RO_t^a : Average relative optimism in year t,
RO_{t-1}^a : Average relative optimism in year t-1,
e_t^a : Error term.

INDIVIDUAL ANALYSTS' FORECASTS AND THE SIGN OF ACTUAL EARNINGS

Studies that investigate analyst forecasts in the U.S. report that analysts' forecast accuracy is different for companies with positive earnings and companies that report losses (see Das, 1998; Butler and Saraoglu, 1999; and Brown, 2001). Mande et al. (2003) obtain a similar result for the forecasts of Japanese analysts. To examine whether this phenomenon also holds for the individual analysts' earnings forecasts of Turkish companies, we obtain the statistics that are presented in Table 5.
As Table 5 shows, when the forecasts and the actual earnings are positive, the average forecast error

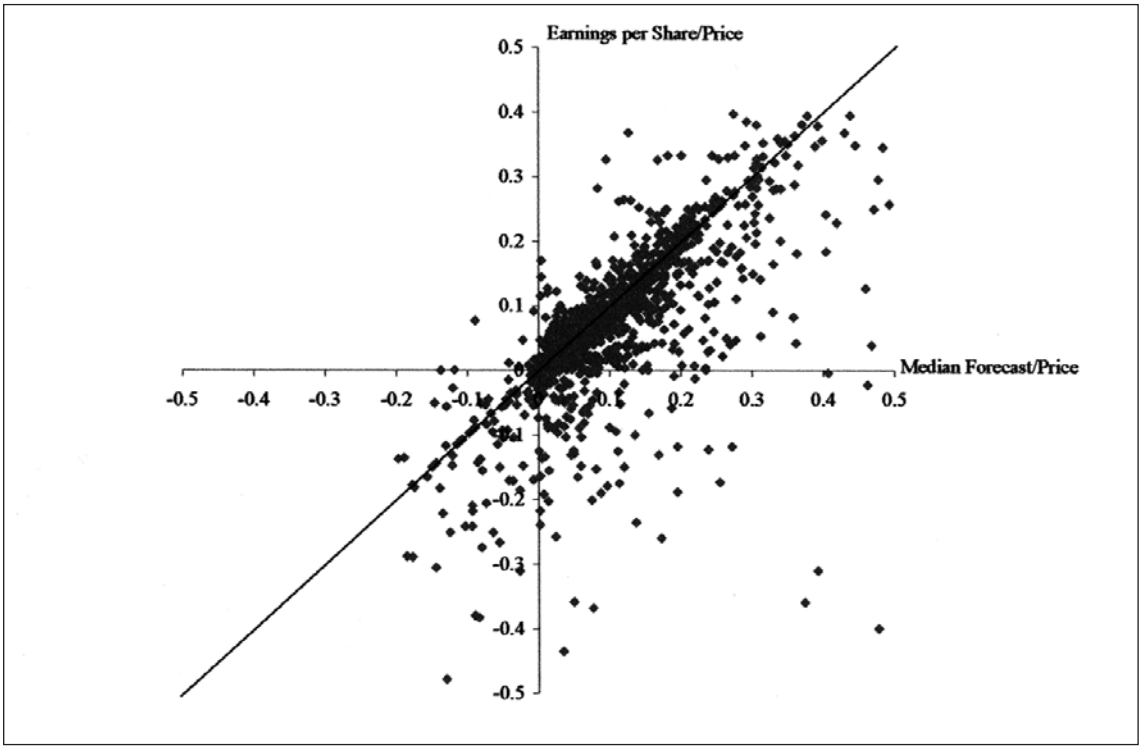
Table 5
Forecast Errors and the Sign of Earnings and Earnings Forecasts

	N	Average SE	Average FE	% Overestimate	N	Average SE	Average FE	% Overestimate
SE>0	166	.1400	0.2071	0.00	10534	.1191	-0.0236	58.70
			(5.9630)				(-11.7965)	
					966	-.4202	-0.6396	100.00
			(-4.8065)				(-11.7971)	

Note: We show summary statistics corresponding to the accuracy of forecasts in each of the four quadrants of Figure 2, including the average forecast error (FE) and the percentage of forecasts that overestimate earnings (% overestimate). SE denotes the scaled earnings per share, which is the annual earnings per share divided by the end-of-year stock price, and SF is the forecast of annual earnings per share scaled by the end-of-year stock price. We calculate FE as SE minus SF.

is -0.0236. However, the magnitude of the average forecast error is much higher when the actual earnings are negative. The average forecast error is -0.6396 when the actual earnings are negative and the analysts forecast a positive number. Analysts have an average forecast error of -0.2172 when they issue negative earnings forecasts and the actual earnings also turn out to be negative. Figure 2 also shows this distinction between the forecasts of positive earnings and those of negative earnings. Observations corresponding to positive earnings outcomes tend to be clustered symmetrically around a 45-degree line through the origin. On the other hand, observations corresponding to negative earnings outcomes lie mostly to the right of the 45-degree line, indicating that analysts' earnings forecasts for firms with losses are more optimistic than their forecasts for firms with positive earnings in the Turkish market.

Figure 2
Analysts' Earnings Forecasts versus Actual Earnings



We plot scaled annual earnings per share against scaled median consensus forecasts for a sample of observations over the period 1994-2001. The 45-degree line represents the rational expectations benchmark.

HOME COUNTRY FORECASTS

Studies in the literature report home country bias in international equity portfolios, which implies that investors hold domestic equities in proportions that are higher than the weights in the global market portfolio. Cooper and Kaplanis (1994), French and Poterba (1991), Tesar and Werner (1995) demonstrate a significant home country bias in the equity portfolios of investors. The information asymmetry hypothesis is among the different explanations of home country bias. According to the information asymmetry hypothesis, the cost of gathering information on foreign equities could hinder the ability of domestic investors to properly forecast the potential payoffs of foreign equities, which leads to a higher perceived risk of foreign equities. The result is an under-representation of foreign equities in the portfolios of domestic investors, which is called the home country bias. Chuhan (1992), Hauser et al. (1998), and Kang and Stulz (1997) provide empirical support for the information asymmetry hypothesis.

If we use the individual analysts' earnings forecasts for Turkish firms as a proxy for the forecasting ability of investors, we would expect the forecast errors of foreign investors to be greater than their Turkish counterparts based on the information asymmetry argument. In order to test if foreign investors have asymmetric information regarding Turkish equities, we use a crude classification

Table 6
Forecasts of Turkish and Foreign Brokerage Houses

Turkish Brokerage Firms		Non-Turkish Brokerage Firms	
Firm	**Forecasts**	**Firm**	**Forecasts**
Ata Menkul	1437	ABN AMRO	68
Demirbank	676	BZW Netherlands	13
Eczacıbaşı	1064	Carnegie Deutsch	165
Finansbank	622	Charterhouse	23
Garanti	2216	Cholet Dupont SA	16
Global	1459	Fleming UK	14
İktisat Bankası	870	Goldman International	22
Koçbank	110	HSBC	20
TEB Research	647	ING Baring Securities	151
TOTAL	9101	JP Morgan	8
		Kleinwort	31
		Lazard Freres	1
		Lehman (Europe)	19
		Merrill Lynch International	116
		Morgan Stanley (Europe)	39
		Natwest (Europe)	2
		Salomon Brothers International	68
		SBC Warburg (Europe)	15
		Schroder (Europe)	217
		Societe General	7
		UBS (Europe)	49
		TOTAL	1064

Note: We categorize the brokerage firms that report earnings forecasts for Turkish companies as Turkish and non-Turkish. We report the number of forecasts by each firm during the sample period of 1994-2001.

method that identifies the analysts working for Turkish brokerage firms as domestic investors and those working for non-Turkish brokerage firms as foreign investors. Table 6 shows this classification, and includes the brokerage firms that report earnings forecasts for Turkish companies as well as the number of forecasts by each firm during the sample period. We use a nonparametric median difference test to investigate whether the forecast errors are different for the Turkish and foreign brokerage firms. The median forecast errors are -0.00354 and -0.00329 for the Turkish and the foreign sample, respectively. The median test shows that the forecast errors are not statistically different for Turkish and foreign brokerage firms. When we classify the analysts as Turkish and foreign using their first and last names, we obtain the same result. The I/B/E/S database does not provide the names of the analysts for some observations. After eliminating the observations that do not include an analysts' name, we obtain a sample consisting of 3,761 forecasts, 271 (7.2%) of which are provided by foreign analysts and 3,490 (92.8%) are by Turkish analysts. The median forecast

error of the Turkish analysts is -0.00118, and is not statistically different from the median forecast error of the foreign analysts, which is -0.00070.

SUMMARY AND CONCLUSIONS

In this paper, we examine the characteristics of individual analysts' forecasts of annual earnings for Turkish companies based on a sample obtained from the I/B/E/S database of earnings forecasts. The main motivation of our study is to investigate whether some of the findings reported in the literature for earnings forecasts in other countries would apply to the earnings forecasts of Turkish companies. While we find positive serial correlation in analyst relative optimism, we do not find any significant persistence in analyst forecast errors. We also find that analysts' forecast accuracy differs among companies with positive earnings and those with losses. Additionally, we explore whether there are any significant differences in the forecast errors of analysts working for Turkish and non-Turkish brokerage firms based on the information asymmetry hypothesis. Our findings show that the median forecast errors are not different between the two groups. An important contribution of this paper is that it is the first study to focus on the earnings forecasts of Turkish companies at the individual analyst level.

NOTE

Eliminating the two-standard deviation filter does not significantly alter the results we report in the paper

REFERENCES

"The 'Big Emerging Markets' Reflect the Diversity of World Cultures but Share a Number of Attributes." (1994). *Business America*, 115, 10: 17.

Ali, A., Klein A., and Rosenfeld, J. (1992). "Analysts' Use of Information about Permanent and Transitory Earnings Components in Forecasting Annual EPS," *The Accounting Review*, 67: 183-98.

Allen, A., Cho, J.Y. and Jung, K. (1997). "Earnings Forecast Errors: Comparative Evidence from the Pacific-Basin Capital Markets," *Pacific-Basin Finance Journal*, 5: 115-129.

Ang, J.S. and Ma, Y. (2001). "The Behavior of Financial Analysts during the Asian Financial Crisis in Indonesia, Korea, Malaysia, and Thailand," *Pacific-Basin Finance Journal*, 9: 233-263.

Brown, L.D. (2001). "A Temporal Analysis of Earnings Surprises: Profits versus Losses," *Journal of Accounting Research*, 39(2): 383-416.

Brown, L.D., Hagerman, R.L., Griffin, P.A. and Zmijewski, M.E. (1987). "Security Analyst Superiority Relative to Univariate Time-Series Models in Forecasting Quarterly Earnings," *Journal of Accounting and Economics*, 9(1): 61-87.

Brown, S.L. (1978). "Earnings Changes, Stock Prices, and Market Efficiency," *Journal of Finance*, 33: 17-28.

Butler, K.C. and Saraoğlu, H. (1999). "Improving the Accuracy of Analysts' Negative Earnings Forecasts," *Financial Analysts Journal*, 55(3): 48-56.

Chuhan, P. (1992). "Sources of Portfolio Investment in Emerging Markets," Working Paper, World Bank, International Economics Department, Washington, D.C.

Cooper, I. and Kaplanis, E. (1994). "Home Bias in Equity Portfolios, Inflation Hedging, and International Capital Market Equilibrium," *The Review of Financial Studies*, 7(1): 45-60.

Cooper, R.A., Day, T.E., and Lewis, C.M. (2001). "Following the Leader: A Study of Individual Analysts' Earnings Forecasts," *Journal of Financial Economics*, 61: 383-416.

Das, S. (1998). "Financial Analysts' Earnings Forecasts For Loss Firms," *Managerial Finance*, 24(6): 39-50.

Das, S., Levine, C.B., and Sivaramakrishnan, K. (1998). "Earnings Predictability and Bias in Analysts' Earnings Forecasts," *Accounting Review*, 73: 277-294.

De Bondt, W.F.M. and Forbes, W.P. (1999). "Herding in Analyst Earnings Forecasts: Evidence from the United Kingdom," *European Financial Management*, 5: 143-163.

Dugar, A. and Nathan, S. (1995). "The Effects of Investment Banking Relationships on Financial Analysts' Earnings Forecasts and Investment Recommendations," *Contemporary Accounting Research,* 12(1): 131-160.

Easterwood, J.C. and Nutt, S.R. (1999). "Inefficiency in Analysts' Earnings Forecasts: Systematic Misreaction or Systematic Optimism?" *Journal of Finance*, 54(5): 1777-97.

Firth, M. and Gift, M. (1999). "An International Comparison of Analyst Earnings Forecast Accuracy," *International Advances in Economic Research*, 5: 56-64.

Francis, J. and Philbrick D. (1993). "Analysts' Decisions as Products of a Multi-Task Environment," *Journal of Accounting Research*, 31(2): 216-230.

French, K.R. and Poterba, J.M. (1991). "International Diversification and International Equity Markets," *American Economic Review*, 81: 222-226.

Fried, D. and Givoly, D. (1982). "Financial Analysts' Forecasts of Earnings: A Better Surrogate for Market Expectations," *Journal of Accounting and Economics*, 4: 85-107.

Hauser, S., Tanchuma, Y. and Yaari, U. (1998). "International Transfer of Pricing Information between Dually Listed Stocks," *Journal of Financial Research*, 21: 139-157.

Ho, L.J. (1999). “An Empirical Examination of the Properties Associated with Canadian Analysts' Earnings Forecasts,” *Journal of Accounting and Business Research*, 7: 21-36.

Ho, L.J. and Tsay J. (2004). “Analysts' Forecasts of Taiwanese Firms' Earnings: Some Empirical Evidence,” *Review of Pacific Basin Financial Markets and Policies*, 7(4): 571-597.

Hong, H. and Kubik, J.D. (2003). “Analyzing the Analysts: Career Concerns and Biased Earnings Forecasts,” *Journal of Finance*, 58(1): 313-351.

Kang, J. and Stulz R.M. (1997). “Why Is There a Home Bias? An Analysis of Foreign Portfolio Equity Ownership in Japan,” *Journal of Financial Economics*, 46: 3-28.

Lim, T. (2001). ”Rationality and Analysts’ Forecasts Bias,” *Journal of Finance*, 56(1): 369-385.

Lin, H. and McNichols, M.F. (1998). “Underwriting Relationships, Analysts’ Earnings Forecasts and Investment Recommendations,” *Journal of Accounting and Economics*, 25: 101-127.

Mande, V., Wohar, M.E. and Ortman, R.F. (2003). “An Investigation of Asymmetric Earnings Forecasts of Japanese Financial Analysts,” *Multinational Business Review*, 11(1): 13-43.

Mendenhall, R.M. (1991). “Evidence on the Possible Underweighting of Earnings-Related Information,” *Journal of Accounting Research*, 29(1): 170-179.

Rendleman, R.J., Jones, C.P. and Latane, H.A. (1982). “Empirical Anomalies Based on Unexpected Earnings and the Importance of Risk Adjustments,” *Journal of Financial Economics*, 10: 269-287.

Tamura H. (2002). “Individual-Analyst Characteristics and Forecast Error,” *Financial Analysts Journal,* 58(4): 28-35.

Tesar, L.L. and Werner, I.M. (1995). “Home Bias and High Turnover,” *Journal of International Money & Finance,* 14: 467-492.