# An Investigation Of The Comparative Accuracy And Bias Of Equity Securities Analysts East And West European Firms Earnings Forecasts

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**ABSTRACT**

*This research investigates the comparative accuracy and bias of West European and East European firms equity securities analysts earnings forecasts for 29 European countries 12 of which are characterized as being East European. We utilize measures of equity securities analysts earnings forecast accuracy and bias in making comparisons of the statistical properties of earnings forecasts for firms having domiciles in East European and West European countries. Our results indicate that securities analysts earnings forecasts for companies domiciled with East European countries display larger forecast error and greater degree of optimistic forecast bias. Our results persist after controlling for cross-listing of ADRs on US securities exchanges. We generalize our results using the growing literature on the ever-changing characteristics of the Russian people, Russian business professionals and the rapidly evolving Russian stock market and the transitional Russian political economy.*

## INTRODUCTION

Beckers, Steliaros and Thomsen (2004) conducted research on Bias in European analysts' earnings forecasts. They found an optimistic bias on the part of analysts when they forecast corporate earnings of European listed companies. There findings are consistent with Capstaff, Paudyal, and Rees (1995) who found that analyst forecasts of United Kingdom firm earnings have a persistent optimism. This optimism has also been found in research on earnings forecasts of United States firms by Dreman and Berry (1995). Capstaff (1998) found this persistent optimism also for German firms.

We extend prior research to compare analyst earnings forecast errors for East European firms as compared to West European firms. We find in our research that East European firms, when compared to Western European firms, have analyst earnings forecasts that are both less accurate and more biased in an optimistic direction. We surmise that when analysts are forecasting the earnings of firms with a West European domicile, analysts are using many information sources of a Western European origin. In parallel, we also surmise that when analysts are forecasting the earnings of firms of Eastern European origin they are using many information sources of a Eastern European origin. Western European information sources necessarily are influenced and even determined by the idiosyncratic characteristics of Western Europeans. Similarly Eastern European information sources necessarily are influenced and determined by the idiosyncratic characteristics of Eastern Europeans.

In this next section we will explore the existing literature to explore the idiosyncratic characteristics of Eastern European peoples and cultures to explore reason to believe that there is evidence of a greater persistent optimism in Eastern Europe. This will be done to provide possible explanations why we find a stronger optimistic bias to earnings forecasts of the earnings of Eastern European firms. Also in the next section we will provide some

citations to the literature to document that the short history of the European stock markets and the many difficulties of the evolving Eastern European economic institutions might provide some measure of a logical explanation for why analysts'' earnings forecasts of Eastern European firms are less accurate overall than those for Western European Firms.

## LITERATURE REVIEW AND POSSIBLE EXPLANATION FOR OUR EMPIRICAL REGULARITIES

In this section we will interchangeably refer to Eastern Europeans a Russians, just as much of the literature does. John M. Joyce (1984) wrote in a foreign affairs journal (late in the history of the Soviet Union) an article in which he attempted to help Americans understand Russians better. He argued "Americans must come to a better understanding of the psychological bases underlying Soviet society --- more precisely, the psychological bases underlying the societies of the Slavic peoples who generally make the decisions in the Soviet state." He stated that Russian behavior in their society is governed by a highly developed aversion to risk and an intense preoccupation with economic and political security. As a result, he claimed that Soviet society has structured itself to reduce political and economic risk for the individual. Further Joyce concluded that Russians have a bleak view of life because of a harsh history and climate with risk assessment and risk avoidance necessary. Russians are humble and consistent with Russian Orthodox teaching and accept their fate.

What about today? Mark Locus, an Eastern European, writes in 2001 to warn against viewing Slavic people, "according to stereotype – as fatalists." Locus defines fatalism as the view that a choice can not affect an outcome. He distinguishes those choices an eastern European might make that do change outcomes from those that cannot change outcomes. We would observe that since the end of the Soviet Union, Eastern Europeans increasingly find their choices do affect outcomes and that Slavic fatalism has faded, evolving to a growing optimism.

Joyce (1984) stressed the importance of risk assessment and avoidance for the Soviet man. In 2004 three Russian insurance professionals, (Yelokhin, Sizov, and Tshovrebov) stated "There do not exist acceptable risk criteria of any industrial activity in Russia." They attempted to establish the beginnings of such a standard using international norms. Thus we observe Russians now profiting from accepting risk, instead of avoiding it. Blakeley (2002) an American working in post-Soviet Siberia stated that he found Russian businessmen are more creative and willing to take risks than American businessmen. Stewart, Carland, Carland, Watson, Sweo (2003) found in a controlled study that the risk propensity of United States income-focused entrepreneurs was "not significantly higher" than that of similarly focused Russian entrepreneurs.

There is evidence that suggests that improving attitudes about the future are fueling the new Russian optimism. A Public Opinion Foundation scientific poll (2007) "found a significant change when it comes to the public's impression of the Russian economy." A 2005 Pew Global Attitudes Project found that 45% of Russians were an optimist when, "Optimism is calculated by subtracting a respondent's current position on the ladder of life from his/her expected position five years from now." Only 16% of Russians were considered to a pessimist. The remaining were either neutral, or didn't know. There is additional evidence on the growing optimism unleashed with the end of the Soviet Union. Knox-Voina (1997) noted that, "judging by a number of films screened the past two years at the Sochi International Film Festivals, thus a new trend of optimism has emerged in Russian film.

What kind of characteristics are behind the improvement in Russia? Gratchev, Rogovsky, and Ratitski, have uncovered certain advantageous characteristics of Russian managers in their 2006 study on leadership and culture in the Russian transitional economy. These characteristics are, "courage and ability to launch large-scale projects, decisiveness," and they conclude the "ability to make react quickly and operate in unstable environment." If the above growing Russian optimism might contribute to an explanation of the more positively skewed Eastern European earnings forecasts, it is to the above mentioned transitional economy that we might look for some explanation of why Eastern European firms tend to have less accurate earnings forecasts.

Boyarshinov (2006) noted that, "Distinctive features of the Russian stock market are its short period of existence (in comparison to European markets) instability (even over such a short period of time) and strong dependence on the political situation. Mobius (1996) observes "the pains of Russia's transition in its economic

performance." Obviously a start-up capitalist economy is likely a more difficult environment in which to forecast earnings. Nonetheless, our results are consistent with Gannon [2002, p. 129] in that Russians seem initially to take extreme views and as observed by Blakely [2002, p. 145] are more comfortable with risk, and thus perhaps more economically enthusiastic than justified. The end result with Russia as observed by Brady, can be that "reality would prove harsher than expected or hoped." Finally it may just be a combination of the fact that equity valuation in Russia is just more challenging, less precise, and difficult due to the underling transition nature of the entire Russian economy as reported by Gustafson [1999, p. 173]. Transition economy or not, Yergin and Gustafson [1995, p. 213] tell us of a man who claims, "Khrushchev was right. We will overtake you, we will catch up, but not as socialists"

## RESEARCH DESIGN AND EMPIRICAL METHOD

**Table 1**
**Distribution of IBES International Detail Country of Domicile Over East European and West European Geographic Regions**

| Total Europe | Western Europe | Eastern Europe |
|---|---|---|
| Austria | Austria | Croatia |
| Belgium | Belgium | Czech Republic |
| Croatia | Denmark | Estonia |
| Czech Republic | Finland | Hungary |
| Denmark | France | Latvia |
| Estonia | Germany | Lithuania |
| Finland | Greece | Poland |
| France | Ireland | Romania |
| Germany | Italy | Russia |
| Greece | Luxembourg | Slovakia |
| Hungary | Netherlands | Slovenia |
| Ireland | Norway | Ukraine |
| Italy | Portugal | |
| Latvia | Spain | |
| Lithuania | Sweden | |
| Luxembourg | Switzerland | |
| Netherlands | Turkey | |
| Norway | | |
| Poland | | |
| Portugal | | |
| Romania | | |
| Russia | | |
| Slovakia | | |
| Slovenia | | |
| Spain | | |
| Sweden | | |
| Switzerland | | |
| Turkey | | |
| Ukraine | | |

| IBES Forecasts | Total Europe | West Europe | East Europe |
|---|---|---|---|
| **Total Countries** | **Countries: 29** | **Countries:17** | **Countries:12** |

**Table 2**
**Distribution of Sample Firms Over West European and East European Geographic Regions**

| Source | Europe | West Europe | East Europe |
|---|---|---|---|
| IBES | Firms: 6744 | Firms: 4892 | Firms: 1852 |
| **Total** | **Firms: 6744** | **Firms: 4892** | **Firms: 1852** |

The empirical method utilized in this research identifies non U.S. country of domicile firms from the 2003 *Investment Brokers Estimate Service* International Detail database. We employ firms having non-missing annual earnings forecasts and historical earnings data for years 1999-2002 for firms domiciled in 29 countries from the European continent geographic region. The distribution of the 29 IBES firm country of domicile over the East European and West European geographic regions is shown in Table 1. Table No. 2 shows the distribution of the sample firms individually across the Eastern Europe and Western Europe geographic regions.

The purpose the this research study is to describe differences in the behavior of the statistical properties of equity securities analysts earnings forecasts across European countries of domicile as between geographic regions characterized as Eastern Europe and Western Europe. We utilize a variation of the traditional rational expectations earnings forecast model wherein the current period earnings forecast error is dependent upon the current period earnings change (i.e., a random walk earnings expectation). As a result, the dependent variable which we utilize in this research study is analysts earnings forecast error and taking two forms as in the extant research literature: [1]

- *Forecast Accuracy [Region]*$_i$: *Forecast Accuracy* is the absolute value of the earnings forecast error, and;
- *Forecast Bias [Region]*$_i$ : *Forecast Bias* is the algebraic signed value of the earnings forecast error.

The independent variables used to explicitly control for other factors which may systematically impact the dependent variables of interest in addition to East European and West European country of domicile are described below:

- $Cross_i$ : An integer valued qualitative variable used to capture the effect of firms having cross-listed securities such are ADRs in a US securities exchange.
- $Year_i$ : An integer valued index to capture factors impacting sample countries and firms which are attributable to attributable to specific years.
- $Industry_i$ : An integer valued index to capture factors impacting sample countries and firms which are attributable to attributable to specific industries.
- $Num_i$ : Number of equity security analysts contributing annual earnings forecasts to the composite forecast for $i^{th}$ European sample firm employed in this sample.
- $StdError_i$ : Inter-analyst dispersion of earnings forecasts contributed by equity securities analysts for for $i^{th}$ European sample firm employed in this sample.
- $UE_i$: A real valued quantitative variables taking a value equal to change in annual earnings from the previous year of the $i^{th}$ European sample firm employed in this sample.
- *D[Region]*$_i$: An integer valued qualitative variable taking a value of one if the country of domicile of the $i^{th}$ sample firm is uniquely from one of the former Soviet republics employed in this sample and is assigned a value of zero otherwise. Research design in this manner allows for the intercept of the regression model to systematically differ between the West European and East European

[1]. Forecast accuracy measures the distance of the analysts earnings forecast from the actual reported earnings figure and forecast bias captures the tendency for analysts earnings forecasts to be greater than zero. Consequently, this research study investigates whether analysts earnings forecasts systematically differ between East European and West European based upon differences in the tendency of analysts earnings forecasts errors to be (1) different from zero, and (2) greater than zero.

subsets in a manner systematically impacting the statistical results.

- *X[Region]$_i$*: A real valued quantitative variable taking a value of $UE_i$ if the country of domicile of the i$^{th}$ sample firm is from one of the former Russian republics employed in this sample and is assigned a value of zero otherwise. Research design in this manner allows for the $UE_i$ slope coefficient of the regression model to systematically differ between the West European and East European subsets in a manner systematically impacting the statistical results..

Table No.3 shows the mean and median values for each of the dependent variables employed in the empirical analyses (in absolute value and algebraic form). The data values are shown by the East European and West European geographic regions employed in the research study for comparative purposes. In addition, values of the Kruskal-Wallis Chi-Square test statistic are shown and the related probability values under the null hypothesis of the equality of means across Eastern Europe and Western Europe geographic regions. For each data variable the null hypothesis of equality of means across East European and West European geographic regions is rejected at the $\alpha$=0.05 confidence level using two-tailed Chi-Square Kruskal-Wallis tests. Consequently, we note that the data values differ significantly across Eastern Europe and Western Europe geographic regions employed in this research study.

**Table 3**
**Descriptive Statistics for IBES Country Of Domicile Analysts Earnings Forecasts Data By Five Geographic Regions**

| Data/Region | All Europe | West Europe | East Europe | KW Chi Square |
|---|---|---|---|---|
| Accuracy$_i$: Mean | 0.69876 | 0.7101917 | 0.5271744 | 24.9696 |
| Median | 0.30625 | 0.3125000 | 0.2203150 | 0.0001$^{\dagger}$ |
| N | 11367 | 10657 | 710 | |
| Bias$_i$: Mean | -0.50833 | -0.5201358 | -0.3311708 | 16.0584 |
| Median | -0.14141 | -0.1507660 | -0.0744420 | 0.0001$^{\dagger}$ |
| N | 11367 | 10657 | 710 | |
| UE[Alg]$_i$: Mean | -0.22918 | -0.2307055 | -0.2049606 | 0.4969 |
| Median | 0.06624 | 0.0675415 | 0.0393385 | 0.4808 |
| N | 11704 | 11010 | 694 | |
| UE[Abs]$_i$: Mean | 0.7507628 | 0.7513998 | 0.7406571 | 0.0471 |
| Median | 0.4137930 | 0.4137930 | 0.4104170 | 0.8282 |
| N | 11704 | 11010 | 694 | |

$^{\dagger}$: Implicit null hypothesis that the particular variables are equal across geographic regions is rejected at the $\alpha$=0.05 confidence level using two-tailed Chi-Square Kruskal-Wallis tests. Values of the Kruskal-Wallis Chi-Square test statistic are shown and the related probability values are indicated directly below.

The dependent and independent control variables discussed previously are utilized in regression analyses assessing systematic differences in the statistical association between analysts earnings forecast error and forecast bias and actual earnings changes for European countries of domicile between Eastern Europe and Western Europe. Analysts earnings forecast error and forecast bias appear as dependent variables in two regression equations. Each of the two regression equations is analyzed using three specifications integrating Eastern Europe and Western Europe country of domicile parameter estimation constraints in order to illustrate the sensitivity of the results to specification.

Model (1) through Model (3) utilize analysts earnings forecast accuracy as the dependent variable and are shown immediately below. For Model (1) both the intercept and earnings change slope coefficients are constrained to being the same for Eastern Europe and Western Europe country of domicile geographic regions. For Model (2) the intercept is permitted to vary between the Eastern Europe and Western Europe country of domicile geographic regions but earnings change slope coefficients are constrained to being equal for both geographic regions. For Model (3) both the intercept and earnings change slope coefficients are allowed to vary between Eastern Europe and Western Europe country of domicile geographic regions.

**Model (1) $H_{01}$: $a_6 = 0$ (Benchmark) at the $\alpha$=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Accuracy_i = a_0 + a_1 \cdot Cross_i + a_2 \cdot Year_i + a_3 \cdot Industry_i + a_4 \cdot Num_i + a_5 \cdot StdError_i + a_6 \cdot UE_i + \upsilon_i$$

**Model (2) Intercept Dummy Variable $H_{01}$: $b_7 = 0$ at the $\alpha$=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Accuracy_i = b_0 + b_1 \cdot Cross_i + b_2 \cdot Year_i + b_3 \cdot Industry_i + b_4 \cdot Num_i + b_5 \cdot StdError_i + b_6 \cdot UE_i + b_7 \cdot D[Region]_i + v_i$$

**Model (3) Slope and Intercept Dummy $H_{02}$: $c_7 = 0$ and $c_8 = 0$ at the $\alpha$=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Accuracy_i = c_0 + c_1 \cdot Cross_i + c_2 \cdot Year_i + c_3 \cdot Industry_i + c_4 \cdot Num_i + c_5 \cdot StdError_i + c_6 \cdot UE_i + c_7 \cdot D[Region]_i + c_8 \cdot X[Region]_i + w_i$$

Across the three regression specifications the coefficients of primary interest pertain to the differential magnitude of forecast accuracy and the degree of association between magnitudes of earnings changes and earnings forecast accuracy (i.e., $b_7$, $c_7$, and $c_8$) and in all cases the significance of the coefficient is statistically tested using two-tailed hypotheses tests of the null hypothesis that the coefficient is equal to zero. If the null hypothesis is rejected the result provides an indication that analysts earnings forecast accuracy is larger or smaller (i.e., depending on whether the estimated coefficient is greater than zero or less than zero) between East European and West European countries of domicile.

Model (4) through Model (6) utilize analysts earnings forecast bias as the dependent variable and are shown immediately below. In Model (4) both of the regression intercept and earnings change slope coefficients are required to be equal between Eastern Europe and Western Europe geographic regions. For Model (5) the intercept coefficient is permitted to take different values over the between Eastern Europe and Western Europe geographic regions but earnings change slope coefficients are required to be the same between Eastern Europe and Western Europe geographic regions. In Model (6) both the intercept and earnings change slope coefficients are allowed to take different values over both Eastern Europe and Western Europe geographic regions.

In these regression specifications the coefficient of primary interest pertains to systematic differences in the magnitude of earnings forecast bias and degree of association of earnings forecast bias with earnings changes (i.e., $b_7$, $c_7$, and $c_8$) between Eastern Europe and Western Europe geographic regions and in all cases the significance of the coefficient is statistically tested using two-tailed hypotheses tests of the null hypothesis that the coefficient is equal to zero. Rejecting the null hypothesis provides an indication that analysts earnings forecast bias is either larger or smaller (i.e., is either more or less associated with the tendency of earnings forecast errors to be greater than zero) in relation to country of domicile Eastern Europe and Western Europe geographic regions.

**Model (4) $H_{04}$: $a_6 = 0$ (Benchmark) at the $\alpha$=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Bias_i = a_0 + a_1 \cdot Cross_i + a_2 \cdot Year_i + a_3 \cdot Industry_i + a_4 \cdot Num_i + a_5 \cdot StdError_i + a_6 \cdot UE_i + \upsilon_i$$

**Model (5) Intercept Dummy Variable $H_{03}$: $b_7 = 0$ at the $\alpha$=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Bias_i = b_0 + a_1 \cdot Cross_i + b_2 \cdot Year_i + b_3 \cdot Industry_i + b_4 \cdot Num_i + b_5 \cdot StdError_i + b_6 \cdot UE_i + b_7 \cdot D[Region]_i + v_i$$

**Model (6) Slope and Intercept Dummy $H_{04}$: $c_7 = 0$ and $c_8 = 0$ at the $\alpha$=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Bias_i = c_0 + c_1 \cdot Cross_i + c_2 \cdot Year_i + c_3 \cdot Industry_i + c_4 \cdot Num_i + c_5 \cdot StdError_i + c_6 \cdot UE_i + c_7 \cdot D[Region]_i + c_8 \cdot X[Region]_i + w_i$$

## STATISTICAL MODEL ESTIMATION AND RESULTS OF HYPOTHESIS TESTS

**Table 4**
**Results of Cross-Sectional Analysts Earnings Forecast Accuracy Regression With And Without East European Geographic Region Constraints**

| Coefficients For Independent Variables | **Model 1: $R^2$= 0.3040 (DF = 1,771)** | **Model 2: $R^2$=0.3047 (DF = 1,771)** | **Model 3: $R^2$=0.3069 (DF = 1,771)** |
|---|---|---|---|
| Intercept | 1.37971 (6.65) † | 1.42497 (6.81) † | 1.44726 (6 93) † |
| $Cross_i$ : Coefficient Cross Listing Qualitative Variable | 0.03260 (0.39) | 0.04595 (0.55) | 0.03676 (0.44) |
| $Year_i$: Coefficient Annual Qualitative Variable | -0.06409 (-5.30)† | -0.06644 (-5.48)† | -0.06688 (-5.50)† |
| $Industry_i$: Coefficient Two-Digit SIC Indicator | 0.000109 (0.14) | 0.00011889 (0.16) | 0.00010172 (0.13) |
| $Num_i$ : Coefficient Number Of Analysts | -0.03628 (-2.37)† | -0.03702 (-2.40)† | -0.03735 (-2.45)† |
| $StdError_{ii}$: Coefficient InterAnalyst Dispersion | 0.02036 (0.96)† | 0.020480 (0.96)† | 0.01838 (0.87)† |
| $UE_i$: Coefficient Unexpected Earnings | 0.52827 (27.07)† (1)‡ | 0.52905 (27.11)† (1)‡ | 0.51367 (25.23)† (1)‡ |
| $D[Region]_{i\,i}$: Differential Coefficient East Europe Unexpected Earnings | [Not Applicable] | -0.11 812 (-1.61) | -0.27774 (-2.91)† (2)‡ |
| $X[Region]_i$: Differential Coefficient East Europe Unexpected Earnings | [Not Applicable] | [Not Applicable] | 0.18334 (2.91)† (3)‡ |

a: $D[Region]_i$: An integer valued qualitative variable taking a value of one if the country of domicile of the $i^{th}$ sample firm is uniquely from one of the former Russian republics employed in this sample and is assigned a value of zero otherwise.

*b:* $X[Region]_i$: A real valued quantitative variable taking a value of $UE_i$ if the country of domicile of the $i^{th}$ sample firm is from one of the former Russian republics employed in this sample and is assigned a value of zero otherwise.

†: Null implicit null hypothesis that the coefficient is equal to zero is rejected at the α=0.05 confidence level using two-tailed t-tests. The critical t-statistic value for the two-tailed t-tests is $|t|$ = 1.95.

‡: The specified null hypothesis (shown below) rejected at the α=0.05 confidence level using one-tailed t-tests, two-tailed t-tests, one-tailed F-tests, or two-tailed F-tests as is appropriate in the particular circumstances. Related probability values for each test are shown parenthetically.

**Model (1) $H_{01}$: $a_6 = 0$ (Benchmark) at the α=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Accuracy_i = a_0 + a_1 \cdot Cross_i + a_2 \cdot Year_i + a_3 \cdot Industry_i + a_4 \cdot Num_i + a_5 \cdot StdError_i + a_6 \cdot UE_i + \upsilon_i$$

**Model (2) Intercept Dummy Variable $H_{02}$: $b_7 = 0$ at the α=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Accuracy_i = b_0 + a_1 \cdot Cross_i + b_2 \cdot Year_i + b_3 \cdot Industry_i + b_4 \cdot Num_i + b_5 \cdot StdError_i + b_6 \cdot UE_i + b_7 \cdot D[Region]_i + v_i$$

**Model (3) Slope and Intercept Dummy $H_{03}$: $c_7 = 0$ and $c_8 = 0$ at the α=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Accuracy_i = c_0 + c_1 \cdot Cross_i + c_2 \cdot Year_i + c_3 \cdot Industry_i + c_4 \cdot Num_i + c_5 \cdot StdError_i + c_6 \cdot UE_i + c_7 \cdot D[Region]_i + c_8 \cdot X[Region]_i + w_i$$

**Table 5**
**Results of Cross-Sectional Analysts Earnings Forecast Bias Regression With And Without East European Geographic Region Constraints**

| Coefficients For Independent Variables | **Model 1: $R^2$= 0.2779 (DF = 1,771)** | **Model 2: $R^2$=0.2786 (DF = 1,771)** | **Model 3: $R^2$=0.2825 (DF = 1,771)** |
|---|---|---|---|
| Intercept | -1.60116<br>(-6.65) † | -1.65399<br>(-6.81) † | -1.64927<br>(-6 81) † |
| $Cross_i$ : Coefficient Cross Listing Qualitative Variable | 0.03575<br>(0.37) | 0.02047<br>(0.21) | 0.02832<br>(0.29) |
| $Year_i$: Coefficient Annual Qualitative Variable | 0.07533<br>(5.35)† | 0.07805<br>(5.50)† | 0.07699<br>(5.44)† |
| $Industry_i$: Coefficient Two-Digit SIC Indicator | -0.00094419<br>(-1.07) | -0.00095626<br>(-1.09) | -0.00087365<br>(-0.99)† |
| $Num_i$ : Coefficient Number Of Analysts | 0.01869<br>(1.05)† (1)‡ | 0.1953<br>(1.10)† (1)‡ | 0.02069<br>(1.16)† (1)‡ |
| $StdError_{ii}$: Coefficient InterAnalyst Dispersion | -0.00684<br>(-0.28)† (1)‡ | -0.00697<br>(-0.28)† (1)‡ | -0.00506<br>(-0.21)† (1)‡ |
| $UE_i$: Coefficient Unexpected Earnings | 0.43185<br>(25.42)† (1)‡ | 0.43268<br>(25.47)† (1)‡ | 0.41690<br>(23.67)† (1)‡ |
| $D[Region]_{i\,i}$: Differential Coefficient East Europe Unexpected Earnings | [Not Applicable] | 0.13674<br>(1.60) | 0.20501<br>(2.34)† (2)‡ |
| $X[Region]_i$: Differential Coefficient East Europe Unexpected Earnings | [Not Applicable] | [Not Applicable] | 0.21091<br>(3.28)† (3)‡ |

a: $D[Region]_i$: An integer valued qualitative variable taking a value of one if the country of domicile of the $i^{th}$ sample firm is uniquely from one of the former Russian republics employed in this sample and is assigned a value of zero otherwise.
*b:* $X[Region]_i$: A real valued quantitative variable taking a value of $UE_i$ if the country of domicile of the $i^{th}$ sample firm is from one of the former Russian republics employed in this sample and is assigned a value of zero otherwise.
†: Null implicit null hypothesis that the coefficient is equal to zero is rejected at the α=0.05 confidence level using two-tailed t-tests. The critical t-statistic value for the two-tailed t-tests is $|t| = 1.95$.

‡: The specified null hypothesis (shown below) rejected at the α=0.05 confidence level using one-tailed t-tests, two-tailed t-tests, one-tailed F-tests, or two-tailed F-tests as is appropriate in the particular circumstances. Related probability values for each test are shown parenthetically.

**Model (4) $H_{04}$: $a_6 = 0$ (Benchmark) at the α=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Bias_i = a_0 + a_1 \cdot Cross_i + a_2 \cdot Year_i + a_3 \cdot Industry_i + a_4 \cdot Num_i + a_5 \cdot StdError_i + a_6 \cdot UE_i + \upsilon_i$$

**Model (5) Intercept Dummy Variable $H_{05}$: $b_7 = 0$ at the α=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Bias_i = b_0 + a_1 \cdot Cross_i + b_2 \cdot Year_i + b_3 \cdot Industry_i + b_4 \cdot Num_i + b_5 \cdot StdError_i + b_6 \cdot UE_i + b_7 \cdot D[Region]_i + v_i$$

**Model (6) Slope and Intercept Dummy $H_{06}$: $c_7 = 0$ and $c_8 = 0$ at the α=0.05 confidence level (Two-Tailed t-Test).**

$$Forecast\ Bias_i = c_0 + c_1 \cdot Cross_i + c_2 \cdot Year_i + c_3 \cdot Industry_i + c_4 \cdot Num_i + c_5 \cdot StdError_i + c_6 \cdot UE_i + c_7 \cdot D[Region]_i + c_8 \cdot X[Region]_i + w_i$$

**Table 6**
**Summary Of Hypotheses Tests**

**Figure 1**
**Analysts Earning Forecast Accuracy: Comparison of West European and East European Countries Of Domicile**

| Model/Hypothesis | $H_{01}$: $a_6 = 0$ (Benchmark) | Intercept Dummy Variable $H_{02}$: $b_7 = 0$ | Slope and Intercept Dummy $H_{03}$: $c_7 = 0$ and $c_8 = 0$ |
|---|---|---|---|
| **Model (1)** | **Reject** at the α=0.05 confidence level (Two-Tailed t-Test). | [Not Applicable] | [Not Applicable] |
| **Model (2)** | **Reject** at the α=0.05 confidence level (Two-Tailed t-Test). | **Not Reject** at the α=0.05 confidence level (Two-Tailed t-Test). | [Not Applicable] |
| **Model (3)** | **Reject** at the α=0.05 confidence level (Two-Tailed t-Test). | **Reject** at the α=0.05 confidence level (Two-Tailed t-Test). | **Reject** at the α=0.05 confidence level (Two-Tailed t-Test). |

**Figure 2**
**Analysts Earning Forecast Bias: Comparison of West European and East European Countries Of Domicile**

| Model/Hypothesis | $H_{04}$: $a_6 = 0$ (Benchmark) | Intercept Dummy Variable $H_{05}$: $b_7 = 0$ | Slope and Intercept Dummy $H_{06}$: $c_7 = 0$ and $c_8 = 0$ |
|---|---|---|---|
| **Model (4)** | **Reject** at the α=0.05 confidence level (Two-Tailed t-Test). | [Not Applicable] | [Not Applicable] |
| **Model (5)** | **Reject** at the α=0.05 confidence level (Two-Tailed t-Test). | **Not Reject** at the α=0.05 confidence level (Two-Tailed t-Test). | [Not Applicable] |
| **Model (6)** | **Reject** at the α=0.05 confidence level (Two-Tailed t-Test). | **Reject** at the α=0.05 confidence level (Two-Tailed t-Test). | **Reject** at the α=0.05 confidence level (Two-Tailed t-Test). |

Table No.4 shows the empirical model estimation and statistical results for Model (1) through Model (3) utilizing analysts earnings forecast accuracy as the dependent variable.[2] The most striking result is that the East European country of domicile firms appear to have overall smaller earnings forecast errors, however, the statistical association between magnitudes of actual earnings changes and magnitudes of earnings forecast errors increases for these firms – indicating that a given earnings change increases the related earnings forecast error. Although $H_{01}$ is not rejected, $H_{02}$ is rejected at the at the α=0.05 confidence level using two-tailed t-tests. We conclude from these statistical results that the analysts have a more difficult task forecasting earnings for East European firms and is probably attributable less rapid implementation of more uniformly acceptable accounting practices such as IFRS.

Table No.5 shows the empirical model estimation and statistical results for Model (4) through Model (6) utilizing analysts earnings forecast bias as the dependent variable.[3] The particularly noteworthy point for this study

[2] . Model adjusted R-Squares range from 30.40% for Model (1) to 30.69% for Model (3). The impact of not constraining the intercept and earnings change coefficients to the same values for Eastern Europe and Western Europe geographic regions is a modest increase in model explanatory power.

[3] . Model adjusted R-Squares range from 27.79% for Model (4) to 28.75% for Model (6). The impact of not constraining the intercept and earnings change coefficients to the same values for all geographic regions is an increase in model explanatory power.

is that the coefficients for the East European country of domicile firms are positive indicating that the tendency for earnings forecasts to be too large is more pronounced for East European firms. Although $H_{04}$ pertaining to Model (5) is not rejected at the at the $\alpha$=0.05 confidence level using two-tailed t-tests, $H_{05}$ pertaining to Model (6) is rejected at the at the $\alpha$=0.05 confidence level using two-tailed t-tests. We conclude from these statistical results that we find statistical evidence that the optimistic bias of analysts earnings forecasts being more pronounced fir East European firms vis-a-viz West European firms, a result which is probably attributable to less rapid implementation of uniformly accepted accounting principles such as IFRS.

## CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

The purpose of this research is to describe differences in the analysts earnings forecast accuracy and bias between firms having countries of domicile in East Europe as compared with West Europe. We find that firms from East Europe countries have analysts earnings forecasts which display less earnings forecast accuracy and a tendency to exhibit a positive bias than firms from West Europe. We attribute the tendency for East European firms to have less accurate and more positively skewed earnings forecasts to the incomplete transition of the economy to a fully functional market economy and to the increasing optimism of Eastern Europeans which can be linked to the growing literature on change in Eastern Europe.

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