The Earning Forecast Bias: a Comparative Analysis on US and EUROZONE Stock Markets*

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Abstract

We perform a comparative analysis of the earning forecast bias for two homogeneous samples of US and European stocks. Our findings show that the bias of the European stocks is significantly higher in absolute value for almost any year and distance from the release date, even though US stocks are significantly more optimistically valued between 1997 and 1999. The cross-sectional dispersion of estimates is also lower in the US. We find evidence of convergence in both markets with the bias becoming progressively lower across years. Firm size, number and standard deviation of forecasts are also found to affect significantly the bias in the same direction in both markets.

Keywords: Earnings forecast bias – Comparative financial systems – corporate governance

Jel Numbers : G15 – G30

1 Introduction

Economic literature generally focuses on analysts' forecasts for three main reasons. The first is testing rational expectations under the hypothesis that analysts' rationality is an upper bound of the market rationality (Batchelor and Pami, 1991) [2]. This hypothesis rests on the assumption that analysts invest more in research and information and that their survival ultimately depends on the validity of their forecasts.

The second is providing more reliable proxies for empirical tests of RE models. Earnings forecasts are a fundamental ingredient of asset pricing and cost of capital models. If we proxy them with time series estimates we are jointly testing the model and the time series approach used to extract RE forecasts. This is why analysts' forecasts may be seen as a superior proxy for market expectations (Keane and Runkle, 1998) [16][1].

The third reason is that, by looking at analysts' forecasts and by testing for the presence of some forms of irrationality, we may find or not empirical support for the existence of stock market anomalies[2].

Recent events of financial markets add to these three traditional reasons further motivations for studying earning forecasts in the last decade.

The stock market boom of the second half of the 90es and the significant stock market downturn starting from the second half of the year 2000, occurred in spite of overly optimistic analysts' forecasts, is an interesting period in which testing for unbiasedness and orthogonality under the occurrence of aggregate shocks. This period is of particular relevance because the incapacity of analysts in anticipating the downturn of the price trend: i) induced the press and regulatory authorities to investigate over potential agency problems that prevent analysts from being objective in their research analysis; ii) increased perplexities of the public opinion on stock markets efficiency and analysts' rationality.

Boni and Womack (2002) [4] resume these perplexities by identifying at least six reasons which could potentially explain the analysts' bias: i) internal pressures from analysts' firms due to the effects of their ratings on brokerage commissions, investment banking business and proprietary trading profits[3]; ii) pressures from the management of the companies the analysts

[1] Comparisons between analysts' forecasts and forecasts extracted from time series models confirm that the former are more reliable (Cragg and Malkiel, 1968) [7] (Elton and Gruber, 1972) [9].

[2] The most debated in the literature include return volatility (Shiller, 1981) [24], contrarian strategy premia (Lakonishok and Schleifer and Vishny, 1994) [18] (Clare and Smith and Thomas, 1997) [5] (Rouwenhorst, 1998) [23] (Bagella and Becchetti and Carpentieri, 2000) [1], equity premium puzzle (Li and Xu, 2002) [19] and the home bias (Warlnock, 2001) [25] (Jeske, 2001) [12].

[3] This potential source of analysts bias seems confirmed by the evidence provided by the SEC. In the 2001 House Subcommittee hearings, for 308 of 317 IPO's analyzed, the underwriting firm later provided research coverage which was almost always positive es-

cover; iii) pressures from institutional investor clients of the analysts; iv) conflicts with analyst's personal investment; v) analysts' unintentional cognitive biases[4]; vi) herding behavior or influence of other competing analysts.

In the light of the traditional and more recent debate, our justification for providing an additional contribution to this body of work is that none of the previous papers tests the rationality of forecasts across the stock market boom and crisis of the late nineties and that no empirical analysis has been done to compare evaluations of stocks listed in different financial markets at the same period.

This last point is of particular interest given the institutional effort toward the improvement and levelling of the quality of information across financial markets. A relevant example of it is the work of the *International Accounting Standards Committee* (IASC) toward harmonization of the quality of financial information. In his 2001 GAAP report, the IASC documents that almost all European countries, differently from the US, do not meet the *International Accounting Standards* in terms of accurate reporting of earning per share (*IAS 33*[5] and *SIC-24*). This limit adds to many others which reduce the quality of information disclosure in European *vs* US financial markets. Many European countries have incomplete or lack of: i) timely earnings per share reports, ii) compulsory disclosure of insiders sales/purchases of their own stocks, iii) product or geographical split of declared revenues, iv) cash flow statements together with the traditional income and balance sheet statements. What are the consequences of these differences?

We believe that a divergence in timeliness and accuracy of public information may contribute to explain the relative advantage of small stockholders, relying on public available information, to invest in one market or another. Puzzles such as the home bias of US investors could adequately be explained by the fact that more reliable information is available when investing in US stocks markets. Given this framework in our paper, we want

pecially prior to lock-up expiration (the deadline after which underwriters may sell their participation in the company which went public). In the same direction, Kirgman et al. (2002) [17] find that many companies which went public, and had afterwards a seasoned equity offering, select for the seasoned equity offering an underwriter which is different from the IPO in order to have additional positive coverage (Becchetti, Hasan and Santoro 2003) [3].

[4]Advocates of cognitive bias argue that people overweight some cues and underweight others (Kahneman and Tversky, 1982) [14]. Two typical cognitive biases are overweight of new information (De Bondt and Thaler, 1990) [8] and framing "the inside view" (Kahneman and Lovallo, 1993) [13]. Healton and Lucas (2000) [11] emphasize another possible form of cognitive bias by arguing that analysts suffer from some form of a monetary illusion and fail to incorporate inflation reduction into their earnings expectations.

[5]In May 2002 the IASB (International Accounting Standards Board) issued the Exposure Draft Proposed Improvements to International Accounting Standards in which it proposes extensive changes to IAS 33 that bring the guidance closer in line with FAS 128 (FAS 128 is the US equivalent of IAS 33, as SOP 93-6 is the equivalent of SIC-24) [6].

to measure:

- whether the above mentioned regulatory features generate observable consequences such as significant differences in forecasts for stocks listed in the US and European financial markets and
- whether and how differences in forecast error in the US and European financial markets have been affected by the recent financial turmoil.

The paper is divided into five sections (including introduction and conclusions). The second section presents a brief description of the earning forecast bias literature. We discuss all caveats which often prevent authors from concluding that empirical anomalies are the result of analysts' irrationality. In the third section we define our sample and the methodology adopted for our empirical research. In the fourth section we present descriptive and econometric findings showing that a significant positive difference between the average bias on European and US stocks persists across years correlation for additional explanatory variables such as the distance from the release date, firm size and the number and standard deviation of forecasts.

2 The State of Art

Several literature contributions have tried to test various proprieties related to rational expectations such as unbiasedness, orthogonality, martingale and convergence by looking at analysts forecasts on real and financial variables.

By inspecting proprieties of forecast revisions, Nordhaus (1987) [21] defines weak and strong inefficiency and argues that, to be weakly efficient: i) forecast errors in t must be independent from all forecast revisions up to time $t-1$; ii) forecast revisions at time t must be independent from all forecast revisions up to time $t-1$.

Many authors in the literature emphasize that the rejection of some of these properties in empirical tests does not necessarily mean that analysts are irrational.

First, several explanations exist which may reconcile the rejection of unbiasedness and analysts' rationality. Analysts have asymmetric loss functions and may be penalized more for under-prediction than for over-prediction. To this respect Lim (2001) [20] argues that a positive and predictable bias may be a rational property of optimal earnings forecasts if financial analysts trade-off bias to improve management access and forecast accuracy. Second, aggregate shocks may cause sample mean forecast errors to be nonzero for a finite T (Keane and Runkle, 1998) [16]. To this point, under an aggregate shock, the sample version of the orthogonality condition converges to zero as far as the number of time periods (but not the number of individuals) gets higher, if the number of time periods is held fixed. Third, upward biased forecasts may be the result of systematic negative unanticipated EPS (O'Brien, 1988) [22]. Fourth, the rejection of unbiasedness may depend on incorrect assumptions on the distribution of residuals. To this point, Keane and Runkle (1990) [15] argue that forecasts errors are correlated across firms because individual forecasts on multiple firms are all affected by shocks which may involve the entire industry. The correlation of errors across firms and analysts implies a covariance structure which does not meet the homoskedasticity condition. Therefore OLS estimates are biased and should be replaced by GMM estimates. Fifth, analysts' forecasts biases are likely to be severely affected by unexpected changes in accounting practices such as discretionary write-offs, adoption of extraordinary items, changes in depreciation schedules. These changes create uncertainty on the type of EPS (pro forma, after of before extraordinary items) that analysts predict and may therefore reconcile an observed bias with analysts rationality. Sixth, the use of survey means in direct tests of unbiasedness in which the variable value released in t is regressed on its $t-1$ forecast have been shown to generate upward biases proportional to the variance of individual forecasts (Keane and Runkle, 1990) [15]. This is consistent with findings of Elton et al. (1984) [10] of a direct relationship between the mean bias and the variance of individual forecasts.

All previous literature contributors are aware of some of these problems in estimating or in interpreting their finding on earning forecasts anomalies.

O'Brien (1988) [22] finds in the 1975-81 period weak evidence of upward-biased forecasts and wonders whether his result depends on analysts' bias or symmetric negative surprises on EPS announcements.

Lim (2001) [20] finds evidence of a positive bias supporting his hypothesis of quadratic loss utility function for corporate earning forecast with which financial analysts trade off bias to improve management access and forecast accuracy.

Nordhaus (1987) [21] finds evidence of violations of weak efficiency (capacity to use efficiently information from past forecasts in new forecasts) showing that: i) revisions tend to exhibit first-order autocorrelation and; ii) cumulative future revisions depend positively on cumulative past revisions[6].

His results though cannot be interpreted, *strictu sensu*, as a violation of orthogonality or unbiasedness. To have it we should dispose of series of subsequent forecast errors (in t and $t-1$) under the assumption that the error in $t+1$ is made by knowing the error in t (Keane and Runkle, 1998) [16]. This is not the case when we analyze subsequent adjustment of forecasts before the event date (i. e. the adjustment of the forecast from

[6]We perform the Nordhaus (1987) [21] test on our sample and find that weak efficiency is not rejected. Results are omitted for reasons of space and are available from the authors upon request.

nine to eight month before the release date).

Keane and Runkle (1998) [16] conclude that earning forecasts are unbiased once we correct for discretionary special changes, and use GMM estimates to take into account correlations of errors across analysts and firms.

They also show that coefficients of standard orthogonality tests can be upward biased if we use survey means instead of individual forecasts. They finally demonstrate that forecasts errors are uncorrelated across forecasters, but a different source of correlation is likely to arise because of aggregate shocks to the economy.

Elton et al. (1984) [10] find that analysts errors decline monotonically as the end of the fiscal year approaches. They find evidence of sign persistence in the bias for individual firms and positive relationship between the average bias and the variance of the individual forecasts distribution.

In our comparative analysis described in the following sections we adopt the same methodological approach. Once we provide evidence of differences between US and European stock forecasts we try to understand whether they are justified by differences in the quality of information, in the distance at which companies are observed by the analysts, or if they must be interpreted as depending from some forms of analysts rational or irrational biases.

3 Data Availability, Information Set and Methodology

The universe from which we extract our sample is represented by STANDARD&POOR 500 COMPOSITE INDEX[7] and DOW JONES EURO STOXX INDEX[8].

I/B/E/S forecasts are collected for companies being alive during the 1990-2001 period. In a first step we extract 403 US companies and 186 EU companies.

In a second step we balance the two samples by size and industry affiliation to increase consistency among them. We therefore create a second

[7]The Standard&Poor 500 Composite Index (from now S&P) is made of 424 companies listed at NYSE, 74 at NASDAQ and 2 at AMEX (December 2002). The industry split is (according to the Global Industry Classification Standard Sector (*GICS*) - December 2002): Financial (81), Health Care (47), Information Technology (77), Consumer Discretionary (88), Industrials (67), Consumer Staples (34), Energy (23), Telecommunication Services (12), Utilities (37) and Materials (34).

[8]The DJ EURO STOXX INDEX (from now DJES) is the European index that includes 310 companies of EU countries with the exception of the UK and Switzerland (that are included in DJ STOXX). The industry split is: Financial (83), Health Care (14), Technology (24), Consumer Cyclical (58), Industrials (46), Consumer non-Cyclical (26), Energy (10), Telecommunications (16), Utilities (17) and Basic Materials (16). The geographical division for DJES is: France (77), Germany (53), Italy (48), Spain (37), Netherland (35), Belgium (13), Finland (13), Greece (11), Ireland (9), Portugal (9), Austria (4) and Luxembourg (1).

restricted sample of 186 US companies homogeneous with the EU sample[9].

Our definition of the earning forecast bias is expressed by the following formula:

$$ {}_t\varepsilon_T = \frac{{}_tEPS_T - EPS_T}{P_T}. \tag{1} $$

Where ${}_tEPS_T$ is the forecast on the earning per share for fiscal year T formulated t months before the release date. We normalize the bias on the stock price and not on the earning per share (as Elton et al., (1984) [10]) to avoid it to be affected by the earning per share magnitude and by the currency in which earnings per share are denominated. P_T is the average yearly stock price used to normalize the bias and is calculated as harmonic mean of daily stock prices.

The variable used in this work is the earning per share median I/B/E/S forecast[10]. We define the mean earning forecast error for a given stock as

$$ \sum_{i=1}^{N} {}_t\varepsilon_{ijT} \tag{2} $$

where i is the individual forecast on the stock j. While we define the average earning forecast error for a given financial market as

$$ \sum_{j=1}^{P}\sum_{i=1}^{N} {}_t\varepsilon_{ijT}. \tag{3} $$

Tables 1 and 2 clearly show that companies in our sample have different release months within the same fiscal year. For most of them the release month is December. Companies not communicating yearly earnings per share in December account for 30 percent of the US and around 10 percent of the EU sample. Our sample is therefore non synchronous, but it is possible to control for the robustness of our results to differences in the release months by restricting it to December firms only.

The restricted "December only" sample contains 153 companies for the

[9]The restricted US and EU samples have the following industry split: Financial (52), Health Care (9), Technology (10), Consumer Cyclical (34), Industrials (30), Consumer non-Cyclical (19), Energy (7), Telecommunications (3), Utilities (10) and Basic Materials (12).

[10]Under the assumption of normality of the forecast distribution mean and median forecast coincide. With large asymmetric outliers this is not the case. We therefore prefer to use the median forecast as it is less affected by outliers. Findings described in the following section do not change substantially when we use mean estimate and are available from the authors upon request.

EU market[11] and 290 for the US market[12].

4 Descriptive, Statistical and Econometric Results

4.1 Descriptive results

A first glance at the comparative earning forecast bias is provided by figures 1a - 1i in Appendix. These figures show that the bias on European stocks is generally higher than that on US stocks, especially when the distance from the release date is longer. It must be taken into account, though, that the relevant share of missing data for more remote years and higher distances from the release date (only 5 percent of forecasts nine months before the release date are not missing in the European stock sample in the fiscal year 1990) reduce the significance of more distant comparisons. Another interesting result which seems to emerge from this first descriptive inspection is that forecast on US stocks tend to be more optimistic between 1997 and 2000 or in the years of the stock market boom. This pattern seems to be robust to changes in the monthly distance from the release date.

When we average earning forecast (in absolute value or not) across years (figure 2 show the relative value) we find that the absolute bias on EU stocks is always higher than that of US stocks and more than three times larger one month before the release date even though they were on average smaller nine months before the release date (figure 2). The difference between the unbalanced and the balanced US sample is minimal and does not change the sense of our interpretation[13].

When we look at cross-sectional dispersion of the earning per share forecast biases averaged across years ($\sigma - convergence$) we find that the US $\sigma - convergence$ is steadily declining as far the release date is approached, while the same does not occur for the EU stocks (tables 3 and 4). Again, $\sigma - convergence$ is far (more than five times) higher for EU than for US stocks the last month before the release date. These findings show that divergence of opinions on EU stocks is higher and does not decline as far as the release date approaches.

[11] The geographical split of DJES for "December only" is: France (47), Germany (24), Italy (14), Spain(24), Netherland (21), Belgium (6), Finland (9), Ireland (3), Portugal(4) and Austria (1).The industry split is: Financial (40), Health Care (8), Technology (7), Consumer Cyclical (29), Industrials (24), Consumer non-Cyclical (17), Energy (7), Telecommunications (2), Utilities (9) and Basic Materials (10).

[12] The industry split is (according to the *GICS* - December 2002): Financial (60), Health Care (26), Information Technology (21), Consumer Discretionary (43), Industrials (40), Consumer Staples (16), Energy (18), Telecommunication Services (8), Utilities (30) and Materials (28).

[13] Findings described in the following sections do not change substantially when we restrict the analysis to the "December only" sample. Results are omitted for reasons of space and are available from the authors upon request.

When we split the sample into two subgroups using as thresholds the 40th and the 60th percentile of the firm size distribution and the number of forecasts on an individual stock we find that a higher number of forecasts increases forecast precision reducing the bias in both samples. This is the case for any distance from the release date considered with the exception of the nine month distance. A likely interpretation for this result is that any analyst brings some new information and that part of it is incorporated also by other forecasters. In this way average forecast accuracy may increase in the number of forecasters.

A similar pattern is observed when dividing the sample between large and small companies (using again the 40th and the 60th percentile of the distribution of the number of employees). Quite surprisingly the bias for large companies is significantly larger than that for small companies in the US sample (but not in the EU sample) for any distance from the release date. The result may arise because it is more difficult take into account the interaction of all performance drivers for a large firm with a diversified product portfolio. The result is also not at odds with the Boni and Womack (2002) [4] hypotheses if we assume that, when firms are larger, pressures from the management of the companies the analysts cover and from institutional investor clients of the analysts may be stronger.

4.2 Statistical and Econometric Testing for the Observed Patterns

Which is the statistical significance of the observed patterns? A first parametric test shows that the two main descriptive findings evidenced by figure 1a are confirmed.

We do not directly test unbiasedness since we dispose of survey means and our econometric results would be subject to the upward bias described by Keane and Runkle (1990) [15]. We may though avoid it testing the joint null of $\alpha_0 = 0$ and $\alpha_1 = 1$ on the traditional specification

$$EPS^j_{t+1} = \alpha_0 + \alpha_1 *_t EPS^j_{n,t+1} + \alpha_2 * X_{n,t} + \epsilon^j_{n,t+1} \quad (4)$$

in the following way. We assume that $\alpha_1 = 1$ and $\alpha_2 = 0$ are respected, considering that

$$_t\varepsilon_T = \frac{_tEPS_T - EPS_T}{P_T}. \quad (5)$$

and directly test the null of $\alpha_0 = 0$ on (non absolute) mean forecast errors. The hypothesis of unbiasedness on the relative forecast bias and is rejected almost 60 percent of times in both markets (tables 7 and 8). Our findings also show that the absolute bias is always significantly different from zero in both markets (tables 5 and 6). Since we are interested in differences in earning forecast bias between the two markets we test whether

$$\sum_{j=1}^{P}\sum_{i=1}^{N} t \mid \varepsilon^{US} \mid_{ijT} - \sum_{j=1}^{P}\sum_{i=1}^{N} t \mid \varepsilon^{EU} \mid_{ijT} > 0 \qquad (6)$$

and find that in absolute values the earning forecast bias is significantly lower for US stocks (almost all t-stats are negative and above the 99 percent significance level for any year and distance from the release date)(table 9). At the same time, by looking at differences in the relative earning forecast bias, we observe that forecasts on US stocks are significantly more optimistic in the period between 1997 and 2000 (Table 10) or

$$\sum_{j=1}^{P}\sum_{i=1}^{N} t\varepsilon_{ijT}^{US} - \sum_{j=1}^{P}\sum_{i=1}^{N} t\varepsilon_{ijT}^{EU} > 0, T = 1997, \ldots, 2000. \qquad (7)$$

Again, if we consider that stock market participation is higher in periods of boom (Heaton and Lucas, 2000) [11], we may believe that some of Boni and Womack (2002) [4] rationales (internal pressures from analysts' firms due to the effects of their ratings on brokerage commissions, investment banking business and proprietary trading profits, herding behavior or influence of other competing analysts) are particulary relevant in such periods and may explain the observed differences.

Forecasts on both samples seem to become progressively more efficient as far as they approach the release date. Convergence patterns are confirmed by regression coefficients in both markets (Tables 11-14). An interesting finding here again is that the coefficient, which is significantly below one in all years, is significantly higher than one in the last three years in the Eurozone.

A further test of cross-sectional convergence is realized by looking whether stocks with relatively higher bias nine months before the release date have a relatively larger reduction of convergence. This test is analogous to those measuring convergence across countries in the economic growth literature (Tables 15-18). Results are consistent with our descriptive findings and with those from panel convergence.

There is a risk that empirical evidence produced found so far may be affected by a composition fallacy if we do not correct for the impact of controls and do not test jointly the impact of different factors (firm size, number of forecasts, financial market and industry affiliation) on the earning forecast error.

We therefore propose a panel fixed effect estimate for the two different groups of US and EU stocks. In this way and through a comparison of the intercepts in the two samples we may evaluate the US (EU) market effect on the earning forecast bias net of control factors (number and variance of forecasts, firm size, distance from the release date) and of the unobserved time invariant firm heterogeneity (Table 19).

Our findings clearly show that the direction of the effects of control factors on the dependent variable is the same in both markets. An increase in the number of forecasts tends to improve accuracy and to reduce the bias, consistently with descriptive evidence provided in section 4.1. The variance of forecasts is positively and significantly correlated with the bias in both markets. Size is positively correlated with the bias in both samples. Signs of the coefficient of the distance from the release date and of the observation year confirm the process of convergence within years as far as the release date is approached. Finally, the intercept in the EU sample is much higher than that of the US sample and the confidence intervals of the two parameters are far from overlapping. Our econometric analysis therefore finds support for the hypothesis that the bias on the US market is significantly smaller, net of all control factors considered in our analysis. These results are robust to changes in sample composition. We show that they do not substantially change when we limit the sample to December firms only (Table 20). To allow a more straightforward comparison of the control-adjusted biases in the two markets, we perform a two step estimate on the December only sample. The first step is a fixed effect panel estimate on the overall sample. In the second step, the residual of the first estimate is regressed on dummies for the US for the German markets[14]. Our results show that the US (Germany) dummy variable is negative (positive) and significant confirming previous evidence on the difference between intercepts in separate sample estimates (Tables 21-22). We also wonder whether the difference in the bias between the two markets is spurious and depends on higher cumulative past estimates on US stocks (consider that, on average, EPS on US stocks start being forecasted more months before the release date). Our results on the significance of this variable are inconclusive showing that the country effect is not related to differences in cumulative past predictions.

5 Conclusions

The hypothesis that all financial investors share the same information set and agree on their expectations on firm profits which are the main determinants of stock returns is far from reality. The rejection of unbiasedness in earning forecasts is something that goes beyond it since it assumes that, on average, forecast errors do not compensate each other and analysts systematically make mistakes in a given direction.

Once this result is empirically found several caveats must be applied before interpreting it straightforwardly as a rejection of unbiasedness. Researchers must wonder whether our estimation approach is biased, or whether the earning forecast bias exists and depends on a rational behavior of ana-

[14]We choose a German market, and not a EU dummy, because we believe the it is a good benchmark for the Eurozone in our analysis.

lysts (Lim, 2001) [20]. Our results shed light on the issue from a different perspective. On the one side, they find mixed evidence when testing the unbiasedness hypothesis. On the other side they find a much more clear cut result in the significant difference between the earning forecast bias on US and European stocks. The EU stock average absolute bias is significantly higher at any distance from the release date and the variability of biases on EU stocks is also higher. The difference in the average absolute bias persists after controlling for industry affiliation, size, number and standard deviation of forecasts and distance from the release date.

Our conjecture is that institutional and regulatory differences affecting the quality of information in the two markets, described in the introductory section, may justify these results. If this conjecture is true this paper shows that reduced accuracy of publicly available information incorporated in analysts forecasts may represent a measurable cost of institutional and regulatory limits (including lack of harmonization) of EU financial markets. This cost increases the possibility of insider trading behavior and reduces access of small shareholders to financial markets. These limits may in turn generate the well known negative effects on the international competitiveness of EU financial markets in attracting inflows of foreign savings and reduced opportunity of liquid and cheap external financial sources for listed companies.

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TABLES

Table 1: **Release months of the EU sample**. Dec=december, F=february, M=march, Je=june, Jy=july, A=august, S=september, N=november

$EUFirms$	Dec t	F t+1	M t+1	Je t+1	Jy t+1	A t+1	S t+1	N t+1
$FY-1990$	166	2	4	3	1	2	6	2
$FY-1991$	163	2	4	3	1	1	6	2
$FY-1992$	163	2	3	1	1	2	5	2
$FY-1993$	161	1	3	4	1	2	7	2
$FY-1994$	163	0	2	3	0	2	5	2
$FY-1995$	165	1	3	4	1	2	7	2
$FY-1996$	167	1	2	4	0	0	7	2
$FY-1997$	166	1	1	3	1	2	6	1
$FY-1998$	169	1	1	2	1	2	7	0
$FY-1999$	171	1	1	1	1	2	7	1
$FY-2000$	173	1	1	1	1	2	3	2
$FY-2001$	173	1	1	0	1	2	3	2

Table 2: **Release months of 186 US companies for each fiscal year**. Dec=december, J=January, F=february, M=march, Ap=april, Ma=may Je=june, Jy=july, A=august, S=september, O=october, N=november

$USFirms$	Dec	J	F	M	Ap	Ma	Je	Jy	A	S	O	N
	t	t+1										
$FY-1990$	139	8	2	6	3	5	10	2	1	7	1	2
$FY-1991$	140	8	2	6	3	4	10	2	1	6	1	2
$FY-1992$	141	8	2	6	3	5	9	2	1	6	1	2
$FY-1993$	141	8	2	6	3	5	10	1	1	6	1	2
$FY-1994$	141	8	2	5	3	5	11	1	1	6	1	2
$FY-1995$	141	8	2	5	3	5	11	1	1	6	1	2
$FY-1996$	141	8	2	5	3	5	11	1	1	6	1	2
$FY-1997$	142	8	2	5	3	5	10	1	1	6	1	2
$FY-1998$	143	8	2	5	3	5	10	1	1	5	1	2
$FY-1999$	145	8	2	4	3	5	10	1	1	5	1	1
$FY-2000$	145	8	2	4	3	5	10	1	1	5	1	1
$FY-2001$	145	8	2	4	3	5	10	1	1	5	1	1

Table 3: **Sigma convergence of the earning forecasts bias for US stocks** (sample 186)(cross-sectional variances of average company forecasts)

USA	9m	8m	7m	6m	5m	4m	3m	2m	1m
1990	0.00279	0.00260	0.00216	0.00201	0.00176	0.00164	0.00146	0.00134	0.00077
1991	0.00274	0.00240	0.00226	0.00214	0.00209	0.00201	0.00203	0.00205	0.00126
1992	0.00110	0.00101	0.00092	0.00090	0.00087	0.00080	0.00049	0.00042	0.00025
1993	0.00035	0.00032	0.00028	0.00026	0.00023	0.00019	0.00019	0.00012	0.00011
1994	0.00042	0.00040	0.00029	0.00028	0.00016	0.00014	0.00014	0.00014	0.00013
1995	0.00045	0.00040	0.00033	0.00024	0.00019	0.00017	0.00017	0.00014	0.00013
1996	0.00050	0.00027	0.00020	0.00014	0.00009	0.00008	0.00008	0.00008	0.00006
1997	0.00028	0.00019	0.00017	0.00017	0.00017	0.00013	0.00012	0.00012	0.00011
1998	0.00031	0.00025	0.00021	0.00019	0.00016	0.00011	0.00010	0.00009	0.00008
1999	0.00023	0.00021	0.00016	0.00015	0.00012	0.00009	0.00008	0.00006	0.00005
2000	0.00064	0.00061	0.00057	0.00054	0.00038	0.00032	0.00015	0.00009	0.00007
2001	0.00063	0.00058	0.00057	0.00052	0.00048	0.00046	0.00036	0.00018	0.00011

Table 4: **Sigma convergence of the earning forecasts bias for EU stocks** (sample 186)(cross-sectional variances of average company forecasts)

EU	9m	8m	7m	6m	5m	4m	3m	2m	1m
1990	0.06001	0.03708	0.01582	0.01178	0.01298	0.01108	0.00831	0.00788	0.00545
1991	0.00213	0.09014	0.04535	0.03219	0.02537	0.01726	0.01704	0.01600	0.01419
1992	0.00969	0.00442	0.00282	0.00499	0.00455	0.00373	0.00348	0.00318	0.00198
1993	0.00062	0.00130	0.00113	0.00088	0.00127	0.00132	0.00344	0.00312	0.00293
1994	0.00059	0.00047	0.00088	0.00085	0.00076	0.00071	0.00067	0.00066	0.00259
1995	0.00094	0.00330	0.00302	0.00299	0.00278	0.00258	0.00255	0.00146	0.00133
1996	0.00155	0.00081	0.00105	0.00099	0.00093	0.00084	0.00077	0.00083	0.00079
1997	0.00030	0.00025	0.00040	0.00038	0.00036	0.00033	0.00031	0.00029	0.00028
1998	0.00044	0.00038	0.00034	0.00035	0.00041	0.00038	0.00036	0.00032	0.00031
1999	0.00055	0.00044	0.00042	0.00039	0.00036	0.00026	0.00022	0.00020	0.00016
2000	0.00056	0.00043	0.00039	0.00037	0.00033	0.00030	0.00028	0.00026	0.00024
2001	0.00320	0.00224	0.00184	0.00191	0.00185	0.00148	0.00157	0.00150	0.00124

Table 5: **Parametric test of the significance of the average earnings forecast bias for fiscal year and distance from the release date**. Absolute bias (sample 186)

USA	9m	8m	7m	6m	5m	4m	3m	2m	1m
1990	7.40	7.21	6.98	6.99	6.94	06.47	6.45	6.04	5.80
1991	5.93	5.63	5.18	4.84	4.53	4.09	3.85	3.50	3.45
1992	6.53	6.24	5.72	5.46	5.17	4.55	5.29	5.18	5.13
1993	7.97	8.02	7.47	7.09	7.07	5.93	5.84	6.27	5.09
1994	6.44	6.15	6.38	6.06	6.65	5.90	5.51	4.86	3.98
1995	7.40	6.66	5.83	6.36	5.88	5.27	5.17	4.83	4.19
1996	5.80	6.63	6.71	6.79	6.37	6.52	6.14	5.33	4.62
1997	5.96	6.09	5.98	6.04	5.65	5.49	5.38	4.97	4.37
1998	7.89	7.65	7.62	7.48	7.18	6.74	6.32	5.38	4.30
1999	8.44	8.32	8.12	7.93	7.56	6.95	6.59	6.51	5.35
2000	6.67	6.36	6.16	5.96	5.87	5.61	7.19	6.22	5.78
2001	8.62	7.97	7.74	7.64	7.04	6.42	6.28	5.92	5.27

Table 6: **Parametric test of the significance of the average earnings forecast bias for fiscal year and distance from the release date**. Absolute bias (sample 186)

EU	9m	8m	7m	6m	5m	4m	3m	2m	1m
1990	1.22	1.80	2.28	3.50	4.21	4.38	4.47	4.31	4.24
1991	2.56	1.43	1.77	2.32	2.92	3.11	3.36	3.37	3.38
1992	1.84	2.75	4.91	6.05	6.64	6.90	6.74	6.69	7.09
1993	3.87	4.52	6.45	6.80	7.17	7.12	4.82	4.56	4.23
1994	5.38	7.55	7.22	7.16	7.36	7.54	7.38	6.86	3.76
1995	5.62	4.13	4.85	5.04	5.08	5.16	5.12	5.76	5.44
1996	3.70	5.93	6.71	7.00	6.91	6.93	6.64	5.80	5.43
1997	5.65	7.75	6.85	7.02	7.25	7.27	6.94	6.43	6.25
1998	6.45	8.05	8.45	8.50	8.15	8.10	7.93	7.61	7.36
1999	6.00	7.19	7.88	7.90	8.20	8.95	9.30	8.94	9.38
2000	7.41	9.21	9.48	9.41	9.41	9.17	8.81	8.63	7.94
2001	5.90	7.24	7.65	7.65	7.56	7.52	7.19	6.93	6.79

Table 7: **Parametric test of the significance of the average earnings forecast bias for fiscal year and distance from the release date**. Relative bias (sample 186)

USA	9m	8m	7m	6m	5m	4m	3m	2m	1m
1990	5.70	5.45	5.33	5.36	5.31	5.08	5.01	4.58	4.25
1991	3.50	3.13	2.94	2.50	2.29	2.19	1.88	1.55	1.44
1992	2.78	2.64	2.64	2.55	2.29	2.07	1.87	1.48	1.32
1993	1.44	1.22	1.39	1.28	1.07	1.33	0.96	0.52	-0.18
1994	1.39	1.02	0.78	0.59	-0.17	-0.09	-0.11	-0.36	-0.15
1995	0.19	0.67	1.00	0.99	0.46	0.31	0.37	0.10	0.10
1996	2.51	2.21	2.31	1.90	1.33	1.22	1.00	0.51	0.71
1997	1.75	1.22	1.23	0.99	0.91	0.99	0.71	0.59	0.68
1998	4.36	4.33	4.49	4.24	3.83	3.52	3.05	2.00	1.52
1999	0.98	1.16	1.40	1.44	1.36	1.86	1.20	0.86	0.40
2000	2.51	2.76	3.05	2.80	2.64	2.92	3.33	2.13	2.03
2001	6.69	5.81	5.83	5.79	4.95	4.18	4.75	3.55	2.79

Table 8: **Parametric test of the significance of the average earnings forecast bias for fiscal year and distance from the release date**. Relative bias (sample 186)

EU	9m	8m	7m	6m	5m	4m	3m	2m	1m
1990	1.17	1.75	2.02	3.09	3.79	3.83	3.84	3.70	3.56
1991	0.76	1.26	1.44	1.86	2.25	2.21	2.48	2.33	2.29
1992	1.69	2.56	4.69	5.18	5.68	5.85	5.58	5.27	4.89
1993	1.75	2.54	2.85	2.59	1.66	1.60	1.69	1.54	1.07
1994	-1.38	-1.39	-0.23	-0.01	0.01	0.22	-0.03	0.06	0.96
1995	-1.02	1.01	1.94	2.55	2.59	2.56	2.57	2.55	2.33
1996	1.97	1.97	2.31	1.89	1.66	1.14	0.88	-0.34	-0.70
1997	-3.42	-3.19	-2.39	-2.72	-2.86	-2.80	-2.52	-2.26	-2.07
1998	0.14	-0.31	-0.14	-0.15	-0.40	-0.21	-0.39	-0.60	-1.34
1999	-1.37	-1.74	-1.85	-2.02	-1.96	-2.40	-2.74	-2.52	-2.47
2000	-3.55	-3.15	-2.71	-2.52	-2.24	-2.10	-1.81	-1.75	-1.59
2001	3.68	4.77	5.00	4.21	4.21	4.75	3.95	3.70	3.07

Table 9: **Parametric test of the difference in the average earnings forecast bias between EU and US stocks for fiscal year and distance from the release date** (US minus EU average bias). Absolute bias (sample 186)

	9m	8m	7m	6m	5m	4m	3m	2m	1m
1990	-2.92	-3.00	-1.66	-2.13	-2.47	-2.57	-2.42	-2.43	-2.66
1991	-0.40	-2.34	-1.69	-1.80	-1.95	-1.92	-2.20	-2.16	-2.52
1992	-2.70	-2.29	-3.37	-4.30	-4.57	-4.81	-4.96	-4.98	-5.36
1993	-1.78	-3.18	-4.04	-3.67	-4.26	-4.83	-3.68	-3.57	-3.46
1994	-2.09	-2.17	-3.70	-3.72	-4.44	-4.77	-4.64	-4.42	-3.06
1995	-2.71	-3.01	-3.54	-3.77	-3.97	-4.01	-4.00	-4.33	-4.18
1996	-2.55	-2.93	-3.87	-3.88	-4.28	-4.72	-4.54	-4.14	-4.04
1997	-1.48	-2.28	-2.67	-2.61	-2.81	-3.25	-3.04	-2.74	-2.93
1998	-0.97	-1.51	-1.71	-2.05	-2.89	-3.69	-3.80	-4.00	-4.41
1999	-1.82	-1.85	-2.67	-2.68	-3.20	-3.89	-4.11	-4.36	-5.23
2000	-1.17	-0.82	-0.84	-0.99	-1.63	-1.81	-2.69	-3.91	-4.19
2001	-3.38	-3.44	-3.13	-3.32	-3.55	-3.49	-3.72	-4.61	-5.02

Table 10: **Parametric test of the difference in the average earnings forecast bias between EU and US stocks for fiscal year and distance from the release date** (US minus EU average bias). Relative bias (sample 186)

	9m	8m	7m	6m	5m	4m	3m	2m	1m
1990	-2.91	-3.11	-1.64	-2.08	-2.45	-2.40	-2.23	-2.26	-2.40
1991	0.24	-2.29	-1.60	-1.75	-1.80	-1.57	-1.91	-1.85	-1.95
1992	-3.04	-2.99	-4.24	-4.42	-4.69	-4.80	-4.93	-4.77	-4.45
1993	-1.59	-2.93	-2.58	-2.07	-1.22	-1.12	-1.53	-1.50	-1.14
1994	2.02	1.77	0.59	0.29	-0.08	-0.25	-0.01	-0.21	-1.04
1995	1.23	-1.01	-1.81	-2.47	-2.64	-2.55	-2.54	-2.52	-2.30
1996	-1.61	-1.01	-1.34	-1.04	-1.12	-0.74	-0.55	0.48	0.88
1997	3.88	3.35	2.75	2.87	2.91	2.94	2.55	2.25	2.14
1998	2.31	2.87	2.83	2.63	2.35	1.86	1.78	1.47	1.91
1999	1.83	2.16	2.34	2.49	2.39	3.02	2.97	2.63	2.37
2000	4.26	4.11	4.05	3.74	3.45	3.54	3.43	2.62	2.37
2001	-1.67	-2.06	-1.75	-1.20	-1.59	-2.20	-1.57	-2.37	-2.19

Table 11: **The convergence of earning forecasts across distances from the release date** (US sample 186). The table report the following fixed effect panel regression: $Y_{jt-1T} = \alpha_0 + \gamma_1 * Y_{jtT} + u_j + \varepsilon_{jt}$, $t = 9, ..., 1$ and $T = 1990, ..., 2001$ where Y_{jtT} is $\sum_{i=1}^{N} {}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T and Y_{jt-1T} is the absolute mean earning forecast bias for the stock j at the distance $t-1$ from the release date in the year T.

	90-90lag	91-91lag	92-92lag	93-93lag	94-94lag	95-95lag
$Coef.$	0.87	0.84	0.95	0.88	0.80	0.79
(t)	(45.13)	(60.52)	(64.36)	(57.46)	(62.08)	(58.47)
$[Conf95\%]$	[0.84;0.91]	[0.81;0.86]	[0.92;0.98]	[0.85;0.91]	[0.78;0.83]	[0.77;0.82]
$Const.$	0.0005	0.0002	-0.0004	-0.0001	-0.0001	-0.0001
(t)	(1.26)	(1.08)	(-2.84)	(-1.90)	(-1.33)	(1.02)
σ_u	0.0033	0.0065	0.0021	0.0012	0.0023	0.0024
σ_g	0.0085	0.0071	0.0048	0.0028	0.0040	0.0039
ρ	0.1305	0.4535	0.1547	0.1699	0.2587	0.2796
R^2 :						
$-Within$	0.6023	0.7250	0.7437	0.6957	0.7277	0.7011
$-Between$	0.9960	0.9938	0.9945	0.9950	0.9847	0.9874
$-Overall$	0.9612	0.9722	0.9677	0.9656	0.9246	0.9326
$Corr(u_i, xb)$	0.6044	0.8135	-0.3622	0.5610	0.6298	0.6868
N^oObs	1519	1569	1609	1627	1625	1643
$N^oGroups$	173	179	181	182	182	184
$F - test$	2036.76	3662.80	4141.75	3301.27	3853.42	3419.25
$(Prob > F)$	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$F_u = 0$	0.85	2.52	1.41	1.26	1.89	1.84
$(Prob > F)$	(0.9100)	(0.0000)	(0.0007)	(0.0150)	(0.0000)	(0.0000)

Table 12: *Follows* **the convergence of earning forecasts across distances from the release date** (US sample 186). The table reports the following fixed effect panel regression: $Y_{jt-1T} = \alpha_0 + \gamma_1 * Y_{jtT} + u_j + \varepsilon_{jt}$, $t = 9, ..., 1$ and $T = 1990, ..., 2001$ where Y_{jtT} is $\sum_{i=1}^{N}{}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T and Y_{jt-1T} is the absolute mean earning forecast bias for the stock j at the distance $t-1$ from the release date in the year T.

	96-96lag	97-97lag	98-98lag	99-99lag	00-00lag	01-01lag
$Coef.$	0.74	0.75	0.87	0.91	0.90	0.77
(t)	(86.31)	(69.80)	(69.91)	(75.47)	(62.02)	(43.11)
$Intercept]$	[0.72;0.76]	[0.73;0.77]	[0.85;0.90]	[0.89;0.94]	[0.88;0.93]	[0.73;0.80]
$Const.$	0.0000	0.0000	-0.0001	0.0000	0.0001	0.0001
(t)	(-0.08)	(0.91)	(-0.75)	(-0.41)	(-0.60)	(3.22)
σ_u	0.0024	0.0029	0.0012	0.0009	0.0010	0.0032
σ_g	0.0032	0.0025	0.0025	0.0021	0.0043	0.0063
ρ	0.3651	0.5178	0.1893	0.1619	0.0522	0.2089
R^2 :						
$-Within$	0.8363	0.7704	0.7684	0.7953	0.7227	0.5589
$-Between$	0.9690	0.9732	0.9914	0.9920	0.9970	0.9929
$-Overall$	0.9232	0.9236	0.9590	0.9616	0.9528	0.9107
$Corr(u_i, xb)$	0.4771	0.6726	0.3713	-0.1362	-0.2869	0.7988
N^oObs	1643	1635	1660	1651	1663	1654
$N^oGroups$	184	182	186	184	186	186
$F-test$	7449.05	4872.11	4887.23	5696.27	3846.02	1858.46
$(Prob > F)$	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$F_u = 0$	3.96	5.21	1.81	1.71	0.45	0.84
$(Prob > F)$	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(1.0000)	(0.9300)

Table 13: **The convergence of earning forecasts across distances from the release date** (EU sample 186). The table reports the following fixed effect panel regression: $Y_{jt-1T} = \alpha_0 + \gamma_1 * Y_{jtT} + u_j + \varepsilon_{jt}$, $t = 9, ..., 1$ and $T = 1990, ..., 2001$ where Y_{jtT} is $\sum_{i=1}^{N}{}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T and Y_{jt-1T} is the absolute mean earning forecast bias for the stock j at the distance $t-1$ from the release date in the year T.

	90-90lag	91-91lag	92-92lag	93-93lag	94-94lag	95-95lag
$Coef.$	0.98	0.67	0.84	0.74	0.88	0.82
(t)	(35.80)	(24.60)	(22.66)	(29.10)	(41.86)	(29.97)
$[Conf95\%]$	[0.92;1.03]	[0.61;0.72]	[0.77;0.91]	[0.69;0.79]	[0.84;0.93]	[0.77;0.87]
$Const.$	-0.0026	0.0066	0.0019	0.0005	0.0001	0.0013
(t)	(2.22)	(6.74)	(1.70)	(1.84)	(0.68)	(3.01)
σ_u	0.0083	0.0409	0.0078	0.0138	0.0029	0.0065
σ_g	0.0146	0.0164	0.0114	0.0061	0.0037	0.0115
ρ	0.2450	0.8617	0.3202	0.8358	0.3856	0.2398
R^2 :						
$-Within$	0.7193	0.4844	0.4138	0.5161	0.6655	0.4930
$-Between$	0.9970	0.9927	0.9888	0.9946	0.9932	0.9923
$-Overall$	0.9814	0.9849	0.9634	0.9735	0.9757	0.9430
$Corr(u_i, xb)$	-0.7974	0.9677	0.7315	0.9175	0.6425	0.7645
N^oObs	624	797	886	957	1039	1092
$N^oGroups$	123	152	158	162	157	167
$F - test$	1281.43	605.00	513.30	846.98	1752.50	898.45
$(Prob > F)$	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$F_u = 0$	0.61	2.58	0.97	2.38	2.23	0.84
$(Prob > F)$	(0.9900)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)

Table 14: *Follows* **the convergence of earning forecasts across distances from the release date** (EU sample 186). The table reports the following fixed effect panel regression: $Y_{jt-1T} = \alpha_0 + \gamma_1 * Y_{jtT} + u_j + \varepsilon_{jt}$, $t = 9, ..., 1$ and $T = 1990, ..., 2001$ where Y_{jtT} is $\sum_{i=1}^{N}{}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T and Y_{jt-1T} is the absolute mean earning forecast bias for the stock j at the distance $t-1$ from the release date in the year T.

	96-96lag	97-97lag	98-98lag	99-99lag	00-00lag	01-01lag
$Coef.$	0.84	0.69	0.72	0.96	0.92	0.82
(t)	(35.56)	(31.31)	(31.85)	(57.86)	(56.86)	(46.36)
$[Conf95\%]$	[0.79;0.88]	[0.64;0.73]	[0.68;0.77]	[0.92;0.99]	[0.88;0.95]	[0.78;0.85]
$Const.$	-0.0006	-0.0011	-0.0001	0.0000	0.0001	0.0014
(t)	(-2.11)	(-9.96)	(-1.23)	(-0.42)	(0.83)	(4.60)
σ_u	0.0047	0.0053	0.0050	0.0011	0.0015	0.0062
σ_g	0.0089	0.0022	0.0023	0.0024	0.0025	0.0056
ρ	0.2172	0.8561	0.8241	0.1673	0.2498	0.5530
$R^2:$						
$-Within$	0.5555	0.4768	0.4635	0.7371	0.7348	0.6476
$-Between$	0.9805	0.9970	0.9977	0.9966	0.9939	0.9969
$-Overall$	0.9024	0.9822	0.9832	0.9807	0.9775	0.9813
$Corr(u_i, xb)$	0.4820	0.9709	0.9718	-0.4455	-0.3493	0.9143
N^oObs	1187	1250	1354	1376	1346	1351
$N^oGroups$	174	173	179	181	178	180
$F-test$	1264.74	980.63	1014.20	3347.61	3232.91	2149.69
$(Prob > F)$	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$F_u = 0$	1.36	2.34	1.78	1.14	2.18	1.44
$(Prob > F)$	(0.0030)	(0.0000)	(0.0000)	(0.1100)	(0.0000)	(0.0003)

Table 15: **Cross-sectional convergence across release date** (US sample 186). The table report the following fixed effect panel regression: $Y_{jt-9T} - Y_{jt-1T} = \alpha_0 + \gamma_1 * Y_{jt-9T} + \varepsilon_j$ where Y_{jtT} is $\sum_{i=1}^{N} {}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T and Y_{jt-9T} is the absolute mean earning forecast bias for the stock j at the distance $t-9$ from the release date in the year $T-1$.

	90	91	92	93	94	95
$Coef.$	0.59	0.48	0.66	0.58	0.70	0.69
(t)	(23.28)	(13.75)	(25.68)	(21.99)	(19.65)	(21.56)
$[Conf95\%]$	[0.54;0.64]	[0.41;0.55]	[0.60;0.71]	[0.53;0.63]	[0.63;0.77]	[0.62;0.75]
$Const.$	0.0003	0.0031	0.0007	0.0009	0.0070	0.0000
(t)	(0.24)	(1.71)	(0.81)	(1.96)	(1.01)	(0.02)
R^2	0.7612	0.5309	0.7884	0.7298	0.6844	0.7186
$R^2 - Adj$	0.7598	0.5282	0.7882	0.7283	0.6826	0.7170
N^oObs	172	174	179	181	180	184
$F - test$	541.84	194.09	659.50	483.53	386.00	464.73
$(Prob > F)$	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Table 16: *Follows* **cross-sectional convergence across release date** (US sample 186). The table reports the following fixed effect panel regression: $Y_{jt-9T} - Y_{jt-1T} = \alpha_0 + \gamma_1 * Y_{jt-9T} + \varepsilon_j$ where Y_{jtT} is $\sum_{i=1}^{N} {}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T and Y_{jt-9T} is the absolute mean earning forecast bias for the stock j at the distance $t-9$ from the release date in the year T.

	96	97	98	99	00	01
$Coef.$	0.85	0.80	0.66	0.72	0.74	0.74
(t)	(35.18)	(17.96)	(22.74)	(26.79)	(53.05)	(32.00)
$[Conf95\%]$	[0.80;0.89]	[0.71;0.88]	[0.60;0.72]	[0.67;0.77]	[0.71;0.77]	[0.70;0.79]
$Const.$	0.0001	0.0000	0.0000	0.0000	0.0000	0.0010
(t)	(0.36)	(-0.13)	(1.56)	(0.23)	(0.22)	(1.67)
R^2	0.8718	0.6418	0.7386	0.7977	0.9389	0.8498
$R^2 - Adj$	0.8711	0.6398	0.7372	0.7966	0.9386	0.8490
N^oObs	184	182	185	184	185	183
$F - test$	1287.78	322.49	517.10	717.85	2814.20	1023.91
$(Prob > F)$	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Table 17: **Cross-sectional convergence across release date** (EU sample 186). The table reports the following fixed effect panel regression: $Y_{jt-9T} - Y_{jt-1T} = \alpha_0 + \gamma_1 * Y_{jt-9T} + \varepsilon_j$ where Y_{jtT} is $\sum_{i=1}^{N}{}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T and Y_{jt-9T} is the absolute mean earning forecast bias for the stock j at the distance $t-9$ from the release date in the year T.

	90	91	92	93	94	95
$Coef.$	0.57	0.77	0.42	0.58	0.56	0.70
(t)	(72.29)	(9.96)	(19.51)	(5.02)	(12.59)	(8.71)
$[Conf95\%]$	[0.55;0.59]	[0.60;0.94]	[0.38;0.47]	[0.34;0.82]	[0.47;0.65]	[0.54;0.87]
$Const.$	0.0013	0.0005	0.0017	0.0036	-0.0013	-0.0022
(t)	(0.66)	(0.14)	(0.77)	(1.19)	(-1.23)	(-0.91)
R^2	0.9987	0.9084	0.9596	0.5122	0.7750	0.5756
$R^2 - Adj$	0.9985	0.8992	0.9571	0.4918	0.7701	0.5680
N^oObs	9	12	18	26	48	58
$F - test$	5226.08	99.13	380.48	25.20	158.41	75.95
$(Prob > F)$	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Table 18: *Follows* **cross-sectional convergence across release date** (EU sample 186). The table reports the following fixed effect panel regression: $Y_{jt-9T} - Y_{jt-1T} = \alpha_0 + \gamma_1 * Y_{jt-9T} + \varepsilon_j$ where Y_{jtT} is $\sum_{i=1}^{N}{}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T and Y_{jt-9T} is the absolute mean earning forecast bias for the stock j at the distance $t-9$ from the release date in the year T.

	96	97	98	99	00	01
$Coef.$	0.89	0.35	0.29	0.50	0.43	0.37
(t)	(29.84)	(9.89)	(9.99)	(23.42)	(11.15)	(14.31)
$[Conf95\%]$	[0.83;0.95]	[0.28;0.42]	[0.22;0.34]	[0.46;0.54]	[0.35;0.51]	[0.32;0.42]
$Const.$	0.0015	-0.0001	0.0003	0.0005	-0.0004	0.0028
(t)	(1.28)	(-0.07)	(0.50)	(1.11)	(-0.51)	(1.79)
R^2	0.9499	0.5566	0.4920	0.8317	0.5376	0.6697
$R^2 - Adj$	0.9488	0.5509	0.4871	0.8302	0.5333	0.6664
N^oObs	49	80	105	113	109	103
$F - test$	890.51	97.90	99.76	548.43	124.42	204.76
$(Prob > F)$	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Table 19: **The table report the following fixed effect panel regression (for EU and US samples 186)**: $Y_{j,t,T} = \alpha_0 + \alpha_j + \gamma_1 * Year + \gamma_2 * Distance + \gamma_3 * Size + \gamma_4 * Nestimates + \gamma_5 * Sdestimates + \gamma_6 * Eurodummy + \varepsilon_{j,T}$ where $Y_{j,t,T}$ is $\sum_{i=1}^{N} {}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T. *Distance* is the number of month before the release date in which the average forecast is formulated, *Size* is the number of employees, *Nestimates* is the number of forecasts and *Sdestimates* is the standard deviation of forecasts. *Eurodummy* is a dummy taking value one if the stock is EU or zero otherwise.

	samples					
	US + EU		EU		US	
	Coef.	*t*	*Coef.*	*t*	*Coef.*	*t*
Intercept	2.89	23.65	7.03	21.90	1.03	12.81
Distance	0.0003	4.19	0.0045	2.84	0.0005	11.05
Years	-0.0014	-23.60	-0.0035	-21.84	-0.0005	-12.82
Size	9.43e-08	9.43	1.34e-07	5.95	8.7e-08	12.32
NEstimates	-0.0005	-11.38	-0.0005	-5.42	-0.0002	-4.65
SDEstimates	0.0536	36.01	0.0785	29.50	0.0164	11.68
R^2 :						
$-Within$	0.0510		0.0845		0.0250	
$-Between$	0.0680		0.0637		0.0533	
$-Overall$	0.0540		0.0737		0.0279	
N^oObs	35554		13797		21757	
N^oGroup	369		183		186	
$Corr(u_i, xb)$	-0.2555		-0.4113		-0.1944	
$F - test$	383.07		251.21		110.48	
$(Prob > F)$	(0.0000)		(0.0000)		(0.0000)	
σ_u	0.0157		0.0233		0.0096	
σ_e	0.0362		0.0521		0.0195	
ρ	0.1581		0.1662		0.1945	
$F_u = 0$	13.05		9.67		25.92	
$(Prob > F)$	(0.0000)		(0.0000)		(0.0000)	

Table 20: **The table report the following fixed effect panel regression (for EU and US samples "December Only")**: $Y_{j,t,T} = \alpha_0 + \alpha_j + \gamma_1 * Year + \gamma_2 * Distance + \gamma_3 * Size + \gamma_4 * Nestimates + \gamma_5 * Sdestimates + \gamma_6 * Eurodummy + \varepsilon_{j,T}$ where $Y_{j,t,T}$ is $\sum_{i=1}^{N} {}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T. $Distance$ is the number of month before the release date in which the average forecast is formulated, $Size$ is the number of employees, $Nestimates$ is the number of forecasts and $Sdestimates$ is the standard deviation of forecasts. $Eurodummy$ is a dummy taking value one if the stock is EU or zero otherwise.

	samples					
	US + EU		EU		US	
	Coef.	*t*	*Coef.*	*t*	*Coef.*	*t*
Intercept	2.38	23.18	6.88	19.76	0.98	12.86
Distance	0.0003	5.24	0.0005	2.28	0.0005	10.87
Years	-0.0012	-23.18	-0.0034	-19.72	-0.0004	-12.97
Size	1.06e-07	11.96	1.63e-07	6.39	1.07e-07	15.65
NEstimates	-0.0003	-8.38	-0.0005	-5.39	0.0001	2.92
SDEstimates	0.0491	34.94	0.0780	25.73	0.0241	18.05
R^2 :						
$-Within$	0.0433		0.0776		0.0312	
$-Between$	0.1368		0.1571		0.0839	
$-Overall$	0.0530		0.0791		0.0334	
$N^o Obs$	41688		11858		29830	
$N^o Group$	439		150		289	
$Corr(u_i, xb)$	-0.2975		-0.4155		-0.4201	
$F - test$	373.21		196.96		190.36	
$(Prob > F)$	(0.0000)		(0.0000)		(0.0000)	
σ_u	0.0133		0.0205		0.0108	
σ_e	0.0340		0.0527		0.0218	
ρ	0.1332		0.1316		0.1983	
$F_u = 0$	11.53		8.13		18.59	
$(Prob > F)$	(0.0000)		(0.0000)		(0.0000)	

Table 21: **Relative bias 2SLS**. First stage: $Y_{j,t,T} = \alpha_0 + \alpha_j + \gamma_1 * Year + \gamma_2 * Distance + \gamma_3 * Size + \gamma_4 * Nestimates + \gamma_5 * Sdestimates + \gamma_6 * Eurodummy + \varepsilon_{j,T}$; Second Stage: $\varepsilon = \alpha_0 + \alpha_j + \gamma_1 * hightech + \gamma_2 * US + \gamma_3 * Germany$, where $Y_{j,t,T}$ is $\sum_{i=1}^{N}{}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T. $Distance$ is the number of month before the release date in which the average forecast is formulated, $Size$ is the number of employees, $Nestimates$ is the number of forecasts and $Sdestimates$ is the standard deviation of forecasts. $Eurodummy$ is a dummy taking value one if the stock is EU or zero otherwise. $Hightech$ is dummy taking value one if company belong to Technology or Telecommunications and zero otherwise, US are companies belong to S&P and $Germany$ are companies belong to Germany.

samples US + EU "December Only"					
	First stage		Second stage		
	$Coef.$	t		$Coef.$	t
$Intercept$	2.38	23.18	$Intercept$	0.0061	50.90
$Distance$	0.0003	5.24	$hightech$	-0.0001	-0.50
$Years$	-0.0012	-23.18	US	-0.0024	-17.41
$Size$	1.06e-07	11.96	$Germany$	0.0038	11.32
$NEstimates$	-0.0003	-8.38			
$SDEstimates$	0.0491	34.94			
R^2 :				0.0144	
$-Within$	0.0433				
$-Between$	0.1368				
$-Overall$	0.0530				
N^oObs	41688			41688	
N^oGroup	439				
$Corr(u_i, xb)$	-0.2975				
$F-test$	373.21			202.89	
$(Prob > F)$	(0.0000)			0.0000	
σ_u	0.0133				
σ_e	0.0340				
ρ	0.1332				
$F_u = 0$	11.31				
$(Prob > F)$	(0.0000)				

Table 22: **Absolute bias 2SLS.** First stage: $Y_{j,t,T} = \alpha_0 + \alpha_j + \gamma_1 * Year + \gamma_2 * Distance + \gamma_3 * Size + \gamma_4 * Nestimates + \gamma_5 * Sdestimates + \gamma_6 * Eurodummy + \varepsilon_{j,T}$; Second Stage: $\varepsilon = \alpha_0 + \alpha_j + \gamma_1 * hightech + \gamma_2 * US + \gamma_3 * Germany$, where $Y_{j,t,T}$ is $\sum_{i=1}^{N} {}_{T-t}|\varepsilon|$ or the absolute mean earning forecast bias for the stock j at a distance t from the release date in the year T. $Distance$ is the number of month before the release date in which the average forecast is formulated, $Size$ is the number of employees, $Nestimates$ is the number of forecasts and $Sdestimates$ is the standard deviation of forecasts. $Eurodummy$ is a dummy taking value one if the stock is EU or zero otherwise. $Hightech$ is dummy taking value one if company belong to Technology or Telecommunications and zero otherwise, US are companies belong to S&P and $Germany$ are companies belong to Germany.

samples US + EU "December Only"					
	First stage		Second stage		
	$Coef.$	t		$Coef.$	t
$Intercept$	2.69	29.01	$Intercept$	0.0124	91.16
$Distance$	0.0007	13.34	$hightech$	-0.0009	-3.89
$Years$	-0.0013	-28.92	US	-0.0021	-13.18
$Size$	8.77e-08	10.92	$Germany$	0.0016	4.02
$NEstimates$	-0.0005	-15.30			
$SDEstimates$	0.0616	48.49			
R^2 :				0.0064	
$-Within$	0.0790				
$-Between$	0.2334				
$-Overall$	0.1117				
$N^o Obs$	41688			41688	
$N^o Group$	439				
$Corr(u_i, xb)$	-0.1506				
$F - test$	707.54			88.84	
$(Prob > F)$	(0.0000)			0.0000	
σ_u	0.0142				
σ_e	0.0307				
ρ	0.1763				
$F_u = 0$	16.91				
$(Prob > F)$	(0.0000)				

Appendix

FIGURES

Figure 1a to 1i: Earning forecast bias in Europe and the US at given distances from the release date

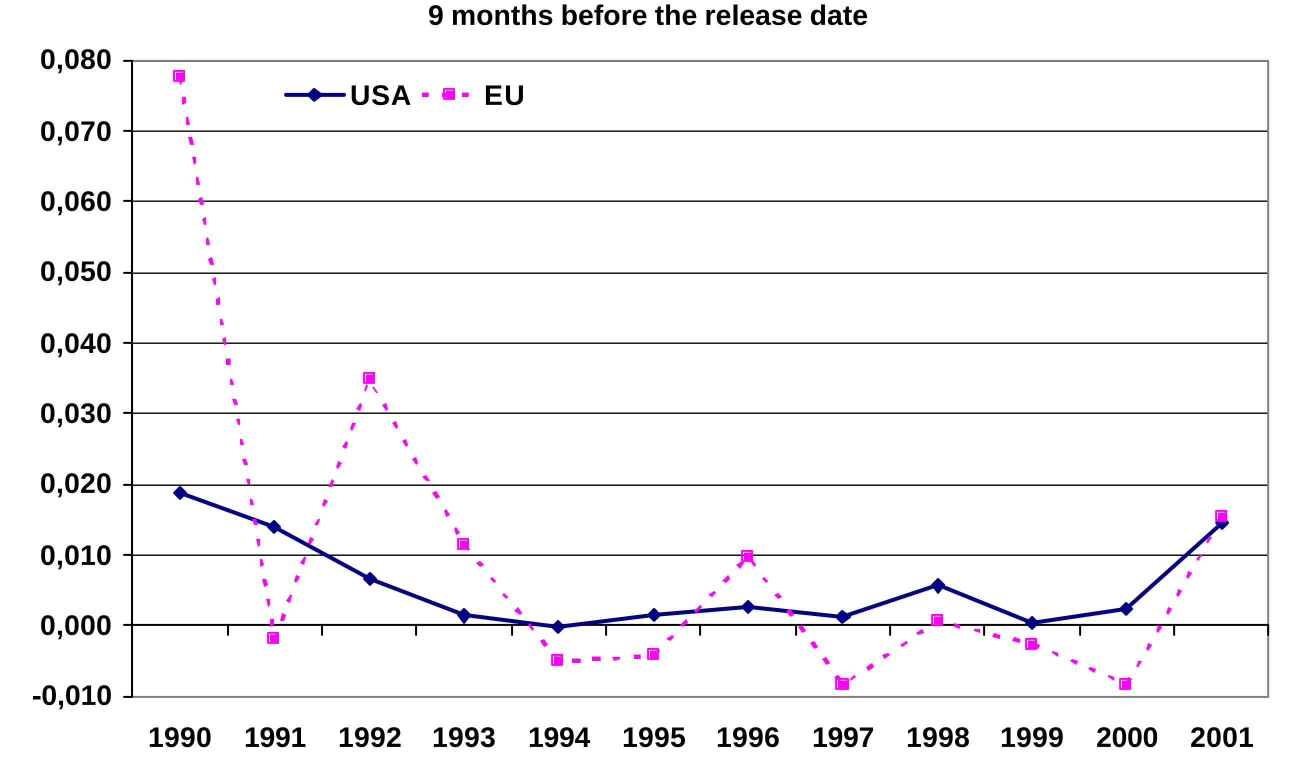

Figure 1a

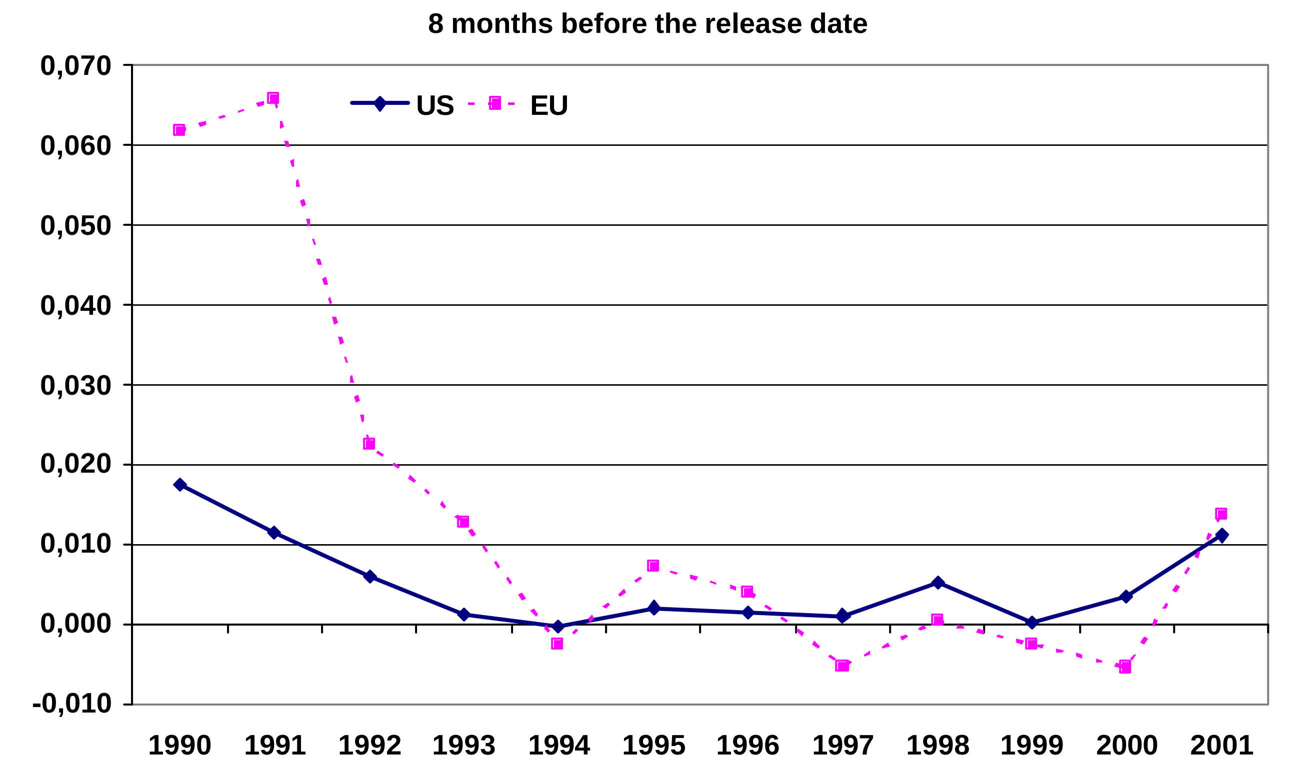

Figure 1b

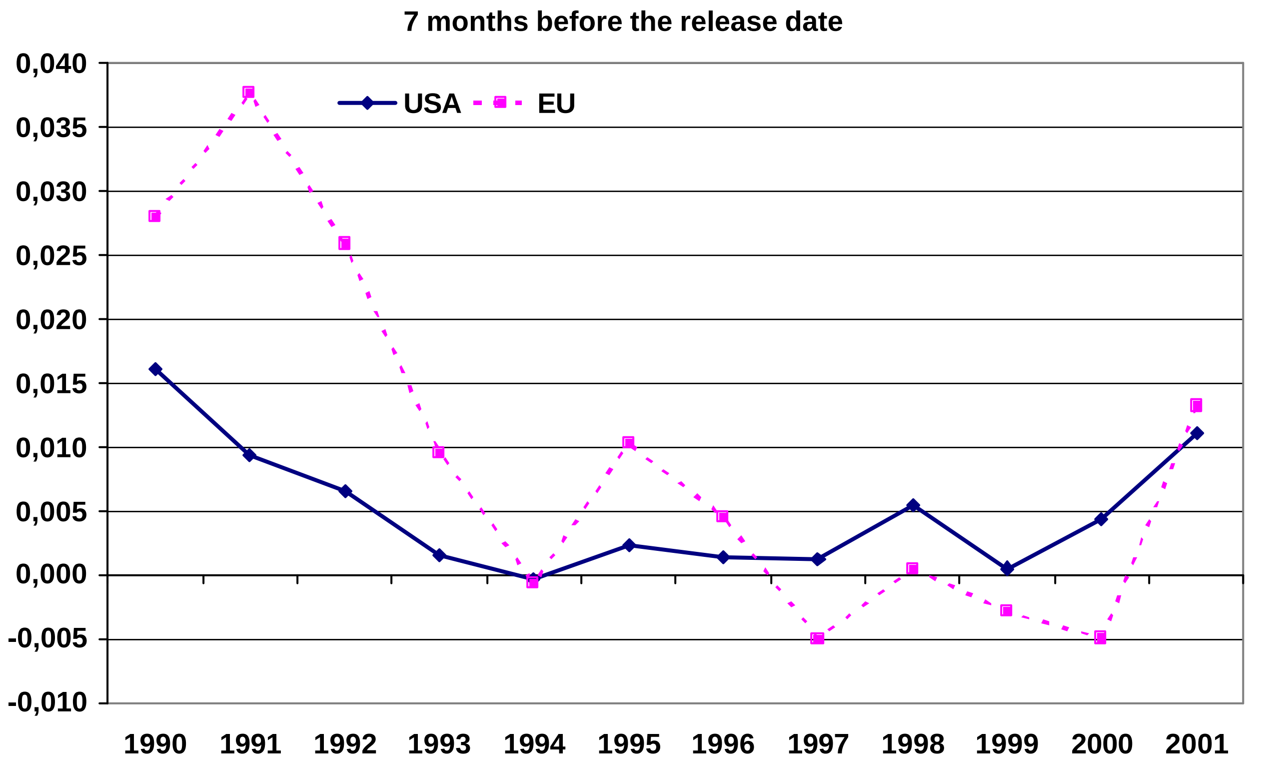

Figure 1c

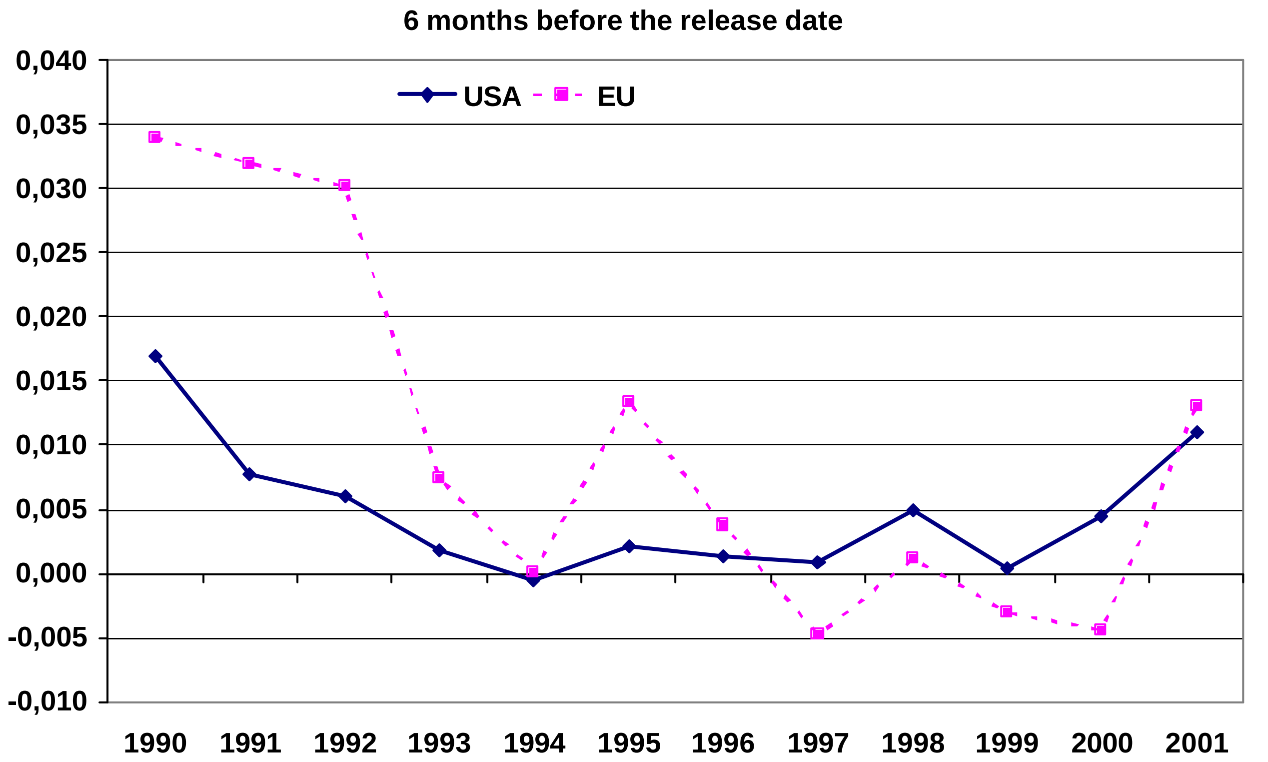

Figure 1d

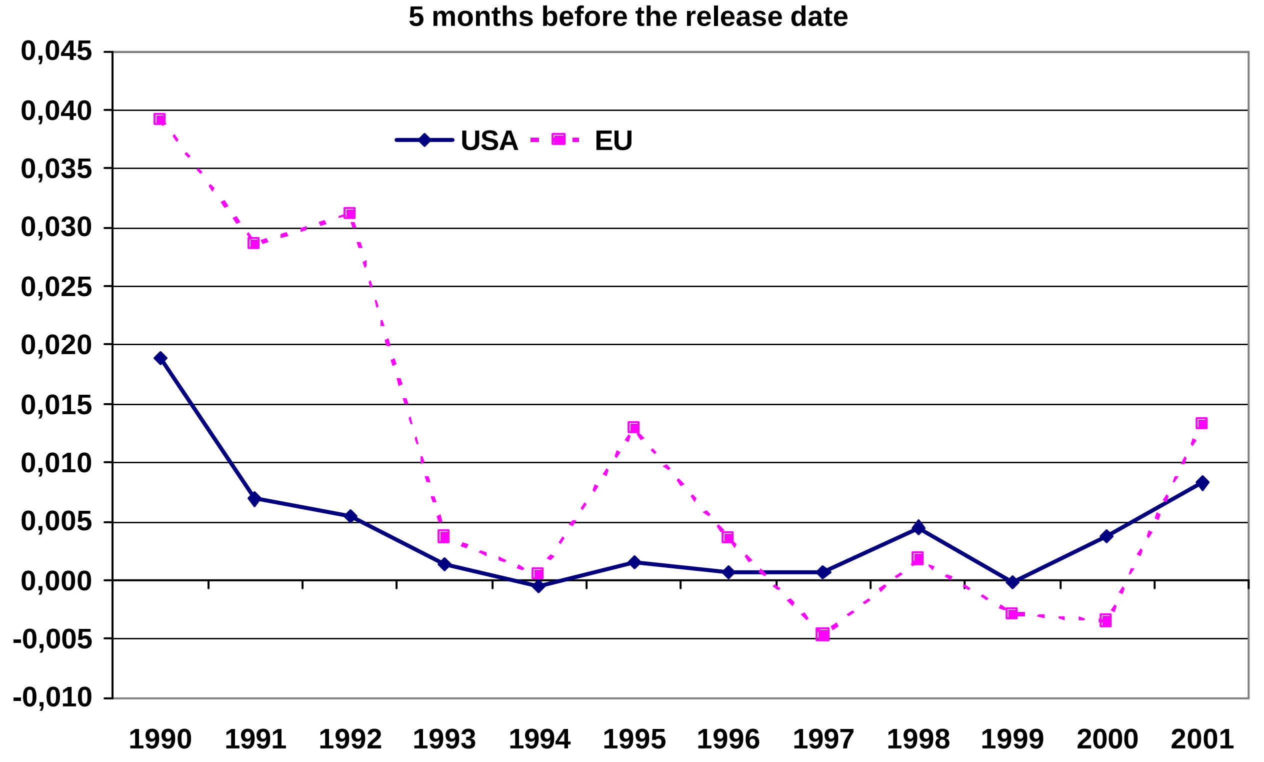

Figure 1e

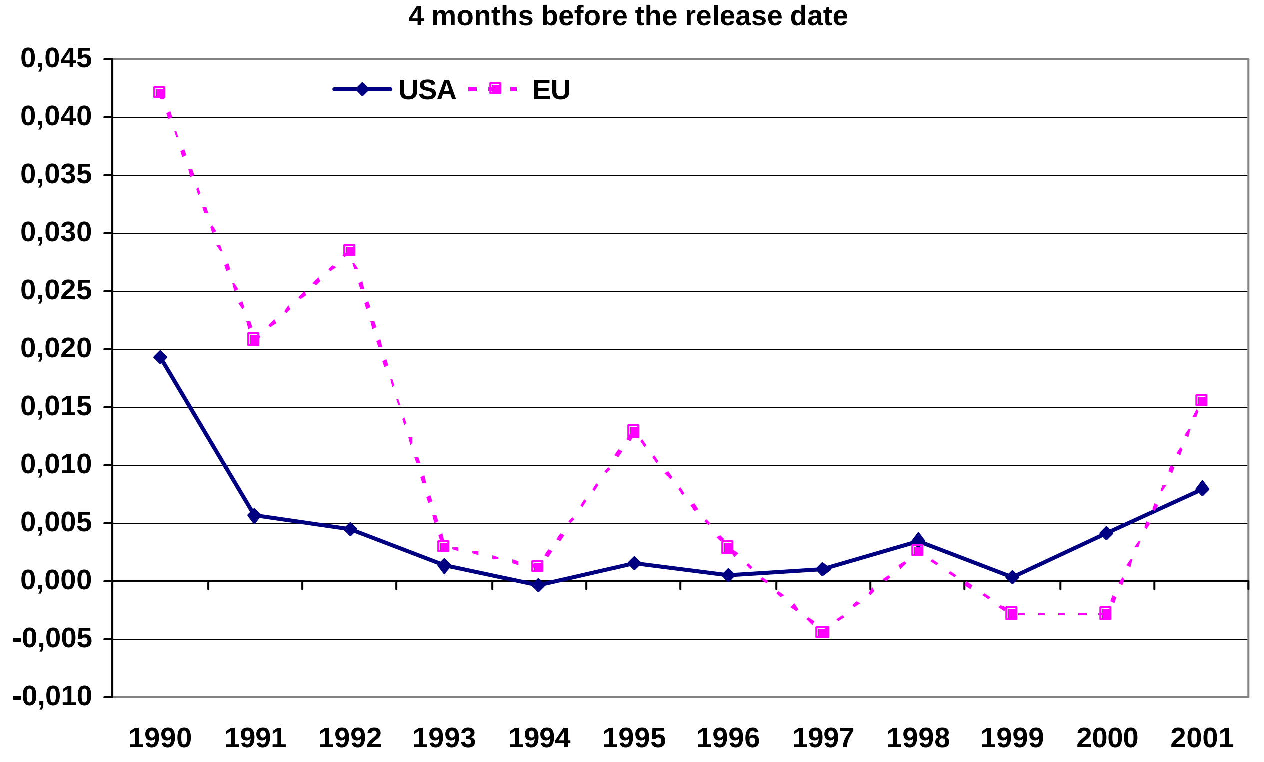

Figure 1f

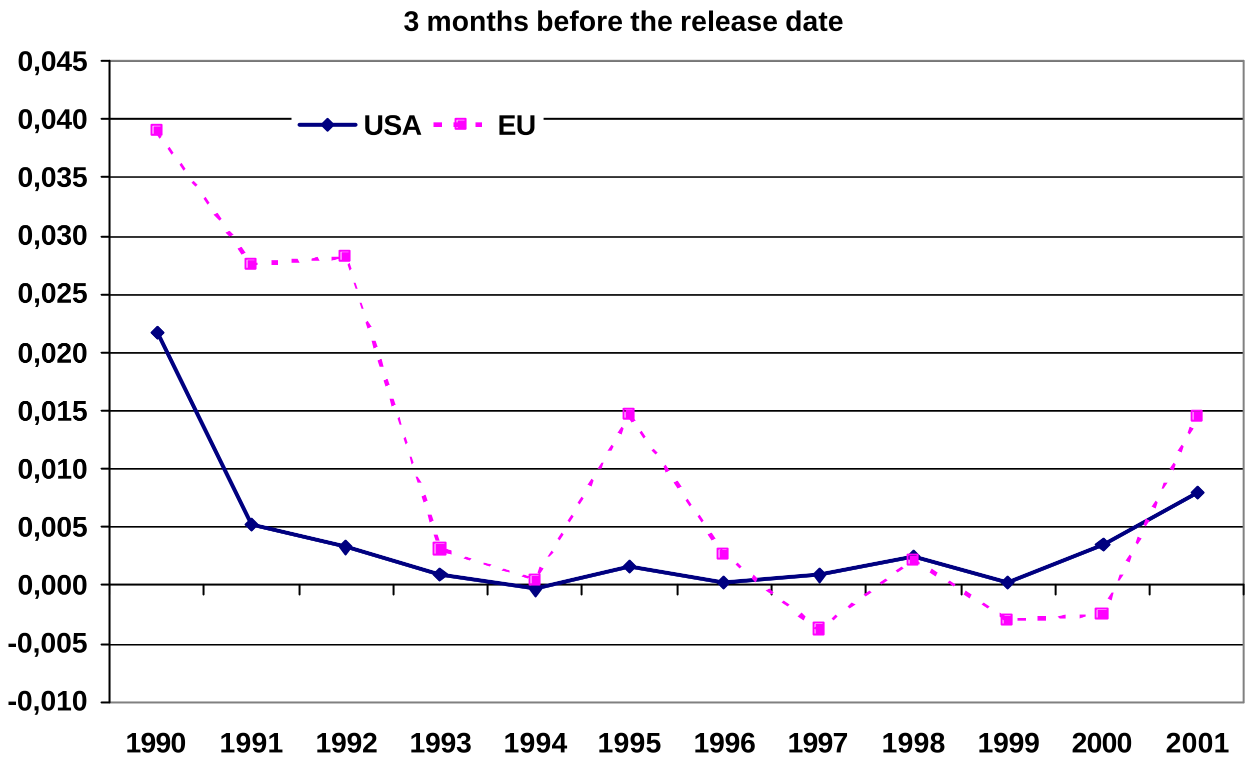

Figure 1g

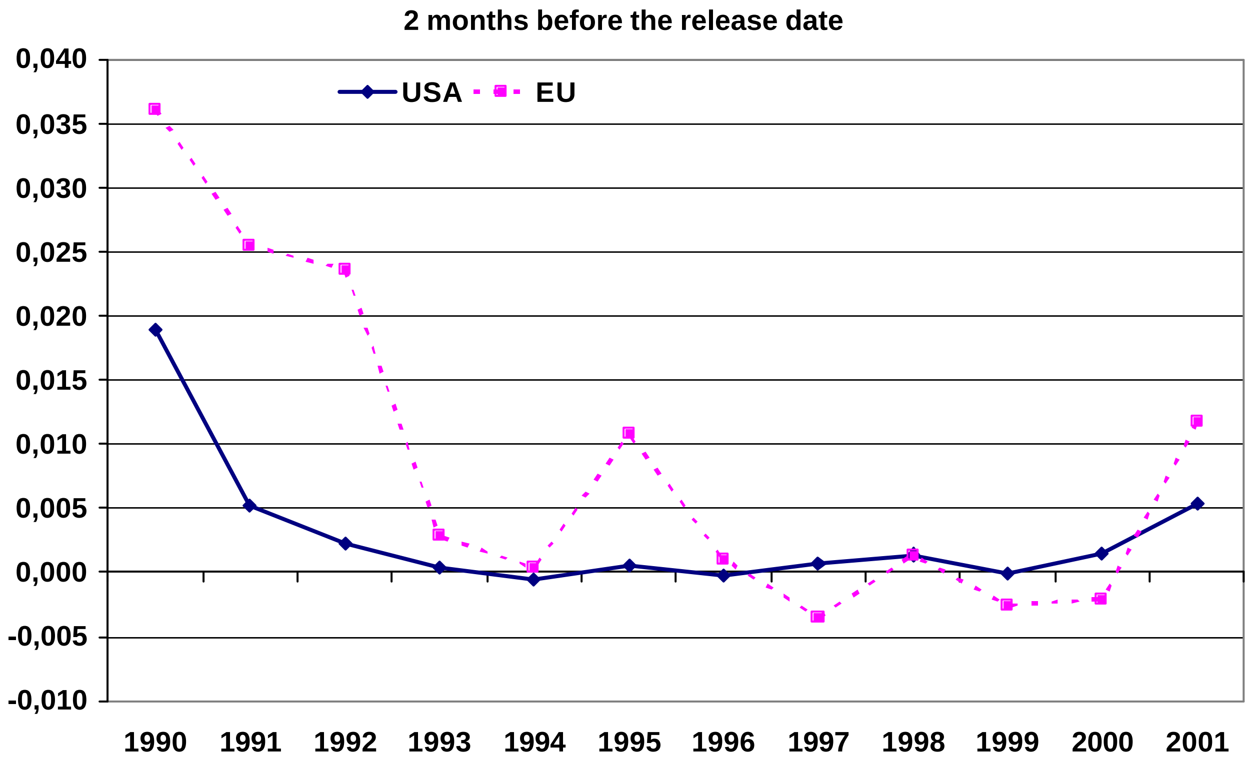

Figure 1h

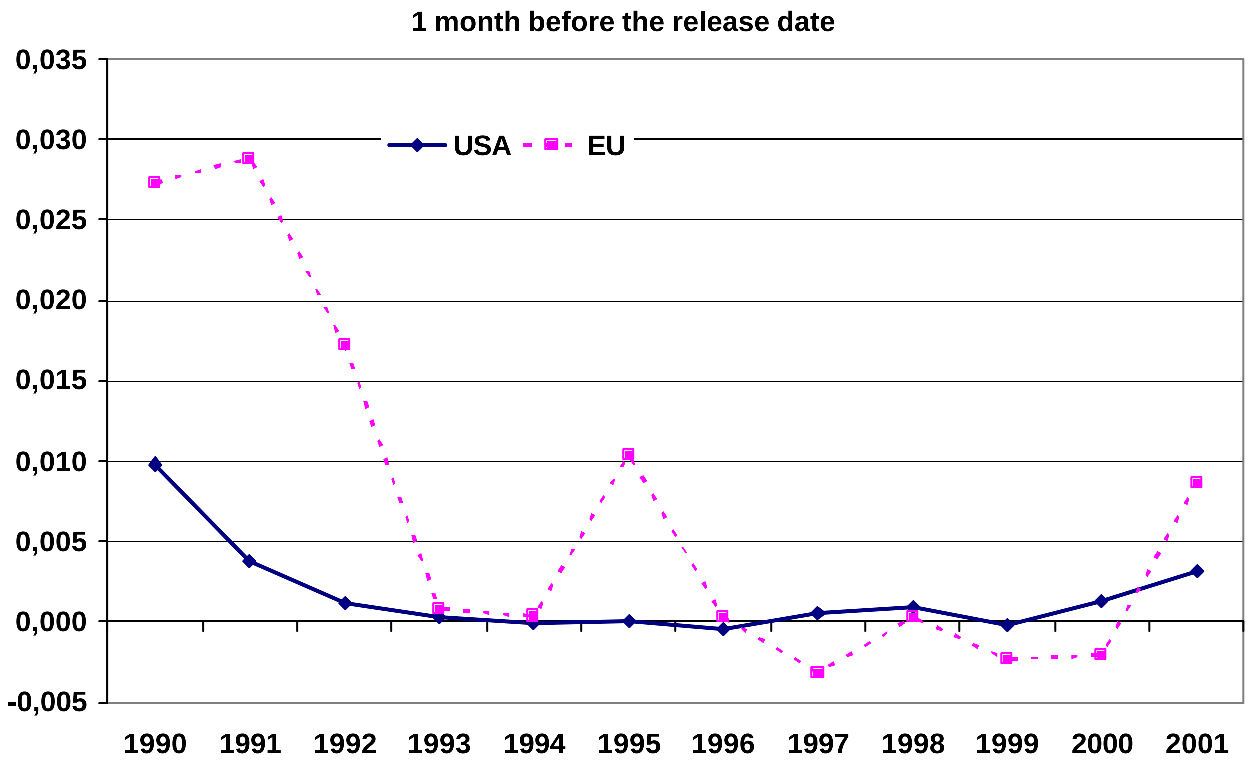

Figure 1i

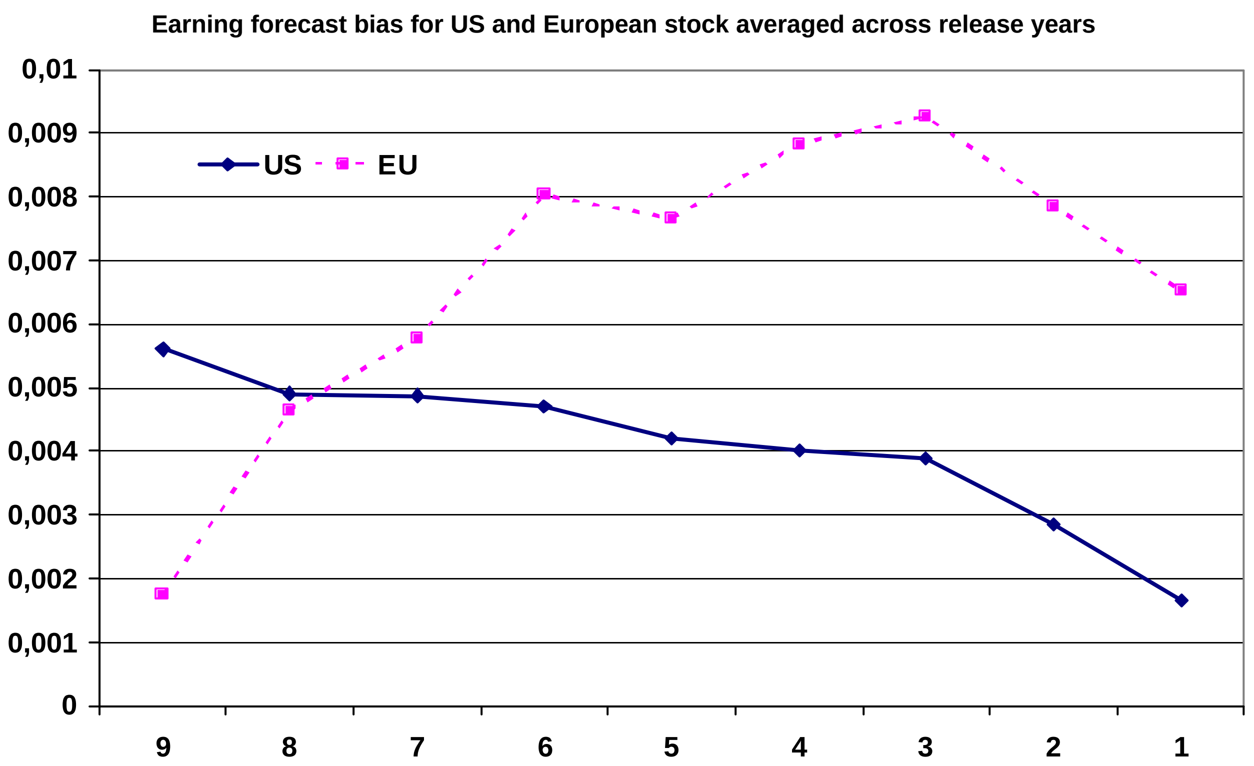

Figure 2