The Inefficient Use of Macroeconomic Information in Analysts' Earnings Forecasts in Emerging Markets

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The inefficient use of macroeconomic information in analysts' earnings forecasts in emerging markets*

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This paper presents empirical evidence that security analysts do not efficiently use publicly available macroeconomic information in their earnings forecasts for emerging market stocks. Analysts completely ignore forecasts on political stability, while these provide valuable information for firm-level earnings growth. Analysts do incorporate output growth forecasts, but these actually bear no relevant information for firm-level earnings growth. Inflation forecasts are taken into account correctly. In addition, the information environment appears to be crucially important in emerging markets, as we find evidence that analysts handle macroeconomic information in a better way for more transparent firms.

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JEL Classification: D84; E44; F30

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1 Introduction

This study provides evidence on the role of macroeconomic information in analysts' earnings forecasts in emerging markets. Specifically we investigate whether analysts incorporate forecasts of key macroeconomic variables such as output, inflation and political stability into their firm-level earnings forecasts in an efficient way. Finding that this is not the case, we examine whether analysts actually ignore valuable information for corporate earnings provided by these macroeconomic forecasts, or whether they include irrelevant information.

Security analysts are potential intermediaries in the process of information disclosure. Their role as producers of firm-specific information has been widely investigated for developed markets, see Brown (1978) and O'Brien (1988), among many others. In emerging markets, the availability of firm-specific information is hampered for a variety of reasons, such as the limited set of regulations on public information disclosure or the lack of enforcement thereof, see Morck *et al.* (2000), Bae *et al.* (2006) and Bae *et al.* (in press), among others. In that light it is perhaps not surprising that Chan and Hameed (2006) find that, through their earnings forecasts for emerging market stocks, analysts actually produce market-wide information instead of revealing firm-specific news. This naturally leads to the question whether analysts base their earnings forecasts on firm-specific information only, or whether they also make use of macroeconomic information. The use of the latter type of information can be justified if the difficulties associated with the collection of firm-specific information also apply to security analysts. If this is the case, a natural follow-up question would be if analysts use the macroeconomic information in the best possible way.

In this paper we examine the role of macroeconomic information in analysts earnings forecasts as follows. We start with investigating whether earnings forecast errors are uncorrelated with publicly available macroeconomic information. This should be the case if analysts incorporate such information in their earnings forecasts efficiently. Relatively little attention has been paid to the role of macroeconomic information in explaining analyst forecast bias. Notable exception is O'Brien (1994),

who finds that US macroeconomic news explains a significant part of the variation in US corporate earnings and that macroeconomic news that arrives after the earnings forecast issuance is reflected in analysts' forecast errors. More recently Basu *et al.* (2006) find that analysts do not fully include inflation survey forecasts in their earnings forecasts for US stocks. Our study is the first to comprehensively investigate the relationship between earnings forecasts and macroeconomic forecasts in emerging markets. Furthermore, in addition to inflation forecasts as in Basu *et al.* (2006), we include forecasts of real output growth and the outlook on political stability, in order to capture a more comprehensive assessment of the overall macroeconomic situation in a given emerging market. In our analysis we control for well-documented "micro"-information determinants of analysts' earnings forecasts, including market capitalization (Lang and Lundholm, 1996; Lim, 2001), analyst coverage (Lim, 2001; Chan and Hameed, 2006) and, in particular, prior-year earnings (Abarbanell and Bernard, 1992; Easterwood and Nutt, 1999).

Our analysis provides convincing evidence that analysts do not make efficient use of macroeconomic forecasts for their earnings forecasts of emerging market companies. Controlling for firm characteristics, we find that the earnings forecast error is significantly related to forecasts of output growth and political stability, which are available at the time when the earnings forecast was made. Earnings forecast errors are not related to inflation forecasts, suggesting that the information in this variable is correctly incorporated in the earnings forecasts.

The finding that analysts do not exploit macroeconomic forecasts in an optimal way can arise for two different reasons: Either analysts ignore valuable macroeconomic information or they take irrelevant information into account when producing their earnings forecasts. In the second step of our analysis, we distinguish between these competing explanations by examining how actual earnings growth and earnings forecasts are related to the macroeconomic forecasts. We find that the political stability forecasts do contain useful information for realized earnings, but this is ignored completely by the analysts. Although we find a positive association between actual corporate earnings growth and actual output growth, there is no such rela-

tion between earnings growth and output growth forecasts. Hence, the quality of these forecasts does not seem sufficient to provide a useful source of information for firm-level earnings. Analysts, however, overreact and adjust their earnings forecasts in the opposite direction.

In addition, we document the importance of the information environment in emerging markets by distinguishing between companies with high and low transparency. This is done according to two transparency measures: the availability of an ADR listing, following Lang *et al.* (2003) and Baker *et al.* (2002), and the time that it takes a company to release its annual report, where stocks releasing their annual report within three months after the end of the prior fiscal year are labeled as 'fast reporting' and all other stocks as 'slow reporting'. Our results clearly demonstrate that analysts handle macroeconomic information in a better way for more transparent firms. This confirms the finding of Lim (2001) for US stocks that analysts' earnings forecast bias is related to the information uncertainty environment, and in fact expands the study by documenting this effect for macroeconomic information.

Our findings contribute to earlier research on emerging markets in several ways. First, concerning the role of analysts in the information production process in emerging markets, our study provides a possible explanation for Chan and Hameed's (2006) finding that analysts produce market-wide information by showing that analysts incorporate both inflation and output forecasts in their earnings forecasts. Our study also shows that it is in fact rational for analysts to include such market-wide information in their forecasts as we find a direct relationship between earnings growth and macroeconomic developments in emerging markets. Second, regardless of the role of macroeconomic information, our results show that firm transparency is still key for analysts to come up with accurate earnings forecasts. This should stimulate policy-makers in emerging markets to work on their regulations concerning information disclosure, and should also provide an incentive for companies to increase their transparency. Third, our findings provide evidence on the importance of political stability in emerging markets. Prior studies by Claessens *et al.* (in press), among others, uncover a negative relationship between political connections and output

growth for one specific country. Our study demonstrates for a large cross-section of emerging markets that countries benefit from increased political stability in terms of higher earnings growth.

The remainder of the paper is organized as follows. In Section 2 we lay out our research methodology in detail and describe the data set. In Section 3 we report our main empirical findings. In Section 4 we provide additional results that demonstrate the robustness of our results. Finally, we conclude in Section 5.

2 Methodology and Data

We investigate the role of macroeconomic information in analysts' earnings forecasts for individual companies in emerging markets. In particular, we examine whether analysts make efficient use of forecasts concerning key macroeconomic variables when producing their earnings forecasts. In this section, we first describe and motivate our methodology to address this issue. In the remainder of this section, we discuss the variables used in our analysis.

2.1 Methodology

Our analysis is focused on the analysts' earnings forecast error FE_{it}, which we define as a percentage of the stock price at the time the forecast is made, following Abarbanell and Bernard (1992), Easterwood and Nutt (1999) and Lim (2001), among others, that is

$$FE_{it} = \frac{E_{it} - \widehat{E}_{it}}{P_{it}}, \tag{1}$$

where E_{it} is the realized earnings per share in local currency for firm i in fiscal year t, $\widehat{E}_{it}$ is the consensus analysts' earnings forecast made six months prior to the end of the year,[1] and P_{it} is the local stock price at the time the forecast is made. The consensus earnings forecast is defined as the median forecast reported for a specific company in a given month.

If analysts efficiently incorporate macroeconomic information into their earnings forecasts, the forecast error FE_{it} should be uncorrelated with any such information

[1]The reasons for choosing a six month forecast horizon are discussed in Section 2.2.

available to the analysts at the time their forecasts are made. This macroeconomic information may, for example, come in the form of the actual values of variables such as output growth and inflation in the previous fiscal year $t-1$. However, it is quite likely that analysts would attempt to incorporate more timely information, for example by considering forecasts of these same variables for the current fiscal year t, for which they are supposed to produce earnings forecasts. Hence, in the analysis below we specifically consider the question whether analysts efficiently handle information that is available in forecasts for macroeconomic variables for the current year.

In examining this issue, we account for the fact that various company characteristics may explain part of the systematic variation in earnings forecast errors, as documented by Abarbanell and Bernard (1992), Lang and Lundholm (1996), Easterwood and Nutt (1999), Lim (2001), and Chan and Hameed (2006), among others. As we use the consensus forecast we ignore analyst characteristics such as age and experience, which also have been shown to be correlated with earnings forecast errors, see Jacob *et al.* (1995) and Mikhail *et al.* (2003), for example. Hence, we estimate the following regression model:

$$FE_{it} = \alpha + \sum_j \beta_j \widehat{M}_{jt} + \sum_j \gamma_j S_{jt} + \varepsilon_{it}, \tag{2}$$

where $\widehat{M}_{jt}$ is the forecast of the j-th macroeconomic variable for fiscal year t and S_{jt} is the j-th stock specific variable. The particular variables we use for the macroeconomic forecasts and company characteristics are explained in detail below. Here it is useful to note that we make sure that both $\widehat{M}_{jt}$ and S_{jt} are available to the analysts six months prior to the end of fiscal year t, when the earnings forecasts are made. Efficient use of the information in the macroeconomic forecasts by security analysts for their earnings forecasts is equivalent to the null hypothesis that the coefficients β_j in (2) are equal to zero.

It is important to note that finding a relationship between the earnings forecast errors and macroeconomic forecasts in (2) does not necessarily imply that analysts actually ignore valuable macroeconomic information. Systematic forecast bias may also occur because analysts incorporate irrelevant macroeconomic information into

their earnings forecasts. We attempt to distinguish between these competing explanations by examining how the actual earnings growth as well as the earnings forecasts are related to the macroeconomic forecasts. Specifically, we estimate the following regressions:

$$\frac{E_{it} - E_{i,t-1}}{P_{it}} = \alpha + \sum_j \beta_j \widehat{M}_{jt} + \sum_j \gamma_j S_{jt} + \varepsilon_{it}, \tag{3}$$

$$\frac{\widehat{E}_{it} - E_{i,t-1}}{P_{it}} = \alpha + \sum_j \beta_j \widehat{M}_{jt} + \sum_j \gamma_j S_{jt} + \varepsilon_{it}. \tag{4}$$

The models in (3) and (4) obviously are identical to (2), except that the actual change in earnings and the earnings growth forecast, respectively, replace the earnings forecast error as dependent variable. The model in (3) measures whether the available macroeconomic forecasts are relevant for actual earnings growth and, hence, whether analysts should take this information into account in their earnings forecasts. The model in (4) assesses to what extent analysts do indeed incorporate the macroeconomic forecasts into their earnings forecasts. If the coefficients β_j are equal to zero in (3) but differ from zero in (4), the analysts ignore valuable information in the macroeconomic forecasts. In the opposite case, the analysts do take the macroeconomic forecasts into account, but this information actually is irrelevant for earnings growth.

Although the models in (2), (3) and (4) are linear regressions, we do not use ordinary least squares (OLS) for parameter estimation. Especially due to the occurrence of emerging markets' crises, outliers in both the realized earnings change and the forecast error as well as in the macroeconomic forecasts are present. OLS estimates are unduly influenced by such aberrant observations, which are extremely large and quite pervasive in samples such as ours. At the same time, given the more erratic behavior of emerging markets, we do not want to follow the common practice of trimming or removing outliers from the sample altogether. Instead we use a robust estimation method similar to Chan and Lakonishok (1992) to estimate (2) and all subsequent regressions. Specifically, we use Huber (1981)'s Generalized M-estimator, which downweights observations with extremely large values of the residual, the regressor, or both. We refer to Appendix A for a detailed description of

this estimation method. Throughout we compute heteroskedasticity-consistent standard errors and corresponding t-statistics to account for variation in uncertainty of the forecast (errors) across firms and over time.

2.2 Analysts' earnings forecasts

We obtain consensus analysts' earnings forecasts and the corresponding actual earnings from Institutional Brokers Estimate Systems (I/B/E/S) International Inc. This data source has been used in the majority of studies on analysts' earnings forecasts in developed markets. The consensus forecast is defined as the median of all individual analysts' forecasts reported by I/B/E/S six months before the end of the fiscal year.

Our sample consists of all listed firms included in the S&P/ International Finance Corporation (IFC) Investable Composite index during the period 1991 - 2005.[2] All stocks in the S&P/IFC Investable Composite Index are open to foreign investors. For each country in the index Standard & Poor's selects stocks in order of liquidity until a coverage of 70-80% of the total market capitalization is reached. A review of the index constituents is conducted once per year.[3]

For each company forecast to be included in our data set we require the availability of (i) a six month ahead consensus forecast of the annual earnings per share in local currency for the current fiscal year t, (ii) actual earnings per share for years $t-2$ through t, and (iii) stock prices in local currency from the end of year $t-1$

[2]The S&P/IFC Investable Composite Index consists of stocks from the following countries, with the first month of inclusion in parenthesis. In case two months are provided, the second indicates the last month of inclusion. Countries can be removed from the index when S&P/IFC no longer classifies a stock market as 'emerging'. Countries can also be added to the index when they become 'emerging'. Latin America: Argentina (Dec 1988), Brazil (Dec 1988), Chile (Dec 1988), Colombia (Feb 1991 - Nov 2001), Mexico (Dec 1988), Peru (Jan 1994), Venezuela (Jan 1990 - Nov 2001); Asia: China (Oct 1995), India (Nov 1992), Indonesia (Sep 1990), Korea (Jan 1992), Malaysia (Dec 1988), Pakistan (Mar 1991 Nov 2001), Philippines (Dec 1988), Sri Lanka (Jan 1994 - Nov 2001), Taiwan (Jan 1991), Thailand (Dec 1988); Europe: Czech Republic (Jan 1996), Greece (Dec 1988 - Apr 2001), Hungary (Apr 1994), Poland (Apr 1994), Portugal (Dec 1988 - Mar 1999), Russia (Nov 1997), Slovakia (Nov 1997 - Nov 2001), Turkey (Aug 1989); Africa & Middle East: Egypt (Nov 1997), Israel (Dec 1996), Jordan (Dec 1988 - Nov 2001), Morocco (Nov 1997), South Africa (Apr 1995), and Zimbabwe (Apr 1994 - Nov 2001). I/B/E/S data is not available for Jordan and Zimbabwe.

[3]Stocks that have a trading volume below US$ 15 million or an investable market capitalization that falls below US$ 75 million are dropped from the index.

to six months prior to the end of year t. For several reasons our sample selection rules differ somewhat from those typically applied in comparable studies for the US and other developed markets. First and foremost, we adopt a six month forecast horizon in order to be reasonably certain that the security analysts have access to the previous year's earnings figures when they make their forecast for the current fiscal year. For developed markets a longer horizon of eight months is often used, see Easterwood and Nutt (1999), among others. However, we observe that four months into the current fiscal year, the previous year's earnings are reported in the I/B/E/S database for only 62 percent of the firms included in our sample. This increases to an acceptable 89 percent after six months.

Second, we do not require a minimum number of analysts providing an earnings forecast, which is customary for developed markets. Requiring analyst coverage to be at least four, as in Easterwood and Nutt (1999) and Loh and Mian (2003), among others, would reduce the number of observations in our sample with no less than 21 percent. More importantly, we do not observe a clear difference in the properties of forecast errors for firms with analyst coverage above and below four.

Third, we do not impose any minimum stock price restrictions, like Lim (2001), as this would exclude complete countries due to high inflation in the past, while these low prices generally do not lead to extreme forecast errors.

Finally, on purpose we do not narrow the sample by default restrictions on the maximum forecast error, as it is likely that not all extreme forecast errors originate from data errors but also from stock market crises and bankruptcies. Our approach to deal with these observations is as follows. All absolute forecast errors larger than 100 percent are flagged as 'extremes' and checked manually with the help of additional pricing data from Factset and Worldscope and price-to-earnings data from IFC and Worldscope. Only if an extreme value can clearly be explained in terms of data errors it is adjusted, otherwise it is kept unchanged. This leads to a maximum forecast error of 320 percent and a minimum of -910 percent. In general, the extremes are observed during stock market crises when the substantial drops in stock prices 'blow up' earnings forecast errors, and during bankruptcies when, often

unexpectedly, the actual losses are severe. We deal with the remaining extremes by using robust regression methods, as explained before.

Our final sample consists of 10,102 firm-year observations, for 1973 unique firms from 29 different countries. Each firm is on average (median) 5 (4) times included in the sample. A total of 78 percent of the firm-year observations have fiscal years ending in December. Observations with the end of the fiscal year in March and June cover 10 and 7 percent of the sample, respectively, and concern a small number of countries, in particular South-Africa, Pakistan, India and Malaysia.

2.3 Macroeconomic variables

Our choice of macroeconomic variables M_{jt} to be included in the regression models above is guided by the idea that security analysts likely attempt to obtain a comprehensive assessment of the overall macroeconomic situation in a given emerging market. Hence, we include forecasts of three key macroeconomic variables: output growth, inflation, and a measure of political stability.

Forecasts for these macroeconomic variables can be obtained in various different ways. We decide to include survey forecasts instead of, for example, forecasts obtained from time series regression models for two reasons. First, the exact publication date of survey forecasts is generally easy to retrieve, which avoids the delicate issue of uncertain publication lags of actual macroeconomic variables. Second, survey forecasts are not subject to revisions. Both these points are important for identifying exactly which macroeconomic information is public and available to analysts at the time they make their earnings forecasts. In addition, the use of survey forecasts over other forecasts methods is motivated by studies such as Ang *et al.* (2007), who find that survey forecasts of inflation are superior over alternative forecasting methods.

We use output and inflation forecasts from Consensus Economics Inc. and the political risk index from the International Country Risk Guide (ICRG) published by Political Risk Services. Both sources provide monthly updates without any publication delay and without revisions after the initial publication. Further details are provided below. Finally, we obtain corresponding actual values of output growth

and inflation from the Economist Intelligence Unit and IFS databases, respectively.[4]

2.3.1 Output growth

Output growth is the most natural measure of the state of the economy, and seems of obvious importance for corporate earnings growth. In addition, Ackert and Hunter (1995) uncover a positive and significant relationship between future earnings forecast errors and past output growth for US stocks.

The output growth forecasts from Consensus Economics have an identical set-up as our I/B/E/S earnings forecasts. On a monthly (or bi-monthly during the first few years of our sample period) basis professional forecasters are polled their forecast for principal macroeconomic variables for the current and following (calendar) year. We include the consensus forecast for real GDP growth for the current year as issued in June, that is six months before the end of the year, corresponding with the earnings forecast horizon. Recall that the large majority of earnings forecasts in our sample concern fiscal years which coincide with calendar years. The consensus forecast is a simple arithmetic average of all individual forecasts. Consensus Economics started collecting survey forecasts for a few developed countries in 1989, expanding its sample to include emerging markets gradually in subsequent years. For this reason our emerging markets coverage is not complete, but still satisfactory at 89 percent.

2.3.2 Inflation

Inflation is included following the findings of O'Brien (1994), Ackert and Hunter (1995) and Basu *et al.* (2006) for the US market. Ackert and Hunter (1995) document no relationship between earnings forecast errors and inflation, which leads them to conclude that analysts rationally include inflation forecasts in their earnings forecasts. The conclusion of Basu *et al.* (2006) is opposite, as their findings indicate that analysts do not fully account for the information in inflation forecasts in their earnings forecasts. Basu *et al.* (2006) explain these differences by cross-

[4]We use IFS line 64F for the CPI. The Economist Intelligence Unit real GDP data is identical to GDP-at-constant-prices in IFS line 99.

sectional heterogeneity in earnings exposures to inflation as documented by Chordia and Shivakumar (2005). The inflation forecast is constructed in the same way as the real GDP growth forecast, that is, we include the consensus forecast for the current year as issued in June.

2.3.3 Political risk

The political environment is generally believed to be important in emerging markets. Fisman (2001), for example, shows that about 25 percent of the value of Indonesian firms is related to political connections. Leuz and Oberholzer-Gee (2006) also analyse the role of political connections in Indonesia and conclude that firms with political connections dislike transparency. Claessens *et al.* (in press) show that the economic costs of political connections in Brazil lower GDP with 0.2% per annum. For this reason we analyse the role of politics in the earnings forecasts. We hypothesize a positive effect of political stability on earnings growth.

Quantifying the political situation in a country is a delicate issue, because it entails many facets. The ICRG publishes monthly survey data on 12 political factors, which are aggregated into a single political risk index. The index varies between 0 and 100, where a low score indicates high political uncertainty and a high score an investor friendly and stable political environment.[5] Each factor is assigned a numerical rating within a specified range, where the allowed range reflects the weight attributed to a factor. We refer to Erb *et al.* (1996), Bilson *et al.* (2002) and Harvey (2004) for more detailed discussion of the political risk index and its relevance for emerging stock markets. The index is available for all observations in our sample. The average score is 68.3 and is quite stable over time. The Philippines's score in 1991 of 41 is the lowest, while the 1998 and 1999 scores for Portugal (91) are the highest. We use the actual change in the political risk index between the end of the previous fiscal year $t-1$ and six months into the current fiscal year t as the political risk forecast. Hence, essentially we assume that the political situation does not change in the remaining six months of year t.

[5]Besides political risk the ICRG also publishes economic and financial risk measures.

2.3.4 Accuracy of macroeconomic forecasts

Obviously the quality of the macroeconomic forecasts partly determines their usefulness for analysts earnings forecasts. Accurate forecasts of GDP growth, inflation and the political situation should provide more information than poor forecasts. Figure 1 provides a graphical impression of the quality of the macroeconomic forecasts by showing scatterplots of the forecasts against the corresponding realizations for each country-year observation in our sample. The graphs also include the results of a standard least squares regression of the actual value of the macroeconomic indicator M in year t on its forecast made six years before the end of the year for country k:

$$M_{kt} = \alpha + \beta \widehat{M}_{kt} + \eta_{kt}. \tag{5}$$

Figure 1(a) shows that analysts are too pessimistic about real GDP growth, given the slope of 1.06, but that otherwise forecasts for the GDP are of reasonably good quality given the R^2 of 0.71. For both CPI inflation (Figure 1b) and the change in the political situation (Figure 1c), analysts are too optimistic with slopes of respectively 0.90 and 0.95. Especially the forecast for inflation is good given the R^2 of 0.81, while the R^2 of the regression for the change in the political situation is 0.53. From this we conclude that the quality of the macroeconomic forecast is good enough to use in our analysis.

- insert Figure 1 about here -

2.4 Company-specific variables

As discussed in the introduction, previous research has shown that the positive bias in analysts' earnings forecasts is related to firm-specific information. For that reason we include prior-year earnings growth, market capitalization, analyst coverage and price-to-book ratio as control variables S_{jt} in our regression models. We obtain the number of analysts providing earnings forecasts from I/B/E/S and collect market capitalization and the price-to-book ratio from Standard and Poor's (formerly IFC) Emerging Markets Data Base (EMBD).

2.4.1 Prior-year earnings growth

Several previous studies explain the bias in analysts' earnings forecasts in terms of misinterpretation of the information in prior-year earnings. De Bondt and Thaler (1990) document that predicted earnings changes are more extreme than the corresponding realized earnings changes, suggesting that analysts tend to overreact. By contrast, Abarbanell and Bernard (1992) present evidence that analysts underreact to prior-year earnings information. Easterwood and Nutt (1999) reconcile these conflicting results by showing that analysts underreact to negative earnings news, but overreact to positive news, such that analysts are systematically optimistic.

2.4.2 Market capitalization

The market capitalization of a stock, which we measure in US dollars, is an indication of firm's information environment. Information uncertainty is likely to be lower for larger companies. Both Lang and Lundholm (1996) and Lim (2001) show that analysts provide more accurate earnings forecast for larger firms. Therefore we expect a negative effect of the log market value and the earnings forecast error.

2.4.3 Analyst coverage

The number of analysts following a company and providing earnings forecasts varies widely across stocks. For example, highly volatile stocks are covered by more analysts than average, while small caps are covered by relatively fewer analysts. Based on the findings by Lim (2001) and Chan and Hameed (2006) we expect stocks with higher coverage to have smaller forecast errors as the information environment for such companies tends to be richer.

2.4.4 Price-to-book

Following Lim (2001) we also include the price-to-book ratio as control variable. Van der Hart *et al.* (2005) show that a portfolio of high price-to-book stocks in emerging markets has a smaller forecast error than a portfolio of low price-to-book stock during the first 11 months after portfolio formation. Hence we expect companies with a low price-to-book ratio to have a larger forecast bias.

3 Empirical results

3.1 Summary statistics

- insert Table 1 about here -

Table 1 presents an overview of the distribution of the firm-year observations across years and countries. The number of observations per year, which equals 673 on average, varies substantially over time. Starting relatively low at 97 in 1991, the number of firms grows rapidly to around 950 in 1997/8. Due to the effects of the Asian crisis and Russia crisis (in addition to countries such as Portugal and Greece leaving the IFC Investable index) this declines to 586 in 2003, followed by a sharp increase again during the final two years of the sample period. A similar pattern occurs for most individual countries. We also observe a positive relationship between country size and the number of observations per country, as expected. In terms of data coverage, on average our sample includes 65 percent of the constituents of the IFC Investable index, except for the first three years of the sample period during which coverage is lower at around 43 percent.

- insert Table 2 about here -

Table 2 displays the mean and median earnings forecast error across countries and across years. Consistent with previous research for developed markets, we find that the overall average forecast errors are negative, suggesting that on average analysts are too optimistic about future earnings. The magnitudes of the mean and median errors of -5.2 and -0.5 percent, respectively, also are comparable to values typically found for developed markets. For example, Easterwood and Nutt (1999) report mean and median errors of -1.93 and -0.32 percent for the US over the period 1982–1995. It is worthwhile to consider the forecast errors during the emerging markets crises that occurred during our sample period. For most crises we observe substantially larger negative median forecast errors: -4.4 percent in Mexico during the 1994 (December) peso-crisis, -32 percent in Thailand during the 1997 (July) Asia crisis, -48 percent in Russia during the 1998 (August) Russia crisis and -8.6 percent (-21

percent) during the Argentina crisis in 2001 (November) and 2002 (January). Recall that most earnings forecasts in our sample were produced in June, prior to the crises' occurrence. Hence, the excessive optimism during these years suggests that analysts did not foresee these periods of turmoil. For the Turkey crisis in February 2001 we do not observe a clear deviation from the historical pattern, suggesting that analysts did incorporate negative earnings related news in their forecasts during this period of larger economic uncertainty.

3.2 Firm-level earnings growth and actual macroeconomic developments

Before examining the role of macroeconomic information in analysts' earnings forecasts, we first consider the relationship between actual earnings growth and realizations of our three macroeconomic variables to determine whether and how firm-level performance is related to macroeconomic performance in the first place. Specifically we estimate the following regression:

$$\frac{E_{it} - E_{i,t-1}}{P_{it}} = \alpha + \sum_j \beta_j M_{jt} + \sum_j \gamma_j S_{jt} + \varepsilon_{it}, \tag{6}$$

where M_{jt} are the realizations of our macroeconomic factors in year t. Panel A of Table 3 presents robust estimation results for (6), as well as for regressions including only one of the three macroeconomic variables.

- insert Table 3 about here -

We find significantly positive slope coefficients for all three macroeconomic variables, confirming prior expectations. The positive slope estimate for realized output growth of 0.13 ($t = 8.3$) implies an earnings increase equal to 0.13 percent of economic growth on average. The coefficient estimate of realized inflation, although positive, is small at 0.02 ($t = 8.7$), suggesting a rather weak relationship between inflation and nominal earnings in emerging markets. Finally, an increase in political stability leads to a significantly positive effect on earnings growth, given the coefficient estimate of 0.06 ($t = 6.8$).

For the firm-specific information we observe a negative coefficient of the prior-year earnings growth, equal to -0.13 ($t = -16.6$). This indicates a mean reversion effect that is also documented by Easterwood and Nutt (1999) for earnings growth in the US. The positive slope of 0.01 ($t = 16.2$) for the log market capitalization suggests that relationship between size and nominal earnings is rather weak. The same applies to analyst coverage and the price-to-book ratio with coefficient estimates of -0.00036 ($t = -5.2$) and 0.0011 ($t = 7.6$), respectively.

The fairly modest R^2 at 7.53% indicates that the relationship between earnings growth and macroeconomic developments in emerging markets is not particularly strong. Nevertheless, these results indicate that analysts may benefit from incorporating macroeconomic information into their earnings forecasts. The question is whether they indeed do this and if so, whether this is done in the best possible way.

3.3 Analysts' efficiency

If analysts make optimal use of macroeconomic information for their earnings forecasts, the forecast errors should be uncorrelated with any information that is available at the time the forecasts are made. We examine this issue by estimating the forecast error model in (2). We stress that we include the macroeconomic forecasts as they were made in June of each year, coinciding with the six-month horizon used for defining the earning forecast error such that this information is available at the time analysts issue their earnings forecasts.

The results reported Panel B of Table 3 show a number of interesting features. First and foremost, we obtain significant slope coefficients for two of our three macroeconomic variables. The positive coefficient estimates for the forecasts of output growth and political risk of 0.07 ($t = 4.1$) and 0.02 ($t = 2.2$), respectively, indicating that analysts underestimate the effects of output growth and the change in the politics on earnings growth. Analysts do incorporate inflation forecasts efficiently in their earnings forecasts, given that its coefficient (-0.004, $t = -1.4$) is not significantly different from zero.

Second, we find a significantly negative intercept equal to -5.7 percent ($t = -23.0$), indicating that analysts are optimistic on average.

Third, we find that the bias in analysts' earnings forecasts also varies systematically with the included firm characteristics. The positive coefficient estimate of 0.09 ($t = 15.8$) for the prior-year earnings growth indicates that analysts do not efficiently take into account the information from last year's earnings growth. We note that this estimate resembles Easterwood and Nutt (1999)'s slope estimate of 0.13 ($t = 15.29$) and also is in line with Abarbanell and Bernard (1992)'s finding of β_1 of 0.08 ($t = 3.30$) for both US companies. Furthermore, we find a larger bias for smaller companies, in line with the result for US stocks documented by Lang and Lundholm (1996) and Lim (2001), and for an international sample of stocks by Ang and Ciccone (2002). The larger bias for companies with a low price-to-book ratio is also present in our dataset. Contrary to our expectations, we find a smaller bias for stocks with low analyst coverage. This effect is statistically significant but economically very small.

The above observations summarize our main results. Most importantly, we find significant estimates for the coefficients of two of the macroeconomic variables. Analysts do not use information that is available in forecasts of output growth and the political situation in emerging markets for their earnings forecasts in the best possible way. The information in inflation forecasts seems to be accounted for correctly.

3.4 Interaction between macroeconomic forecasts and earnings forecasts

At first sight, our finding that earnings forecast errors are related to the output growth and political risk forecasts seems to imply that analysts ignore valuable macroeconomic information when producing their earnings forecasts for individual companies. This is not necessarily true, however. An alternative explanation is that these macroeconomic forecasts are incorporated into the earnings forecasts, but this information actually is irrelevant for earnings growth. As discussed in Section 2 we may shed light on the question which of these competing mechanisms is the relevant explanation by regressing the realized earnings growth and the earnings forecasts on the macroeconomic forecasts and firm characteristics, as given in (3) and (4), respectively.

The estimation results as shown in Panels C and D of Table 3 indeed provide useful insights on this issue. First, for the inflation forecasts we find significantly positive coefficients in both regressions of the actual earnings growth and the forecasts (0.03, $t = 15.6$ and 0.03, $t = 9.4$, respectively), which furthermore are of comparable magnitude. Hence, the inflation forecasts do contain useful information for actual earnings growth for emerging markets firms, and analysts incorporate this information correctly in their forecasts.

The insignificant coefficient $\beta_3 = -0.0047$ ($t = -0.8$) of the political risk forecast in panel D suggests that analysts ignore changes in the emerging market's political situation in their earnings forecasts. Panel C, however, shows that the political risk forecast is related to actual earnings, with a significantly positive coefficient equal to 0.02 ($t = 2.2$). This implies that analysts would be able to improve their earnings forecasts by taking this information into account, as also indicated by the significant coefficient for the political risk forecast in panel B for the forecast error regression.

Finally, the most striking results are obtained for the output growth forecasts. We find a significantly negative coefficient of -0.07 ($t = -6.0$) in the regression for the earnings forecast, indicating that higher forecasts of output growth are accompanied by lower earnings forecasts. This contradicts the positive relationship found between realized earnings and output growth in panel A, so that analysts seem to respond to this information in the wrong way. At the same time, the results in panel D point out that there is no significant relationship between the output growth forecast and realized earnings with a coefficient of 0.01 ($t = 0.6$). Hence, analysts better ignore this information altogether for their earnings forecasts. This outcome confirms O'Brien (1994)'s finding that macroeconomic news that arrives after the earnings forecast issuance is reflected in the forecast error.

In sum, our findings indicate that analysts do not efficiently use the available macroeconomic information represented by forecasts for output growth and the change in the political situation in their earnings forecasts for emerging markets' stocks. Analysts do incorporate the information represented by inflation forecasts correctly. The political risk forecasts contain useful information for realized earn-

ings, but analysts ignore this completely. Output growth forecasts do not seem useful sources of information for realized earnings. Analysts, however, 'overreact' and adjust their earnings forecast in the opposite way.

3.5 Transparency

As discussed in the introduction, earnings forecasting is closely related to the information environment. We return to this issue in this section and examine whether the role of macroeconomic information in analysts' earnings forecast differs systematically according to the ease with which analysts may gain access to firm-specific information. This builds upon the point made by Bae *et al.* (2006) that a firm's transparency may be an important factor determining analyst behaviour. Intuitively, if the financial statements are limited and a firm provides little or no information about its business operation's outlook, analysts need to rely more upon macroeconomic information for producing an earnings forecasts. Macroeconomic information may have little added value for companies that are more willing to disclose firm-specific information and management expectations.

We investigate the role of the information environment by distinguishing between companies with high and low transparency, according to two measures. First, we split our sample into stocks with and without ADR's, following the suggestion of Lang *et al.* (2003) and Baker *et al.* (2002). Our second measure of transparency is the time that it takes a company to release its annual report: stocks releasing their annual report within three months after the end of the prior fiscal year are labelled as 'fast reporting', and all other stocks as 'slow reporting'. To the best of our knowledge, this second transparency measure has not been examined before. Both measures are defined such that analysts know in advance if the stock is transparent given either its ADR listing or its prompt release of the prior-year annual report.

The ADR identifier comes from the Factset Pricing database. This database contains firm-level information about the start and end dates of an ADR cross-listing. Our sample includes 2161 firm-year observations that have an ADR listing when the earnings forecasts are issued. We obtain the fiscal year-end date as well as the publication data of the annual report from the I/B/E/S database. In total

we have 3522 fast-reporting firm-year observations. For both measures it holds that the distribution of transparent companies in our sample is fairly uniform across countries, sectors as well as calendar years. This is important as it implies that the following analysis truly measures transparency at the firm level instead of, for example, transparency at the country level.

- insert Table 4 about here -

Table 4 shows the results for the regressions allowing for different coefficients for transparent and non-transparent firms. The results for the forecast error regression in panel B provide convincing evidence that analysts' handle macroeconomic information more efficiently for transparent companies, irrespective of which transparency measure is used. For fast-reporting firms, only the political risk forecast is significantly related to the forecast error, while all three macroeconomic forecasts are significant for slow-reporting firms. The positive coefficients for the latter group of companies furthermore suggest that analysts underreact to the information in the forecasts for inflation, output growth and political risk. For ADR stocks, we even find that none of the macroeconomic forecasts is statistically significant, while for non-ADR stocks the output growth and political risk forecasts are, and again with positive coefficients. The results in panel C demonstrate that the output growth forecast is relevant for neither transparent nor non-transparent companies' earnings growth. For the inflation and political risk forecasts, the results partly depend on the transparency measure that is used to classify firms. For ADR stocks we find that the political risk forecast bears useful information for earnings growth and the inflation forecast does not, while the opposite is found for fast-reporting firms. For both non-ADR stocks and slow-reporting firms we find significantly positive coefficients for both these macroeconomic forecasts.

Overall we conclude that analysts handle macroeconomic information in a better way for more transparent companies. This confirms the finding of Lim (2001) for US stocks that analysts' earnings forecast bias is related to the information uncertainty environment, and in fact expands it by documenting this effect for macroeconomic forecasts.

4 Robustness

In this section we report results from a number of additional analyses, intended to check the robustness of our main finding that analysts do not optimally account for macroeconomic information in their corporate earnings forecasts.

4.1 Crises

Our robust estimation technique ascertains handling of outliers. Although this approach has several desirable features and has been used by others like Chan and Lakonishok (1992) or Krishnaswami and Subramaniam (1999), a potential concern is that crises still might influence our results. To address this issue explicitly we distinguish between firm-years in normal and in crises periods and consider the role of macroeconomic information for these sub-samples separately. In total we identify 391 firm-year observations in crisis periods: the Mexican peso crisis in 1994, the Asian crisis in 1997/1998, the Russian debt crisis in August 1998, Argentina's default at the end of 2001 and Turkey's currency crisis in 2001.

Estimating the four regression models in (2), (3), (4) and (6) allowing for different coefficients during crises and 'normal' periods renders estimates as reported in Table 5. Reassuringly, the results of the earnings forecast error in normal markets are largely comparable with the results for the complete data set. In particular, analysts underestimate the effects of output growth and changes in political stability during normal periods, with significantly positive coefficients in panel B that are very close to those found for the complete sample. The estimates of the corresponding coefficients in panels C and D also confirm the earlier finding that output growth forecasts do not carry relevant information for earnings growth while political risk forecasts do. Analysts treat these forecasts wrongly, in the sense that they do incorporate output forecasts in their earnings forecasts but ignore the political risk forecasts. Interestingly, the coefficient of the inflation forecast in normal markets in the forecast error regression is more than double the coefficient for the complete sample at -0.0085 compared to -0.0039, and is significantly different from zero with a t-statistic of -3.0. This indicates that analysts overestimate the effect of

inflation on earnings growth when constructing their earnings forecasts. This is also borne out by the estimates in panels C and D, showing that the inflation forecast coefficient is considerably larger in the regression of the earnings forecast than of the realized earnings growth.

The results for the crisis periods also are noteworthy. From panel B we observe that the earnings forecast errors are not significantly related to our three macroeconomic forecasts. Panels C and D indicate that analysts correctly account for the inflation forecast, which bears useful information for earnings growth, and rightfully ignore the non-informative output growth and political risk forecasts.

We conclude that our primary results are confirmed after controlling for the crisis periods: analysts do not efficiently incorporate macroeconomic information into their earnings forecasts during normal market circumstances.

4.2 Country, sector and year effects

Next, we verify the relevance of country-specific macroeconomic information for earnings forecasts, rather than global macroeconomic or sector-specific information. This is done by limiting the regressors in (2) to the stock-specific characteristics and including different types of dummy variables instead of the macroeconomic forecasts. First, we consider the relative importance of year, country and sector effects by including a set of corresponding dummies. For constructing the sector dummies we use the MSCI sector classification. The year dummies can tentatively be interpreted as representing a global macroeconomic factor, such as US output growth or inflation, impacting all emerging markets earnings equally. The other two types of dummies cover structural differences across countries and sectors. Second, we jointly include year and country dummies or year and sector dummies. Third and of most interest, we include country-year or sector-year dummies. These dummies should shed most light on the question if macroeconomic effects are important for explaining analysts' forecast bias. The year-country dummies have a clear economic interpretation as they can be considered as proxies for time-varying country-specific macroeconomic information. In fact, year-country dummies provide the most perfect macroeconomic factor, such that the R^2 of this regression provides an upper bound

on the explanatory power than we can attain with specific macroeconomic variables. The year-sector dummies can be interpreted as sector-specific factors that change over time, such as the oil price for the energy sector or the price of semiconductors for the IT sector. A comparison of the adjusted-R^2 of the regressions with these two types of dummies should demonstrate whether the country-based approach taken in our paper is justified, or whether a sector-based approach would have been more appropriate.[6]

Table 6 reports the R^2's for the different dummy regressions, obtained with the robust estimation method. It can be seen that the individual time, country and sector effects are approximately equally important with R^2 values of 2.31, 2.04 and 1.89 respectively. The R^2 of 6.05 percent for the year-country dummies more than doubles the R^2 of 2.95 percent obtained for the specification with year-sector dummies, clearly suggesting that the country-based macroeconomic approach taken here is indeed appropriate.

4.3 Macroeconomic exposures per year and per country

As a final robustness check, we explore how the information content of macroeconomic forecasts varies over time and across countries. Ciccone (2005) reports a steady decrease in analysts' earnings forecast errors for US stocks over the period 1990-2001. This motivates us to explore if and how the information content of macroeconomic forecasts varies over time for our sample of emerging market firms. We examine this issue by estimating the forecast error model (2) for individual calendar years. If analysts indeed have become more efficient over time the relationship between macroeconomic forecasts and earnings forecast errors should weaken for more recent years.

Table 7 displays the regression results for the forecast error model for each individual calendar year. These suggest that analysts' earnings forecasts consistently are inefficient and have not improved in recent years. Especially information in

[6] A more technical point is that in order to avoid multicollinearity we impose that the dummy coefficients sum to 0, such that they measure the deviation from the overall intercept, see also Heston and Rouwenhorst (1995), for example.

prior-year earnings growth is not taken into account correctly, as its coefficient is significantly positive for 10 out of 15 years, with no indications that this effect weakens over time. It seems that analysts assess the information concerning the political situation better over time, as the earnings forecast errors are uncorrelated with the change in political risk during the last four years of our sample period, in contrast to the significantly positive coefficient for earlier years. This is not the case for inflation and output growth, for which we still find a significantly positive relationship with the forecast error in the (prior) last year of our sample period. Also note that analysts' reaction to the inflation and output growth forecasts varies substantially over time. For some years (1996, 1997) we find evidence for underreaction (as the coefficient is negative), while for other years we find evidence for overreaction (given the positive coefficient). In contrast to the US results reported in Ciccone (2005) we conclude that analysts' inefficiency of earnings forecasts for emerging markets does not weaken during more recent years.

- insert Table 7 about here -

Finally, we examine if the value of macroeconomic information varies across countries. Table 8 explores the cross-country heterogeneity in the properties of earnings forecast errors. For 23 countries the individual R^2 of the regression in (2) is higher than the R^2 obtained with the complete sample, in particular for the Czech Republic, Russia and Egypt. The estimation results reveal a considerable amount of heterogeneity for the macroeconomic variables, as the coefficients of both output and political risk forecasts are significantly positive and negative for an equal number of countries (five and six, respectively). The same applies to the inflation forecast, as its coefficient is positive and significantly different from zero for 7 countries and significantly negative for 10 countries. Apparently these effects cancel out when the forecast errors are pooled across countries, given that we do not find a significant effect of the inflation forecast when the model is estimated for the complete sample.

- insert Table 8 about here -

Overall, we conclude that our results are robust over time but show considerable heterogeneity across countries. It would be interesting to examine whether the cross-country differences in the effects of the macroeconomic forecasts can be related to, for example, differences in the transparency and disclosure regulations and practices of the financial markets in the different emerging markets, see Bae *et al.* (in press). This would show whether transparency at the country level also affects the role of macroeconomic information for analysts' earnings forecasts, in addition to transparency at the firm level documented in Section 3.5. This, however, is beyond the scope of the current paper and is left for future research.

5 Conclusion

We present empirical evidence that analysts do not make efficient use of publicly available macroeconomic information when producing earnings forecasts for emerging market firms. We show that analysts do incorporate macroeconomic forecasts in their earnings forecasts, but in a sub-optimal way. Analysts show strong signs of underreaction to political stability forecasts and overreaction to output growth forecasts. The forecasts on political stability are completely ignored ignored by analysts, while these provide valuable information for firm-level earnings growth. Analysts do incorporate output growth forecasts, but these actually bear no relevant information for firm-level earnings growth. Hence, analysts better ignore this information altogether for their earnings forecasts. Inflation forecasts are taken into account appropriately. These results are robust to controlling for several firm characteristics, including prior-year earnings growth, market value, analyst coverage and the price-to-book ratio.

In addition we show that firm transparency determines analyst behaviour as we document analysts' earnings forecasts to be more efficient for transparent stocks. We distinguish between transparent and non-transparent stocks based on either the availability of an ADR listing (following Lang *et al.* (2003)), or the publication of the annual report within three months after the fiscal year end. For both measures of transparency we find that analysts correctly take into account (all) macro economic

forecasts as well as the prior-year earnings growth. This result confirms Bae *et al.* (2006) and Lim (2001)'s conclusion that analysts' earnings forecast bias is related to the information uncertainty environment.

Overall our findings suggest the usefulness of macroeconomic forecast information in earnings forecasts for emerging market companies. We offer analysts, as well as investors, insight how to improve earnings forecasts. Companies, on the other hand, can facilitate analysts in their earnings forecasts by increasing their transparency, for example by publishing their annual reports promptly after the fiscal year end. In addition, our findings provide evidence on the importance of political stability in emerging markets. Countries benefit from increased political stability in terms of higher earnings growth.

Future research could consider the role of macroeconomic information in individual analysts' earnings forecasts. More specifically we suggest to look at the difference between local analysts and foreign analysts. Bae *et al.* (in press), for example, find that local analysts have an economically and statistically significant advantage over foreign analysts. It would be interesting to examine whether the use of macroeconomic information also differs between domestic and foreign analysts. Furthermore, we have implicitly assumed a specific (quadratic) loss function for analysts and a constant relation between macroeconomic information and earnings forecasts over time and across countries. Following Basu and Markov (2004) and Rodriguez (2005) a closer look at the effect of these assumptions may provide more empirical evidence for analysts' inefficiency in emerging markets earnings forecasts.

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Appendix: Huber's Generalized M-estimator

Robust estimation techniques are a convenient method to guard against the influence of aberrant observations. In this appendix we briefly describe the Generalized M-estimator (GM) employed in this paper in the context of a linear regression model

$$y_i = x_i\beta + \varepsilon_i, \qquad i = 1, \ldots, n, \tag{7}$$

where β is an unknown parameter and ε_i are independently distributed errors. A GM estimator of the linear regression coefficient β can be defined as the solution to a weighted least squares equation defined by the first order condition

$$\sum_{i=1}^{n}(y_i - x_i\beta)x_i w_r(r_i) = 0, \tag{8}$$

where r_i denotes the standardized residual, $r_i \equiv (y_i - x_i\beta)/(\sigma_\varepsilon w_x(x_i))$ with σ_ε a measure of scale of the residuals and w_x a weight function that is bounded between 0 and 1. The weight functions $w_r(\cdot)$ and $w_x(\cdot)$ are chosen in such a way that i-th observation receives a relatively small weight if either the regressor x_i or the standardized residual $(y_i - x_i\beta)/\sigma_\varepsilon$ becomes large, such that the outlier does not influence the estimates of β and σ_ε.

The weight function $w_r(r_i)$ is specified in terms of the Huber (1981) ψ function as $w_r(r_i) = \psi(w_r)/r_i$ for $r_i \neq 0$ and $w_r(0) = 1$. The Huber ψ function is given by

$$\psi(r_t) = \begin{cases} -c & \text{if } r_t \leq -c, \\ r_t & \text{if } -c < r_t \leq c, \\ c & \text{if } r_t > c, \end{cases} \tag{9}$$

The tuning constant c determines the robustness and efficiency of the estimator. We use the commonly used value of 1.345 for c as the resulting estimator has an efficiency of 95% compared to the OLS estimator in case the errors ε_i are normally distributed. We use the same function to define the regressor weights $w_x(x_i)$.

The use of the weighted least squares estimator implies that the coefficient of determination for the original data, R^2_{WLS} has different characteristics than usual. Most importantly, the R^2_{WLS} can become negative. For this reason we follow the suggestion of Verbeek (2002) and define the R^2 as the squared correlation between

the actual values y_i and the fitted values $\hat{y}_i = x_i\hat{\beta}_{\mathrm{GM}}$, where $\hat{\beta}_{\mathrm{GM}}$ denotes the GM estimate of β.

Table 1: Number of observations across countries and over time

Country	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Argentina	-	-	6	21	26	26	26	28	24	20	15	10	6	2	5	215
Brazil	-	-	30	38	49	51	51	52	47	56	47	44	44	51	53	613
Chile	-	-	17	17	29	36	38	35	30	26	24	20	18	24	18	332
China	-	-	-	-	19	25	34	51	55	56	57	47	56	74	108	582
Colombia	-	-	-	-	11	12	11	12	10	6	4	-	-	-	-	66
Czech Rep.	-	-	-	-		6	5	13	13	8	7	6	6	2	5	71
Egypt	-	-	-	-	-	-	-	-	-	4	8	4	4	2	7	29
Greece	-	-	8	19	33	44	43	40	42	44	47	-	-	-	-	320
Hungary	-	-	-	-	3	11	12	12	12	13	10	8	8	5	8	102
India	-	-	1	38	70	69	75	74	81	85	72	54	48	51	70	788
Indonesia	6	27	29	35	39	43	44	38	34	29	25	19	20	22	30	440
Israel	-	-	-	-	-	-	18	24	23	22	16	18	15	16	15	167
Korea	-	19	39	66	62	60	56	43	38	29	38	79	40	138	158	865
Malaysia	39	41	55	62	73	85	89	90	78	73	66	61	59	79	81	1,031
Mexico	-	-	26	34	39	44	45	46	44	40	41	39	34	33	29	494
Morocco	-	-	-	-	-	-	-	-	-	2	2	7	-	3	1	15
Pakistan	-	-	-	14	23	22	20	18	14	9	6	-	-	-	-	126
Peru	-	-	-	-	11	12	13	17	17	15	12	8	5	4	-	114
Philippines	6	7	9	14	21	36	45	45	37	35	26	18	18	15	16	348
Poland	-	-	-	-	2	25	22	26	25	27	15	16	13	18	10	199
Portugal	-	11	14	22	23	25	27	22	21	-	-	-	-	-	-	165
Russia	-	-	-	-	-	-	-	9	7	6	9	10	10	17	16	84
Slovakia	-	-	-	-	-	-	5	5	4	3	2	-	-	-	-	19
S.Africa	-	-	-	-	55	57	66	57	56	54	57	61	63	88	99	713
Sri Lanka	-	-	-	3	15	4	4	4	3	1	-	-	-	-	-	34
Taiwan	31	54	62	77	59	60	71	90	89	59	57	58	52	63	81	963
Thailand	15	23	32	36	49	61	53	42	41	43	37	38	37	46	52	605
Turkey	-	11	26	37	41	51	55	52	56	51	54	47	30	28	26	565
Venezuela	-	-	-	-	3	4	6	7	7	6	4	-	-	-	-	37
Total	97	193	354	533	755	869	934	952	908	822	758	672	586	781	888	10,102

Note: The sample consists of 10,102 firm-year observations that have six-months ahead forecasts of annual earnings and three years of consecutive actual earnings available from I/B/E/S. Our sample includes all countries in the IFC Investable Composite index for the period 1991 - 2005.

Table 2: Average earnings forecast errors across countries and over time

Panel A: Median forecast error

Country	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Argentina			0.3	−0.2	−1.2	−0.8	−0.3	−0.3	−3.2	−2.2	−8.6*	−20.5*	16.6	−1.1	−1.3	−1.2
Brazil			−8.1	2.4	−1.5	−0.6	−0.6	−0.7	0.5	−0.6	−0.4	−1.0	1.5	0.8	−1.5	−0.5
Chile			0.2	0.1	0.3	−0.7	−0.4	−2.1	−1.0	−1.0	−1.0	−1.2	−0.5	−0.1	−1.4	−0.6
China					−2.4	−2.7	−1.5	−3.6	0.0	0.1	−0.5	−0.5	0.6	0.3	−0.3	−0.4
Colombia					−2.1	−1.2	−1.8	−4.2	−10.9	−15.5	−7.0					−3.1
Czech Rep.						−3.4	0.0	−1.2	−0.4	−0.7	1.2	1.5	3.0	0.1	0.2	−0.3
Egypt										−5.9	−3.5	1.8	7.2	4.8	1.1	0.3
Greece			−4.0	−1.4	−1.4	−1.0	−0.7	0.3	0.9	−0.2	−2.8					−0.7
Hungary					7.2	0.9	1.0	−1.0	−2.8	−1.9	−5.0	0.6	−2.6	1.4	0.8	−0.4
India			−0.7	0.5	0.4	−0.2	−1.7	−0.4	−0.6	0.0	−0.5	−1.1	0.2	1.1	−0.1	−0.2
Indonesia	−0.1	−0.3	−0.1	−0.4	−0.2	−0.2	−7.9	−33.9*	−2.2	−5.1	−3.1	−2.0	0.2	1.3	−0.4	−0.8
Israel							0.0	−0.3	0.5	−0.7	−3.4	−1.9	1.0	0.4	0.3	0.0
Korea		−1.3	−0.7	−0.8	−2.6	−2.6	−5.4	−31.6*	3.9	−4.8	−8.8	−0.5	−3.4	−0.5	−0.7	−1.4
Malaysia	−0.1	−0.1	0.3	0.1	0.2	0.2	−0.8	−9.6*	2.0	−0.4	−2.3	0.1	0.3	0.0	−0.7	−0.1
Mexico			−0.7	−4.4*	−1.5	0.2	−1.1	−2.8	0.0	−1.5	−2.0	−2.3	−1.4	1.8	0.3	−0.9
Morocco										−1.2	−3.7	−5.0		−0.2	−4.9	−3.1
Pakistan				−1.1	−2.7	−2.4	−1.8	−1.1	2.5	−0.3	1.3					−1.1
Peru					0.0	−1.9	−1.7	−5.3	−2.9	−4.0	−4.6	3.7	3.1	6.4		−1.9
Philippines	1.4	−1.8	−0.5	−0.1	0.0	0.2	−2.4	−7.4*	−3.5	−4.4	−1.7	−1.0	0.2	0.3	0.2	−1.1
Poland					1.8	−0.7	−1.0	−4.6	−2.7	−1.6	−6.1	−3.5	−1.3	0.2	0.7	−1.5
Portugal		−2.9	−0.9	−1.2	−0.6	0.6	0.5	0.3	−0.3							0.0
Russia								−47.5*	11.4	12.4	0.0	2.1	3.1	1.0	4.1	2.8
Slovakia							−3.7	−18.8	−52.0	11.0	−6.2					−6.7
S.Africa					0.1	−0.3	−0.7	−0.2	−0.4	−0.4	−0.3	−0.6	−1.3	−0.7	−0.2	−0.4
Sri Lanka				−3.3	−0.8	−3.6	0.4	0.0	−2.9	0.7						−1.2
Taiwan	0.2	−0.7	−0.9	0.5	−1.3	−1.1	0.0	−2.8	−0.2	−2.1	−3.4	−2.0	0.7	−0.8	−0.2	−0.7
Thailand	−1.0	0.4	−0.1	0.1	−0.5	−0.9	−31.8*	1.0	0.3	−4.7	−1.1	1.3	1.5	0.2	−0.6	−0.5
Turkey		0.0	0.0	0.0	0.0	0.0	0.0	−2.7	−4.6	−0.1	−0.8*	0.0	−0.2	0.4	1.1	0.0
Venezuela					11.5	9.0	0.4	−10.8	−4.9	−16.0	−6.3					−3.5
Total	−0.1	−0.4	−0.2	0.0	−0.3	−0.4	−1.0	−2.0	−0.4	−0.8	−1.6	−0.8	0.1	0.1	−0.2	−0.5

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Panel B: Mean forecast error

Country	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Argentina			0.1	−2.7	−3.6	−4.1	−1.7	−5.7	−8.1	−17	−9.9*	−28.1*	22.5	−1.1	−2.0	−6.1
Brazil			−28.8	1.5	−8.5	−7.3	−5.9	−6.4	−0.8	−0.4	−0.1	−8.1	2.3	1.8	−1.6	−4.1
Chile			−0.2	0.3	0.1	−1.4	−0.4	−7.4	−3.4	−2.9	−2.6	−4.6	0.5	0.5	−1.0	−2.0
China					−4.1	−4.3	−2.4	−9.1	−1.9	−1.2	−2.6	−0.7	1.2	−0.2	−0.9	−1.9
Colombia					−0.3	−0.2	−2.0	−2.9	−19.7	−22.0	−3.9					−6.2
Czech Rep.						−6.3	−1.7	−15.6	−26.2	1.6	0.4	−3.8	2.1	0.1	1.2	−8.1
Egypt										−4.7	−5.2	10.0	6.6	4.8	2.4	1.1
Greece			−5.1	−1.3	−2.1	−1.1	−1.2	0.2	1.5	−0.6	−3.1					−1.1
Hungary					4.0	0.4	1.4	−1.5	−5.5	−9.9	−5.4	−2.8	−15.6	3.0	0.4	−3.6
India			−0.7	1.0	−0.1	−0.3	−4.7	−0.8	−3.1	−2.9	−3.4	−4.5	1.8	1.6	−1.0	−1.6
Indonesia	0.1	−0.7	−0.8	−0.9	−0.8	−2.3	−12.7	−76.0*	−17.7	−43.1	−43.5	−4.2	2.3	3.3	−0.9	−14.9
Israel							0.0	−1.2	0.4	−2.4	−7.8	−2.5	0.9	−1.6	0.8	−1.5
Korea		−1.8	−3.4	−0.6	−2.5	−12.3	−24.8	−103.8*	−32.8	−66.7	−24.9	−13.7	−5.8	0.6	−2.3	−14.6
Malaysia	0.3	−0.8	0.2	0.2	0.2	−0.2	−3.3	−32.3*	−12.1	−2.1	−14.0	2.2	0.9	0.1	−1.3	−5.0
Mexico			−4.4	−12.1*	−7.0	−11.2	−31.8	−7.5	−1.5	−4.0	−4.5	−5.0	−5.5	2.9	−0.7	−7.7
Morocco										−1.2	−3.7	−4.1		−0.7	−4.9	−3.0
Pakistan				−2.1	−4.6	−2.7	−0.4	−0.9	16.4	−8.3	3.1					−0.4
Peru					0.2	−4.6	−1.0	−5.7	−5.5	−5.1	−7.5	8.7	2.6	4.0		−2.8
Philippines	0.6	−2.3	−1.3	−0.6	−0.4	−1.4	−5.7	−26.8*	−12.2	−45.5	−15.6	−15.7	−19.1	−0.6	0.0	−13.3
Poland					1.8	−0.9	−2.9	−8.5	−3.6	−4.9	−9.3	−16.0	−1.4	0.5	3.0	−4.5
Portugal		−8.4	−6.5	−1.2	−1.8	0.3	0.5	−0.1	−0.9							−1.5
Russia								−42.0*	21.1	11.1	6.0	−10.1	0.3	6.9	3.3	−0.4
Slovakia							−6.0	−38.5	−44.2	7.1	−6.2					−20.6
S.Africa					−0.4	−1.0	−1.3	−0.3	−1.8	0.2	−4.8	−1.1	−1.5	−1.0	−0.2	−1.1
Sri Lanka				−2.3	−1.5	−3.7	0.4	0.0	−2.7	0.7						−1.5
Taiwan	−0.1	−1.0	−1.3	1.2	−1.6	−2.4	−0.5	−5.0	−6.7	−3.4	−11.7	−7.3	0.0	−2.1	−1.5	−3.0
Thailand	−1.5	0.2	−1.2	−0.5	−3.6	−2.1	−59.5*	−0.3	3.5	−12.7	−6.2	−0.5	1.1	0.3	−2.1	−7.0
Turkey		3.3	0.0	0.1	−1.5	0.9	−0.6	−4.0	−14.6	−1.1	−2.3*	−0.4	0.4	1.7	−0.8	−2.1
Venezuela					20.8	8.8	−1.8	−13.4	−6.7	−12.4	−11.0					−4.7
Total	−0.1	−1.1	−3.9	−0.8	−2.1	−2.9	−8.8	−15.8	−6.6	−8.8	−8.0	−5.1	−0.7	0.5	−1.1	−5.2

Note: The forecast error is defined as $(E_{it} - \widehat{E}_{it})/P_{it}$, where E_{it} is the realized earnings per share for firm i in fiscal year t, $\widehat{E}_{it}$ is the median analysts' earnings forecast made six months prior to the end of the book year and P_{it} is the stock price at the time the forecast is made. Emerging markets crises are indicated with an asterisk: 1994 Peso crisis in Mexico; 1997-1998 Asia crisis in Thailand (start), Korea, Indonesia, Malaysia and Philippines; 1998 Russia's default; 2001 Turkey crisis and 2001-2002 Argentina default and currency crisis.

Table 3: The importance of macroeconomic forecasts

Panel A: Realized earnings growth and realized macroeconomic factors

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
Univariate									
GDP	−0.04	0.14			−0.11	0.01	−3.37	14.34	0.119
	(−15.27)	(9.22)			(−14.67)	(14.29)	(−5.11)	(15.03)	
CPI	−0.04		0.02		−0.13	0.01	−3.45	14.86	0.083
	(−15.31)		(6.89)		(−15.74)	(14.29)	(−5.20)	(10.40)	
POL	−0.03			0.06	−0.11	0.01	−2.87	15.08	0.113
	(−13.63)			(8.26)	(−15.22)	(14.25)	(−4.91)	(11.44)	
Multivariate									
	−0.05	0.13	0.03	0.06	−0.14	0.01	−3.56	11.08	0.075
	(−16.87)	(8.27)	(8.68)	(6.78)	(−16.61)	(16.20)	(−5.23)	(7.63)	

Panel B: Earnings forecast errors and macroeconomic forecasts

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
Univariate									
GDP	−0.06	0.07			0.09	0.01	−2.40	19.91	0.017
	(−24.22)	(4.18)			(16.51)	(18.23)	(−4.27)	(15.03)	
CPI	−0.05		−0.01		0.09	0.01	−2.00	22.11	0.016
	(−24.02)		(−3.26)		(16.01)	(17.53)	(−3.57)	(16.35)	
POL	−0.05			0.02	0.09	0.01	−1.80	19.37	0.018
	(−25.95)			(2.79)	(15.96)	(18.37)	(−3.64)	(17.02)	
Multivariate									
	−0.06	0.07	−0.00	0.02	0.09	0.01	−2.20	20.33	0.019
	(−22.98)	(4.07)	(−1.39)	(2.16)	(15.76)	(17.94)	(−3.86)	(15.45)	

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Panel A: C: Earnings realizations and macroeconomic forecasts

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
Univariate									
GDP	−0.03	−0.02			−0.11	0.01	−3.14	16.61	0.113
	(−11.62)	(−1.28)			(−12.65)	(13.90)	(−4.73)	(11.18)	
CPI	−0.04		0.03		−0.13	0.01	−3.29	15.01	0.079
	(−15.62)		(8.89)		(−15.70)	(15.74)	(−4.93)	(10.44)	
POL	−0.03			0.01	−0.11	0.01	−3.11	15.58	0.111
	(−13.35)			(1.60)	(−14.16)	(14.20)	(−5.32)	(11.81)	
Multivariate									
	−0.04	0.01	0.03	0.02	−0.13	0.01	−3.32	14.19	0.077
	(−13.95)	(0.58)	(9.37)	(2.16)	(−16.16)	(15.69)	(−4.88)	(9.80)	

Panel D: Earnings forecasts and macroeconomic forecasts

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
Univariate									
GDP	0.03	−0.09			−0.20	−0.00	−0.78	−5.32	0.168
	(20.01)	(−9.08)			(−32.63)	(−4.86)	(−2.24)	(−7.49)	
CPI	0.02		0.03		−0.22	−0.00	−1.32	−8.39	0.136
	(12.06)		(17.69)		(−34.12)	(−0.35)	(−3.82)	(−11.15)	
POL	0.02			−0.01	−0.20	−0.00	−1.24	−5.74	0.169
	(19.38)			(−3.16)	(−33.70)	(−4.23)	(−4.02)	(−9.01)	
Multivariate									
	0.02	−0.07	0.03	−0.00	−0.23	−0.00	−1.10	−7.30	0.143
	(13.26)	(−6.01)	(15.60)	(−0.79)	(−35.25)	(−1.21)	(−3.09)	(−9.77)	

Note: This table presents estimation results for the regressions involving macroeconomic forecasts and firm characteristics

$$Y_{it} = \alpha + \beta_1 \widehat{GDP}_t + \beta_2 \widehat{CPI}_t + \beta_3 \widehat{POL}_t + \gamma_1 \left(\frac{E_{i,t-1} - E_{i,t-2}}{P_{i,t-1}} \right) + \gamma_2 MCAP_{it} + \gamma_3 COV_{it} + \gamma_4 PB_{it} + \varepsilon_{it},$$

where $\widehat{GDP}_t$ is the forecast of real GDP growth in year t, $\widehat{CPI}_t$ is the forecast of consumer price inflation in year t, and $\widehat{POL}_t$ is the forecast of the change the political risk in year t. All macroeconomic forecasts are made six months prior to the end of year t. E_{it} is the realized earnings per share in local currency for firm i in fiscal year t, and $P_{i,t-1}$ is the local stock price six months into year $t-1$ such that $(E_{i,t-1} - E_{i,t-2})/P_{i,t-1}$ is the actual earnings change in fiscal year $t-1$. $MCAP_{it}$, COV_{it} and PB_{it} are the log market capitalization in US dollar, the number of analysts covering the stock and the price-to-book ratio, respectively, all measured six months before the end of year t. The dependent variable Y_{it} is either the earnings forecast error $FE_{it} = (E_{it} - \widehat{E}_{it})/P_{it}$, where $\widehat{E}_{it}$ is the consensus analysts' earnings forecast made six months prior to the end of the year (Panel B), the actual earnings change $(E_{it} - E_{i,t-1})/P_{it}$ (Panel C), and the earnings forecast $(\widehat{E}_{it} - E_{i,t-1})/P_{it}$ (Panel D). In Panel A, the dependent variable is the the actual earnings change $(E_{it} - E_{i,t-1})/P_{it}$, while the macroeconomic forecasts are replaced by the corresponding realizations. Regressions under the heading 'Univariate' include only one of the three macroeconomic variables. The coefficient estimates for COV_{it} and PB_{it} are multiplied with 10,000. Coefficients significantly different from zero at the 10%, 5% and 1% significance levels are marked with one, two and three asterisks, respectively. All samples comprise 10,102 firm-year observations from 29 different emerging market countries.

Table 4: Transparency and the importance of macroeconomic forecasts versus earnings forecast errors

Panel A: Realized earnings growth and realized macroeconomic factors

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
ADR									
Non-ADR	−0.05	0.13	0.03	0.07	−0.14	0.01	−2.62	12.77	
	(−13.74)	(6.48)	(9.55)	(6.64)	(−15.46)	(12.16)	(−3.10)	(8.41)	
									0.072
ADR	−0.08	0.26	−0.01	0.16	−0.29	0.02	−5.95	18.78	
	(−3.59)	(2.12)	(−1.42)	(2.23)	(−3.25)	(3.87)	(−1.83)	(1.64)	
Fast reporting									
SLOW	−0.05	0.15	0.03	0.07	−0.14	0.02	−5.23	11.99	
	(−13.71)	(6.27)	(10.81)	(5.71)	(−13.86)	(12.70)	(−5.24)	(6.01)	
									0.067
FAST	−0.16	0.66	0.01	0.32	−0.52	0.05	−7.67	15.53	
	(−2.65)	(1.68)	(2.73)	(2.52)	(−3.92)	(3.20)	(−1.94)	(1.88)	

Panel B: Earnings forecast errors and macroeconomic forecasts

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
ADR									
Non-ADR	−0.06	0.05	−0.00	0.02	0.08	0.01	−1.60	20.01	
	(−19.84)	(2.33)	(−0.11)	(2.01)	(13.94)	(14.91)	(−2.24)	(14.16)	
									0.020
ADR	−0.16	0.17	−0.05	0.09	0.02	0.04	−0.67	24.78	
	(−5.55)	(1.16)	(−1.04)	(1.50)	(0.27)	(5.66)	(−0.28)	(2.99)	
Fast reporting									
SLOW	−0.07	0.07	0.01	0.05	0.10	0.02	−2.43	22.75	
	(−18.82)	(2.71)	(2.05)	(3.56)	(14.69)	(14.28)	(−2.78)	(11.59)	
									0.021
FAST	−0.29	0.41	−0.00	−0.19	−0.00	0.08	−9.65	9.63	
	(−6.07)	(1.32)	(−0.74)	(−2.40)	(−0.03)	(6.20)	(−2.60)	(1.83)	

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Panel C: Earnings realizations and macroeconomic forecasts

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
ADR									
Non ADR	−0.04	−0.02	0.03	0.02	−0.14	0.01	−2.42	15.15	
	(−11.33)	(−0.75)	(9.46)	(1.65)	(−15.02)	(12.23)	(−2.89)	(10.06)	
									0.075
ADR	−0.07	−0.05	−0.00	0.18	−0.28	0.02	−5.50	21.27	
	(−2.93)	(−0.34)	(−0.28)	(2.53)	(−3.14)	(3.85)	(−1.63)	(1.80)	
Fast reporting									
SLOW	−0.04	−0.01	0.04	0.04	−0.14	0.02	−4.30	14.83	
	(−11.27)	(−0.33)	(10.06)	(2.74)	(−13.63)	(12.34)	(−4.39)	(7.56)	
									0.065
FAST	−0.17	0.40	0.02	−0.12	−0.52	0.05	−12.43	13.03	
	(−2.40)	(0.85)	(2.69)	(−1.09)	(−3.88)	(2.99)	(−2.50)	(1.75)	

Panel D: Earnings forecasts and macroeconomic forecasts

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
ADR									
Non ADR	0.02	−0.07	0.03	−0.01	−0.24	−0.00	−0.93	−6.75	
	(12.33)	(−5.30)	(14.44)	(−1.52)	(−32.05)	(−2.39)	(−2.13)	(−8.44)	
									0.142
ADR	0.09	−0.22	0.05	0.09	−0.29	−0.02	−4.85	−3.43	
	(4.42)	(−2.29)	(1.23)	(1.68)	(−7.83)	(−3.12)	(−1.83)	(−0.45)	
Fast reporting									
SLOW	0.02	−0.09	0.04	−0.01	−0.27	−0.00	−1.99	−8.87	
	(10.67)	(−5.57)	(13.00)	(−1.71)	(−34.18)	(−0.53)	(−3.69)	(−7.93)	
									0.136
FAST	0.12	−0.00	0.02	0.07	−0.52	−0.03	−2.79	3.40	
	(2.14)	(−0.01)	(3.28)	(1.62)	(−5.28)	(−2.31)	(−0.86)	(1.09)	

Note: This table presents estimation results for transparent and non-transparent stocks. Rows labelled 'ADR' ('Non-ADR') indicate the sub-sample of stocks with (without) an ADR cross-listing in the US. Rows labelled 'Fast' ('Slow') indicate the subsample of stocks that publish their annual report before (after) three months after the fiscal year end. See table 3 for further details.

Table 5: Crises and the importance of macroeconomic forecasts versus earnings forecast errors

Panel A: Realized earnings growth and realized macroeconomic factors

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
Normal	−0.04	0.07	0.02	0.03	−0.14	0.01	−1.91	8.14	
	(−13.37)	(4.18)	(7.53)	(2.72)	(−17.06)	(14.22)	(−2.73)	(5.81)	
Crisis	−0.88	0.64	0.01	0.58	−0.80	0.25	−17.59	321.77	0.114
	(−4.86)	(0.95)	(2.32)	(1.19)	(−5.58)	(4.13)	(−0.53)	(6.32)	

Panel B: Earnings forecast errors and macroeconomic forecasts

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
Normal	−0.05	0.06	−0.01	0.02	0.08	0.01	−1.13	16.36	
	(−21.01)	(3.37)	(−3.03)	(2.03)	(13.81)	(16.76)	(−1.94)	(12.99)	
Crisis	−1.05	−0.90	−0.00	0.98	−0.10	0.31	0.19	225.93	0.091
	(−6.62)	(−1.26)	(−0.29)	(1.59)	(−0.96)	(6.05)	(0.01)	(4.52)	

Panel C: Earnings realizations and macroeconomic forecasts

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
Normal	−0.03	−0.03	0.02	0.02	−0.14	0.01	−1.65	9.97	
	(−10.76)	(−1.44)	(6.87)	(1.67)	(−16.71)	(13.72)	(−2.36)	(6.97)	
Crisis	−0.97	0.08	0.02	0.35	−0.79	0.28	−23.37	328.04	0.111
	(−5.09)	(0.08)	(2.42)	(0.45)	(−5.46)	(4.40)	(−0.71)	(6.22)	

Panel D: Earnings forecasts and macroeconomic forecasts

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
Normal	0.02	−0.09	0.03	−0.01	−0.22	−0.00	−0.54	−7.39	
	(14.55)	(−7.73)	(13.97)	(−1.09)	(−34.18)	(−2.47)	(−1.40)	(−9.60)	
Crisis	0.08	0.98	0.02	−0.63	−0.69	−0.04	−23.57	102.11	0.136
	(0.74)	(1.55)	(2.29)	(−1.24)	(−4.89)	(−1.00)	(−1.12)	(3.75)	

Note: This table presents estimation results for normal market periods and crisis periods. Rows labelled 'Normal' and 'Crisis' indicate the sub-sample of stocks during normal market periods and crises (1994 Peso crisis in Mexico; 1997-1998 Asia crisis in Thailand (start), Korea, Indonesia, Malaysia and Philippines; 1998 Russia's default; 2001 Turkey crisis and 2001-2002 Argentina default and currency crisis), respectively. See table 3 for further details.

Table 6: Multivariate regressions of the forecast error on firm characteristics with country, sector and year dummies

	α	γ_1	γ_2	γ_3	γ_4	R^2
Constant	−0.05(−25.77)	0.09(15.84)	0.01(18.32)	−1.96(−3.99)	19.97(16.88)	0.017
Country	−0.05(−25.09)	0.08(15.20)	0.02(18.60)	−4.52(−7.10)	19.04(14.50)	0.020
Sector	−0.05(−25.21)	0.09(23.44)	0.01(18.19)	−2.08(−4.16)	20.55(16.45)	0.019
Year	−0.05(−23.55)	0.09(16.28)	0.01(15.17)	−0.74(−1.48)	20.64(17.08)	0.023
Country & Year	−0.05(−23.45)	0.08(15.51)	0.01(15.33)	−1.55(−2.29)	18.66(14.42)	0.030
Country × Year	−0.05(−24.05)	0.08(14.59)	0.01(14.86)	−1.86(−2.34)	15.62(11.68)	0.061
Sector & Year	−0.05(−22.83)	0.08(15.19)	0.01(14.75)	−0.82(−1.62)	21.91(17.19)	0.026
Sector × Year	−0.05(−22.63)	0.08(14.68)	0.01(14.45)	−0.66(−1.26)	22.56(16.39)	0.030

Note: This table presents coefficient estimates with heteroskedasticity-consistent t-statistics in parentheses from the regression of the earnings forecast error on firm characteristics with sector, year, and country specific dummies D_{jt}:

$$FE_{it} = \alpha + \gamma_1 \left(\frac{E_{i,t-1} - E_{i,t-2}}{P_{i,t-1}} \right) + \gamma_2 MCAP_{it} + \gamma_3 COV_{it} + \gamma_4 PB_{it} + \sum_j \delta_j D_{jt} + \varepsilon_{it}.$$

The rows labelled 'Country & Year' and 'Sector & Year' refer to the inclusion of country or sector dummies and year dummies simultaneously. The rows labelled 'Country × Year' and 'Sector × Year' refer to the inclusion of country-year and sector-year dummies, respectively. See Table 3 for variable definitions.

Table 7: The importance of macroeconomic forecasts per calendar year

	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
1991	-0.05^{*}	0.63^{*}	0.04	0.21^{***}	0.01	0.01	-7.79^{*}	-0.73	0.12
1992	-0.08^{***}	0.45^{**}	0.05	0.19^{***}	0.09^{***}	0.01^{***}	5.39^{**}	15.61^{***}	0.02
1993	-0.03^{***}	0.09	-0.02^{**}	0.14^{**}	0.05	0.01^{*}	1.17	15.65^{***}	0.11
1994	-0.02^{**}	-0.15	-0.00^{*}	-0.14	-0.05	0.01^{***}	-6.43^{**}	10.71^{**}	0.00
1995	-0.04^{***}	-0.06	0.00	0.04^{*}	0.14^{***}	0.01^{***}	1.97^{*}	15.55^{***}	0.04
1996	-0.02^{***}	-0.14^{***}	0.02^{***}	-0.03	0.04^{*}	0.00^{**}	6.41^{***}	17.60^{***}	0.01
1997	-0.05^{***}	-0.47^{***}	0.05^{***}	-0.00	0.04	0.01^{***}	-3.67	43.77^{***}	0.04
1998	-0.09^{***}	0.10	-0.05^{***}	0.09	0.37^{***}	0.01^{***}	0.62	65.67^{***}	0.01
1999	-0.07^{***}	0.20^{**}	-0.11^{***}	0.06	0.09^{***}	0.02^{***}	-5.21^{*}	32.83^{***}	0.04
2000	-0.06^{***}	0.02	-0.04^{**}	0.15^{***}	0.09^{***}	0.01^{***}	0.42	21.96^{***}	0.02
2001	-0.13^{***}	0.39^{***}	0.09^{***}	0.11^{***}	0.05^{**}	0.02^{***}	8.37^{***}	44.94^{***}	0.07
2002	-0.06^{***}	0.47^{***}	0.01	-0.02	0.09^{***}	0.01^{**}	-4.64	41.97^{***}	0.00
2003	-0.02	0.16	0.01	-0.01	0.09^{***}	0.01	-0.25	-10.11^{*}	0.02
2004	-0.03^{***}	0.02	0.13^{**}	0.06	0.11^{***}	0.01^{***}	-2.53	-16.30^{***}	0.01
2005	-0.07^{***}	0.14^{**}	0.02	-0.03	0.02	0.02^{***}	-1.85	14.52^{***}	0.06

Note: This table presents estimation results for the regression of the earnings forecast error on the macroeconomic forecasts and firm characteristics

$$FE_{it} = \alpha + \beta_1 \widehat{GDP}_t + \beta_2 \widehat{CPI}_t + \beta_3 \widehat{POL}_t + \gamma_1 \left(\frac{E_{i,t-1} - E_{i,t-2}}{P_{i,t-1}} \right) + \gamma_2 MCAP_{it} + \gamma_3 COV_{it} + \gamma_4 PB_{it} + \varepsilon_{it},$$

for each individual calendar year. Coefficients significantly different from zero at the 10%, 5% and 1% significance levels are marked with one, two and three asterisks, respectively. See Table 3 for variable definitions.

Table 8: The importance of macroeconomic forecasts per country

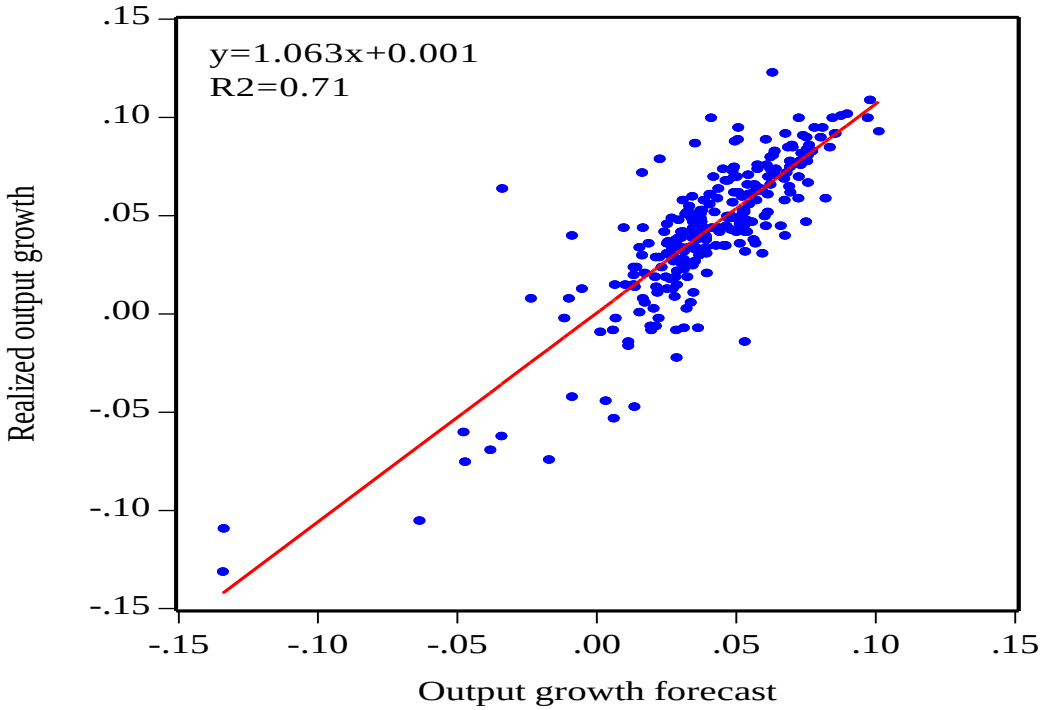
	α	β_1	β_2	β_3	γ_1	γ_2	γ_3	γ_4	R^2
Argentina	-0.05^{***}	0.30^{***}	0.06	-0.05	-0.06	0.00	13.34^{***}	37.17	0.01
Brazil	-0.05^{***}	-0.43^{**}	0.01	0.01	0.03^{*}	0.02^{***}	-3.59	56.66^{***}	0.02
Chile	-0.04^{***}	-0.03	0.13^{***}	0.02	0.02	0.01^{***}	-13.03^{***}	25.09^{***}	0.09
China	-0.03^{**}	0.03	-0.15^{***}	0.16^{***}	0.11^{***}	0.01^{***}	-7.23^{***}	11.79	0.11
Colombia	-0.16^{*}	1.19	0.46	-0.07	0.05	-0.01	34.59	75.61	0.21
Czech Rep.	-0.05	-0.45	-0.27^{*}	-0.13	0.29^{***}	0.02	2.02	44.77	0.70
Egypt	-0.15^{***}	-3.64^{***}	4.75^{***}	0.22	-0.01	0.03	85.41^{**}	-87.54^{***}	0.50
Greece	0.11^{***}	-2.83^{***}	-0.77^{***}	0.05	0.21^{***}	-0.00	-0.69	28.84^{***}	0.14
Hungary	-0.08^{***}	-0.83^{**}	0.18^{***}	-0.05	0.20^{**}	0.03^{***}	-5.48	-15.76	0.22
India	-0.06^{***}	0.04	-0.11^{**}	-0.05^{*}	0.15^{***}	0.02^{***}	-9.05^{***}	8.05^{***}	0.14
Indonesia	-0.04^{**}	-0.15	-0.05	0.21^{***}	0.05^{***}	0.02^{***}	-5.63	15.49^{***}	0.19
Israel	-0.04^{*}	0.34	0.11	-0.09	0.10^{***}	0.01	-15.96	19.59	0.05
Korea	-0.12^{***}	0.51^{***}	0.00	-0.20^{*}	0.02	0.02^{***}	11.83^{***}	43.55^{***}	0.07
Malaysia	-0.02^{***}	0.04	-0.14^{*}	-0.01	0.05^{***}	0.01^{**}	0.85	5.63^{***}	0.20
Mexico	-0.09^{***}	0.13	0.11^{***}	0.25^{***}	0.03	0.02^{***}	-11.74^{***}	87.54^{***}	0.05
Pakistan	0.01	-0.48	-0.47^{*}	0.29^{***}	0.03	0.00	59.57^{*}	52.49^{**}	0.10
Peru	-0.02	0.93^{***}	-0.56^{***}	-0.44^{**}	0.13^{**}	0.01	-31.46^{***}	38.43	0.12
Philippines	-0.11^{***}	-0.59^{**}	-0.16	0.05	0.30^{***}	0.05^{***}	-25.03^{***}	43.17^{***}	0.17
Poland	-0.16^{***}	-0.32	0.40^{***}	-0.56^{***}	0.14^{***}	0.04^{***}	-21.33^{**}	72.66^{***}	0.19
Portugal	0.02	-0.17	-0.56^{***}	-0.01	-0.02	0.01	-13.34^{***}	16.43^{*}	0.04
Russia	-0.72^{***}	5.77^{***}	1.59^{***}	0.33^{***}	-0.03	0.07^{***}	-33.10	-132.49^{*}	0.50
Slovakia	-0.71	8.70^{***}	5.04	-16.71^{**}	0.55^{***}	-0.05	-67.56	1009.56	0.36
S. Africa	-0.02^{**}	0.05	-0.11^{**}	-0.01	0.10^{***}	0.01^{***}	-13.98^{***}	9.17^{**}	0.01
Taiwan	-0.06^{***}	0.05	0.16	-0.04	0.01	0.01^{***}	-6.51^{**}	30.61^{***}	0.08
Thailand	-0.07^{***}	-0.08	-0.32^{**}	-0.22^{***}	0.06^{***}	0.03^{***}	-15.97^{***}	13.30^{**}	0.00
Turkey	-0.03^{**}	0.09	-0.02	0.02	0.16^{***}	0.01^{***}	-17.62^{***}	10.67^{***}	0.07
Venezuela	-0.09	0.38	0.30^{***}	0.80^{*}	0.18^{**}	-0.02	39.93	-298.10^{***}	0.34

Note: This table presents estimation results for the regression of the earnings forecast error on the macroeconomic forecasts and firm characteristics

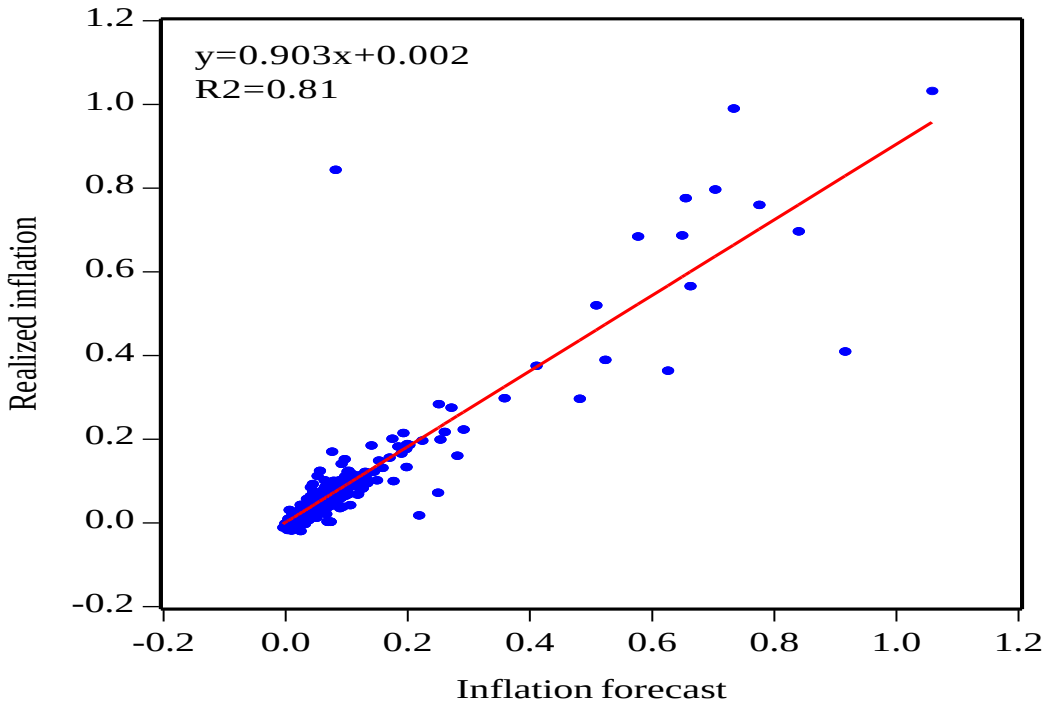
$$FE_{it} = \alpha + \beta_1 \widehat{GDP}_t + \beta_2 \widehat{CPI}_t + \beta_3 \widehat{POL}_t + \gamma_1 \left(\frac{E_{i,t-1} - E_{i,t-2}}{P_{i,t-1}} \right) + \gamma_2 MCAP_{it} + \gamma_3 COV_{it} + \gamma_4 PB_{it} + \varepsilon_{it},$$

for each individual country. Coefficients significantly different from zero at the 10%, 5% and 1% significance levels are marked with one, two and three asterisks, respectively. See Table 3 for variable definitions.

Figure 1: Macroeconomic forecasts and realizations



(a) GDP growth



(b) CPI inflation

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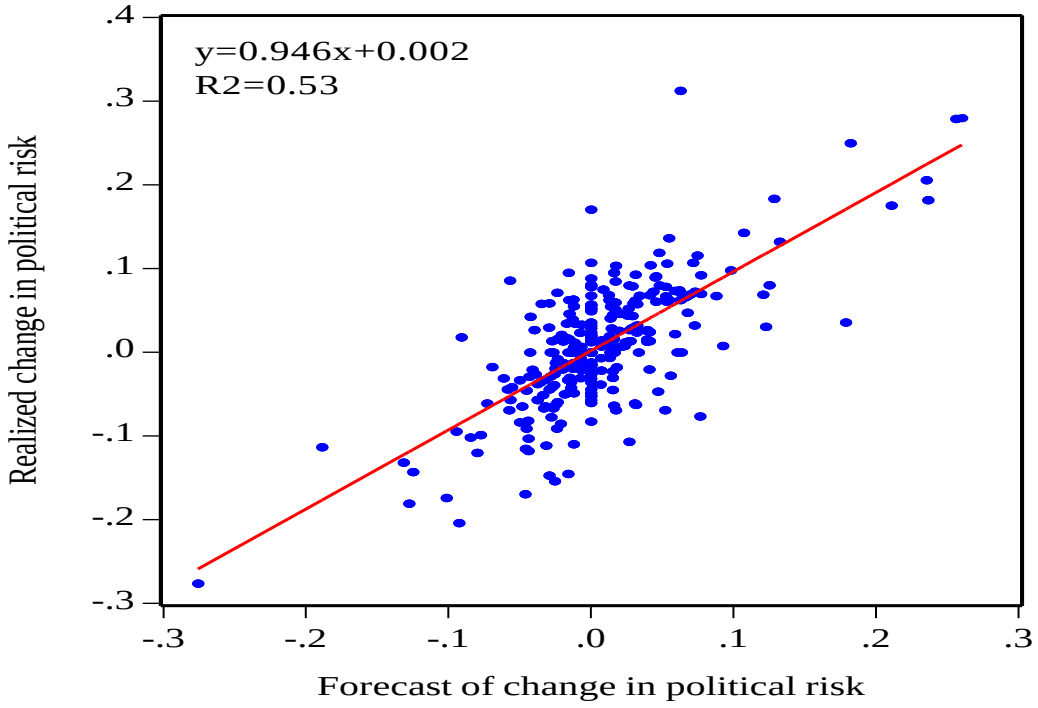

(c) Political risk

Note: The graphs in this figure show scatterplots of forecasts and realizations for GDP growth, CPI inflation and the change in political risk, as well as the fit of a regression of the macroeconomic realization on a constant and the corresponding forecast. For the CPI inflation regression the observations for Brazil in 1993 and 1994 are omitted, when realized inflation was 2477% and 916%, respectively.

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