

# **The Influence of Corporate Governance Mechanisms on Analyst Forecast Accuracy**

## **Abstract**

*The extensive literature that investigates what influences the accuracy of financial analyst forecasts has produced conflicting evidence. We examine how analysts respond to specific corporate governance characteristics by examining the accuracy and bias of their forecasts. We argue that since good corporate governance structures are likely to reduce earnings management strategies and increase firm transparency, they may also improve analyst forecasts accuracy and reduce analysts' optimistic behaviour. Overall the results suggest that analyst forecast errors are negatively related to insider ownership and the presence of banks as shareholders, and positively related to the presence of family members on boards. The evidence also supports the prediction that bank shareholding and insider ownership are associated with less optimistic earnings forecasts. Our evidence suggests that ownership structure and corporate boards contribute towards the efficiency of capital markets, as predicted by agency theory.*

*Key words: analyst forecasts, corporate governance, insider ownership, board, forecast accuracy.*

## **1. Introduction**

On average, analyst forecasts are biased upward due to the relationships between the analyst, brokerage firm, and client firm (Dugar and Nathan, 1995). Despite this problem, investors rely upon analyst forecasts in forming investment strategies. Many authors have provided evidence that certain attributes appear to influence earnings forecast errors. It is well documented that analyst forecast error is negatively associated with corporate size and positively associated with forecast horizon, suggesting that analyst forecasts are more accurate for larger firms and for forecasts issued closer to the time earnings are announced (e.g. Brown et al., 1987; Lys and Soo, 1995; Lang and Lundholm, 1996; Duru and Reeb, 2002; Lang et al., 2003; García-Meca and Sánchez-Ballesta, 2006).

We posit that effective corporate governance is a mechanism that may determine the likelihood that analysts will make an accurate forecast. The effect of corporate governance on analyst accuracy is rarely examined in the literature even though the influence of corporate governance is studied in several other issues, such as performance (Weisbach, 1988; de Miguel et al., 2004), earnings management (Warfield et al., 1995; Leuz et al., 2003) or voluntary disclosure (Hope, 2003; Ajinkya et al., 2005). The link between financial analysts and corporate governance is natural because in the process of providing forecasts, analysts gather information from both internal and external sources, providing important scrutiny over management's action (Lang et al., 2004). The association between corporate governance and financial analysts has been examined by Ackert and Athanassakos (2003), who find that analysts have incentives to issue optimistic forecasts when institutional ownership is high, and by Parkash et al. (1995), who find that ownership concentration positively influences forecast errors. Previous research also demonstrates that more analysts follow firms with significant institutional interests (Bhushan, 1989; Ackert and Athanassakos, 2003).

In this paper our goal is to provide insight into the relationship among ownership structure, board of directors and analyst forecast accuracy and bias. That is, are high insider ownership and the presence of family members on the board mechanisms of corporate governance that lead to more accurate analyst forecasts? Are analysts more biased in firms with weak investors' protection? These questions are particularly pertinent in a climate where standard setters' emphasis is given on the

relevance of corporate governance and its association with real economic effects. Governance issues are likely to be more problematic in a non-US context, where ownership structures give rise to potentially extreme agency problems.

We provide evidence on the following findings. First, any increase in insider ownership reduces the level of forecast errors and optimistic bias, supporting the convergence-of interest hypothesis. Our results suggest that insider, rather than outsider shareholders, are more effective to influence analysts to provide accurate forecasts, confirming their active role in the firm's policy of voluntary disclosure and in reducing earnings management. Banks also have a monitoring role of managers, contributing to more accurate and less optimistic forecasts when they are shareholders of the company. Second, we show that forecast errors are positively and significantly related to the presence of family members on the board, suggesting that the lack of independence in board of directors has a significant and negative effect on the quality of financial reporting practices. Overall the results show that the relation between analyst accuracy and corporate governance mechanisms tends to be positive and significant for firms with high insider ownership and banks as shareholders, and significantly negative for firms with family members on boards. The evidence suggests that forecast precision increases with better governance and that analysts being guided by effective boards and active shareholders have greater pressures to provide better information in term of forecasting accuracy to investors.

The study provides insights on the links among equity market expectations, ownership structure and the board of directors, suggesting control for corporate governance when modelling forecast accuracy. Our evidence contributes to understand the role played by several control mechanisms in Spain, an institutional setting similar to most continental countries, where high concentration of ownership, weak investor rights, and board not independent of controlling shareholders are prevalent. This article also contributes to the literature on determinants of analysts' earnings forecast accuracy and bias and should be useful to policymakers, who must take into account biases and factors associated with analysts' forecast accuracy. The results extend academic research by providing evidence on the role of corporate governance mechanisms in alleviating conflicts of interests. Our findings should also be of interest to managers and capital market participants who use analysts' earnings forecasts as a proxy for the capital markets' expectation of earnings. The evidence notes that

forecasting earnings is more complex for firms more poorly governed. After the recent financial scandals, our results suggest that governance mechanisms are needed to prevent any further loss of investors' confidence in the financial system.

## **2. Background**

Prior studies document that various features of corporate governance likely to represent conflicting interests, like ownership concentration and insider ownership, (1) have influences on earnings management (Warfield et al., 1995; Gabrielsen et al., 2002; Yeo et al., 2002), and (2) on voluntary disclosure (Hope, 2003). According to the Agency theory, the majority of this empirical research states that monitoring by owners improves the quality of managerial decisions and, consequently, firm value.

Most of the studies focus primarily on firm effects, however few research (e.g., Parkash et al., 1995; Ackert and Athanassakos, 2003) have analysed the effects of corporate governance on analyst decisions. The influence that these mechanisms exert on the extent and consequences of the agency problem suggests that the behaviour of analysts and firm governance mechanisms are associated. Hope (2003) shows that the inherent predictability of earnings does vary across firms, partly as a result of differences in economic uncertainty. Ownership structure and the board of directors capture fundamental firm characteristics of uncertainty in the outcomes being forecasted.

Accruals measurement rules and the degree of disclosure are two primary dimensions of accounting systems that affect the predictability of earnings. Disclosures of subsequent events and future investments have potential to provide information on future earnings that is not reflected in financial statements (Hope, 2003). Most of the empirical literature (Basu et al. 1998; Vanstraelen et al.; 2003) document that disclosure levels are positively associated with forecast accuracy. In transparency, the upward bias of analysts' earnings projections should diminish rather rapidly, because investment firms are well aware that security analysis without credibility has no market value. In addition to understanding firm strategy and prospects, analysts also need to understand firm's accounting practices and the informativeness of earnings. If analysts do not completely anticipate in their forecasts the effects on firms' earnings management, there will be an association between firms'

earnings management and the sign and magnitude of analysts' forecast errors (Abarbanell and Lehavy, 2003). Das et al. (1998) and Lim (2001) also provides theory and evidence that analysts' earnings forecasts are more optimistically biased for firms with less predictable earnings.

Previous research shows a relationship between disclosure and corporate governance issues. The multivariate results of Ruland et al. (1990) note that ownership structure is the most important factor to explain the motivation of managers to disclose forecasts of future earnings. Hope (2003) reports evidence that the accuracy of analyst earnings forecasts is positively associated with the level of annual report disclosure. He also finds that ownership concentration, measured at the country level, is negatively related to firms' disclosure levels. Research by Bushman et al. (2003) and Lang et al. (2004) suggest that analysts are less likely to be attracted by firms with poor investor protection. Bushman et al. (2003) document a positive correlation between analyst following and disclosure and investor protection, and Lang et al. (2004) find that analysts are less likely to follow firms with potential incentives to manipulate information, such as when managers are the largest control rights blockholders. Further, Ackert and Athanassakos (2003) show that analysts respond to higher institutional interest by reporting more optimistic forecasts and reduced following, which suggests that greater uncertainty is related to higher institutional interest. Ajinka et al. (2005) and Karamanou and Vafeas (2005) also note that management earnings forecasts are more accurate in firms with more independent boards.

Regarding the influence of corporate governance on earnings management, agency theory predicts that low insider ownership implies poor alignment of interests between management and shareholders (Jensen and Meckling, 1976), which leads managers with low ownership to manage accounting numbers so as to increase earnings-based compensations, relax contractual constraints, or avoid debt covenants (Healy, 1985; Holthausen et al., 1995). Warfield et al. (1995) examine U.S. data to find a positive relationship between managerial ownership and the information content of earnings, and a negative relationship between managerial ownership and discretionary accruals. Leuz et al. (2001) show that earnings management decreases with the degree of investor protection provided by a country' institutional and legal framework. Evidence provided by other studies suggests that earnings manipulation is used to meet or beat analyst expectations. Burgstahler and Eames (1998) provide

evidence that downward revisions of forecasts occur more frequently when the revision would be sufficient to avoid a negative earnings surprise, suggesting managers' influences on analyst's forecasts revisions.

The preceding findings support the predictions we assess in this paper. Our first hypothesis suggests that analysts are more accurate for firms where insider ownership implies high alignment of interests between management and shareholders. In this framework, under the convergence-of-interest hypothesis, insider ownership can be seen as a mechanism to constrain the opportunistic behaviour of managers, and, therefore, the magnitude of discretionary accruals is predicted to be negatively associated with insider ownership (Warfield et al., 1995). We suggest that insider ownership encourages managers to follow prescribed accounting rules and to disclose information, which, in turn, may reduce analysts' uncertainty about future earnings. Thus, to the extent that insider ownership is associated with more predictable earnings, we also expect it to be associated with less optimistic analysts' forecasts. According to Das et al. (1998), optimism increases analyst access to non-public information, and such information is in greater demand for low predictability firms.

The evidence show that large shareholders address the agency problem in that they have an interest in profit maximization and enough control over the assets of the firm to have their interests respected (Shleifer and Vishny, 1986). Some studies that deal with ownership concentration, measured by the fraction owned by the five largest shareholders or by significant shareholders (e.g., McConnell and Servaes, 1990; Agrawal and Knoeber, 1996; Demsetz and Villalonga, 2001; De Miguel et al., 2004), state that monitoring by owners improves the quality of managerial decisions and, consequently, firm value. The existence of outside block holders can lead to closer monitoring or scrutiny of managers and this implies lesser opportunities for accruals management or earnings manipulation (Yeo et al., 2002). Bos and Donker (2004) also show that increased ownership concentration is an effective corporate governance mechanism in monitoring accounting decisions of incumbent management, such as voluntary accounting changes. Hence, it is interesting to explore the monitoring effects of ownership concentration on analyst forecast accuracy and bias. Following to Demsetz and Villalonga (2001), by using both dimensions of ownership, insider ownership and ownership concentration, we account for the complexity of interests represented by a given ownership

structure, which gives a more accurate picture of the ownership-analyst relation than those that rely on just one of them.

Our study models ownership structure by examining not only the effects on analyst accuracy of insider ownership and ownership concentration, but also the consequences of bank shareholding, which has a fundamental role in the Spanish corporate governance. In Spain, banks enjoy a privileged position among the largest shareholders of most listed firms. In most cases, banks are closely involved in the management of funds and exert a strong influence on the companies in which they are also a creditor. The benefits of a “bank-based” system (typical in Germany and Japan) are the close relationships between banks and client firms, which provides greater access to firm-specific information and contributes to lower risk premiums and cost of capital (Maher and Anderson, 1999). These investors differ in terms of wealth, risk aversion and the priority they attach to shareholder value with respect to other goals. Consequently, our third hypothesis suggests a negative relationship between forecast errors, forecast bias, and bank ownership, due to the internal control exercised over earnings management and voluntary disclosure.

Our final hypothesis suggests that when analysts do opt to provide a forecast for a firm, their forecast accuracy and bias will be associated to the corporate board characteristics. The board of directors is the highest internal control mechanism responsible for monitoring the actions of top management. SAS N°55, *Consideration of the Internal Control Structure in a Financial Statement Audit* (AICPA, 1988), notes that corporate governance characteristics, in particular the board of directors, are expected to have a significant relation with the quality of financial reporting practices. Recent literature on boards is basically focused on its composition and independence. Most of the research notes empirical associations between some features of the board of directors and firm performance (Hermalin and Weisbach, 1991), or the probability to receive an audit qualification (Gul et al. 2001). Obviously, a board dominated by inside directors may not be able to fulfil its supervisory function properly, as personal relations make critical reflections on corporate policy less likely. Existing empirical evidence supports the prediction that board effectiveness in protecting stockholders' wealth is a positive function of the proportion of outsiders on the board (Weisbach, 1988; Brickley et al., 1994). Peasnell et al. (2005) find that the likelihood that managers make income-

increasing abnormal accruals is negatively related to the proportion of outsiders on the board. Outside directors can also influence the accuracy of earnings management forecasts (Ajinka et al., 2005; Karamanou and Vafeas, 2005). In this study we focus explicitly on the presence on family members on the board. The corporate ownership structure of Spanish firms comprises mainly companies that started-off as family-owned enterprises. Family directors can influence the properties of analyst earnings forecast by directly fostering an environment that decreases transparency. Ho and Wong (2001) and Hannifa and Cooke (2002) find a negative relationship between the percentage of family members on the board and the extent of voluntary disclosure. The difficulty of providing a low earning forecast may also render the analyst susceptible to family board pressure, and if analysts attempt to maintain good relations by issuing optimistic forecasts, we expect to find a positive relationship between the presence of family members on the board, analyst forecast errors and optimistic bias.

### **3. Empirical Research**

#### ***3.1. Sample and data***

Our sample is drawn from the population of Spanish non-financial firms listed on the Madrid Stock Exchange during 1999-2002. We exclude financial companies both because government regulation leads to more limited roles for their board of directors and because of their special accounting practices. The principal sources of our data are the SABI database (*System of Iberian Financial Statement Analysis*), made by Bureau Van Dijk, which provides financial data for those companies that submit consolidated financial statements; JCF Thomson, which provides data on analyst forecasts, risk and variability of earnings; the Madrid Stock Exchange, and the database from the CNMV (Spanish Securities and Exchange Commission), which provides information on all shareholders with ownership of at least 5 percent, as well as director's ownership of listed firms. This cut-off point is mainly driven by the disclosure regulation in countries such as France and Germany and has been also used in previous studies. Matching information of the different databases resulted in 186 common observations.

#### ***3.2. Model and variable definitions***



In order to examine how corporate governance mechanisms influence analyst accuracy and bias we use multiple regressions controlling for other factors that prior research has identified as determinants of forecast error and bias. Specifically, the following models are estimated:

$$FE = \beta_0 + \beta_1 Ins\_own + \beta_2 Block + \beta_3 Bank + \beta_4 Family + \beta_5 Log\_market\ value + \beta_6 Disp + \beta_7 Volatility + \beta_8 Earnings\_change + \lambda_i + Ind + \varepsilon$$

$$Bias = \beta_0 + \beta_1 Ins\_own + \beta_2 Block + \beta_3 Bank + \beta_4 Family + \beta_5 Log\_market\ value + \beta_6 Disp + \beta_7 Volatility + \beta_8 Earnings\_change + \lambda_i + Ind + \varepsilon$$

Where *FE* is absolute forecast error, measured as the absolute value of the difference between mean forecasted pre tax profit for firm *i* and actual pre tax profit for firm *i*, deflated by actual pre tax profit:

$$Forecast\ Error_i = \left| \frac{(\overline{Forecasted\ profit}_i - Actual\ profit_i)}{Actual\ profit_i} \right|$$

As in previous research, we measure *Bias (Optimism)* as the signed forecast error, i.e. the difference between the consensus earnings forecast and the actual earnings, deflated by actual earnings.

$$Bias\ (Optimism)_i = \frac{(\overline{Forecasted\ profit}_i - Actual\ profit_i)}{Actual\ profit_i}$$

As a proxy for insider ownership we use the proportion of common shares held by the members of the board of directors, which we represent as *Ins\_own*. Ownership concentration is defined as the proportion of common shares held by significant shareholders, which we call *Block*. Significant shareholders have to disclose their firm ownership to the Spanish Securities and Exchange Commission when this ownership is equal or greater than 5%. *Bank* is a dummy variable which takes value 1 when there is some bank as shareholder, and *Family* is a dummy variable which takes value 1 when there are members of the same family on the board of directors. The control variables which may also affect forecast errors are firm size, forecast dispersion, earnings variability and earnings

change. As a proxy for firm size we use the natural logarithm of market value (*Log<sub>market value</sub>*). Large firms are likely to be more transparent, disclosing more reliable information and providing financial analysts with access to some private information. Moreover, they are also likely to be followed by more analysts, which may lead to more accurate consensus forecasts (Brown et al, 1987; Lys and Soo, 1995; Lang and Lundholm, 1996; Wiedman, 1996; Jaggi and Jain, 1998; Hope, 2003; Lang et al., 2003). *Disp* is the forecast dispersion, measured as the standard deviation of forecasts on firm *i* scaled by the absolute value of consensus earnings forecast. Previous studies (Wiedman, 1996; Lang and Lundholm, 1996; Duru and Reeb, 2002) suggest that forecast dispersion proxies for uncertainty, task complexity, and lack of consensus among analysts, and find that forecast dispersion is negatively related to forecast accuracy. *Volatility* is the standard deviation on historical earnings per share. According to Jaggi and Jain (1998), it is more difficult for analysts to predict the future earnings of firms associated with higher variability in their earnings because of uncertainty of future earnings, so these forecasts would be less accurate than those of firms with lower earnings variability. On the other hand, Lang and Lundholm (1996) affirm that performance variability can affect analyst's incentives to gather information, since they find that analyst following is negatively related to performance variability. Other studies, such as Chang *et al.* (2000) and Duru and Reeb (2002), also find a positive influence of the variability of earnings on analyst forecast error. Earnings change is the absolute value of the difference between the current year's earnings per share and last year's earnings per share, divided by last year's earnings per share. Studies such as Duru and Reeb (2002) and Hope (2002) document a positive influence of earnings change on forecast error. A vector of industry dummies (*Ind*) and a vector of year dummies ( $\lambda$ ) are included to control for industry-fixed effects and year effects, respectively, since the complexity of the forecasting task differs across industries and across time periods. Table 1 shows the number of observations by industry groups, following the classification of the Madrid Stock Exchange in seven sectors. The main sectors are consumer goods, market services and investment and intermediate goods, which constitute more than 70% of all the companies, whereas energy, building and communication and information services represent less than 30% of the sample.

- *Insert table 1* -

### **3.3. Descriptive statistics**

The descriptive statistics of the variables are shown in table 2. The high degree of ownership concentration in Spain in comparison to other countries is reflected in the average value for Block of 53.6%. Insider ownership shows in our sample a mean of 20.1%, also higher than the values reported for studies such as Morck et al. (1988), Warfield et al. (1995), and Cho (1998) for US (10.6; 17 and 12.14, respectively). These results also show a high presence of banks as shareholders in our sample (80.6%), and that in a 33.9% of the firms there are several members of the same family on the board of directors. Mean forecast error is positive by construction, the closer to zero the more accurate the forecast, and although according to previous research analysts have incentives to issue optimistic forecasts because of the relationships between the analyst, brokerage firm and management (Dugar and Nathan, 1995; Das et al, 1998; Ackert and Athanassakos, 2003), the zero median of Bias suggests a balance between optimistic and pessimistic forecasts in our sample. However, the positive mean of Bias indicates that the optimistic biases tend to be higher than the pessimistic.

- *Insert table 2* -

## **4. Multivariate results**

Table 3, column 1 and 2, presents the results of estimating the models of forecast errors and bias. We correct the t-values reported in table 3 for heteroskedasticity using White (1980) standard errors. Multicollinearity is unlikely to affect our results since all variance inflation factors are below 2.

As shown in the first column of the table, where the results of model 1 (Forecast Error) are provided, insider ownership negatively influences absolute forecast error at the 5 percent level. This result shows that firms with high insider ownership are rewarded by more accurate analyst forecasts, in line with those studies that confirm the role of insider ownership in monitoring voluntary disclosure and reducing earnings management. As suggested by Warfield et al. (1995) higher levels of insider ownership lead to a higher information content of earnings, and lower discretionary accruals. The results show that banks also have a monitoring role, contributing to more accurate forecasts when they

are shareholders of the company. The relationship between forecast accuracy and bank ownership can also be explained by firm disclosure. Because of agency considerations, banks may prefer to hold stocks in firms with a certain and transparent information environment, avoiding firms that are surrounded by much uncertainty. The positive coefficient on the Family variable also points to a positive influence on analyst forecast errors of family members on board, confirming previous results that find a significant and negative relation between the lack of independence of the board of directors and the quality of financial reporting practices (Ho and Wang, 2001). The lack of significance of the coefficient on the Block variable suggests that majority owners do not influence the accuracy of analyst forecasts. Consistent with Duru and Reeb (2002), forecast dispersion is associated with less accurate analyst forecasts.

The results for model 2 (Bias) are provided in the second column of Table 3, and are consistent with the results of model 1. The negative coefficient on insider ownership confirms the role of insiders in the firm's policy of voluntary disclosure and in reducing earnings management, and notes that analyst forecasts are less optimism biased when insider ownership is high. Not only insiders, but also banks are likely to reduce the optimism of analyst forecasts when their interests are aligned with owners'. Our results suggest that optimism decreases with increases in insider ownership and when there are banks as shareholders. Concerning the control variables, we find that analyst forecast biases are positively related with the uncertainty in a firm's information environment, measured by the standard deviation of historical earnings per share. Consistent with Das et al. (1998) and Lim (2001), we interpret these results as evidence that analysts are more optimistic for firms with low earnings predictability. Accordingly, and following to Ackert and Athanassakos (1997, 2003), when uncertainty is high, dispersion in analyst forecasts is likely also high. Forecast dispersion is also associated with more optimistic forecasts, at the 1 percent level, that is, analysts are more likely to issue biased forecasts when analyst forecasts are more dispersed.

Overall, our results show that analysts are more likely to make an accurate forecast when insider ownership is high, when banks act as shareholders, when firms' boards of directors are independent from family's influence, and when forecast dispersion is low. Similarly, the results suggest that the probability to make a biased forecast is negatively related to insider ownership and the

presence of banks as shareholders, and positively related to forecast dispersion and volatility. In sum, these results provide empirical support to the notion that the accuracy and bias of forecasts are associated with corporate governance mechanisms which reflect the degree of firm investor protection.

- *Insert table 3* -

## **5. Concluding remarks**

In this paper we examine, in a sample of Spanish firms listed on the Madrid Stock Exchange, the influence of corporate governance mechanisms, such as ownership structure, bank shareholding and the presence of family members on the board, on the accuracy and bias of the forecasts issued by financial analysts. The motivation for examining such relationships is based on the premise that if good corporate governance structures are likely to reduce earnings management strategies and increase firm transparency, they may also improve analyst forecasts accuracy and reduce analysts' optimistic behaviour.

We find a negative and significant influence of insider ownership on forecast errors and optimistic bias, which supports the convergence-of interest hypothesis and the role played by insiders in monitoring voluntary disclosure and reducing earnings management. We also find that earnings of those firms with the presence of banks as shareholders are easier to forecast and are less optimistic, confirming their monitoring role of managers. The findings show that analyst forecast errors are higher in firms with family members on the board, which suggests that the lack of independence in boards of directors has a negative effect on the quality of financial reporting practices, and thus, on the accuracy of the forecasts issued by analysts. These results hold true even after we control for previously identified determinants of forecast accuracy and bias, such as firm size, earnings volatility, earnings change, and forecast dispersion.

Our results extend previous academic research by providing evidence on the role of corporate governance mechanisms in alleviating conflicts of interests and improving forecast accuracy, which should be of interest to managers and capital market participants who use analysts' earnings forecasts as a proxy for the capital markets' expectation of earnings. Our evidence notes that forecasting earnings becomes more complex as firms are poorly governed, confirming the notion that governance

matters and that better governance is associated with less information asymmetry. After the recent financial scandals, our results suggest that governance mechanisms are needed to prevent any further loss of investors' confidence in the financial system.

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Tables

**Table 1**  
**Sample distribution by sector classification**

Sector	N° of observations	% Observations
Consumer goods	51	27.42
Investment and intermediate goods	42	22.58
Energy	22	11.83
Building	12	6.45
Communication and information services	15	8.06
Market services	44	23.66
<b>Total</b>	<b>186</b>	<b>100</b>

**Table 2**  
**Descriptive statistics**

	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev.</b>	<b>Perc10</b>	<b>Perc90</b>
<i>Ins_own</i>	186	0.201	0.060	0.254	0.000	0.616
<i>Block</i>	186	0.536	0.574	0.244	0.155	0.835
<i>Bank</i>	186	0.806	1.000	0.396	0.000	1.000
<i>Family</i>	186	0.339	0.000	0.475	0.000	1.000
<i>Log_market value</i>	186	13.461	13.409	1.782	11.251	16.069
<i>Volatility</i>	186	0.351	0.335	0.114	0.237	0.480
<i>Earnings_change</i>	186	0.633	0.305	1.381	0.067	1.108
<i>FE</i>	186	0.130	0.045	0.204	0.002	0.405
<i>Bias</i>	186	0.028	0.000	0.240	-0.116	0.253
<i>Disp</i>	186	0.243	0.109	0.907	0.000	0.378

  

	<b>%</b>		
	<b>0</b>	<b>1</b>	
Bank	186	19.40	80.60
Family	186	66.10	33.90

**Table 3: Regression of Forecast error and Bias on corporate governance and control variables**

**Model 1:**  $FE = \beta_0 + \beta_1 Ins\_own + \beta_2 Block + \beta_3 Bank + \beta_4 Family + \beta_5 Log\_market\ value + \beta_6 Disp + \beta_7 Volatility + \beta_8 Earnings\_change + \lambda_i + Ind + e$

**Model 2:**  $Bias = \beta_0 + \beta_1 Ins\_own + \beta_2 Block + \beta_3 Bank + \beta_4 Family + \beta_5 Log\_market\ value + \beta_6 Disp + \beta_7 Volatility + \beta_8 Earnings\_change + \lambda_i + Ind + e$

	<b>FE</b>	<b>Bias (Optimism)</b>
Intercept	0.1793 (0.88)	-0.0224 (-0.08)
Ins_own	-0.1234** (-2.12)	-0.1381** (-2.09)
Block	0.015 (0.24)	0.0654 (0.78)
Bank	-0.0941** (-2.12)	-0.1057** (-2.11)
Family	0.0796** (2.37)	-0.035 (-0.83)
Log_market value	-0.0021 (-0.16)	0.0041 (0.24)
Disp	0.0868*** (4.81)	0.0607*** (3.06)
Volatility	0.0303 (0.22)	0.2744* (1.77)
Earnings_change	0.0239 (1.39)	-0.0440 (-1.38)
Adj. R <sup>2</sup>	0.241	0.096
F	4.66	2.23
Signif.	0.000	0.006
N° obs.	186	186

Significant at 1% (\*\*\*), 5% (\*\*) and 10% (\*) levels.

*FE* is absolute forecast error, measured as the absolute value of the difference between mean forecasted pre tax profit and actual pre tax profit, deflated by actual pre tax profit. *Bias (Optimism)* is the signed forecast error. *Ins\_own* is the percentage of common shares held by the members of the board of directors; *Block* is the percentage of common shares held by significant shareholders; *Bank* is a dummy variable which takes value 1 when there is some bank as shareholder; *Family* is a dummy variable which takes value 1 when there are members of the same family on the board of directors; *Log\_market value* is the natural logarithm of market value; *Disp* is the standard deviation of forecasts scaled by the absolute value of consensus earnings forecast. *Volatility* is the standard deviation on historical earnings per share; *Earnings change* is the absolute value of the difference between the current year's earnings per share and last year's earnings per share, divided by last year's earnings per share.

A vector of industry dummies (*Ind*) and a vector of year dummies ( $\lambda$ ), not reported, are included in both models to control for industry-fixed effects and year effects.

The standard errors used to compute t-values (in parentheses) are corrected for heteroskedasticity using White (1980) standard errors.

