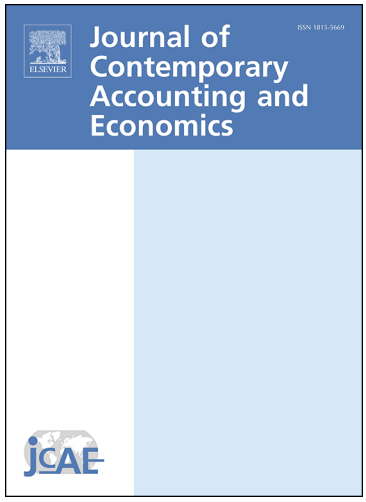

Political Patronage and Analysts' Forecast Precision

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Political Patronage and Analysts' Forecast Precision

ABSTRACT

We test whether the channel by which the government plays the role of political patron to selected firms influences analysts' forecast precision in Malaysia. Correcting for analysts' self-selection bias, we find a negative relation between analysts' forecast errors and the social dimension of political patronage, as proxied by government-controlled institutional ownership. The reverse is found for the economic dimension of political patronage, as proxied by the percentage shareholding of government-linked corporations. We find no evidence that the personal dimension of political patronage influences analysts' forecast precision.

Keywords: Analysts; Forecast precision; Political patronage; Malaysia
JEL: G24, G34, G38

1. Introduction

Intimate ties between business and politics in Malaysia have been well-documented (Gomez and Jomo, 1999; Fraser et al., 2006), with almost one-third of listed Malaysian firms known to be politically connected (Faccio et al., 2006). Malaysia thus provides an interesting and important case study of relationship-based capitalism, where firms with political patronage have emerged as the principal rent seeking group in the corporate sector. For example, in documenting the practice of cronyism during the Asian financial crisis, Johnson and Mitton (2003) report that capital control restrictions imposed by the Malaysian government in September 1998 assisted firms which were politically connected to the then prime minister (Tun Mahathir Mohammad) to outperform firms connected to his ex-deputy (Dato' Seri Anwar Ibrahim). Of the estimated $5 billion gain in market value for Mahathir-connected firms during September 1998, approximately one-third of the gain was attributed to political connections. Gul (2006) provides complementary evidence which supports Johnson and Mitton (2003), based on the observation of changes in audit fees paid by Malaysian firms during the Asian financial crisis and the subsequent implementation of capital controls. Fraser et al. (2006) document a positive relation between three dimensions of political patronage (social, economic, and personal) and leverage. Bliss and Gul (2012a, 2012b) extend Fraser et al.'s (2006) work by including firms with negative equity and find lenders perceive politically connected firms as being more risky.

Our paper contributes to this field of research by examining how the various dimensions of political patronage relate to the information processing ability of financial analysts. Previous studies show the value of analysts' intermediary role in the capital market stems from their skill at interpreting public information and their ability to collect and process private information (Ivković and Jegadeesh, 2004; Chen et al., 2010; Livnat and Zhang, 2012). We argue that the channel by which the government plays the role of political patron to selected firms affects corporate transparency and thus analysts' forecast precision.

We predict analysts' forecast precision is lower for firms with personal and economic political patronage. The personal dimension of political patronage is captured by whether the firm has established intimate informal ties with powerful politicians. To capture the economic dimension of political patronage, we use direct government ownership because the government has little justification to assume an equity position in a firm which is not compatible with its economic objectives (Fraser et al., 2006). Previous studies on the reported earnings of politically connected firms (Ball et al., 2003; Gul, 2006; Chaney et al., 2011) show that firms with higher government ownership (Bushman et al., 2004) capture underlying economic events less accurately.

In Malaysia, anecdotal evidence and widespread press reports show that, in addition to displaying characteristics of a relationship-based system such as cronyism, politically connected firms have lower levels of transparency than non-connected firms (Jomo and Gomez, 2000), which makes forecasting earnings more difficult. The uncertainty in the timing and magnitude of the payback from these forms of political patronage also makes the income stream more erratic, reducing earnings predictability further. This argument is in line with the fact that firms with economic and personal political patronage typically derive gains from the government over and above the payments they make. The nature of these payments and gains may create additional incentives to suppress firm-specific information in order to hide expropriation activities by politicians and their cronies (Bushman et al., 2004; Chaney et al., 2011). In Malaysia, for instance, businessmen with informal personal ties with politicians are often rewarded with lucrative state rents in the form of licences, contracts, and business deals with state corporations and privatised state shareholdings (Chan, 2012). These connected firms may also care less about the quality of financial information disclosed because of the protection they receive from politicians,[1] and

[1] Chaney et al. (2011) report that politically connected firms do not face the same negative consequences of poor information quality as non-connected firms since lower quality reported earnings are associated with a higher cost of debt only for the latter. Yu and Yu (2010) find fraudulent firms spend more on political lobbying and are able to evade fraud detection longer. They report that in the U.S., more than half of former congressmen or senate members work as lobbyists hired by corporations.

because they have less need to raise external capital due to their privileged access to loans from government controlled banks (Faccio et al., 2006; Claessens et al., 2008).

If the political patronage is for social considerations, however, we predict greater analysts' forecast precision for patron firms. The five largest domestic institutional investors in Malaysia, all established by the government and are members of the Minority Shareholder Watchdog Group (MSWG),[2] have been instrumental in increasing Bumiputra shareholding in the capital market, thereby reducing equity ownership imbalances between the various ethnic groups (Gomez and Jomo, 1999). Evidence shows these government-controlled/sponsored domestic financial institutions play an effective corporate governance role (Abdul Wahab et al., 2007), with their investee firms displaying better disclosure practices (Lim et al., 2014). The increased transparency of the investee firms should make it easier for analysts to forecast earnings.

In a cross-country analysis, Chen et al. (2010) find analysts have greater difficulty in predicting the earnings of connected firms, and that anti-corruption measures can curb the adverse effect of political connections on firms' information environment. Their investigation is based on a sample of 114 politically connected firms in 17 jurisdictions between 1997 and 2001. For a sample of 73 firms in Malaysia, they identify 23 firms as being politically connected. By focusing on just one country, i.e., Malaysia, we are able to provide a more in-depth analysis of political patronage (of which political connection is a subset) using a larger sample of firms. We sample 440 firms listed on Bursa Malaysia from 1999 to 2003 and find 17.5 percent have established personal connections with ruling politicians. Importantly, our study is not subject to issues which are commonly encountered in cross-country studies, including mismatching measurement periods for firm- and country-level variables, high correlations between country-level variables, and the dominance of country-level variables in driving the explanatory power of the model (Miller, 2004).

[2] These government-controlled domestic institutional investors consist of two pension funds (Employees Provident Fund (EPF) and Lembaga Tabung Angkatan Tentera (LTAT)), an investment fund (Permodalan Nasional Berhad (PNB)), a pilgrim fund (Lembaga Tabung Haji (LTH)), and an insurance company for employees (Pertubuhan Keselamatan Sosial (SOCSO)).

The accounting and finance research on financial analysts in Malaysia is scarce. Abdul Wahab et al. (2015) examine the association between culture (a proxy for ethnicity), corporate governance, and analysts' forecast errors. They find the forecast errors are significantly related to culture but not to corporate governance. How et al. (2014) examine whether institutional ownership and political connections are related to analyst following. They report a significant relation between institutional ownership and analyst following, but no similar evidence is found for political connections. Our research differs from the above papers in that we examine whether the channel of political patronage matters to analysts' forecasting ability. Additionally, our sample period (1999–2003) represents a period of political "tranquility", following the 1997–1998 *Reformasi* movement.[3] Johansson (2015) suggests the post-*Reformasi* period is ideal for testing the impact of political change in Malaysia as it reflects the first "true" challenge to the governing party regarding competitive authoritarianism. By ending our sample period in 2003 also ensures that our findings are not subject to exogenous political shocks brought about by the general election on 21 March 2004. Under the leadership of Tun Abdullah Ahmad Badawi, Malaysia witnessed a huge swing towards the ruling coalition, with *Barisan Nasional* (National Front) winning 50 more seats than in the previous election.

Correcting for self-selection bias arising from non-randomness in analysts' stock coverage selection (Rajan and Servaes, 1997), we find evidence supporting our prediction that analysts' forecasting precision, as measured by the consensus analysts' absolute earnings forecast error, varies with the dimension of political patronage. Results show a negative relation between analysts' forecast errors and the social dimension of political patronage, consistent with the monitoring role of institutional investors (Abdul Wahab et al., 2007; Lim et al., 2014). This finding is also in line with the income smoothing proposition (Chen et al., 2010), where politicians use their influence to help patron firms smooth their earnings by transferring political

[3] The 1997–1998 *Reformasi* period has been described as a political "tsunami" period by Johansson (2015). The *Reformasi* movement was triggered by the Asian financial crisis and the subsequent sacking of Deputy Prime Minister-cum-Finance Minister, Dato' Seri Anwar Ibrahim.

favours when earnings are low. As government-controlled institutional ownership becomes more concentrated, however, its association with analysts' forecast errors becomes flatter.

The economic dimension of political patronage is positively related to analysts' earnings forecast errors, consistent with our prediction. This finding supports the conjecture that economic political patronage reduces financial transparency and/or increases uncertainty in the corporate earnings stream. The association flattens out at high levels of economic political patronage. We do not find political connections (the personal dimension of political patronage) to be important in explaining analysts' forecast errors, contrary to the cross-country evidence of Chen et al. (2010). We subject our results to a battery of robustness tests, and find the results are robust to alternative variable and model specifications.

Our paper contributes to the literature in the following ways. Past studies show how political economy is associated with various aspects of financial reporting (e.g., Bushman et al., 2004). We provide a natural extension to this line of research by documenting how political patronage relates to the processing ability of financial information by one main user group − professional financial analysts. Our research is thus in the spirit of Gul (2006), who examines how political connections relate to auditors' behaviour. Additionally, we test whether the channel by which the Malaysian government plays the role of political patron to selected firms matters to earnings predictability. Our results show that it does, and thus have important implications for political economy research in the accounting and finance literature by highlighting the need to identify the dimension of political patronage.

Our study also contributes to the literature on analyst forecasts by addressing the endogenous nature of the matching between the firm and the analyst. Although extensive literature exists on the precision of analyst forecasts, few papers address the implications of self-selection for the precision of consensus analysts' forecasts (Chatalova et al., 2016). Our findings provide some insights into why analysts selectively issue earnings forecasts for some firms but

not for others, and thus further our understanding of the relation between analysts' coverage selection and analysts' forecast precision.

In the next section, we discuss the political economy in Malaysia. Section 3 describes our research design. Data and sample profile are discussed in Section 4, and our empirical results are examined in Section 5. Section 6 concludes.

2. The Malaysian political economy

Its pluralistic cultures and politically authoritarian landscape make Malaysia distinctly different from most countries, with its capital market being shaped by the close identification between racial and economic functions (Gomez and Jomo, 1999). Although political power is shared amongst the various ethnic groups, economic wealth resides mainly in the hands of the Malaysian Chinese. This wealth inequality across racial lines has led to the launch of the world's first affirmative action system which is tied to ethnicity in 1970 − the New Economic Policy (NEP). With its main objective of achieving economic parity between Bumiputras and Chinese, NEP favoured the former by offering concessions in terms of grants, trade, education, and employment. To promote Bumiputra capitalist ownership and control, there was an expansion of Bumiputra participation in the corporate sector through mandatory pension fund contributions; Bumiputra ownership rules for new equity listings (minimum 30 percent Bumiputra equity); appointments of Bumiputras to company directorships; and securing of government contracts by firms run by Bumiputra businessmen aligned with the ruling party's interests (Jomo, 1986).

In recognising the economic benefits from these preferential treatments, Malaysian businessmen became increasingly involved in politics and vice versa. The United Malays National Organization (UMNO), which was dominated by rural teachers in its formation year (1946), exemplifies this. By 1995, almost 20 percent of UMNO's 165 division-chairpersons were

millionaire businessmen-cum-politicians (Gomez and Jomo, 1999).[4] Hence, Malaysia's unique policy of affirmative action, which was launched to increase Bumiputra participation in the capital market, has led to widespread cronyism.[5] Despite its initial purpose to eradicate economic ethnic identification, the implementation of NEP merely led to one.

Through NEP and its successor, the National Development Policy[6] (NDP), the Malaysian government has created an institutional framework where increasingly more funds from cash-rich government-controlled investment vehicles, including domestic institutional investors and in particular Khazanah Nasional,[7] are deployed to bail out troubled firms with political connections. As noted by Gomez (1996), "money politics" blur the distinction between corporate and political power. In this regard, Malaysia's capital system differs from the ideal institutions-dominated Western style capitalism, which provides a more equal playing field for all the economic agents.

3. Research design

We employ the two-step Heckman (1979) procedure to address the potential inference bias from non-random sample selection (Rajan and Servaes, 1997; Chatalova et al., 2016). Such bias may emerge from the possibility that the determinants of analyst following are not random, i.e., those firms whose earnings are potentially more difficult to forecast are the same firms which are less likely to be followed by analysts, and vice versa. It follows that by construct, the sample of firms which is followed by analysts excludes those firms whose earnings are difficult to predict.

To address this issue, we begin by estimating the following first-stage regression using factors which motivate analysts to follow a firm:

[4] For instance, former Finance Minister, Tun Daim Zainuddin, and former Deputy Prime Minister, the late Tun Ghaffar Baba, were prominent businesspersons prior to their ministerial appointments.
[5] The benefits include having exclusive business relationships with state-owned enterprises, preferential access to major government contracts, and easier access to loans which are usually "soft" from government-backed banks or state development bodies and pension funds (Gomez and Jomo, 1999).
[6] The NDP replaced the NEP in 1991 and was itself replaced by the National Vision Policy in 2001.
[7] Khazanah Nasional is the investment holding arm of the Government of Malaysia (UMNO).

$$(FOLLOWING_i > 0) = \alpha_1 + \beta' Z_i + e_i, \quad (1)$$

where (*FOLLOWING >0)* takes the value of one if the firm is followed by an analyst, and zero otherwise; Z represents the vector of determinants that govern the analyst's choice of whether or not to follow a firm; and e_i is a normally distributed residual term. The identifying variables are lagged annual stock price return (*STOCK_RETURN*); lagged annual trading volume (*TURNOVER*); lagged share price (*PRICE*); share ownership of the chief executive officer (*CEO_OWN*); whether there is a foreign (*FOREIGN_BOARD*) or domestic (*INST_BOARD*) institutional investor on the board; and dividend per share (*DPS*). Past studies show that to maximize trading commissions, analysts are more likely to cover firms with a high trading volume (O'Brien and Bhushan, 1990) and firms which have experienced a large increase in stock price. Firms with (foreign) institutional investors on the board, higher CEO ownership, and which pay higher dividends are also more likely to be followed by analysts. These factors are unlikely to have a direct impact on analysts' forecasting ability.

Using the estimated coefficients from equation (1) above, we obtain the Inverse Mills Ratio (*LAMBDA*):

$$LAMBDA = \frac{f(Z_i)}{1 - F(Z_i)}$$

where f denotes the standard normal probability density function, and F denotes the standard normal cumulative density function of the independent variables (Z_i). *LAMBDA* is included along with other explanatory variables in the second-stage (outcome) equation to address the self-selection bias. The second-stage regression is specified as follows:

$$FCST\_ERROR_i = \alpha_2 + \beta_1 Political\ Patronage + \beta' X_i + \varepsilon_i, \quad (2)$$

where *FCST_ERROR* is the consensus analysts' absolute earnings forecast error; X represents the vector of determinants that govern the forecast error; and ε_i is a normally distributed residual term. *FCST_ERROR* is measured by the absolute difference between the actual earnings per

share and the corresponding consensus analysts' earnings forecast per share, deflated by the mid-point between the financial year-start and year-end share prices. We use the analyst forecast closest to (and before) the annual reporting date, as is typically done in the literature, because recent forecasts are more accurate and idiosyncratic than earlier forecasts (O'Brien, 1988). This is also the month when analyst following tends to stabilise (O'Brien and Bhushan, 1990).

Following Fraser et al. (2006), we use several proxies to capture the personal, social, and economic dimensions of political patronage. To capture the personal dimension of political patronage, we create a dummy variable (*CONNECTED*) which equals one if the firm has informal ties with ruling politicians in Malaysia, and zero otherwise. We identify politically connected firms using data sourced from Gomez and Jomo (1999), Johnson and Mitton (2003), and Bliss et al. (2011). These firms are identified to have intimate connections with politicians (including Tun Mahathir, Dato' Seri Anwar, and Tun Daim) or with the political coalition (Barisan Nasional or National Front); the latter consists of three dominant parties (UMNO; Malaysian Chinese Association (MCA); and Malaysian Indian Congress (MIC)).

Our second proxy, which aims to capture the social dimension of political patronage, is the percentage direct ownership of the Malaysian government through the five largest domestic institutional investors (*INST_OWN*). A distinctive feature of these institutions is the presence of strong government control, striving to increase Bumiputra corporate ownership (Fraser et al., 2006). For example, members of the Board and Investment Panel of Malaysia's institutional investors are appointed by and report directly to the Ministry of Finance.[8] We also construct a dummy variable (*INST_OWN* ≥ *15%*) which takes the value of one if the five largest domestic institutional investors collectively have a significant stake (≥ 15%) in the firm, and zero otherwise. The 15 percent ownership cut-off is consistent with Lins (2003), who argues that an ownership level of between 5 percent and 20 percent is necessary if institutional investors want to be an effective governance player in emerging markets. Our choice of the cut-off is also

[8] In EPF, for instance, the investment panel comprises a chairman, a representative from the Ministry of Finance, a representative from the Central Bank, and three individuals with expertise in finance and investment.

higher than the 12.58 percent average institutional ownership in Malaysia (Abdul Wahab et al., 2007).

Our third proxy is the percentage of direct ownership by the Malaysian government (*GOVT_OWN*) through government-linked companies (GLCs), i.e., Khazanah Nasional, Ministry of Finance, Johor Corporation, Sarawak Economic Development Corporation, and Petronas.[9] This proxy aims to capture the economic dimension of political patronage because the government has little justification to adopt an equity position in a firm which is incompatible with its economic objectives (Fraser et al., 2006). We also construct a dummy variable (*GOVT_OWN* ≥ *15%*) which equals one if the GLCs collectively have a significant stake (≥ 15 percent) in the firm, and zero otherwise.

In tests of earnings predictability, *X* in equation (2) represents the vector of determinants which proxy for the richness of the information environment because earnings predictability varies according to the amount of information available about the firm (Lang and Lundholm, 1996). We first control for firm size, which is proxied by the natural logarithm of a firm's market capitalisation at the forecast date *(Ln(SIZE))*. Larger firms have a richer information environment because of their greater media exposure and greater incentives to release information to enhance their corporate image (Brown et al., 2002). We control for forecast horizon, which is computed as the natural logarithm of the number of calendar days from the forecast date to the reporting date (*Ln(HORIZON)*, because more information is revealed about the year's earnings as the announcement date approaches. Because cross-listed firms are associated with greater information disclosure and transparency (Mitton, 2002), thus allowing analysts to forecast their earnings with greater precision, we also control for whether the firm has an American Depository Receipt (*ADR*).

[9] Aggregating government ownership through GLCs enables us to conduct empirical tests of the economic dimension of political patronage and analysts' forecasting ability with sufficient power. We do not expect the results to differ significantly across the different GLCs since all of them operate under the Malaysian Ministry of Finance directive orders.

The integrity and credibility of financial disclosures are an outcome of the overall quality of a firm's corporate governance system (Bushman and Smith, 2001; Klein, 2002; Bushman et al., 2004), which we also control for in the tests. Good governance is important to financial analysts because it lowers uncertainty surrounding future earnings, suggesting greater analysts' forecast precision for better governed firms (Bhat et al., 2006). The governance index for Malaysian listed firms is obtained from Abdul Wahab et al. (2007). It consists of 30 governance-related variables set out in Part 2 of Malaysian Code on Corporate Governance (MCCG): Best Practices, and Part 4 of MCCG: Explanatory Notes. Due to the introduction of the MCCG in the middle of our sample period, we use the demeaned value of the governance index (*GOV_DEMEANED*) by subtracting the yearly sample mean from each observation. In addition to the governance index, we employ the proportion of independent directors on the board (*BOARD_INDEP*). The MCCG recommends at least one-third of the board must be independent.

We control for audit quality, which is proxied by the Big-4 dichotomy (*BIG4*), because higher quality auditors are more likely to ensure greater transparency and eliminate mistakes in financial statements due to reputational concerns (Dye, 1993). Therefore, clients of high quality auditors are expected to have greater earnings predictability. We also control for the level of uncertainty regarding the firm's performance because greater uncertainty makes it more difficult for analysts to make an accurate forecast. Uncertainty is proxied by earnings volatility, as measured by the standard deviation of returns on assets over the past three years (*ROA_STDEV*). Finally, we control for loss firms (negative reported earnings) due to their different incentive structures (e.g., Bhat et al., 2006). *LOSS* is a dummy variable which equals one for loss firms, and zero otherwise.

4. Data and sample profile

Our initial sample consists of 857 firms listed on the Main Board of Bursa Malaysia from 1999 to 2003. We exclude financial institutions, insurance companies, and real estate firms (49

firms) as they operate under different regulatory frameworks. We also exclude PN4 (Practice Note 4) firms (36 firms) which are financially distressed and are required by Bursa Malaysia to regularise their financial affairs.[10] After excluding another 332 firms with missing annual reports, we end up with a final sample of 440 unique firms with 2,200 firm-year observations. Of these, 183 firms with 622 firm-year observations have analyst following. From the company annual reports, we hand-collect data on firm-specific characteristics, including corporate governance and shareholdings of the top 20 owners. Data on analysts' earnings forecasts for sample firms are sourced from the Institutional Brokers' Estimate System (IBES) Summary File.

Table 1 reports the profile of the full sample and of subsamples of firms with and without analyst following. Univariate parametric and non-parametric tests of difference in firm characteristics between the two subsamples are reported in the last two columns of the table.

[Table 1 about here]

For the sample of firms with analyst following, Panel A shows the mean (median) analysts' absolute earnings forecast error is 23.12 percent (4.39 percent) of the stock price. Although not shown in the table, the distribution of the forecast errors is heavily right-tailed; this motivates us to use numerical scales to rank the forecast errors to handle the effect of outlying observations.[11] We first sort the forecast errors by year and then by their magnitude. Next, we assign a percentile rank to each forecast error for each year. The result is a numerical score that ranges from 0 to 100 for each firm-year; firm-years with a percentile rank of 100 have the largest forecast error and firm-years with a percentile rank of 1 have the smallest. The 25th, 50th, and 75th percentile forecast errors are 1.45 percent, 4.39 percent, and 12.93 percent, respectively.

Panel B reports the descriptive statistics for the three dimensions of political patronage. Approximately one in every five firms (17.5 percent) has a personal relationship with politicians

[10] The Bursa Malaysia classifies a firm as PN4 if (i) it has negative adjusted shareholders' equity; (ii) a receiver has been appointed; (iii) the auditor has given a disclaimer opinion on the latest account; and (iv) a special manger has been appointed under the Danaharta Nasional Berhad Management Act 1998.

[11] Alternatively, we take the natural logarithm of the forecast errors to reduce the influencing effect of outliers. The result of this alternative measure is reported in the robustness section of the paper.

(*CONNECTED*). Through the five largest domestic institutional investors (*INST_OWN*), the government controls an average 8.14 percent of the shares of sample firms and has significant control (*INST_OWN≥15%)* in 16.91 percent of the firms.[12] The average direct shareholding of the Malaysian government through GLCs (*GOVT_OWN*) is 3.09 percent, holding a substantial stake (*GOVT_OWN≥15%)* in about 6.36 percent of sample firms.[13] Although not reported in Table 1, slightly more than one-third (35.30 percent) of sample firms have some form of political patronage.

Next, we compare firms with and without analyst following. Firms that have political patronage, irrespective of the dimension the patronage assumes, are more likely to be associated with analyst following. For example, 22.11 percent of firms with analyst following are politically connected compared to 15.67 percent for non-followed firms. Firms which have higher (and substantial) government ownership, through either GLCs or domestic institutional investors, are also more likely to be associated with analyst following. Insofar as these patron firms are significantly larger in size,[14] this finding concurs with past evidence that analysts are more likely to follow larger firms (Chatalova et al., 2016).

Panel C of Table 1 tabulates the descriptive statistics for the control variables. The average (median) size of our sample firms is RM 1.041 billion (RM 0.232 billion). Consistent with larger firms being associated with greater analyst following (Lang and Lundholm, 1996), the average (median) size of followed firms is RM 1.325 billion (RM 0.544 billion), which is significantly larger than that of non-followed firms (mean of RM 0.922 billion; median of RM 0.165 billion). For the sample of followed firms, the average (median) number of analysts and forecast horizon is 7 (3) and 56.47 (37) days respectively. Firms with *ADR* facilities are more likely to be associated with analyst following.

[12] PNB makes up the largest proportion of domestic institutional shareholders at 49.2 percent, followed by EPF (29.6 percent), LTAT (10.4 percent), LUTH (10.2 percent), and SOCSO (0.6 percent).
[13] Khazanah Nasional makes up the largest proportion of direct government ownership at 45.5 percent, followed by Johor Corporation (20.7 percent), Petronas (17.8 percent), Sarawak Economic Development Corporation (14.2 percent), and Ministry of Finance (1.8 percent).
[14] This finding is supported by univariate tests of difference in mean and median market capitalisation (untabulated).

Sample firms have an average (median) demeaned corporate governance score of -2.78 (-1.28). Independent directors occupy on average (median) 34.4 (33.3) percent of board seats, in line with the requirement by the MCCG. As expected, firms with higher governance quality, as measured by the demeaned corporate governance index and board independence, are more likely to be associated with analyst following, as are firms that employ a Big-4 auditor. Firms with negative earnings, however, are less likely to be followed by analysts. In sum, our univariate tests support the view that analyst coverage decisions are not random, but are driven by firm-specific characteristics. The systematic differences between followed and non-followed firms highlight the endogenous nature in firm-analyst matching.

Table 2 analyses the analysts' absolute forecast errors for our sample. It shows the difference in forecast errors between firms with and without patronage depends on the channel through which the government serves as a patron to selected firms. Specifically, the earnings forecast errors are significantly greater for politically connected firms, as shown in Panel A. The mean (median) percentile ranked absolute earnings forecast error for connected firms (*CONNECTED*=1) is 56.3 (59.2), compared to 48.1 (47.4) for non-connected firms (*CONNECTED*=0). This finding lends initial support that political connections contribute to a lower level of financial reporting quality (Ball et al., 2003; Chen et al., 2010; Chaney et al., 2011).

[Table 2 about here]

Panel B reports a lower forecast error for our social dimension of political patronage, as proxied by government-controlled institutional ownership, in line with our expectation. Specifically, the absolute earnings forecast errors for firms with substantial government control through the five largest domestic institutional investors (*INST_OWN≥15%*) have a mean (median) percentile rank of 45.80 (44.90), which is significantly lower than the 50.90 (50.80) percentile rank for other firms (*INST_OWN<15%*). This finding is consistent with the governance role of institutional investors in promoting corporate transparency in Malaysia (Abdul Wahab et al., 2007; Lim et al., 2014) and the income smoothing proposition (Chen et al.,

2010). However, contrary to expectation, there is no significant difference in analysts' forecast errors between firms with (*GOVT_OWN≥15%*) and without (*GOVT_OWN<15%*) substantial government ownership, as Panel C shows. Thus, we find no evidence that the economic dimension of political patronage has a material impact on analysts' forecasting ability.

The above associations are generally consistent with the correlation matrix of Table 3. Importantly, the reported correlations between the test variables indicate that multicollinearity is not likely to be a concern in our empirics.

[Table 3 about here]

5. Regression analysis

Table 4 reports the results from the two-stage regressions. The unconditional mean marginal effects (dF/dx) from the probit model in Panel A provide some insights into why analysts issue a forecast for some firms but not for others. Since political patronage (Bushman et al., 2004; Chaney et al., 2011) and corporate governance (Bushman and Smith, 2001; Klein, 2002; Bushman et al., 2004; Lang et al., 2004) affect the firm's information environment, we include them in the first-stage regression of analysts' selection decisions as well.

[Table 4 about here]

Results show analysts are less likely to follow firms with substantial direct government ownership through GLCs (*GOVT_OWN≥15%*), as shown in columns (6) and (7) of Panel A. However, there is no discerning difference in the likelihood of analyst coverage for the remaining proxies of political patronage.

In most specifications in Panel A of Table 4, *GOV_DEMEANED* has a significantly positive coefficient, suggesting that better governed firms are are more likely to be associated with analyst following. To the extent that corporate governance can improve the informativeness of reported earnings with less distortion, this finding is in line with the view that analysts' selection decisions are biased towards better governed firms. We also present evidence that

board independence positively influences analyst coverage decisions, as shown in columns (5) and (6). The likelihood of being followed by an analyst is significantly higher for larger firms *(SIZE)* and Big-4 clients, but decreases with loss firms (*LOSS*), earnings volatility (*ROA_STDEV*), lagged annual trading volume (*TURNOVER*) and share price (*PRICE*), CEO ownership (*CEO_OWN*), and dividend per share (*DPS*).

Results for the outcome model are reported in Panel B of Table 4. Here, the dependent variable is the percentile ranked analysts' absolute earnings forecast errors. The significant coefficient on *LAMBDA* (the inverse Mills ratio) suggests that the model suffers from selection bias in that the unobserved factors which increase the probability of analyst following are also associated with lower analysts' forecast errors. Therefore, by including the inverse Mills ratio as an additional explanatory variable, we have corrected for sample selectivity bias.

In columns (5) and (7), we find a significant and negative coefficient for the social dimension of political patronage. On average, the percentile ranked forecast errors are significantly lower in firms where the government has substantial ownership through the major domestic institutional shareholders (*INST_OWN≥15%*). This finding is consistent with the important governance role of large domestic institutional investors in promoting corporate transparency (Abdul Wahab et al., 2007; Lim et al., 2014) and thus earnings predictability. It also supports the proposition that politicians help firms with (social) patronage to smooth their earnings by timing the transfer of political favours (Chen et al., 2010). Economic political patronage, as proxied by substantial direct government shareholding through GLCs (*GOVT_OWN>15%*), is positively related to analysts' forecast errors (albeit marginally at the 10 percent level) in column (7). The coefficient on political connections (*CONNECTED*) is statistically insignificant in all specifications.

We find no evidence that better governance (*GOV_DEMEANED*) improves analysts' forecast precision, after correcting for analysts' coverage selection bias. Therefore, although the corporate governance reform (MCCG) in Malaysia has been successful in improving governance

disclosure and practices (Abdul Wahab et al., 2007), this increased compliance with "best practices" does not appear to translate into improved earnings predictability. In a survey of 200 portfolio managers and analysts on the buy side, Ashton Partners (2007) also find that corporate governance is not an important factor in the minds of research analysts when deciding on whether to issue a "buy" or "sell" recommendation. Using board independence (*BOARD_INDEP*) as a corporate governance mechanism yields a similar insignificant association with analysts forecast errors. This finding is consistent with U.S. (Vafeas, 2000) and U.K. (Vafeas and Theodorou (1998) evidence as well as the documented Malaysian evidence that independent directors do not improve the quality of financial disclosure and may even collude with CEOs to exacerbate the agency problem (Wan-Hussin, 2009).

We present some evidence showing that firm size (*Ln(SIZE)*) and auditor quality (*BIG4*) are significant in explaining analysts' forecast precision, as shown in column 7. These results resonate with the arguments that larger firms have a richer information environment (Brown et al., 2002) and that Big-4 auditors, due to reputational concerns, are more likely to ensure greater transparency and eliminate mistakes in financial statements (Dye, 1993). As expected, the *LOSS* dummy variable has a positive and significant coefficient, indicating that analysts find it substantially more difficult to predict the earnings of loss firms. We provide no evidence that *ADR* facilities or earnings volatility (*ROA_STDEV*) are related to analysts' forecast precision, after correcting for the analysts' selection bias. Columns (2) and (3) show that forecast horizon is positively related to the percentile ranked forecast errors, as expected.

Next, we investigate potential non-linear effects of the ownership variables on the dependent variable. The literature argues that at low levels of ownership, increased ownership in the hands of a few investors makes it more cost effective to monitor managerial disclosure decisions and thus reduce agency costs (Shleifer and Vishny, 1997). This alignment of interest hypothesis therefore predicts a negative relation between ownership concentration and analysts' forecast errors. At high levels of ownership, however, the entrenchment hypothesis suggests that

concentrated ownership provides incentives to extract private benefits of control at the expense of minority shareholders (Morck, 1996). In this setting, controlling owners have both the incentive and opportunity to adversely affect accounting information and reporting, thus affording them greater freedom to pursue their personal agendas. Evidence supporting the proposition that controlling shareholders engage in earnings management to conceal their opportunistic behaviour and avoid adverse consequences, such as disciplinary action, has been well documented in numerous countries including South Korea (Kim and Yi, 2006), India (Sarkar et al., 2008), and China (Liu and Lu, 2007). Indeed, Chin et al. (2006) find Taiwanese firms with concentrated ownership issue less accurate and more optimistically biased earnings forecasts. The entrenchment hypothesis thus predicts a positive relation between ownership concentration and analysts' forecast errors.

[Table 5 about here]

Panel A of Table 5 reports the mean marginal effects (dF/dx) from the probit model. Similar to the selection equation in Table 4, we find analysts are less likely to follow firms with higher government ownership if the channel of the ownership is through GLCs (*GOVT_OWN*), as shown in column (2). This finding is robust when we include the other dimensions of political patronage in column (3). The estimated coefficient on $(GOVT\_OWN)^2$ is positive and significant in columns (2) and (3), indicating a U-shaped relation. Therefore, the likelihood of firms receiving analyst coverage decreases with government ownership but this association somewhat flattens out at high levels of government ownership. The results for the remaining exogenous variables are qualitatively similar to those reported earlier in Panel A of Table 4.

Focusing on our results for the outcome model in Panel B of Table 5, we confirm that analysts' earnings forecast errors indeed vary with the dimension of political patronage. The estimated coefficient on *INST_OWN* is negative while that on its squared term is positive in columns (1) and (3). Therefore, analysts' forecast precision decreases with the level of social patronage, as proxied by government-controlled institutional ownership, but this relation flattens

out as government-controlled institutional ownership becomes more concentrated. We find the reverse for the economic dimension of political patronage, as measured by direct government ownership through GLCs (*GOVT_OWN*) in columns (2) and (3). Here, analysts' earnings forecast errors increase with the level of GLC shareholding but the relation flattens out at high levels of government ownership through GLCs.

Fraser et al. (2006) find the relation between leverage and political patronage is insensitive to the various dimensions of political patronage (i.e., economic, social, or personal). In contrast, our results suggest the information environment is shaped by the channel by which the government serves as a patron to selected firms.

(i) Additional Robustness Tests

In this section, we further test the robustness of our results to alternative variable specifications and measurements. The results are reported in Table 6.

[Table 6 about here]

First, since our sample period extends beyond the fall of Dato' Seri Anwar Ibrahim, the ex-Deputy Prime Minister, on 20 September 1998, it is possible that firms which were previously connected to him might no longer receive political favours after his departure. We recode the informal political connection dummy variable so that firms connected to Dato' Seri Anwar Ibrahim are assigned a value of zero. Column (1) of Table 6 shows that when we omit Anwar from the list of connecting politicians, *CONNECTED* remains insignificant, confirming that the personal form of political patronage does not affect analysts' forecasting ability. Results for the other variables remain mostly intact.

Next, we omit firm-years with negative earnings in column (2) and interact our political patronage variables with the *LOSS* dummy in column (3). These additional tests do not materially alter our main results on the association between the various dimensions of political patronage and analysts forecast errors. Finally, we define the analysts' forecast error in absolute

form (*FCST_ERROR*) in column (4) and in a logarithmic form in column (5). Again, our conclusions are robust to these alternative specifications of the dependent variable.

6. Summary and conclusions

We test how political patronage relates to analysts' forecast precision in Malaysia. Using various dimensions of political patronage (Fraser et al., 2006) and correcting for self-selection bias which arises from non-randomness in analysts' stock coverage selection, we predict and find that analysts' forecast errors vary with the dimension of political patronage. The relation between analysts' forecast errors and the social dimension of political patronage is negative, consistent with the effective role played by domestic institutional investors in corporate governance, including disclosure practices (Abdul Wahab et al., 2007; Lim et al., 2014), and with the earnings smoothing proposition (Chen et al., 2010). As the share ownership of these domestic institutional investors becomes more concentrated, however, the relation with analysts' forecast errors becomes flatter. The reverse is found for the economic dimension of political patronage − analysts' forecast errors increase initially with government ownership through GLCs, consistent with the greater opacity of firms with (economic) patronage, but flattens out at high ownership levels. We do not find political connections (the personal dimension of political patronage) affect analysts' forecast precision in our sample of Malaysian firms.

Our findings that the dimension of political patronage matters to analysts' earnings forecast precision have notable implications for political economy research in accounting and finance. Specifically, our research highlights the need to identify how the government plays the role of patron to selected firms because the channel of patronage reflects government's motivation, which in turn has an impact on firms' disclosure practices. Our research is not free from limitations which typically plague research in emerging markets, including the limited coverage of Malaysian firms by the IBES database which is biased towards larger firms. Another limitation stems from the lack of publicly available data to construct robust measures of political

patronage. We hope our attempt at documenting the economic consequence of the various channels of political patronage (i.e., analysts' forecasting precision) will spur further research in this area.

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Appendix
Variable definitions

Variable	Definition
Panel A: Dependent Variables	
FCST_ERROR	The absolute difference between the actual and forecasted earnings per share, deflated by the mid-point between the financial year-start and year-end share prices.
FCST_ERROR_PCTL	The percentile ranking of the analyst's absolute forecast error.
FOLLOWING	The number of analysts following the firm.
FOLLOWING>0	Takes the value of one if the firm is followed by an analyst, and zero otherwise.
Panel B: Dimensions of Political Patronage	
CONNECTED	Takes the value of one for firms identified as having established informal personal ties with politicians, and zero otherwise.
INST_OWN	The percentage shares owned by the Malaysian government through the 5 largest domestic institutional investors.
INST_OWN>15%	Takes the value of one if the percentage shares owned by the Malaysian government through the 5 largest domestic institutional investors is at least 15 percent, and zero otherwise.
GOVT_OWN	The percentage shares owned by the Malaysian government through GLCs.
GOVT_OWN>15%	Takes the value of one if the percentage shares owned by the Malaysian government through GLCs is at least 15 percent, and zero otherwise.
Panel C: Control Variables	
SIZE	Market capitalisation at the forecast date.
HORIZON	The number of calendar days from the forecast date to the earnings reporting date.
ADR	Takes the value of one if the firm has American Depository Receipts (ADR), and zero otherwise.
GOV_DEMEANED	The demeaned composite measure of corporate governance quality.
BOARD_INDEP	The proportion of independent directors on the board.
BIG4	Takes the value of one if the firm's auditor is a Big-4 auditor, and zero otherwise.
ROA_STDEV	The standard deviation of the last three years of return on assets (ROA).
LOSS	Takes the value of one if the firm has negative earnings, and zero otherwise.
LAMBDA	Inverse Mills ratio.
Panel D: Variables for Selection Equation	
STOCK_RETURN	The lagged annual market-adjusted stock price return.
TURNOVER	The lagged annual trading volume.
PRICE	The lagged mid-point of financial year-start and year-end share prices.
CEO_OWN	The percentage shares owned by the chief executive officer (CEO).
FOREIGN_BOARD	Takes the value of one if any of the 5 largest foreign institutional investors have a seat on the board, and zero otherwise.
INST_BOARD	Takes the value of one if any of the 5 largest domestic institutional investors have a seat on the board, and zero otherwise.
DPS	Dividend per share.

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Table 1
Descriptive statistics for the sample of Malaysian firms, 1999-2003

	All firms		Firms with analyst following		Firms without analyst following		*t*-test [Chi-square] *p*-value	Kruskal-Wallis *p*-value
	Mean	Median	Mean	Median	Mean	Median		
Panel A: Analysts' Earnings Forecast Error								
FCST_ERROR			23.12	4.39				
Panel B: Dimensions of Political Patronage								
CONNECTED	17.50	0.00	22.11	0.00	15.67	0.00	[0.00]	
INST_OWN	8.14	3.04	9.35	3.87	7.66	2.67	0.01	0.02
INST_OWN≥15%	16.91	0.00	20.03	0.00	15.67	0.00	[0.01]	
GOVT_OWN	3.09	0.00	4.62	0.00	2.49	0.00	0.00	0.00
GOVT_OWN≥15%	6.36	0.00	7.85	0.00	5.77	0.00	[0.06]	
Panel C: Control Variables								
SIZE (RM million)	1040.76	232.13	1325.11	544.29	922.56	165.26	0.01	0.00
HORIZON			56.47	37.00				
ADR	0.02	0.00	0.04	0.00	0.01	0.00	[0.00]	
GOV_DEMEANED	-2.78	-1.28	-0.96	-0.41	-3.50	-2.24	0.00	0.00
BOARD_INDEP	34.40	33.33	35.72	33.33	33.88	33.33	0.01	0.01
BIG4	0.69	1.00	0.76	1.00	0.66	1.00	[0.00]	
ROA_STDEV	6.84	5.09	6.93	5.59	6.81	4.78	0.71	0.04
LOSS	0.25	0.00	0.16	0.00	0.28	0.00	[0.00]	
FOLLOWING			6.58	3.00				

This table presents the descriptive statistics of the test variables for 183 firms or 622 firm-year observations with analyst following, and 257 firms or 1,578 firm-year observations without analyst following. Variable definitions are provided in the Appendix. *p*-values from Student's *t* tests (mean) and Chi Square tests (proportion, in square brackets) are in the second last column. *p*-values from Kruskal-Wallis tests (median) are in the last column.

Table 2
Analysts' forecast precision and dimensions of political patronage

	Mean	Median	Mean	Median	*t*-test *p*-value	Kruskal-Wallis *p*-value
Panel A: Personal Dimension	*CONNECTED=1* (N=138)		*CONNECTED=0* (N=484)			
FCST_ERROR	28.65	6.48	21.48	4.03	0.58	0.00
FCST_ERROR _PCTL	56.30	59.20	48.10	47.40	0.00	0.00
Panel B: Social Dimension	*INST_OWN≥15%* (N=126)		*INST_OWN<15%* (N=496)			
FCST_ERROR	12.54	4.00	25.75	4.50	0.33	0.07
FCST_ERROR _PCTL	45.80	44.90	50.90	50.80	0.09	0.09
Panel C: Economic Dimension	*GOVT_OWN≥15%* (N=93)		*GOVT_OWN<15%* (N=529)			
FCST_ERROR	9.99	6.04	24.21	4.340	0.49	0.32
FCST_ERROR _PCTL	53.80	55.50	59.60	49.30	0.34	0.35

This table presents the mean and median values of analysts forecast errors for the subsamples of firms with and without political patronage (N=622 firm-year observations). Variable definitions are provided in the Appendix. *p*-values provided in the last two column are from Student's *t* (mean) and Kruskal-Wallis (median) tests.

Table 3
Pairwise correlation matrix of test variables

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	*FCST_ERROR*													
2	*FCST_ERROR_PCTL*	0.21												
3	*CONNECTED*	-0.02	0.05											
4	*INST_OWN*	-0.04	-0.13	-0.07										
5	*GOVT_OWN*	-0.02	0.08	0.04	-0.08									
6	*Ln(SIZE)*	-0.08	-0.06	0.24	-0.08	0.06								
7	*Ln(HORIZON)*	0.02	0.07	0.04	0.07	-0.01	-0.17							
8	*ADR*	0.02	0.02	0.05	-0.10	-0.05	0.13	-0.05						
9	*GOV_DEMEANED*	0.07	0.03	-0.05	0.03	0.14	-0.06	-0.07	0.06					
10	*BOARD_INDEP*	-0.04	0.05	-0.14	0.08	-0.01	-0.06	0.11	-0.05	0.02				
11	*BIG4*	-0.11	0.00	0.14	-0.21	-0.03	0.15	-0.02	0.05	0.01	0.04			
12	*ROA_STDEV*	-0.03	-0.01	0.08	-0.04	0.08	0.04	0.01	-0.06	-0.04	-0.13	-0.03		
13	*LOSS*	0.05	0.37	0.25	-0.11	0.13	-0.16	0.06	0.04	-0.08	0.02	0.06	0.00	
14	*FOLLOWING*	-0.07	-0.05	0.14	-0.07	0.01	0.67	-0.30	0.09	0.02	-0.01	0.15	0.08	-0.14

Variable definitions are provided in the Appendix. The full sample consists of 440 firms or 2,200 firm-year observations. There are 183 firms or 622 firm-year observations with analyst following, and 257 firms or 1,578 firm-year observations without analyst following.

Table 4
Two-stage regression results

Panel A: Selection Equation (FOLLOWING>0 × 100)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CONNECTED	6.64			7.09			8.65
	(0.49)			(0.48)			(0.41)
INST_OWN		0.13		0.14			
		(0.64)		(0.69)			
GOVT_OWN			-0.18	-0.18			
			(0.67)	(0.60)			
INST_OWN≥15%					9.83		10.29
					(0.37)		(0.29)
GOVT_OWN≥15%						-31.58	-32.16
						(0.10)	(0.10)
Ln(SIZE)	27.42	27.89	28.33	27.71	27.85	29.22	28.45
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
ADR	5.93	6.25	4.50	6.63	6.81	3.69	6.54
	(0.83)	(0.84)	(0.87)	(0.80)	(0.81)	(0.92)	(0.80)
GOV_DEMEANED	0.51	0.50	0.51	0.53	0.49	0.54	0.55
	(0.15)	(0.10)	(0.13)	(0.05)	(0.10)	(0.02)	(0.06)
BOARD_INDEP	0.42	0.39	0.42	0.43	0.38	0.45	0.46
	(0.13)	(0.28)	(0.12)	(0.20)	(0.08)	(0.02)	(0.20)
BIG4	23.29	23.76	23.46	23.60	24.13	23.87	24.34
	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.00)
ROA_STDEV	-2.25	-2.26	-2.26	-2.27	-2.33	-2.29	-2.37
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
LOSS	-22.57	-21.07	-20.71	-22.52	-20.88	-19.70	-21.65
	(0.01)	(0.01)	(0.02)	(0.01)	(0.03)	(0.04)	(0.04)
STOCK_RETURN	-6.73	-6.98	-6.90	-6.56	-6.70	-6.71	-6.01
	(0.38)	(0.39)	(0.40)	(0.47)	(0.44)	(0.45)	(0.56)
TURNOVER	-7.10	-7.08	-7.09	-7.12	-7.03	-7.18	-7.16
	(0.08)	(0.03)	(0.01)	(0.02)	(0.03)	(0.01)	(0.01)
PRICE	-2.93	-2.89	-2.84	-2.90	-2.84	-2.84	-2.86
	(0.03)	(0.05)	(0.08)	(0.02)	(0.03)	(0.06)	(0.01)
CEO_OWN	-60.19	-57.28	-60.85	-59.05	-54.66	-62.67	-58.42
	(0.17)	(0.08)	(0.14)	(0.21)	(0.07)	(0.18)	(0.08)
FOREIGN_BOARD	13.93	13.41	13.69	13.44	13.41	13.31	13.10
	(0.21)	(0.10)	(0.14)	(0.15)	(0.17)	(0.12)	(0.19)
INST_BOARD	21.43	20.10	20.42	20.74	19.36	19.56	19.31
	(0.18)	(0.15)	(0.16)	(0.17)	(0.18)	(0.22)	(0.20)
DPS	-3.82	-3.81	-3.85	-3.80	-3.75	-3.90	-3.79
	(0.01)	(0.00)	(0.02)	(0.01)	(0.03)	(0.23)	(0.03)
CONSTANT	-533.68	-538.72	-543.48	-538.78	-540.79	-555.59	-552.35
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Cross-sections included	440	440	440	440	440	440	440
Total observations	2200	2200	2200	2200	2200	2200	2200
McFadden R^2	0.133	0.132	0.130	0.131	0.128	0.138	0.135
LR Stats	84.22	83.47	82.17	82.56	80.23	84.45	83.55
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Table 4
Continued

Panel B: Outcome Equation (FCST_ERROR_PCTL)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CONNECTED	0.74			0.11			-0.47
	(0.87)			(0.98)			(0.90)
INST_OWN		-0.18		-0.18			
		(0.19)		(0.19)			
GOVT_OWN			0.11	0.12			
			(0.36)	(0.36)			
INST_OWN≥15%					-7.60		-7.62
					(0.10)		(0.05)
GOVT_OWN≥15%						9.20	9.98
						(0.19)	(0.10)
Ln(SIZE)	-4.09	-4.40	-4.17	-4.85	-4.52	-4.40	-5.11
	(0.27)	(0.22)	(0.13)	(0.11)	(0.22)	(0.23)	(0.08)
Ln(HORIZON)	2.62	2.75	2.65	2.70	2.67	2.63	2.60
	(0.21)	(0.06)	(0.09)	(0.19)	(0.17)	(0.20)	(0.12)
ADR	4.65	3.88	5.50	4.14	3.72	5.52	3.95
	(0.60)	(0.62)	(0.41)	(0.64)	(0.67)	(0.33)	(0.56)
GOV_DEMEANED	0.03	0.03	0.02	0.01	0.03	0.02	0.00
	(0.83)	(0.86)	(0.87)	(0.95)	(0.84)	(0.88)	(0.98)
BOARD_INDEP	-0.04	-0.04	-0.05	-0.04	-0.04	-0.06	-0.05
	(0.72)	(0.73)	(0.63)	(0.74)	(0.72)	(0.62)	(0.72)
BIG4	-5.13	-5.97	-4.87	-6.16	-5.92	-5.07	-6.24
	(0.17)	(0.21)	(0.15)	(0.11)	(0.17)	(0.21)	(0.08)
ROA_STDEV	0.57	0.61	0.55	0.63	0.64	0.56	0.68
	(0.34)	(0.23)	(0.24)	(0.32)	(0.28)	(0.22)	(0.18)
LOSS	35.56	35.80	35.49	35.47	35.78	35.46	35.53
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CONSTANT	157.67	170.06	158.94	176.75	176.96	162.71	185.78
	(0.04)	(0.03)	(0.01)	(0.01)	(0.04)	(0.00)	(0.00)
LAMBDA	-32.30	-34.20	-31.73	-35.05	-35.23	-32.17	-36.21
	(0.06)	(0.04)	(0.01)	(0.03)	(0.06)	(0.00)	(0.00)
Cross-sections included	183	183	183	183	183	183	183
Total observations	622	622	622	622	622	622	622
Adj R^2	0.137	0.138	0.141	0.138	0.136	0.143	0.144
F-stats	17.42	15.76	15.19	16.45	14.04	21.80	14.97
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

This table presents the estimates of the Heckman two-step regressions. Panel A presents the marginal effects (dF/dx) of the first-stage regression (selection equation). Panel B presents the estimates of the second-stage regression (outcome equation). Industry and year dummies are included but not reported. Variable definitions are provided in the Appendix. *p*-values (in brackets) are based on bootstrapped standard errors.

Table 5
Two-stage regression results with non-linear ownership variables

Panel A: Selection Equation (FOLLOWING>0 × 100)

	(1)	(2)	(3)
CONNECTED			14.97
			(0.11)
INST_OWN	0.66		0.85
	(0.30)		(0.14)
GOVT_OWN		-6.07	-6.42
		(0.00)	(0.00)
(INST_OWN)²	-0.01		-0.01
	(0.43)		(0.26)
(GOVT_OWN)²		0.10	0.10
		(0.00)	(0.00)
Ln(SIZE)	27.89	30.06	28.93
	(0.00)	(0.00)	(0.00)
ADR	7.31	5.21	9.48
	(0.83)	(0.85)	(0.73)
GOV_DEMEANED	0.50	0.54	0.58
	(0.20)	(0.13)	(0.18)
BOARD_INDEP	0.39	0.48	0.50
	(0.16)	(0.06)	(0.06)
BIG4	24.07	25.27	25.59
	(0.00)	(0.00)	(0.02)
ROA_STDEV	-2.28	-2.25	-2.28
	(0.00)	(0.00)	(0.00)
LOSS	-20.36	-18.60	-21.05
	(0.01)	(0.01)	(0.04)

Table 5
Continued

Panel A continued			
STOCK_RETURN	-6.52	-7.15	-5.86
	(0.40)	(0.42)	(0.50)
TURNOVER	-7.06	-7.49	-7.54
	(0.00)	(0.03)	(0.02)
PRICE	-2.79	-2.27	-2.22
	(0.09)	(0.14)	(0.07)
CEO_OWN	-55.80	-57.73	-55.12
	(0.12)	(0.10)	(0.10)
FOREIGN_BOARD	14.09	14.63	15.78
	(0.22)	(0.13)	(0.08)
INST_BOARD	18.99	15.98	15.55
	(0.26)	(0.27)	(0.31)
DPS	-3.79	-3.99	-3.90
	(0.01)	(0.01)	(0.01)
CONSTANT	-543.22	-570.02	-567.72
	(0.00)	(0.00)	(0.00)
Cross-sections included	440	440	440
Total observations	2200	2200	2200
McFadden R^2	0.141	0.142	0.144
LR Stats	83.23	83.44	84.22
	(0.00)	(0.00)	(0.00)

Table 5
Continued

Panel B: Outcome Equation (FCST_ERROR_PCTL)			
	(1)	(2)	(3)
CONNECTED			-2.45
			(0.57)
INST_OWN	-0.69		-0.84
	(0.00)		(0.00)
GOVT_OWN		1.06	1.87
		(0.10)	(0.01)
(INST_OWN)²	0.01		0.01
	(0.00)		(0.00)
(GOVT_OWN)²		-0.02	-0.03
		(0.09)	(0.01)
Ln(SIZE)	-2.10	-2.47	-5.25
	(0.28)	(0.07)	(0.04)
Ln(HORIZON)	2.78	2.83	2.48
	(0.22)	(0.06)	(0.25)
ADR	2.75	5.48	2.12
	(0.67)	(0.40)	(0.80)
GOV_DEMEANED	0.09	0.07	-0.02
	(0.51)	(0.55)	(0.91)
BOARD_INDEP	-0.01	-0.03	-0.03
	(0.93)	(0.74)	(0.81)
BIG4	-3.54	-2.80	-6.99
	(0.37)	(0.44)	(0.05)
ROA_STDEV	0.29	0.27	0.61
	(0.50)	(0.49)	(0.17)
LOSS	35.05	35.22	35.39
	(0.00)	(0.00)	(0.00)
CONSTANT	88.02	75.78	192.98
	(0.00)	(0.00)	(0.00)
LAMBDA	-18.26	-16.69	-36.03
	(0.01)	(0.01)	(0.00)
Cross-sections included	183	183	183
Total observations	622	622	622
Adj R²	0.144	0.145	0.146
F-stats	18.83	21.32	14.88
	(0.00)	(0.00)	(0.00)

This table presents the estimates of the Heckman two-step regressions. Panel A presents the marginal effects (dF/dx) of the first-stage regression (selection equation). Panel B presents the estimates of the second-stage regression (outcome equation). Industry and year dummies are included but not reported. Variable definitions are provided in the Appendix. *p*-values (in brackets) are based on bootstrapped standard errors.

Table 6
Robustness tests on analysts' forecast errors

	Anwar Omitted	Loss Firms Omitted	Interaction	*FCST_ERROR*	Ln(*FCST_ERROR*)
	(1)	(2)	(3)	(4)	(5)
CONNECTED	3.34	0.28	0.85	-1.99	-0.16
	(0.40)	(0.96)	(0.84)	(0.90)	(0.49)
INST_OWN	-0.73	-0.89	-0.81	-1.43	-0.04
	(0.00)	(0.01)	(0.01)	(0.15)	(0.02)
GOVT_OWN	1.04	2.23	1.74	3.42	0.12
	(0.12)	(0.01)	(0.03)	(0.10)	(0.01)
(INST_OWN)²	0.96	1.17	1.04	1.49	0.05
	(0.00)	(0.04)	(0.02)	(0.21)	(0.06)
(GOVT_OWN)²	-1.64	-3.32	-2.58	-5.99	-0.19
	(0.12)	(0.02)	(0.03)	(0.06)	(0.01)
Ln(SIZE)	-2.77	-6.06	-4.29	-19.61	-0.37
	(0.31)	(0.03)	(0.13)	(0.10)	(0.13)
Ln(HORIZON)	1.82	2.70	2.46	2.71	0.13
	(0.25)	(0.17)	(0.27)	(0.52)	(0.36)
ADR	0.62	10.85	2.15	38.30	0.37
	(0.94)	(0.35)	(0.73)	(0.11)	(0.49)
GOV_DEMEANED	1.02	-12.59	0.32	50.13	-0.14
	(0.95)	(0.56)	(0.98)	(0.50)	(0.91)
BOARD_INDEP	-0.11	-0.07	-0.03	-0.12	0.00
	(0.29)	(0.54)	(0.78)	(0.82)	(0.97)
BIG4	-6.37	-9.50	-6.01	-37.78	-0.47
	(0.10)	(0.03)	(0.17)	(0.14)	(0.07)
ROA_STDEV	0.13	0.67	0.50	0.01	0.03
	(0.75)	(0.19)	(0.16)	(0.99)	(0.34)
LOSS	33.77		37.07	36.87	2.04
	(0.00)		(0.00)	(0.00)	(0.00)
CONNECTED × LOSS			-8.64		
			(0.31)		
INST_OWN × LOSS			0.22		
			(0.58)		
GOVT_OWN × LOSS			-0.34		
			(0.20)		
CONSTANT	145.67	17.81	167.64	421.98	10.17
	(0.02)	(0.00)	(0.01)	(0.13)	(0.05)
LAMBDA	-25.15	-45.66	-30.88	-60.43	-2.16
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Table 6
Continued

Cross-sections included	183	183	183	183	183
Total observations	622	622	622	622	622
Adj R^2	0.137	0.106	0.142	0.111	0.144
F-stats	18.45	5.94	21.82	9.37	36.95
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)

This table presents the estimates of the second-stage regression (outcome equation) of Heckman two-step procedure. Industry and year dummies are included but not reported. Variable definitions are provided in the Appendix. *p*-values (in brackets) are based on bootstrapped standard errors.