Corporate Governance and

the Informativeness of Unexpected Earnings

Abstract

In an efficient market, stock prices react to newly arrived information that deviates from the prior expectation. To investigate how corporate governance affects the informativeness of unexpected accounting earnings, we collect the data of Taiwan Stock Exchange and OTC listed companies from 2002 to 2006, and relate the reaction of stock prices to corporate governance variables when latest accounting earnings are released. The results suggest that when unexpected earnings are positive, companies with better corporate governance tend to exhibit higher abnormal returns. In contrast, when unexpected earnings are negative, companies with better corporate governance tend to exhibit poorer abnormal returns. This reveals that investors trust the accounting information from companies with better corporate governance more, resulting in a stronger reaction to unexpected earnings announcements.

Key Words: corporate governance, corporate transparency, the informativeness of unexpected earnings

I Introduction

Following the Asian Financial Crises that occurred in 1997, the spotlight began to fall on the corporate transparency and governance of listed Asian companies. The transparency of listed companies in East Asia is notoriously poor, a reflection of poor corporate governance (The World Bank, 1998; The Wall Street Journal Asian, 1999). The poor corporate governance may be partly due to the highly concentrated ownership structure in this region. Shareholder concentration is higher in East Asia than in other regions. More than two-thirds of the companies in East Asia are controlled by a single shareholder. In most cases, this controlling shareholder maintains greater voting rights than cash flow rights through the use of pyramid structures and cross-holdings. Moreover, managers in these companies tend to have some relationship with the controlling shareholder indicating that ownership and control is not separated (Claessens *et al.*, 2000). While policy makers and regulators make efforts to improve the corporate transparency and disclosure quality in this region, they need to understand the causes of poor corporate transparency through the lens of corporate governance.

To have comprehensive understanding of the relation between the corporate transparency and corporate governance, this study focuses on the effect of the quality of corporate governance on stock price reaction to unexpected earnings. We consider

five corporate governance factors and collect the data of Taiwan Stock Exchange and OTC listed companies from 2002 to 2006 to examine how corporate governance affects the informativeness of unexpected accounting earnings. More specifically, corporate ownership structure, deviation between voting and cash flow rights of the largest ultimate owner, composition of the board of directors and supervisors, proportion of related-party transactions, and pledge ratio from members of the board of directors and supervisors are employed as corporate governance proxies.

The results suggest that when there are positive unexpected earnings, companies with better corporate governance tend to have higher abnormal returns than companies with poorer corporate governance. In contrast, when unexpected earnings are negative, companies with better corporate governance tend to have poorer abnormal returns than companies with poorer corporate governance. This reveals that investors trust the accounting results from companies with better corporate governance more, resulting in a stronger reaction to unexpected earnings announcements. Thus, the informativeness of unexpected earnings is higher for companies with better corporate governance.

This study contributes the literature by linking corporate governance and the informativeness of earnings with comprehensive corporate governance factors. Instead of employing the earnings-return model with single corporate governance factor as the past studies (Yeo *et al.*, 2002; Fan and Wong, 2002; Vafeas, 2000; Warfield *et al.*, 1995), we adopt event-study approach and use unexpected earnings rather than accounting earnings with five corporate governance proxies to determine whether corporate governance has an effect on the informativeness of earnings. Moreover, we employ the intensive dataset of Taiwan which ensures corporate governance information from five consecutive years are used, avoiding the flaw of the prior studies that assumed fixed governance structures for each firm during the whole sample period with governance information from one single year.

The rest of this paper is organized as follows. Section 2 presents literature review and develops hypotheses that are tested in this study. Section 3 then presents the methodology and sample. Subsequently, section 4 describes the empirical results and analysis. Finally, section 5 presents conclusions.

II Literature Review and Development of Hypotheses

1. Corporate Governance and Stock Performance

Some empirical studies indicated that better corporate governance begets better stock performance (Black, 2001; Gompers *et al.*, 2003). The relations between individual corporate governance factors and company value have been examined in many studies. Some relevant corporate governance factors are detailed as follows.

1.1 Ownership Structure: Voting Rights

Berle and Means, in the 1932 book “The Modern Corporation and Private Property”, found that corporate ownership in the United States was well dispersed

amongst many minority shareholders. Control and ownership in these companies was well-separated, leading to an agency problem between managers and shareholders. As a result, according to Shleifer and Vishny (1986), a concentrated ownership structure helped to improve company value. A concentrated shareholder could coordinate the activities and align the interests of the various stakeholders.

However, Jensen and Ruback (1983) proposed the Entrenchment Hypothesis which stated that by gaining control over a company, a controlling shareholder could determine how profits were shared among shareholders. This could lead to outright expropriation - transactions in which profits were transferred to other companies the controlling shareholder controls - or de-facto expropriation - transactions in return for utility for the controlling shareholder that were not in the best interest of the company.

Morck *et al.* (1988) suggested that the relationship between ownership concentration and company value was an inverse U-shape. When the largest shareholder of a company owned between 0 and 5 percent or greater than 20 percent of the shares, there was a positive correlation between ownership concentration and company value. When the largest shareholder owned between 5 and 20 percent, a negative correlation existed. This suggested a non-linear relationship between ownership concentration and company value.

More recently, many studies have begun to doubt that ownership structure is actually as dispersed as previously believed. Demsetz (1983), Demsetz and Lehn (1985), Shleifer and Vishny (1986), and Morck *et al*. (1988) all demonstrated that in a portion of listed companies in the United States, ownership is concentrated within a family or a wealthy individual. La Porta *et al.* (1999) studied twenty-seven wealthy nations and found that most listed companies have only one controlling shareholder concentrated within either a family or government. This is directly the opposite of Berle and Means' argument that ownership is dispersed. Claessens *et al*. (2000a) and La Porta *et al.* (1999) found that over half of companies in East Asia are controlled by a single family, and in two-thirds of East Asian companies, the controlling shareholder is also the manager.

1.2 Ownership Structure: The Deviation of Cash Flow Rights from Voting Rights

In many instances, controlling shareholders possess more voting rights than cash flow rights (La Porta *et al.*, 1999), and when this deviation between voting and cash flow rights increases, there is a negative impact on company value (Lins, 2003).

Claessens *et al.* (2000b) found that higher voting rights by the ultimate controlling owner has a negative impact on corporate value while higher cash flow rights by the ultimate controlling owner has a positive impact. This result is consistent with the findings of Shliefer (1997), and Jensen and Meckling (1976).

1.3 The Percentage of Independent Members of the Board of Directors and Supervisors

The purpose of the board of directors is to decrease the agency problem resulting

from the separation of control and ownership. Generally, there are two types of members on a board: the "inside" or "management" director, and the "outside" director. A higher proportion of outside directors leads to a more independent board and better protection of minority shareholder rights (Fama, 1980; Brickley and James, 1987; Weisbach, 1988; and Kosnik, 1990).

A higher proportion of outside directors also decreases the possibility of deception in financial statements (Beasley, 1996). This proportion of outside directors was found to be lower in American companies that engaged in fraudulent activities from 1978 to 2001 than those American companies that did not engage in such activities (Uzun *et al.*, 2004). Moreover, a higher proportion of outside directors leads to better company operating performance (Fama and Jensen, 1983; Weisbach, 1988; Huson *et al.*, 2001), and when more than half of the members of a board are outside directors, the decrease in wealth from mergers and acquisitions is reduced. However, it should be noted that this relationship between the proportion of outside directors and shareholder wealth is non-linear (Byrd and Hickman, 1991).

Running contrary to all of these studies, Fosberg (1989) found that there was no connection between the proportion of outside directors and the effectiveness of supervision because, first, existing management chooses the candidate to be the outside director and therefore the candidate is not truly independent, and second, other supervising mechanisms already function effectively such as the auditing of accounting statements by independent auditors. As a result, even if there are more outside directors, it doesn't necessarily mean that this leads to better supervising mechanisms.

1.4 Pledge Ratio from the Board of Directors and Supervisors

Oftentimes, members of the board of directors or supervisors would use company's stock which they own as collateral to borrow money. The pledge ratio is the amount of this stock which they use as collateral divided by the total amount of company stock they own. The increasing pledge ratio implies these members of the board of directors or supervisors are in need of cash. There are two competing explanations as to why this need exists. First, it is possible that they are borrowing money in order to reinvest in the company for its lack of funds. This should be a bad news. In contrast, it's possible that they are optimistic about the company and are investing in the company as they expect the price of the company's stock to rise. This should be a good news.

2. Corporate Governance and the Informativeness of Accounting Earnings

2.1 The Informativeness of Accounting Earnings

The informativeness of accounting earnings has been demonstrated in many studies. Ball and Brown (1968) first mentioned that following earnings announcements, companies which announced positive news experienced continuously positive stock performance; in contrast, companies reporting bad news experienced continuously negatively stock performance. This finding provided evidence of

abnormal returns following earnings announcements. Further, Joy *et al*. (1977), Ball (1978), Watts (1978), Latane and Jones (1974, 1977, 1979), and Rendleman *et al*. (1982) all demonstrated that this process of price-adjustment following an earnings announcement did not take place immediately. Rather, price-adjustments followed continuously for a period post-announcement. Finally, Foster *et al*. (1984) attempted to arbitrage this observation by trading long companies which reported positive unexpected earnings and shorting companies which reported negative unexpected earnings. Their results showed that a significant positive abnormal return could be made using this strategy.

2.2 The Informativeness of Accounting Earnings and Corporate Governance

A study on concentrated ownership by controlling shareholders in seven East Asian countries found that a deviation between cash flow and voting rights decreases the informativeness of accounting earnings (Fan and Wong, 2002).

In addition, Warfield *et al*. (1995) suggested that the greater the percentage of a company owned by company management was, the less that management would manipulate accounting results. As a result, the percentage of ownership by company management had a positive relation with the informativeness of earnings. However, Yeo *et al*. (2002) proposed that these two factors were non-linearly related. At low levels of management ownership, there was a positive relation between management ownership and the informativeness of earnings, while at high levels of management ownership, there was not a corresponding increase in informativeness because of the entrenchment affect. Meanwhile, they claimed a strong positive relationship between ownership by large shareholders unrelated to the company and the informativeness of earnings.

Moreover, Vafeas (2000) found that companies with the smallest number of members on the board of directors in the sample (only five members) exhibited stronger informativeness of earnings; however, the way in which the board was structured was of no impact.

In sum, these studies focused on the relations between individual corporate governance factors and earnings informativeness, measured by the earnings-return model. Instead, we try to incorporate five corporate governance factors as comprehensive corporate governance proxies and use unexpected earnings according to event-study approach to examine the relations between corporate governance and corporate transparency. In the next section, we develop the hypotheses tested in this study.

3. Hypotheses

If a company can improve the quality of corporate governance and provide credible, accurate, and transparent accounting results, not only will the asymmetry of information between investors and the company be lower, but reported financial results will be a better indication of the future value of a company. When unexpected earnings occur, investors will place more trust in results reported by companies with

better corporate governance, leading to greater informativeness of earnings.

We propose the hypotheses that unexpected earnings are informative and there is a positive relation between corporate governance and the informativeness of unexpected earnings. Thus, we anticipate that the estimated coefficient of unexpected earnings to stock returns is positive and statistically significant. Furthermore, we consider five corporate governance factors in this study. Specifically, a lower level of voting rights of the largest ultimate owner, a larger ratio of the cash flow rights over the voting rights of the largest ultimate owner, a higher proportion of outside directors and supervisors, a lower proportion of related-party transactions, and a lower pledge ratio from members of the board of directors and supervisors should be indications of better corporate governance.

III Methodology and Sample

1. Empirical Model

In order to examine the effects of corporate governance proxies on the informativeness of unexpected earnings, we use a multiple regression analysis to conduct the following empirical model:

$$\begin{aligned} CAR_{it} = {} & a_0 + a_1 * X_{it} + a_2 * X_{it} * V_{it} + a_3 * X_{it} * CV_{it} + a_4 * X_{it} * ID_{it} + a_5 * X_{it} \\ & * RPT_{it} + a_6 * X_{it} * PR_{it} + a_7 * X_{it} * SIZE_{it} + a_8 * X_{it} * MB_{it} + a_9 \\ & * X_{it} * LEV_{it} + (\text{Fixed effect}) + \mu_{it} \end{aligned}$$

Where, for sample firm i, CAR_{it} is the cumulative net-of-market stock returns after earning announcement in accounting year t, X_{it} is the unexpected earnings in accounting year t, V_{it} is the level of voting rights of the largest ultimate owner, CV_{it} is the deviation of cash flow rights from voting rights of the largest ultimate owner, ID_{it} is the percentage of independent members of the board of directors and supervisors, RPT_{it} is the ratio of the related-party transactions over the sum of total purchases and sales in accounting year t, PR_{it} is the board of directors and supervisors' pledge ratio, $SIZE_{it}$ is the natural logarithm of the market value of equity in millions of NT dollars at the beginning of accounting year t, MB_{it} is the market value of equity divided by the total assets at the beginning of accounting year t, LEV_{it} is the total liability divided by total assets at the beginning of accounting year t, Fixed effects are the dummy variables controlling for the fixed effects of different calendar years and firms, and μ_{it} is the error term in accounting year t.

Moreover, in order to distinguish whether corporate governance proxies have different influences on cumulative abnormal return (CAR) between positive and negative unexpected earnings, we add a dummy variable D to each corporate governance proxy. D equals to 1 when unexpected earnings are larger than or equal to zero, and D equals to zero unexpected earnings are less than zero:

$$D = \begin{cases} 1, \text{as unexpected earnings} \geq 0 \\ 0, \text{as unexpected earnings} < 0 \end{cases}$$

The regression model becomes:

$$\begin{aligned} CAR_{it} = {} & a_0 + a_1 * X_{it} + a_2 * X_{it} * V_{it} + a'_2 * D * X_{it} * V_{it} + a_3 * X_{it} * CV_{it} + a'_3 * D \\ & * X_{it} * CV_{it} + a_4 * X_{it} * ID_{it} + a'_4 * D * X_{it} * ID_{it} + a_5 * X_{it} * RPT_{it} \\ & + a'_5 * D * X_{it} * RPT_{it} + a_6 * X_{it} * PR_{it} + a'_6 * D * X_{it} * PR_{it} + a_7 * X_{it} \\ & * SIZE_{it} + a_8 * X_{it} * MB_{it} + a_9 * X_{it} * LEV_{it} + (\text{Fixed effect}) + \mu_{it} \end{aligned}$$

As a result, when unexpected earnings are larger than or equal to zero (leading to D=1), the regression equation becomes as follows:

$$\begin{aligned} CAR_{it} = {} & a_0 + a_1 * X_{it} + (a_2 + a'_2) * X_{it} * V_{it} + (a_3 + a'_3) * X_{it} * CV_{it} + (a_4 + a'_4) \\ & * X_{it} * ID_{it} + (a_5 + a'_5) * X_{it} * RPT_{it} + (a_6 + a'_6) * X_{it} * PR_{it} + a_7 \\ & * X_{it} * SIZE_{it} + a_8 * X_{it} * MB_{it} + a_9 * X_{it} * LEV_{it} + (\text{Fixed effect}) \\ & + \mu_{it} \end{aligned}$$

In contrast, when unexpected earnings are less than zero (leading to D=0), the regression equation becomes as follows:

$$\begin{aligned} CAR_{it} = {} & a_0 + a_1 * X_{it} + a_2 * X_{it} * V_{it} + a_3 * X_{it} * CV_{it} + a_4 * X_{it} * ID_{it} + a_5 * X_{it} \\ & * RPT_{it} + a_6 * X_{it} * PR_{it} + a_7 * X_{it} * SIZE_{it} + a_8 * X_{it} * MB_{it} + a_9 \\ & * X_{it} * LEV_{it} + (\text{Fixed effect}) + \mu_{it} \end{aligned}$$

The purpose of this regression model is to examine the unexpected earnings response coefficient, a_1, unexpected earnings response coefficients to the level of voting rights of the largest ultimate owner, a_2, a'_2, unexpected earnings response coefficients to the deviation of cash flow rights from voting rights of the largest ultimate owner, a_3, a'_3, unexpected earnings response coefficients to the percentage of independent members of the board of directors and supervisors, a_4, a'_4, unexpected earnings response coefficients to the ratio of the related-party transactions over the sum of total purchases and sales, a_5, a'_5, and the unexpected earnings response coefficients to the board of directors and supervisors' pledge ratio, a_6, a'_6. We expect the regression results to demonstrate that companies with better corporate governance quality have stronger informativeness of unexpected earnings.

2. Variables

In order to examine the effects of corporate governance factors on the informativeness of unexpected earnings, we adopt the Event Study method and use multiple regression analysis to conduct our regression model. In the regression model, the dependent variable is cumulative abnormal return, and the independent variables are unexpected earnings and the five corporate governance proxies. In addition, we add three control variables— company size, the market-to-book ratio, and the liability ratio— to increase the proportion of variance in the dependent variable which can be predicted from the independent variables.

Table 1 provides a summary of the definition of and anticipated sign of each of these variables in our regression model.

Table1 Variables and expected signs

	Code	Variables	Measurement of Variables	Anticipated signs
Dependent Variable	CAR	Cumulative Abnormal Returns	Event Study Method	
Independent Variables				
	X	Unexpected Earnings	(Actual pre-tax income - Analysts' expectation) / Analysts' expectation	+
Corporate governance variables	V	Voting Rights	Voting right or control right level of the largest ultimate owner	-
	CV	Cash flow rights/Voting rights	Deviation of cash flow rights from voting rights of the largest ultimate owner	+
	ID	Percentage of independent members of the board of directors and supervisors	Ratio of the number of independent members of the board of directors and supervisors over total members of the board of directors and supervisors	+
	RPT	Related Party Transactions	The ratio of related party transactions over sum of total purchases and sales	-
	PR	Pledge ratio	Board of directors and supervisors' pledge ratio	-
Control Variables	SIZE	Company Size	Natural logarithm of the market value of equity in millions of NT dollars at the beginning of accounting year	-
	MB	Market-to-Book Ratio	Market value of equity divided by the total assets at the beginning of accounting year	?
	LEV	Liability Ratio	Total liability divided by total assets at the beginning of accounting year	?
Dummy Variable	D	Dummy Variable	$D = \begin{cases} 1, \text{as unexpected earnings} \geq 0 \\ 0, \text{as unexpected earnings} < 0 \end{cases}$	

2.1 Dependent Variable

The Dependent variable is cumulative abnormal return (CAR). There are three major expected return models to calculate CAR in the Event Study method:

a. Mean-adjusted returns model
b. Market-adjusted returns model
c. Market model or risk-adjusted return model

This study adopts market model to estimate abnormal return. We first employ the Ordinary Least Square Method (OLS) to build the following regression model in the estimation period:

$$R_{it} = a_i + b_i R_{mt} + \varepsilon_{it}$$

Where, ε_{it} is the error item and $\varepsilon_{it} \sim N(0, \sigma^2)$. We can generate estimated coefficients $\hat{a}$ and $\hat{b}$ using OLS.

Next, we use the estimated coefficients, $\hat{a}$ and $\hat{b}$, and actual stock returns and

market returns in the event period to calculate abnormal returns in the event period:

Event period actual market return = R_{mt}

Event period expected return = $E(R_{it}) = \hat{a} + \hat{b}R_{m\,t}$

Abnormal return $AR_{it} = R_{it} - E(R_{it})$

Assuming cumulative abnormal return $CAR_{it} = \sum_{t=0}^{29} AR_{it}$

Figure 1 illustrates the estimate period and event period of event study in this paper. Note that our estimate period is 100 trading days prior to the event day, and that the event period is the event day plus the 29 trading days following the event day.

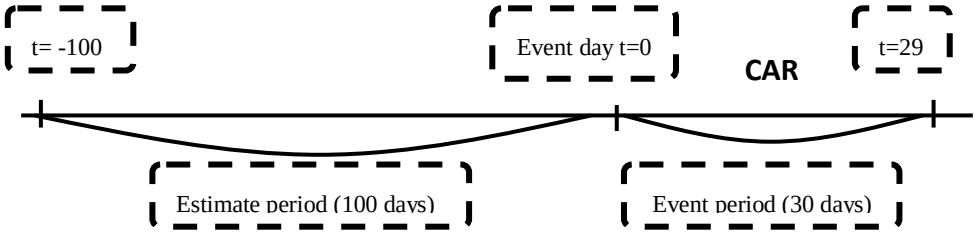

Figure 1 Estimate period and event period of event study

2.2 Independent Variables

We include unexpected earnings (X) and five corporate governance proxies as independent variables in the regression model.

a. Unexpected Earnings (X)

Unlike past studies (Yeo *et al.*, 2002; Fan and Wong, 2002; Vafeas, 2000; Warfield *et al.*, 1995), we use unexpected earnings rather than accounting earnings when employing the earnings-return model to determine whether earnings are informative. Unexpected earnings are computed as the difference between average analysts' expectations of pre-tax income on the latest day prior the earnings announcement and the actual accounting number:

Average analysts' expected pre-tax income = $E(NI_{it})$

Actual pre-tax income = NI_{it}

Unexpected earnings = $NI_{it} - E(NI_{it})$

Assuming unexpected earnings (%) : $X_{it} = \frac{NI_{it} - E(NI_{it})}{E(NI_{it})}$

Our hypotheses suggest that unexpected earnings are informative. Therefore, we anticipate that the estimated response coefficient of unexpected earnings to stock returns is positive and statistically significant.

b. Voting Rights Level of the Largest Ultimate Owner (V)

c. The Deviation of Cash Flow Rights from Voting Rights of the Largest Ultimate Owner (CV)

Fan and Wong (2002) adopted the voting rights level and the deviation of cash flow rights from voting rights of the largest ultimate owner as independent variables to examine the informativeness of accounting earnings. We also include these two variables as corporate governance measurements to lexamine the informativeness of unexpected earnings. CV denotes the deviation of cash flow rights from voting rights of the largest ultimate owner.

$$CV \equiv \text{Cash flow rights}/\text{Voting rights} \text{ of the largest ultimate owner.}$$

If the regression results are consistent with our hypotheses, lower levels of voting rights and larger ratios of the cash flow rights over the voting rights of the largest ultimate owner should be indications of better corporate governance, and these companies' unexpected earnings should exhibit greater informativeness.

2.3 Control Variables

We also include a set of variables to control for observed variations in the informativeness of unexpected earnings that are likely due to causes other than the independent variables described above.

a. Size of the Company (SIZE)

Company size is often included as a factor affecting investors' reaction to earnings announcements. Prior to earnings announcements investors can gain more information about larger companies than smaller companies, and as a result, there is a smaller reaction in stock price to the earnings announcement of large companies. Vafeas (2000), Visvanathan (2006) and Warfield *et al.* (1995) suggest that company size would also affect earnings informativeness.

As a result, we include the natural logarithm of the market value of equity in millions of NT dollars at the beginning of the accounting year as a control variable in the regression model.

b. Market-to-Book Ratio (MB)

The ratio of the market value of equity to the book value of total assets (MB) is included in our regression model to control for the effects of growth on the earnings-return relation, as in Vafeas (2000), Fan and Wong (2002) and Warfield *et al.* (1995).

Collins and Kothari (1989) and Smith and Watts (1992) found that if the growth opportunity of a company was larger, investors would expect future cash flow to be greater. Therefore, growth opportunity and the earnings response coefficient were positively related. However, firm risk might affect the market-to-book ratio. If high

growth opportunity was coupled with high risk, the earnings-return relation might be weaker. Moreover, young firms produced less informative earnings, these young firms also tended to be high growth firms. Consider these countervailing effects, according to Fan and Wong (2002), the net effect of growth on the earnings-return relation is unknown.

c. Liability Ratio (LEV)

Lastly, we incorporate leverage (LEV) as a control variable in the regression, as Vafeas (2000), Fan and Wong (2002) and Warfield *et al.* (1995) did. Leverage was employed as a proxy of firm risk (Dhaliwal *et al.*, 1991). The earnings-return relation might be weaker for highly leveraged firms. Dhaliwal and Reynolds (1994) and Billings (1999) also promoted the idea that the extent of leverage had a significant negative effect on earnings informativeness.

On the other hand, leverage was often employed as a proxy of growth opportunity since young firms with high growth opportunity tended to have lower leverage and produce less informative earnings. Consider the countervailing effects, according to Smith and Watts (1992) and Fan and Wong (2002), the net effect of growth on the earnings-return relation is unknown.

2.4 Dummy Variable

In order to distinguish whether corporate governance variables have different influences on cumulative abnormal returns (CAR) between positive and negative unexpected earnings, we add a dummy variable, D, to each corporate governance proxy to examine this asymmetrical effect. D equals to 1 when unexpected earnings are greater than or equal to zero, and D equals to zero when unexpected earnings are less than zero.

$$\mathrm{D} = \begin{cases} 1, \text{as unexpected earnings} \geq 0 \\ 0, \text{as unexpected earnings} < 0 \end{cases}$$

3. The Sample

All the financial data and values for the corporate governance proxies used in this study come from the Taiwan Economic Journal (TEJ) Databank. This study included both TSE and OTC listed companies in Taiwan which announced earnings for accounting years from 2002 to 2006.

We chose to use annual earnings rather than semiannual or quarterly earnings because semiannual reports have only been required since 2005 in Taiwan and quarterly reports don't require CPA certification. Moreover, we only included the earnings period from 2002 to 2006 because corporate governance became much more developed after the announcement of the Sarbanes-Oxley Act of 2002.

A single earnings announcement represents a single firm-year observation. Over this period, there were 6,516 firm-year observations covering 1,314 TSE and

OTC listed companies, but we excluded a portion of these because they missed some piece of data required in our analysis. In the end, our sample was reduced to 3,355 firm-year observations between accounting years 2002 and 2006 covering 1,028 TSE and OTC listed companies.

Table 2 shows the sample selection process and the number of firm-year observations that were rejected at each step in that process. Numbers in parenthesis indicate the number of companies those firm-year observations included.

Table2 Sample Selecting Process

Firm-Year Observations Rejected, Companies Included *(in Parenthesis)*, and Reason for Rejection		
81	(18)	Firm-year observation rejected because no quote data existed.
919	(362)	Firm-year observation rejected because no quote data existed for day of event.
233	(233)	Firm-year observation rejected because insufficient quote data existed in either estimation period to calculate alpha/beta or in event period to calculate abnormal return.
910	(391)	Firm-year observation rejected because no data existed for either analyst expected earnings or actual reported net income.
3	(3)	Firm-year observation rejected because no data existed for related-party transactions.
759	(339)	Firm-year observation rejected because no data existed for corporate governance variables.
256	(252)	Firm-year observation rejected because no data existed for market value.
3355	(1028)	All data exists.

Additionally, in 750 firm-year observations covering 541 firms, the day of the earnings announcement was moved forward to the nearest trading day because the earnings announcement fell on a weekend or other non-trading day. In 889 firm-year observations covering 724 firms, multiple analyst estimates existed on the same most recent day prior to the actual earnings announcement and these multiple estimates were averaged together.

IV Empirical Results and Analysis

1. Summary Statistics

Summary statistics for the dependent and independent variables of the regression are reported in Table 3. Panel A of Table 3 shows the mean CAR (30 trading day cumulative abnormal return after earnings announcement) is -0.02% and the mean X (unexpected earnings) in Panel B is -26.07%, but statistically these are insignificantly different from zero due to their large standard errors. Both CAR and X display large dispersion in value in the sample.

Other summary statistics in Panel B of Table 3, V (voting rights of the largest ultimate owners) and CV (the divergence between cash flow and voting rights), are consistent with prior studies; the voting rights of TSE/OTC listed companies in

Taiwan tend to be highly concentrated. Ultimate owners on average possess high voting control, 28.48%, and they control significantly more votes than those determined by their ownership positions. Specifically, the mean CV is 0.81, indicating that the controlling owners' levels of cash flow rights are on average 19% lower than their corresponding levels of voting rights. Additionally, the mean of the percentage of independent members of the board of directors, related-party transactions, and pledge ratios are 12.68%, 19.92%, 9.16% respectively, and are for the most part distributed within a reasonable range.

Table 3 Summary statistics for regression variables

Variable	Mean	Std. Err.	First	Median	Third	Minimum	Maximum
Panel A: Dependent Variable							
CAR%	-0.02	0.16	-0.10	-0.02	0.06	-1.25	0.70
Panel B: Independent Variablies							
X%	-26.07	193.88	-20.23	-5.06	4.86	-3073.60	1687.20
V%	28.48	16.25	15.59	25.82	39.85	0.73	89.18
CV	0.81	0.26	0.72	0.94	1.00	0.00	1.00
ID%	12.68	16.05	0.00	0.00	30.00	0.00	75.00
RPT%	19.92	22.86	2.76	11.63	31.19	0.00	400.00
PR%	9.16	17.45	0.00	0.00	10.49	0.00	99.28
Panel C: Control Variables							
SIZE	7.97	1.44	6.95	7.80	8.77	3.89	14.25
MB	1.00	0.85	0.48	0.77	1.24	0.02	11.73
LEV%	39.37	15.42	28.14	39.47	49.70	0.20	96.18

Sample: The sample includes 3,355 firm-year observations, spanning accounting years from 2002 to 2006 and covers 1,028 TSE & OTC listed companies in Taiwan.

2. Regression Analysis

To test the relation between corporate governance and earnings informativeness, as measured by the earnings-return relation, we perform a set of pooled time-series cross-firm regression models to test the informativeness of earnings conditional on voting rights of the largest ultimate owner, the deviation of cash flow rights from voting rights of the largest ultimate owner, the percentage of independent members of the board of directors and supervisors, related-party transactions, and the pledge ratio of the members of the board of directors and supervisors.

The results are reported in Table 4. Panel A and Panel B. Where appropriate, the fixed effect of calendar years and/or firms are included as dummy intercepts in the regression. For simplicity, they are not reported in the table.

Table 4 shows that the intercept in the regression model is -0.026. The negative intercept could be caused by the omitted expected earnings components, such as the earnings prediction from the company itself. But for that the negative intercept is not statistically significant, it is less important to our result.

The estimated coefficient of Unexpected Earnings (X), a_1, is 3.959, which is positive and statistically significant, suggesting that unexpected earnings are

informative in Taiwan.

Overall, we use CAR as the dependent variable to measure the impact of corporate governance on the informativeness of unexpected earnings. According to our hypotheses, we expect that the better the quality of corporate governance is, the stronger the informativeness of accounting earnings is. That is, under the same positive unexpected earnings, companies with better quality of corporate governance should exhibit a larger increase in CAR and companies with poorer quality of corporate governance should exhibit a smaller increase CAR because investors trust the accounting results of companies with better corporate governance more. In contrast, under the same negative unexpected earnings, companies with better quality of corporate governance should exhibit a larger decrease in CAR and companies with poorer quality of corporate governance should exhibit a smaller decrease in CAR.

The results of the regression model show that the estimated coefficient of X*V and D*X*V are -1.891 (a_2) and –0.079 (a'_2), respectively, and that both are significantly negative at the 1% level. This suggests that under the same positive unexpected earnings, companies with lower voting right levels of the ultimate owners exhibit a larger increase in CAR, and that under the same negative unexpected earnings, companies with lower voting right levels exhibit a larger decrease in CAR. As a result, the voting rights levels of the ultimate owners is significantly negatively related to the informativeness of the firm's unexpected earnings, meaning that the lower the voting rights levels of the ultimate owners is, the stronger the earning informativeness is. This is consistent with our hypotheses. Moreover, earnings informativeness is even stronger under positive unexpected earnings than negative unexpected earnings, corresponding to $|a_2 + a'_2| > |a_2|$ (Table 5).

The estimated coefficient of X*CV and D*X*CV are 1.786 (a_3) and –1.509 (a'_3), respectively, and both are significantly at the 1% level. This suggests that under the same positive unexpected earnings, companies with a higher ratio of cash flow rights over voting rights (lower deviation between cash flow rights and voting rights) of the ultimate owners exhibit a larger increase in CAR, and that under the same negative unexpected earnings, companies with a higher ratio of cash flow rights over voting rights of the ultimate owners exhibit a larger decrease in CAR. As a result, the ratio of cash flow rights over voting rights of the ultimate owners is significantly positively related to the informativeness of the firm's unexpected earnings, meaning that the higher the ratio of cash flow rights over voting rights (or the lower the deviation between cash flow rights and voting rights) of the ultimate owners is, the stronger the earnings informativeness is. This is consistent with our hypotheses. Moreover, earnings informativeness is even stronger under negative unexpected earnings than under positive unexpected earnings, corresponding to $|a_3 + a'_3| < |a_3|$ (Table 5).

The estimated coefficient of X*ID and D*X*ID are -0.052 (a_4) and 4.123 (a'_4), but only 4.123 (a'_4) is significant at the 1% level. a'_4 is the additional earning response coefficient due to positive unexpected earnings. The significance of a'_4 suggests that under the same positive unexpected earnings, companies with a higher percentage of independent members of the board of directors and supervisors exhibit a larger increase in CAR, but that there is no significant result when unexpected earnings are negative. As a result, the percentage of independent members of the

board of directors and supervisors is significantly positively related to the informativeness of the firm's positive unexpected earnings, meaning that when unexpected earnings are positive, the higher the percentage of independent members of the board of directors and supervisors is, the stronger the earnings informativeness is. This is consistent with our hypotheses.

The regression results of the effect of related-party transactions on earnings informativeness shows that the estimated coefficient of X*RPT and D*X*RPT are -2.035 (a_5) and 3.973 ($\acute{a}_5$), and that both are significantly at 1% level. This suggests that under the same positive unexpected earnings, companies with a higher proportion of related-party transactions exhibit a larger increase in CAR, and that under the same negative unexpected earnings, companies with a lower proportion of related-party transactions exhibit a larger decrease in CAR. As a result, the proportion of related-party transactions is significantly positively related to the informativeness of the firm's positive unexpected earnings but significantly negatively related to the informativeness of the firm's negative unexpected earnings, meaning that the higher the proportion of related-party transactions is, the stronger the informativeness of positive unexpected earnings is, and that the lower the proportion of related-party transactions is, the stronger the informativeness of negative unexpected earnings is. The result is not consistent with our hypotheses under positive unexpected earnings.

One possible reason to explain this is that because Taiwan has a unique business model and legislative system as a result of its special relationship with Mainland China, a higher portion of related-party transactions might not in fact be harmful to outside minority shareholders. As a result, assuming that a high proportion of related-party transactions is an indicator of bad corporate governance might not be appropriate to test the effect of corporate governance on the informativeness of unexpected earnings.

The estimated coefficient of X*PR and D*X*PR are -4.254 (a_6) and 2.046 ($\acute{a}_6$), respectively, and both are significantly at the 1% level. This suggests that under the same positive unexpected earnings, companies with a lower pledge ratio from members of the board of directors and supervisors exhibit a larger increase in CAR, and that under the same negative unexpected earnings, companies with a lower pledge ratio exhibit a larger decrease in CAR. As a result, the pledge ratio from members of the board of directors and supervisors is significantly negatively related to the informativeness of the firm's unexpected earnings, meaning that the lower the pledge ratio from members of the board of directors and supervisors is, the stronger the earnings informativeness is. This is consistent with our hypotheses. Moreover, the informativeness is stronger under negative unexpected earnings than under positive unexpected earnings, corresponding to $|a_6 + \acute{a}_6| < |a_6|$ (Table 5).

As for the three control variables, the estimated coefficient of X*SIZE is -0.470 (a_7) and significantly negative at the 1% level. This is consistent with the results from subset of Taiwan of Fan and Wong (2002) , while in contrast to Vafeas (2000) and Warfield *et al.* (1995). One possible reason is that because investors can gain access to more information of large firms than small firms before earning announcements and they have more understanding for large firms, investors' reaction to unexpected earnings are weaker in large firms. The estimated coefficient of X*MB is 0.407 (a_8)

and significantly positive at the 5% level. This is consistent with Vafeas (2000) and Warfield *et al.* (1995). Market-to-Book ratio is generally considered a good proxy for a company's growth opportunity. The significantly positive estimated coefficient suggests that the informativeness of unexpected earnings of companies with a higher growth opportunity is higher. Lastly, the estimated coefficient of X*LEV is -0.727 (a_9) and significantly negative at the 10% level. This is consistent with Vafeas (2000) and the results from subset of Taiwan of Fan and Wong (2002). Highly leveraged firms are associated with high risk and hence the informativeness of their unexpected earnings is weakened.

In summary, the lower the voting rights level of the ultimate owner (V) is, the higher the ratio of cash flow rights over voting rights (or the lower the deviation between cash-vote rights) of the ultimate owner (CV) is, and the lower the pledge ratio of members of the board of directors and supervisors (PR) is, the stronger the informativeness of unexpected earnings is regardless of whether unexpected earnings are positive or negative. As for ID, the positive relation between the percentage of independent members of the board of directors and supervisors and earning informativeness only exists under positive unexpected earnings. Furthermore, for RPT, the higher the proportion of related-party transactions is, the stronger the informativeness of positive unexpected earnings is, and the lower the proportion of related party transactions (RPT) is, the stronger the informativeness of negative unexpected earnings is. Table 5 summarizes the empirical results discussed above, and clarifies the effect of each corporate governance proxy on the informativeness of unexpected earnings.

Table 4 Regression Result

Panel A				
Variables	**Estimate**	**Standard Error**	**t-Value**	**P-Value**
Intercept	-0.026	0.22	-0.12	0.9039
X	3.959	0.47	8.48	<.0001
X*V	-1.891	0.49	-3.83	0.0001
D*X*V	-0.079	0.01	-10.04	<.0001
X*CV	1.786	0.16	11.44	<.0001
D*X*CV	-1.509	0.21	-7.35	<.0001
X*ID	-0.052	0.57	-0.09	0.9275
D*X*ID	4.123	0.17	24.81	<.0001
X*RPT	-2.035	0.27	-7.43	<.0001
D* X*RPT	3.973	0.62	6.37	<.0001
X*PR	-4.254	0.22	-19.35	<.0001
D*X*PR	2.046	0.20	10.47	<.0001
X*SIZE	-0.470	0.04	-11.02	<.0001
X*MB	0.407	0.18	2.24	0.0255
X*LEV	-0.727	0.40	-1.83	0.0682
Panel B				
i	**Variables**	**a_i+á$_i$** X>0	**a_i** X<0	**á$_i$**

	Intercept		-0.026	
			(-0.12)	
1	X	3.959	3.959	
			(8.48)***	
2	X*V	-1.970	-1.891	-0.079
			(-3.83)***	(-10.04)***
3	X*CV	0.277	1.786	-1.509
			(11.44)***	(-7.35)***
4	X*ID	4.071	-0.052	4.123
			(-0.09)	(24.81)***
5	X*RPT	1.938	-2.035	3.973
			(-7.43)***	(6.37)***
6	X*PR	-2.208	-4.254	2.046
			(-19.35)***	(10.47)***
7	X*SIZE		-0.470	
			(-11.02)***	
8	X*MB		0.407	
			(2.24)**	
9	X*LEV		-0.727	
			(-1.83)*	

Model specification: $\mathrm{CAR_{it}} = a_0 + a_1 * X_{it} + a_2 * X_{it} * V_{it} + a'_2 * D * X_{it} * V_{it} + a_3 * X_{it} * CV_{it} + a'_3 * D * X_{it} * CV_{it} + a_4 * X_{it} * ID_{it} + a'_4 * D * X_{it} * ID_{it} + a_5 * X_{it} * RPT_{it} + a'_5 * D * X_{it} * RPT_{it} + a_6 * X_{it} * PR_{it} + a'_6 * D * X_{it} * PR_{it} + a_7 * X_{it} * SIZE_{it} + a_8 * X_{it} * MB_{it} + a_9 * X_{it} * LEV_{it} + (\text{Fixed effect}) + \mu_{it}$

***Indicates significant at 1% (two-tailed).

** Indicates significant at 5% (two-tailed).

* Indicates significant at 10% (two-tailed).

a. The OLS regression is run pooling across years and firms. Fixed-effects of calendar years and firms are included in the regressions but not reported.

b. t-statistics are in parentheses.

Table 5 Summary empirical results

		Negative unexpected earnings		**Positive unexpected earnings**	
	Better corporate governance	**Stronger earning informativeness**	**weaker earning informativeness**	**weaker earning informativeness**	**Stronger earning informativeness**
X*V	Lower voting right level of the ultimate owner	★			★★
X*CV	Higher ratio of cash flow rights over voting rights of the ultimate owner	★★			★
X*ID	Higher percentage of independent members of the board of directors and supervisors		★ Not significant		★★
X*RPT	Lower proportion of related-party transactions	★★		★	
X*PR	Lower pledge ratio from members of the board of directors and supervisors	★★			★

The difference between ★ and ★★ is to compare the informativeness between the positive and negative unexpected earnings. ★★ means stronger informativeness of unexpected earnings.

V Conclusion

We examine a sample of 3,355 firm-year observations, spanning accounting years from 2002 to 2006 and covering 1028 TSE & OTC listed companies in Taiwan to examine whether the unexpected earnings are informative and whether the unexpected earnings of companies with better corporate governance are even more informative. We hypothesize that the better the corporate governance is, meaning that the lower the voting rights level of the ultimate owner (V) is, the higher the ratio of cash flow rights over voting rights (or the lower the deviation between cash-voting rights) of the ultimate owner (CV) is, the higher the percentage of independent members of the board of directors and supervisors (ID) is, the lower the proportion of related-party transactions (RPT) is, and the lower the pledge ratio from members of the board of directors and supervisors (PR) is, the stronger the informativeness of unexpected earnings is.

Our empirical results support that the unexpected earnings are informative; in addition, the lower the voting rights level of the ultimate owner (V) is, the higher the ratio of cash flow rights over voting rights (or the lower the deviation between cash-voting rights) of the ultimate owner (CV) is, and the lower the pledge ratio from the members of the board of directors and supervisors (PR) is, the stronger the informativeness of unexpected earnings is regardless of whether the unexpected earnings are positive or negative. The evidence also shows that the higher the percentage of independent members of the board of directors and supervisors (ID) is, the stronger the informativeness of positive unexpected earnings is. Furthermore, the lower the proportion of related party transactions (RPT) is, the stronger the informativeness of negative unexpected earnings is. The evidence generally supports that the better the corporate governance is, the stronger the informativeness of unexpected earnings is. The only exception is that the higher the proportion of related-party transactions (RPT) is, the stronger the informativeness of positive unexpected earnings is, which might come from an unique business model and legislative system of Taiwan as a result of its special relationship with Mainland China; thus, a high proportion of related-party transactions might not be an indicator of bad corporate governance in Taiwan.

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