

ON THE ESTIMATION OF THE VALUE OF VOTING RIGHTS: EVIDENCE FROM TAIWAN

*I-Hsiang Huang**

Abstract

This paper proposes that the value of voting rights can be measured as the abnormal return of the date after the ex-voting rights date. The merit of this method is that it is applicable to all publicly traded firms. Whatever the expected return model is adopted, the vote value hypothesis of Manne (1962) is hold by using a sample of firms listed on Taiwan Stock Market whose annual shareholder meetings have a board election. Moreover, the result shows that the value of voting rights is negatively related to prior year's market value of equity, managerial equity ownership, and return on asset. It is consistent with the hypothesis that the source of vote value comes from private benefit of control and improved management.

Keywords: voting rights, return, board election, general shareholder meeting

* Department of Finance, National University of Kaohsiung, No. 700, Kaohsiung University Rd. Nan-Tzu District, Kaohsiung, Taiwan.
Tel: 886-7-5919048, Fax: 886-7-5919329, E-mail: ihluang@nu.edu.tw

1. Introduction

In his seminal work, Manne (1962) notes a drop in share price on the day after the record day in a proxy fight and argues that the vote attached to common stock has a market value. In contrast, Berle (1962) argues that the incumbent management has the ability to control the voting process and hence the vote is valueless. Subsequently, a developing literature on corporate governance has devoted to study whether the vote attached to share is valuable and what factors affect the magnitude of vote value.¹ The evidences indicate that the vote value hypothesis is hold and its value comes mainly from the private benefit of control. Indeed, the vote value is unobservable and is intrinsically difficult to measure in a reliable method. By now, there are three methods have been used to estimate the value of voting rights.

The first method, addressed by Levy (1983) and Lease et al. (1983, 1984), relies on the existence of firms with multiple classes of stock with differential

voting rights.² It infers the vote value from voting premium that is the price difference between the superior voting share and inferior voting share (or non-voting share). The second method, pioneered by Barclay and Holderness (1989), focuses on privately negotiated transfers of controlling blocks in publicly traded firms.³ The value of voting rights measured as the price difference between the price per share paid for the control block and the market price of the shares. However, the above two methods of estimating the value of voting rights are limited that is unable to apply to all listed firms.

The third method, addressed by Dodd and Warner (1983), measures the value of voting rights as the abnormal return of the date after the ex-voting rights (record) date. The merit of this method is that it is applicable to all publicly traded companies. In principle, the common stock is composed of two parts, an underlying investment interest and a vote. According to the corporate law, the investor who holds common stock before the record date has the right to elect the board but the investor who buy the share at the day after the record day without the right. Intuitively, thus, the vote value can be

¹ See Bergstrom and Rydqvist (1992), Berle and Means (1932), Chung and Kim (1999), Cox and Roden (2002), DeAngelo and DeAngelo (1985), Doidge (2004), Easterbrook and Fischel (1983), Grossman and Hart (1988), Harris and Raviv (1988), Horner (1988), Jarrell et al. (1988), Jarrell and Poulson (1988), Kunz and Angel (1996), Meecker and Joy (1980), Megginson (1990), Nenova (2003), Rydqvist (1996), Smith and Amoako-Adu (1995), Stulz (1988), Zingales (1994, 1995) and others.

² See also Bergstrom and Rydqvist (1992), Chung and Kim (1999), Cox and Roden (2002), DeAngelo and DeAngelo (1985), Doidge (2004), Horner (1988), Megginson (1990), Nenova (2003), Rydqvist (1996), Smith and Amoako-Adu (1995), Zingales (1994, 1995) and others.

³ See also Dyck and Zingales (2004).

measured as the abnormal return of the date after the record date. This paper employs this approach to estimate the vote value of Taiwanese firms and examines its determinants.

One important issue in related studies is where does the value of voting rights come from. There are at least two hypotheses developed to answer this question. The first hypothesis is that the private benefit of control is the source of vote value. The private benefit hypothesis argues that the vote can be used to elect the board of director (the management). At the same time, the shareholders delegate the right of directing firm's asset to the management. In a framework of separation of ownership and control and asymmetric information as well as agent's self-interest, the management in control of a firm is in a position to extract private benefits of control that do not accrue to dispersed shareholders. This hypothesis asserts that the value of voting rights increase with private benefits of control.

In addition to the private benefits hypothesis, Manne (1964) argues that the possibilities of capital gain from improved management increases accordingly when the decline in share price is result from poorly performing management. In the meantime, the vote portion of the share package will appreciate and corporate control will be worth more. According to Manne (1964), the value of the vote attributable to potential capital gain approaches zero in a well-managed firm. Theoretically, the larger the room for improving management, the higher the value of voting rights. Indeed, previous researches pay little attention on this hypothesis. However, the value of voting rights will tend to be zero if for any reason a change in corporate control cannot be implemented. In other words, the vote is valuable in case of a battle for corporate control.

How to measure the intensity of control contest is a difficult task. In the study of proxy contest, Dodd and Warner (1983) shows that the abnormal return of the day after the record day is negative and significantly different from zero when the contest announcement precedes the record day. Basically, the firms are mandated to announce the agenda of annual shareholder meeting one month before the record day in Taiwan. Therefore, this paper recognizes that there is a probability of occurring control contest if there is a board election. In addition, we assume that the firms face highly intensive control contest with which their board has changed after the board election. Following the efficient market hypothesis, hence, the vote has a market value. Rather, the probability of occurring control contest is zero and the vote is valueless if there is no board election in the agenda of annual shareholder meeting.

We adopt two expected return models, market model and three factors model of Fama and French (1993), to estimate the abnormal return of the day after the record day. The sample consists of 597 firms listed on Taiwan Stock Market whose annual

shareholder meetings have board election. The Taiwan Stock Market is an emerging market with the largest trading volume and the biggest market capitalization in Asia emerging stock market.⁴ The foreign investment institutions are allowed to directly invest Taiwanese listed stock in 1990. Also, it is characterized by highly growth and quickly deregulation and is significantly different from those developed market or other emerging markets with thin trading volume. This study may have an implication in the investor protection and the development of financial market (La Port et al., 1997; La Port et al., 2000).

The result indicates that the mean abnormal return of the day after the record day is negative and significantly different from zero whatever market model or three factors model is employed. More important, the magnitude of vote value for Taiwanese firms is larger than the U.S. market. In addition, the cross-sectional regression analysis shows that the value of voting rights is negatively related to prior year's market value of equity, managerial equity ownership, and return on asset. This finding is consistent with the above two hypotheses, the private benefits of control and improved management hypothesis, that determine the value of voting rights.

The rest of this paper is organized as follows. Section 2 reports the properties of sample data and their summary statistics as well as how to estimate the value of voting rights. The empirical results are presented in section 3. Section 4 offers a summary and conclusions.

2. Data and Methodology

2.1. Data

The sample consists of 597 firms listed on Taiwan Stock Market in which there is a board election in their annual shareholder's meeting during the period of 1995-1999. Besides, the firms must have daily returns for at least 200 days before the record day. Daily stock returns and firms' characteristics come from Taiwan Economic Journal that is a professional data resource company established in 1987. The reason why we use this sample is that there is a possibility of occurring control contests in case of there is a board election. In this situation, the vote may have a market value. Otherwise, the vote will be valueless if there is no board election. Furthermore, the firms are categorized by their election outcomes that whether there is board of director is replaced or not. We recognize that the firms with highly intensity of control contest if the board composition has changed after the board election.

Details of the sample are provided in Table 1. The second column of Table 1 represents the firms

⁴ See Chui and Wei (1998), Fabozzi et al. (2002) and Rouwenhorst (1999).

whose annual shareholder meeting has a board election. The numbers of firms range from 95 firms in 1995 to 138 firms in 1999 and totally are 597 firms. The third column of Table 1 reports the firms whose board election outcome is that there is director has been replaced. The numbers of firms range from 36 firms in 1996 to 78 firms in 1998 and totally are 279 firms. The final column of Table 1 indicates that there are totally 318 firms whose board is not changed after board election.

[Insert Table 1 here]

Table 2 presents the summary statistics for the sample. We define the year *t* as the event year. We report the market value of equity as of December of year *t*-1, the percentage of outstanding shares beneficially owned by directors and managers as of December of year *t*-1, and prior year' return on asset for all firms and the firms whose board has changed after board election. As Panel A of Table 2, the mean, the minimum and the maximum market equity for all firms are 20135, 656, and 435915 NT million, respectively. They are slightly higher than the firms whose board has changed after board election as in Panel B of table 1.

[Insert Table 2 here]

In addition, the mean percentage of outstanding shares beneficially owned by directors and managers as of December of year *t*-1 is 25.25% that is also slightly higher than the firms whose board has changed after board election. Finally, the ROA is earning before interest and tax plus depreciation as of year *t*-1 dividend by total asset as of year *t*-2 and adjusted by its industry median. The mean ROA for all firms is 3.08% that is slightly larger than the mean ROA for the firms whose board has changed after the board election.

2.2. The Estimation of the Value of Voting Rights

This section describes the method of estimating the value of voting rights this paper adopted. According to Dodd and Warner (1983), the value of voting rights is measured as the abnormal return of the date after the record date. Like Dodd and Warner (1983), we also calculate the cumulative abnormal return from the date after the record date through two days after record day to account for any bias. We define the day 0 as the record day and the day after the record day is day +1.

The value of voting rights is estimated by using the market model and the three factors model of Fama and French (1993). The abnormal return for firm *i* around the record day by using market model is,

$$MV_{iD} = R_{iD} - (\hat{\alpha}_{im} + \hat{\beta}_{im} R_{mD}), \quad (1)$$

where R_{iD} and R_{mD} are the rate of return on stock *i* and on the Taiwanese Stock Market value-weighted index at day *D*, respectively. The market

model parameters, $\hat{\alpha}_{im}$ and $\hat{\beta}_{im}$, are estimated over the 100 days from 149 to 50 trading days before the record day (D-149, D-50). In addition, the abnormal return for firm *i* by using the three factors model of Fama and French (1993) is,

$$FFV_{iD} = R_{iD} - R_{fD} - \hat{\beta}_{i1}(R_{mD} - R_{fD}) - \hat{\beta}_{i2}SMB_D - \hat{\beta}_{i3}HML_D, \quad (2)$$

where R_{fD} is the 91 days treasury bill rate at day *D*; SMB_D is the return on small firms minus the return on large firms at day *D*; and HML_D is the return on high book-to-market stocks minus the return on low book-to-market stocks at day *D*.

Similarly, the three factors model parameters, $\hat{\beta}_{i1}$, $\hat{\beta}_{i2}$, and $\hat{\beta}_{i3}$, are estimated over the 100 days from 149 to 50 trading days before the record day (D-149, D-50). We follow the method of Fama and French (1993) to construct the three factors model for Taiwan Stock Market.

Basically, we measure the value of voting rights as the abnormal return of the day after the record day (day +1). However, since Dodd and Warner (1983) show that the mean abnormal return of day +2 is -0.01 with a Z-statistic of -2.62 for the U.S. market. In addition, the Taiwan stock Market is an emerging market. Thus, the abnormal return of the day after the record day (day +1) may not completely account the value of voting rights. To alleviate this potential problem, we also employ 2-day cumulative abnormal returns, from day +1 through day +2 relative to the record day, to measure the value of voting rights.

In this paper, we use the t-statistic addressed by Boehmer et al. (1991) that considering the effect of event-induced variance on the test statistic to test whether the average abnormal return is significantly negative. The test statistic of the standardized cross-sectional method is equal to the standardized abnormal returns divided by its contemporaneous cross-sectional standard error. That is, the t-statistic adjusted the event-induced variance at day *D* is,

$$\frac{\frac{1}{N} \sum_{i=1}^N SAR_{iD}}{\sqrt{\frac{1}{N(N-1)} \sum_{i=1}^N \left(SAR_{iD} - \frac{\sum_{i=1}^N SAR_{iD}}{N} \right)^2}}, \quad (3)$$

where SAR_{iD} is standardized abnormal returns for firm *i* at day *D*; *N* is the number of firms at day *D*. The standardized abnormal returns for firm *i* at day *D* is,

$$AR_{iD} / \hat{S}_i \sqrt{1 + \frac{1}{100} + \frac{(R_{mD} - \bar{R}_m)^2}{\sum_{D=-149}^{-50} (R_{mD} - \bar{R}_m)^2}}, \quad (4)$$

where AR_{iD} denotes abnormal return of firm i at day D ; \hat{S}_i is firm i 's estimated standard deviation of abnormal returns during the estimation period (D-149, D-50); \bar{R}_m is average market return during the estimation period (D-149, D-50).

3. Empirical Results

3.1. The Vote Value Hypothesis

Table 3 provides the result of testing the vote value hypothesis addressed by Manne (1962). From Panel A of Table 3, the average abnormal returns of day +1 that is estimated from market model for full sample and the firms whose board composition has changed after the board election are all negative and significantly different from zero. For the firms that there is no director is replaced after the board election, conversely, the average abnormal returns of day +1 estimated from market model is insignificant. Likewise, the average 2-day cumulative abnormal return over day +1 to day +2 is negative and significantly different from zero.

[Insert Table 3 here]

From Panel B of table 3, in fact, the results of average abnormal returns of the day after the record day (day +1) and 2-days mean cumulative abnormal return over day +1 to day +2 estimated from the three factors model is same as the result of Panel A of Table 3. We find that both FFV1 and FFV (+1, +2) are all negative and significantly different from zero for all firms and the firms experiencing a change in their board composition after board election. The result of the firms whose board has no change is still insignificant. Moreover, the value of voting rights estimated from three factors model is slightly lower than that estimated from market model. However, these figures are higher than the U.S. market of Dodd and Warner (1983). In summary, our finding confirms the vote value hypothesis.

3.2. The Cross-sectional Regression Analysis of the Determination of the vote value

This section is designed to explain what factors determine the value of voting rights based on the two hypotheses that the vote is valuable because it gives access to private benefits of control and improves managerial efficiency. In the cross-sectional regression, we measure the value of voting rights as the 2-day cumulative abnormal returns over day +1

to day +2 relative to the record day. The sample used in the regression analysis is the firms whose board composition has changed after the board election. The reason is that these firms may face a highly control contest and hence the vote reveals its market value in this situation. As a result, we are able to explore what factors determine the value of voting rights.

The private benefit hypothesis predicts that the higher the private benefit of control, the larger the vote value. According to Jensen and Meckling (1976), the private benefit of control is inversely related to managerial equity ownership. That is, the lower (higher) the managerial equity ownership, the higher (lower) the private benefit of control per share. In related study, Smith and Amoako-Adu (1995) show that managerial equity ownership is inversely related to the voting premium.⁵ Besides, Song and Walking (1993) and Mikkelsen and Partch (1989) find that the managerial equity ownership and market value of equity is inversely related to the likelihood of a takeover. Thus, market value of equity and the percentage of outstanding shares beneficially owned by directors and managers as of December of prior year are included in the regression analysis.

Based on the managerial efficiency hypothesis, in addition, the larger the room for improving management, the larger the value of voting rights. We use prior year' return on asset to proxy firms' managerial efficiency. The firms with higher (lower) return on asset represent their managerial operation is more (less) efficiency. Hence, we anticipate that the lower (higher) the prior year' return on asset, the larger (smaller) the value of voting right.

From the above discussions, a cross-sectional regression to analyze the determination of the value of voting rights can be specified as

$$Vote_i = \alpha_0 + \alpha_1 \ln(ME_i) + \alpha_2 OS_i + \alpha_3 ROA_i + \varepsilon_i, \quad (5)$$

where $Vote_i$ is the value of voting rights for firm i that is measured as $MV(+1,+2)$ and $FFV(+1,+2)$; ME (in NT\$ million) denote the market value of equity as of December of year $t-1$ and $\ln(\cdot)$ denotes natural log operator; OS represents the managerial equity ownership that is the percentage of outstanding shares beneficially owned by directors and managers as of December of year $t-1$; ε_i is error term for firm i .

[Insert Table 4 here]

The result of the cross-sectional regression of the value of voting right against its determinant, as expressed in equation (5), is reported in Table 4. The sample used in the regression analysis is the firms

⁵ See also Cox and Roden (2002), Zingale (1994, 1995) and others.

experiencing a change in their board after board election. The dependent variable used in the regression analysis is $-MV (+1, +2)$ and $-FFV (+1, +2)$, respectively. From Panel A of Table 4, the dependent variable is $-MV (+1, +2)$, the multiple regression slopes of market value of equity, ownership structure, and ROA are -0.312 (with a t-statistic of -1.77), -0.023 (with a t-statistic of -1.84), and -0.068 (with a t-statistic of -2.14), respectively. The empirical result of $-FFV (+1, +2)$ is similar to Panel A of Table 4. More important, the magnitudes of multiple regression slopes have not change substantially in the single factor regression.

In summary, the regression result indicates that the regression slopes of market value of equity, managerial equity ownership, and ROA have a negative impact on the value of voting rights. This is consistent with the private benefits hypothesis and improved management hypothesis to explain the value of voting rights.

4. Conclusion

This paper employs the method of Dodd and Warner (1983) to estimate the value of voting rights and examines its determinants by using a sample of firms listed on Taiwan Stock Market whose annual shareholder meeting has a board election. The merit of this method is that it is applicable to all publicly traded firms. Thus, the effect of outlier on the test of vote value hypothesis is mitigated. The result indicates that the vote value hypothesis addressed by Manne (1962) is supported. Notably, the average magnitude of vote value of Taiwanese firms is larger than the U.S. market. Until now, the vote value hypothesis is popularly supported by several stock markets around the world. It has an implication that the agency theory of Jensen and Meckling (1976) well describes the operation of corporation within a framework of separation of ownership and control in the real world.

In analyzing the determination of the value of voting rights, previous researches focus mainly on the private benefits hypothesis and the improved management hypothesis has received little attention. This paper considers these two hypotheses in examining the determination of vote value for Taiwanese firms. The evidence shows that the value of voting rights is negatively related to prior year's market value of equity, managerial equity ownership, and return on asset. In other words, the private benefit of control and improved management hypotheses to explain the source of vote value are hold.

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Appendices

Table 1. Sample

The sample consists of 597 firms listed on Taiwan Stock Market whose annual shareholder meeting has board election during the period of 1995-1999. The firms are categorized by their election outcomes that whether there is board of director is replaced or not.

Year	The firms with a board election in annual shareholder meeting	The firms whose board composition has changed after the board election	The firms that there is no director is replaced after the board election
1995	97	46	51
1996	105	36	69
1997	126	50	76
1998	131	78	53
1999	138	69	69
Total	597	279	318

Table 2. Summary Statistics

This table presents the summary statistics for the sample. ME (in NT\$ million) denote the market value of equity as of December of year t-1 and year t is the event year. Ownership structure is the percentage of outstanding shares beneficially owned by directors and managers as of December of year t-1. ROA is earning before interest and tax plus depreciation as of year t-1 divided by total asset as of year t-2 and adjusted by its industry median.

	Mean	Std. Dev.	Minimum	Maximum
Panel A: Full Sample				
ME (in NT\$ million)	20135	40377	656	435915
Ownership structure (%)	25.25	15.11	0.66	85.71
ROA (%)	3.08	6.12	-43.48	39.49
Panel B: The firms whose board composition has changed after the board election				
ME (in NT\$ million)	19837	42257	656	302862
Ownership structure (%)	24.96	15.23	0.66	73.15
ROA (%)	2.70	6.16	-26.66	39.49

Table 3. The Vote Value Hypothesis

This table shows the result that the value of voting right is measured as the abnormal return of the day after the record day. The day 0 is defined as the record day. MV1 and FFV1 denote the vote value computed from the day +1 by using the market model and the three factors model of Fama and French (1993), respectively. MV (+1, +2) and FFV (+1, +2) denote the 2-day cumulative abnormal return estimated from day +1 to day +2 by using the market model and the three factors model of Fama and French (1993), respectively. The t-statistics are in parentheses and the number of negative abnormal return is in bracket. Significance indicators: 1 (***) , 2.5 (**), and 5 (*).

	The firms with a board election in annual shareholder meeting	The firms whose board composition has changed after board election	The firms that there is no director is replaced after board election
Panel A: The expected return model is the market model			
MV1	-0.663 (-7.59)*** [390]	-1.523 (-12.87)*** [234]	0.091 (0.82) [156]
MV (+1, +2)	-0.959 (-7.62)*** [387]	-1.849 (-9.58)*** [211]	-0.179 (-1.17) [176]
Panel B: The expected return model is the Fama and French (1993) three factors model			
FFV1	-0.464 (-5.31)*** [351]	-1.292 (-10.92)*** [217]	0.262 (2.31) [134]
FFV (+1, +2)	-0.796 (-6.53)*** [349]	-1.653 (-8.97)*** [199]	-0.044 (-0.29) [150]

Table 4. The Determination of the Value of Voting Rights

This table shows the cross-sectional regression results of 2-day cumulative abnormal returns after the record date for the firms in which their board composition has changed after board election. Year t is defined as the event year. ME denote the market value of equity as of December of year $t-1$ and $\ln(.)$ denotes natural log operator. Ownership structure is the percentage of outstanding shares beneficially owned by directors and managers as of December of year $t-1$. ROA is earning before interest and tax plus depreciation as of year $t-1$ dividend by total asset as of year $t-2$ and adjusted by its industry median. The t -statistics are in parentheses. Significance indicators: 1 (***) , 2.5 (**), and 5 (*).

Panel A and B present the result that dependent variable is $-MV(1,2)$ and $-FFV(1,2)$, respectively.

Panel A: Dependent Variable is $-MV(1,2)$				
Intercept	5.562 (3.48)	2.531 (6.87)	2.083 (10.02)	5.445 (3.36)
$\ln(ME)$	-0.408 (-2.34)***			-0.312 (-1.77)*
Ownership Structure		-0.027 (-2.17)**		-0.023 (-1.84)*
ROA			-0.086 (-2.79)***	-0.068 (-2.14)**
AdjR2	0.016	0.013	0.024	0.040
Panel B: Dependent Variable is $-FFV(1,2)$				
Intercept	4.528 (2.96)	2.557 (7.32)	1.876 (9.45)	4.615 (2.99)
$\ln(ME)$	-0.316 (-1.89)*			-0.218 (-1.30)
Ownership Structure		-0.036 (-3.03)***		-0.032 (-2.72)***
ROA			-0.082 (-2.78)***	-0.064 (-2.15)**
AdjR2	0.009	0.028	0.023	0.048