

A Test of the Catering Theory of Dividends: The Case of the Japanese Electric Appliances Industry

Chikashi Tsuji

Graduate School of Systems and Information Engineering

University of Tsukuba

E-mail: mail_sec_low@minos.ocn.ne.jp

Abstract

We test the catering theory of dividends using data from firms in the Japanese electrical appliances industry. Our empirical investigations reveal that, in the Japanese electrical appliances industry, corporate managers do not consider catering behavior in either their dividend initiation decisions or their continuation decisions. This result is particularly important because it is different from existing evidence for the US. We also find that one of the most important determinants of dividend initiations among Japanese electrical appliances industry firms is the value-weighted dividend yield in the industry. Namely, we find that after the value-weighted dividend yield declines, Japanese firms in the industry tend to initiate dividend payments.

Keywords: Catering theory of dividends, Dividend policy, Imperfect market, Inefficient market.

1. Introduction

Miller and Modigliani (MM) (1961) proved that dividend policy is irrelevant to share value in perfect and efficient capital markets. After the proof was published, many researchers criticized it using various approaches (Note 1).

Recently, a new theory called the “catering theory of dividends” was developed by Baker and Wurgler (BW) (2004a). Relaxing the assumption of perfect markets and efficient markets (Note 2) undertaken in MM (1961) and considering psychological and institutional reasons, BW (2004a) suggested the following by constructing a simple theoretical model. First, some investors have an uninformed and perhaps time-varying demand for dividend-paying stocks. Second, arbitrage fails to prevent this demand from driving apart the prices of dividend payers and nonpayers. Third, managers *rationaly cater to investor demand*—they pay dividends when investors put higher prices on payers, and they do not pay when investors prefer nonpayers.

As far as we know, this new theory has not been tested for Japan; thus, testing catering theory using Japanese data is an objective of this paper. More precisely, we test the catering theory of dividends in the Japanese electrical appliances industry, one of the most important industries in Japan.

The results derived in this paper are as follows. First, our investigations reveal that the dividend initiation decisions of Japanese electrical appliances industry firms have no predictive power for the relative future returns of payers over nonpayers. While BW (2004a) documented that US firms’ dividend decisions for both initiations and continuations have strong predictive power for relative negative future returns, our results are different from them.

Second, regarding the determinants of the dividend initiations, the first difference between the US and Japan is that the value-weighted dividend yield is a strong determinant of one-year-ahead dividend initiations in the Japanese electrical appliances industry firms. Most importantly, the dividend premium is not a determinant of the dividend initiations of the Japanese electrical appliances industry firms. This means that these firms do not behave as predicted by catering theory.

Moreover, regarding the dividend continuation decisions, in contrast to the US case, the dividend premium has again no relation with the dividend continuation decisions in the case of the Japanese electrical appliances industry firms. Hence, again, our empirical evidence suggests that these firms do not behave as predicted by catering theory.

The rest of the paper is organized as follows. Section 2 summarizes BW’s (2004a) catering theory of dividends, Section 3 explains the data, Section 4 describes the empirical results, Section 5 performs alternative tests, Section 6 implements the robustness checks, Section 7 interprets the results, and Section 8 concludes the paper.

2. Catering Theory

The catering theory of dividends, developed by BW (2004a), suggests that real financial

markets are imperfect and inefficient, and corporations decide their dividend initiation and continuation decisions by catering to investors' demands for dividends.

Typically, in BW (2004a), investors' demands for dividends can be captured by the difference between payers' market-to-book ratios (M/Bs) and nonpayers' market-to-book ratios (M/Bs), which corporate managers can observe through financial markets. Hence, catering theory predicts that if the difference between payers' M/Bs and nonpayers' M/Bs increases, corporate managers decide on dividend initiations or dividend continuations by catering to investors' dividend demands.

3. Data

Our dividend payment measures follow BW (2004a). All data in this study are from QUICK Corp. Our full sample period is from 1986 to 2006, and our focus in this study is on the firms in the Japanese electrical appliances industry. The industry is important because the largest number of firms of the industry is included in the universe of the NIKKEI 500 Index as at the end of December 2009. In accordance with BW (2004a), we count a firm as a payer if it has positive dividends per share by the ex date, or else it is a nonpayer. To aggregate this firm-level data into useful time series data, we use two aggregate identities following BW (2004a):

$$Payers_t = New\ Payers_t + Old\ Payers_t + List\ Payers_t, \quad (1)$$

$$Old\ Payers_t = Payers_{t-1} - New\ Nonpayers_t - Delist\ Payers_t. \quad (2)$$

The first identity defines the number of payers and the second describes the evolution. Payers is the total number of payers; New Payers is the number of initiators among last year's nonpayers; Old Payers is the number of payers that also paid last year; List Payers is the number of payers this year that were not in the sample last year; New Nonpayers is the number of nonpayers among last year's payers; and Delist Payers is the number of last year's payers not in the sample this year. Note that lists and delists refer to companies added to and removed from the Tokyo Stock Exchange First Section, respectively.

We then define three variables to capture the dividend payment dynamics as in BW (2004a):

$$Initiate_t = \frac{New\ Payers_t}{Nonpayers_{t-1} - Delist\ Nonpayers_t}, \quad (3)$$

$$Continue_t = \frac{Old\ Payers_t}{Payers_{t-1} - Delist\ Payers_t}, \quad (4)$$

$$Listpay_t = \frac{List\ Payers_t}{List\ Payers_t + List\ Nonpayers_t}. \quad (5)$$

In words, the rate of initiation *Initiate* is the fraction of surviving nonpayers that become new payers. The rate at which firms continue paying *Continue* is the fraction of surviving payers that continue paying. The rate at which new lists in the sample pay *Listpay* is payers as a percentage of new lists at time t . These variables capture the decision whether to pay dividends, not how much to pay.

Table 1 lists the aggregate totals and the dividend payment variables for the Japanese electrical appliances industry. The initiation rate starts out low in 1987, then increases in the beginning of the 1990s, and then falls. After that, it rebounds in the late 1990s, decreases again in 2002, and increases again around the end of the sample. The rate at which firms continue paying varies less, as expected. Note that the rate at which lists pay is always high, in contrast with the case of BW (2004a) where *Listpay* varies significantly.

Next are the stock market dividend premium variables. Namely, we relate dividend payment choices to several stock-market-based measures of the uninformed demand for dividend-paying shares (i.e., the dividend premium) as BW (2004a) suggested.

Conceptually, it is important to measure the difference between the market prices of firms with the same investment policy and different dividend policies, because in the frictionless and efficient markets of MM (1961), this price difference should be zero. However, with limits to arbitrage, BW (1961) suggested that the uninformed demand for dividend-paying shares causes a price difference, which may vary over time.

Our first stock market dividend premium variable is the dividend premium of BW (2004a), denoted as P^{D-ND} . It is the difference in the logs of the average market-to-book ratios of payers and nonpayers. We define market-to-book following Fama and French (1993; 1996). The market-to-book ratio is book assets minus book equity plus market equity, all divided by book assets.

More precisely, we take equal- and (book) value-weighted averages of the market-to-book ratios separately for payers and nonpayers in each year. Then we construct the final dividend premium series as the difference of the logs of these averages. These series are listed in Table 2 and the value-weighted series of payers' and nonpayers' M/B ratios and the value-weighted dividend premium are plotted in panels A and B of Figure 1, respectively. The figure shows that the dividend premium increases after 1997. This is because some of the larger companies in the Japanese electrical appliances industry are valued highly in the Japanese stock market.

Our second measure of the relative stock market valuation of dividend payers is the difference between the future (book) value-weighted returns of payers and nonpayers. According to the model of BW (2004a), managers *rationaly* initiate dividends to exploit an apparent market mispricing. BW (2004a) suggested that if this is literally the case, a high rate of initiations should forecast low returns on payers relative to nonpayers as the relative overpricing of payers reverses.

Table 1. Measures of Dividend Payment

Year	Payers				Nonpayers				Payment Rates (%)		
	Total	New	Old	List	Total	New	Old	List	Initiate	Continue	Listpay
1987	91	0	86	5	12	5	7	0	0.00	95.56	100.00
1988	94	2	90	2	11	1	10	0	16.67	98.90	100.00
1989	98	3	93	2	9	1	8	0	27.27	98.94	100.00
1990	104	4	98	2	5	0	5	0	44.44	100.00	100.00
1991	108	1	103	4	5	1	4	0	20.00	99.04	100.00
1992	108	0	103	5	10	5	5	0	0.00	95.37	100.00
1993	99	0	98	1	20	10	10	0	0.00	90.74	100.00
1994	89	0	86	3	30	8	21	1	0.00	90.53	75.00
1995	93	2	89	2	28	0	28	0	6.67	100.00	100.00
1996	97	7	89	1	26	4	21	1	25.00	95.70	50.00
1997	106	4	96	6	23	1	22	0	15.38	98.97	100.00
1998	115	6	104	5	19	2	17	0	26.09	98.11	100.00
1999	110	2	104	4	28	11	17	0	10.53	90.43	100.00
2000	118	6	103	9	26	5	21	0	22.22	95.37	100.00
2001	133	8	112	13	20	3	17	0	33.33	96.55	100.00
2002	112	0	110	2	41	22	19	0	0.00	83.33	100.00
2003	114	10	100	4	36	8	28	0	26.32	92.59	100.00
2004	126	15	110	1	21	1	19	1	44.12	99.10	85.71
2005	146	8	129	9	16	1	13	2	38.10	99.23	81.82
2006	146	3	140	3	19	6	13	0	18.75	95.89	100.00

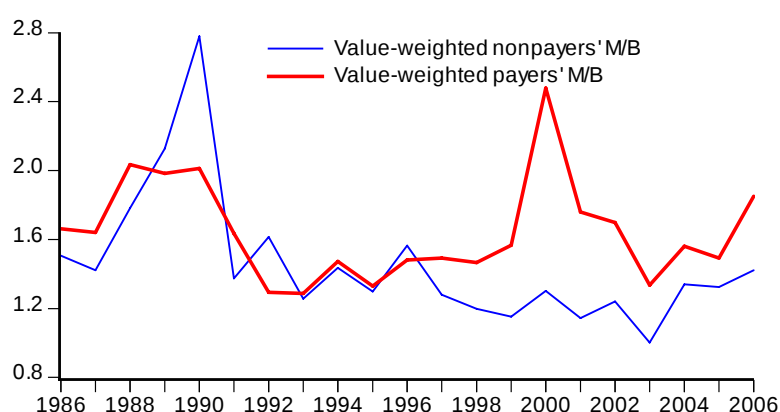
Notes: A firm is defined as a dividend payer at time t if it has positive dividends per share by the ex date. A firm is defined as a new dividend payer at time t if it has positive dividends per share by the ex date at time t and zero dividends per share by the ex date at time $t - 1$. A firm is defined as an old payer at time t if it has positive dividends per share by the ex date at time t and positive dividends per share by the ex date at time $t - 1$. A firm is defined as a new list payer if it has positive dividends per share by the ex date at time t and is not in the sample at time $t - 1$. A firm is defined as a nonpayer at time t if it does not have positive dividends per share by the ex date. New nonpayers are firms who were payers at time $t - 1$ but not at t . Old nonpayers are firms who were nonpayers in both $t - 1$ and t . New list nonpayers are nonpayers at t who were not in the sample at $t - 1$. The initiation rate *Initiate* expresses payers as a percentage of surviving nonpayers from $t - 1$. The rate at which firms continue paying dividends *Continue* expresses payers as a percentage of surviving payers from $t - 1$. The rate at which lists pay *Listpay* expresses payers as a percentage of new lists at t .

Table 2. The Dividend Premium

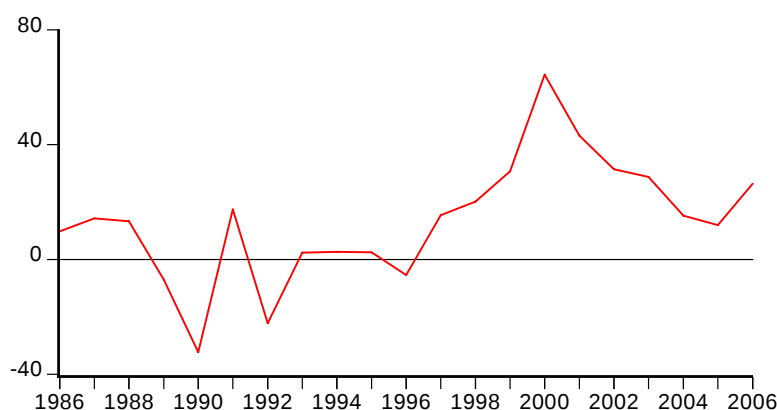
Year	Payers		Nonpayers		Dividend Premium (P^{D-ND})	
	EWM/B	VWM/B	EWM/B	VWM/B	EW	VW
1986	1.95	1.66	1.52	1.51	25.00	9.83
1987	1.81	1.64	1.50	1.42	18.45	14.33
1988	2.21	2.03	1.90	1.78	15.08	13.29
1989	2.11	1.98	2.20	2.13	-4.23	-7.03
1990	2.35	2.01	3.11	2.78	-28.08	-32.25
1991	1.91	1.64	1.51	1.38	23.37	17.41
1992	1.44	1.29	1.68	1.62	-15.32	-22.18
1993	1.44	1.29	1.45	1.26	-1.13	2.43
1994	1.75	1.47	1.55	1.44	11.94	2.63
1995	1.44	1.33	1.44	1.30	-0.30	2.49
1996	1.59	1.48	1.64	1.56	-2.70	-5.46
1997	1.50	1.49	1.38	1.28	7.77	15.38
1998	1.37	1.47	1.13	1.20	18.59	20.21
1999	1.48	1.57	1.11	1.15	28.81	30.70
2000	2.08	2.48	1.70	1.30	20.27	64.33
2001	1.52	1.76	1.65	1.14	-7.91	43.08
2002	1.49	1.70	1.66	1.24	-11.21	31.44
2003	1.21	1.34	1.81	1.00	-39.76	28.73
2004	1.54	1.56	1.70	1.34	-10.02	15.23
2005	1.53	1.49	1.39	1.32	9.57	11.96
2006	1.89	1.85	1.62	1.42	15.11	26.44

Notes: A firm is defined as a dividend payer at time t if it has positive dividends per share by the ex date. The market-to-book ratio is the ratio of the market value of the firm to its book value. The market-to-book ratio reported is an equal-weighted (EW) or value-weighted (VW) average, by book value across dividend payers and nonpayers. These ratios are calculated for the entire sample and for new lists. A firm is defined as a new list if it is not in the sample at time $t - 1$. The dividend premium P^{D-ND} is the difference between the logs of the dividend payers' and nonpayers' average market-to-book ratios.

Table 3 reports the correlations among dividend premiums P^{D-ND} and future returns. The excess return on payers over nonpayers in year $t + 1$ is denoted as $r_{Dt+1} - r_{NDt+1}$ and the cumulative excess return on payers over nonpayers from years $t + 1$ through $t + 3$ is denoted as $R_{Dt+3} - R_{NDt+3}$. The table indicates that both equally weighted and value-weighted dividend premiums are negatively correlated with the cumulative excess return of payers over nonpayers from years $t + 1$ through $t + 3$. These negative correlations imply that, after dividend payers are overvalued, their market values mean-revert and, as a result, future three-year cumulative excess returns on payers over nonpayers drop. Hence, the implications of these negative correlations are the possibility of market inefficiency in the Japanese stock market differently from the setting of market efficiency in MM (1961).



Panel A. Average M/B ratios of payers and nonpayers



Panel B. Value-weighted dividend premium (%)

Figure 1. Valuation of dividend payers and nonpayers and the dividend premium.

The (book) value-weighted average market-to-book ratio for dividend payers and nonpayers and the dividend premium (the log difference in average market-to-book ratios) is displayed. A firm is defined as a dividend payer at time t if it has positive dividends per share by the ex date. The market-to-book ratio is the ratio of the market value of the firm to its book value. The average market-to-book ratios are constructed by value-weighting (by book value) across dividend payers and nonpayers and are plotted in Panel A. Panel B plots the value weighted dividend premium of the Japanese electric appliances industry.

Table 3. Correlation Coefficients among Dividend Premium and Future Returns

	Dividend Premium		Future Returns	
	VW	EW	$r_{Dt+1} - r_{NDt+1}$	$R_{Dt+3} - R_{NDt+3}$
VWP_t^{D-ND}	1.00			
$EW P_t^{D-ND}$	0.35	1.00		
$r_{Dt+1} - r_{NDt+1}$	-0.11	0.36	1.00	
$R_{Dt+3} - R_{NDt+3}$	-0.34	-0.05	0.41	1.00

Notes: The table shows the correlations among the variables. The dividend premium P_t^{D-ND} is the difference between the logs of the EW and VW market-to-book ratios for dividend payers and nonpayers. Future relative returns $r_{Dt+1} - r_{NDt+1}$ is the difference in returns for (book) value-weighted indexes of dividend payers and nonpayers in year $t+1$. Future relative returns $R_{Dt+3} - R_{NDt+3}$ is the cumulative difference in future returns from year $t+1$ through $t+3$. Correlation coefficients displayed are those among raw variables.

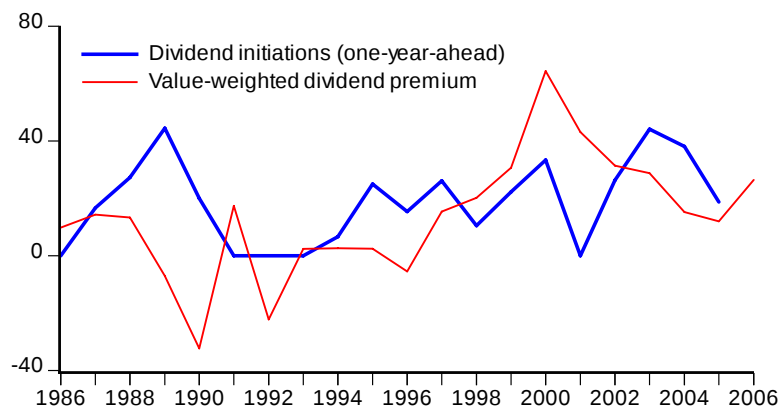


Figure 2. The dividend premium and the rate of dividend initiation.

The log difference in the market-to-book ratio of dividend payers and nonpayers and one-year-ahead rate of dividend initiations are displayed. A firm is defined as a dividend payer at time t if it has positive dividends per share by the ex date. The initiation rate $Initiate$ in $t+1$ is defined as the percentage rate of new dividend payers at time $t+1$ among surviving nonpayers from t .

Table 4. Dividend Payment and Demand for Dividends: Basic Relationships

	Panel A: $Initiate_t$		Panel B: $Continue_t$	
VWP_t^{D-ND}	2.80		-1.13	
	[0.34]		[0.24]	
$EW P_t^{D-ND}$		-4.61		0.001
		[0.17]		[1.00]
N	20	20	20	20
$Adj. R^2$	-0.02	0.05	0.01	-0.06

Notes: Regressions of dividend initiation and continuation rates on measures of the dividend premium. For example, the initiation rate is modeled in Panel A as: $Initiate_t = \mu + \zeta P_{t-1}^{D-ND} + \eta_t$.

The initiation rate $Initiate$ expresses payers as a percentage of surviving nonpayers from $t-1$. The continuation rate $Continue$ expresses payers as a percentage of surviving payers from $t-1$. The dividend premium P_t^{D-ND} is the difference between the logs of the EW and VW market-to-book ratios for dividend payers and nonpayers. The independent variables are standardized to have unit variance. p -values in [] are robust to heteroskedasticity and serial correlation because the method of Newey and West (1987) is used. N is the number of sample and $Adj. R^2$ is the adjusted R -squared value.

Table 5. Dividend Payment and Demand for Dividends: Predicting Returns

		<i>Initiate_t</i>			<i>Continue_t</i>		
	<i>N</i>	Coefficients	<i>p</i> -value	<i>Adj. R</i> ²	Coefficients	<i>p</i> -value	<i>Adj. R</i> ²
Panel A: Relative Returns							
$r_{Dt+1} - r_{NDt+1}$	20	2.82	0.27	-0.04	0.95	0.83	-0.05
$r_{Dt+2} - r_{NDt+2}$	20	4.15	0.30	0.04	6.66**	0.02	0.05
$r_{Dt+3} - r_{NDt+3}$	20	0.31	0.95	-0.06	2.36	0.44	-0.04
$R_{Dt+3} - R_{NDt+3}$	20	3.33	0.36	0.01	3.66**	0.03	0.02
Panel B: Payer Returns							
r_{Dt+1}	20	-3.93	0.54	-0.04	0.01	1.00	-0.06
r_{Dt+2}	20	-7.70	0.31	0.02	-6.77	0.39	0.00
r_{Dt+3}	20	-0.12	0.98	-0.06	-0.75	0.88	-0.05
R_{Dt+3}	20	-3.59	0.32	0.00	-1.27	0.63	-0.05
Panel C: Nonpayer Returns							
r_{NDt+1}	20	-6.75	0.38	-0.03	-0.94	0.90	-0.06
r_{NDt+2}	20	-11.84**	0.04	0.12	-13.43**	0.05	0.17
r_{NDt+3}	20	-0.43	0.96	-0.06	-3.11	0.48	-0.05
R_{NDt+3}	20	-6.92	0.21	0.04	-4.94*	0.09	-0.01

Notes: Univariate regressions of future excess returns of dividend payers over nonpayers on the initiation rate and the continuation rate. The dependent variables in Panel A are the differences in returns between dividend payers r_D and nonpayers r_{ND} . The dependent variables in Panel B are returns of dividend payers r_D . The dependent variables in Panel C are the returns of nonpayers r_{ND} . R_{t+k} denotes cumulative returns from $t+1$ through $t+k$. The initiation rate *Initiate* expresses new payers as a percentage of surviving nonpayers from $t-1$. The continuation rate *Continue* expresses continuing payers as a percentage of surviving payers from $t-1$. The independent variables are standardized to have unit variance. *p*-values are robust to heteroskedasticity and serial correlation because the method of Newey and West (1987) is used. *N* is the number of sample and *Adj. R*² is the adjusted *R*-squared value. * denotes statistical significance at the 10% level and ** denotes statistical significance at the 5% level.

4. Empirical Tests

Here we check the relation between dividend payments and the stock market measures of dividend demand. Figure 2 shows a positive relation between the dividend premium and the raw rate of dividend initiation in the following year.

To examine this relationship formally, in Table 4 we show the results of regressing dividend payment measures on the lagged demand for dividends measures. More precisely, we estimate:

$$Initiate_t = \mu + \xi P_{t-1}^{D-ND} + \eta_t, \quad (6)$$

$$Continue_t = \mu + \xi P_{t-1}^{D-ND} + \eta_t, \quad (7)$$

where *Initiate* is the rate of initiation, *Continue* is the rate of continuation, and P^{D-ND} is the market dividend premium (value-weighted or equally weighted). In the tables, all independent variables are standardized to have unit variance and all standard errors are robust to heteroskedasticity and serial correlation using the procedure of Newey and West (1987).

Panel A of Table 4 reports that neither an increase in the value-weighted market dividend premium nor an increase in the equally weighted market dividend premium is associated with an increase in the dividend initiation rate in the following year. Similarly, neither an increase in the value-weighted market dividend premium nor an increase in the equally weighted market dividend premium is associated with an increase in the dividend continuation rate in the following year. To sum up, in contrast with the US case in BW (2004a), judging by the dividend premium measure, the dividend policies of the Japanese electrical appliances

industry firms do not cater to investor dividend demand.

Next, Table 5 shows the relationship between dividend policy and the second dividend demand proxy: future excess returns of payers over nonpayers. In panel A, the dependent variables are the differences between the returns on the value-weighted indexes of payers and nonpayers. Panels B and C look at the returns on payers and nonpayers, respectively, to examine whether the results for relative returns are indeed a result of the difference in returns, which the theory emphasizes, or payer or nonpayer returns alone. Each panel examines one-, two-, and three-year-ahead returns, and cumulative three-year returns. The table reports ordinary least-squares coefficients.

BW (2004a) documented that US firms' dividend decisions both for initiations and continuations have strong predictive power for relative negative future returns. However, in contrast with the results of BW (2004a), panel A of Table 5 indicate that the dividend initiation and continuation decisions of the Japanese electrical appliances industry firms predict the weakly positive relative future returns although the coefficients are not always statistically significant. This is because, after dividend initiations and continuations, the returns of payers decrease; however, nonpayers continuously record larger negative returns and, as a result, the future excess returns of payers over nonpayers become positive.

5. Alternative Tests

BW (2004a) suggested that the catering explanation for US dividend policy is robust and that dividend payments are, to some extent, a rational managerial response to investor demand pressures that cause a stock market mispricing. However, in the Japanese electrical appliances industry, this is not the case.

Therefore, this section provides an alternative explanation using the following kinds of model:

$$\begin{aligned} Initiate_t = & \alpha + \beta_1 VWP_{t-1}^{D-ND} + \beta_2 VWNonpayerM / B_{t-1} \\ & + \beta_3 VWD / P_{t-1} + \beta_4 Tax_{t-1} + \beta_5 Year_{t-1} + \tau_t, \end{aligned} \quad (8)$$

$$\begin{aligned} Continue_t = & \alpha + \beta_1 VWP_{t-1}^{D-ND} + \beta_2 VWPayerM / B_{t-1} \\ & + \beta_3 VWD / P_{t-1} + \beta_4 Tax_{t-1} + \beta_5 Year_{t-1} + \tau_t, \end{aligned} \quad (9)$$

where VWP^{D-ND} is the book value-weighted dividend premium, $VWNonpayerM/B$ is the book value-weighted nonpayers' market-to-book ratio, $VWPayerM/B$ denotes the book value-weighted payers' market-to-book ratio, VWD/P denotes the book value-weighted dividend-yield, $Year$ is an annual time trend variable, and Tax denotes the ratio of after-tax income from dividends relative to after-tax income from capital gains. Hence, the variable Tax measures the favorability of dividends in comparison with capital gains from a viewpoint of the Japanese tax system.

Table 6 displays the results of various regressions, which are in contrast with those of BW (2004a). The results suggest that, for the Japanese electrical appliances industry firms (1), the

value-weighted dividend yield is a strong determinant of one-year-ahead dividend initiations, and (2) in contrast to the US case, the dividend premium is not related to the dividend initiations. These two results are seen in panel A of Table 6. Moreover, panel B of Table 6 indicates that, in contrast to the US case, the dividend premium is also not related to the dividend continuations in the Japanese electrical appliances industry.

6. Robustness Checks

To test that the above results are robust, this section conducts robustness checks using the following kinds of model:

$$\begin{aligned} Initiate_t = & \alpha + \beta_1 MVWP_{t-1}^{D-ND} + \beta_2 MVWNonpayerM / B_{t-1} \\ & + \beta_3 MVWD / P_{t-1} + \beta_4 Tax_{t-1} + \beta_5 Year_{t-1} + \tau_t, \end{aligned} \quad (10)$$

$$\begin{aligned} Continue_t = & \alpha + \beta_1 MVWP_{t-1}^{D-ND} + \beta_2 MVWPayerM / B_{t-1} \\ & + \beta_3 MVWD / P_{t-1} + \beta_4 Tax_{t-1} + \beta_5 Year_{t-1} + \tau_t, \end{aligned} \quad (11)$$

where $MVWP^{D-ND}$ is the market value-weighted dividend premium, $MVWNonpayerM/B$ is the market value-weighted nonpayers' market-to-book ratio, $MVWPayerM/B$ denotes the market value-weighted payers' market-to-book ratio, $MVWD/P$ denotes the market value-weighted dividend-yield, and $Year$ and Tax are the same as in the previous section.

Table 7 shows the results of various regressions similar to those in Table 6. The results in Table 7 again indicate (1) the value-weighted dividend yield is a strong determinant of one-year-ahead dividend initiations, and (2) the dividend premium is neither related to the dividend initiations nor continuations in the Japanese electrical appliances industry. Hence, our empirical results demonstrated in this paper are robust for the Japanese electrical appliances industry.

7. Interpretations

How can we interpret our empirical results? First, in the context of catering theory, corporations in the Japanese electrical appliances industry decide their dividend initiation and continuation without catering for the investors' demands for dividends.

Based on the results of the statistical significance of the value-weighted dividend yields with negative sign for the dividend initiations, corporations in the Japanese electrical appliances industry decide their dividend initiation by considering their own industry's valuation in the markets. Because the level of dividends is generally not volatile in Japan, changes in the dividend yields mainly come from changes in the stock price. According to our results, the Japanese electrical appliances industry firms initiate a dividend when the value of the industry in the stock market is high. Hence, the nonpayers in the industry take into account their industry's total value in the stock market in their decision regarding dividend initiations. The basis of this type of corporate behavior might be the recognition of high industry values as the time to start fulfilling the firm's responsibility to their shareholders. However, this is difficult to confirm without collecting information using questionnaires from Chief Financial

Officers, for example.

Table 6. Dividend Payment and the Dividend Premium: Tests with Other Book Value-Weighted Variables

Panel A: <i>Initiate_t</i>								
VWP^{D-ND}_{t-1}	2.80 [0.34]							-0.98 [0.78]
$VW \text{ Nonpayer } M/B_{t-1}$		1.29 [0.66]						-3.37 [0.56]
$VW D/P_{t-1}$			-7.86** [0.00]			-8.18** [0.00]	-8.66** [0.00]	-10.49* [0.02]
Tax_{t-1}				5.83* [0.05]		6.32* [0.05]	8.24 [0.12]	9.93 [0.27]
$Year_{t-1}$					0.81 [0.21]		-0.41 [0.62]	-0.90 [0.63]
N	20	20	20	20	20	20	20	20
$Adj. R^2$	-0.02	-0.05	0.30	0.09	0.06	0.40	0.38	0.30
Panel B: <i>Continue_t</i>								
VWP^{D-ND}_{t-1}	-1.13 [0.24]							
$VW \text{ Payer } M/B_{t-1}$		0.80 [0.38]						
$VW D/P_{t-1}$			-1.17 [0.20]					
Tax_{t-1}				0.43 [0.64]				
$Year_{t-1}$					-0.16 [0.36]			
N	20	20	20	20	20			
$Adj. R^2$	0.02	-0.02	0.03	-0.05	0.00			

Notes: Regressions of dividend payment rates on measures of the dividend premium, growth opportunities, dividend yield, the personal tax advantage of dividends versus capital gains, and a time trend are performed. For example, the initiation rate is modeled in Panel A as:

$$Initiate_t = \alpha + \theta_1 VWP^{D-ND}_{t-1} + \theta_2 VWNonpayer M/B_{t-1} + \theta_3 VW D/P_{t-1} + \theta_4 Tax_{t-1} + \theta_5 Year_{t-1} + \tau_t$$

The initiation rate *Initiate* expresses payers as a percentage of surviving nonpayers from $t-1$. The continuation rate *Continue* expresses payers as a percentage of surviving payers from $t-1$. The dividend premium P^{D-ND} is the difference between the logs of the book value-weighted market-to-book ratios for dividend payers and nonpayers. *Tax* is the ratio of after-tax income from a yen in dividends to after-tax income from a yen in long-term capital gains. *Year* is the calendar year. All independent variables but *Year* are standardized to unit variance. *p*-values are derived by using the method of Newey and West (1987), hence they are robust to heteroskedasticity and serial correlation. *N* is the number of sample and *Adj. R²* is the adjusted *R*-squared value. * denotes statistical significance at the 5% level and ** denotes statistical significance at the 1% level.

8. Summary and Conclusions

This paper tested catering theory of dividends in the Japanese electrical appliances industry. We found the following new interesting evidence.

(1) Our results revealed that the dividend initiation decisions of Japanese electrical appliances industry firms have no predictive power for relative future negative returns of payers over nonpayers. This evidence is inconsistent with the suggestions of catering theory of dividends by BW (2004a). More precisely, the excess returns of payers over nonpayers is statistically significantly negative in the US, while future excess returns of payers over nonpayers are positive in the Japanese electrical appliances industry firms.

Table 7. Dividend Payment and the Dividend Premium: Tests with Market Value-Weighted Other Variables

Panel A: <i>Initiate_t</i>								
MVWP ^{D-ND} _{t-1}	2.78 [0.30]							-1.72 [0.57]
MVW Nonpayer M/B _{t-1}		2.10 [0.38]						-2.77 [0.59]
MVW D/P _{t-1}			-6.60** [0.01]			-7.50** [0.00]	-8.61** [0.00]	-10.63* [0.03]
Tax _{t-1}				5.83* [0.05]		6.97* [0.03]	10.19 [0.06]	11.54 [0.22]
Year _{t-1}					0.81 [0.21]		-0.66 [0.45]	-0.95 [0.58]
N	20	20	20	20	20	20	20	20
Adj. R ²	-0.02	-0.03	0.17	0.09	0.06	0.34	0.33	0.24
Panel B: <i>Continue_t</i>								
MVWP ^{D-ND} _{t-1}	-1.05 [0.25]							
MVW Payer M/B _{t-1}		0.14 [0.82]						
MVW D/P _{t-1}			-0.60 [0.60]					
Tax _{t-1}				0.43 [0.64]				
Year _{t-1}					-0.16 [0.36]			
N	20	20	20	20	20			
Adj. R ²	0.01	-0.05	-0.03	-0.05	0.00			

Notes: Regressions of dividend payment rates on measures of the dividend premium, growth opportunities, dividend yield, the personal tax advantage of dividends versus capital gains, and a time trend are performed. For example, the initiation rate is modeled in Panel A as:

$$Initiate_t = \alpha + \theta_1 MVWP^{D-ND}_{t-1} + \theta_2 MVWNonpayer\ M/B_{t-1} + \theta_3 MVWD/P_{t-1} + \theta_4 Tax_{t-1} + \theta_5 Year_{t-1} + \tau_t$$

The initiation rate *Initiate* expresses payers as a percentage of surviving nonpayers from $t-1$. The continuation rate *Continue* expresses payers as a percentage of surviving payers from $t-1$. The dividend premium P^{D-ND} is the difference between the logs of the market value-weighted market-to-book ratios for dividend payers and nonpayers. *Tax* is the ratio of after-tax income from a yen in dividends to after-tax income from a yen in long-term capital gains. *Year* is the calendar year. All independent variables but *Year* are standardized to unit variance. *t*-statistics use standard errors obtained by using the method of Newey and West (1987), hence they are robust to heteroskedasticity and serial correlation. *N* is the number of sample and *Adj. R²* is the adjusted *R*-squared value. * denotes statistical significance at the 5% level and ** denotes statistical significance at the 1% level.

(2) Most importantly, with regard to the dividend initiations and continuations of the Japanese electrical appliances industry firms, the dividend premium is not a determinant. This means that the electrical appliances industry firms in Japan do not behave according to the prediction of catering theory.

(3) Instead, in contrast to the US case, regarding dividend initiations, the value-weighted dividend yield is a strong determinant of one-year-ahead dividend initiations in the Japanese electrical appliances industry firms. This can be interpreted such as a type of market timing behavior related to dividend initiation by the industry's corporations.

As indicated above, the new evidence presented in this paper contributes to important issues in dividend policy in corporate finance. Future academic studies with large datasets of Japanese firms using additional information would be valuable. These studies may produce stronger and more comprehensive conclusions, and this is our future objective.

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Notes

Note 1. Important studies which follow MM (1961) are those as Allen et al. (2000), Allen and Michaely (2002), Asquith and Mullins (1983), Bagwell and Shoven (1989), Baker et al. (1985), Baker and Wurgler (2004a, 2004b), Benartzi et al. (1997), Bhattacharya (1979), Black (1976), Black and Scholes (1974), Brav et al. (2003), Brav and Heaton (1998), Dann (1981), DeAngelo et al. (1996), Eades et al. (1994), Fama and Babiak (1968), Fama and French (2001), Feenberg and Coutts (1993), Graham and Harvey (2001), Graham and Kumar (2003), Hakansson (1982), Healy and Palepu (1988), Hubbard and Michaely (1997), John and Williams (1985), Kothari and Shanken (1997), La Porta et al. (2000), Lintner (1956), Liu et al. (2003), Long (1978), Marsh and Merton (1987), Michaely et al. (1995), Miller (1977), Miller and Rock (1985), Miller and Scholes (1978), Peterson et al. (1985), Poterba (1986), Shefrin and Statman (1984), and Watts (1973), for example.

Note 2. Inefficient markets are recently advocated by such studies as Shleifer (2000) and Stein (1989, 1996).