A Test of the Relative Pricing Effects of Dividends and Earnings: Evidence from Simultaneous Announcements in Japan

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ABSTRACT

We study the pricing effects of dividend and earnings announcements by taking advantage of the unique setting in Japan where managers simultaneously announce the current year's dividends and earnings as well as forecasts of next year's dividends and earnings. Defining surprises as deviations from analysts' forecasts, we find that share price reactions are significantly affected by earnings surprises, especially management forecasts of next year's earnings. The information content of dividends is marginal and is restricted to announcements of next year's dividends. Consistent with Modigliani and Miller's dividend irrelevance proposition, current dividend surprises have no material impact on stock prices in Japan.

SINCE MODIGLIANI AND MILLER INITIATED MODERN corporate finance theory (see Modigliani and Miller (1958) and Miller and Modigliani (1961)), academic wisdom has been that because dividends do not change a firm's underlying investment policy and cash flows, dividend policy is irrelevant to firm value. It is earnings and earnings potential (the investment opportunity set) that are fundamental determinants of firm value: An extra dollar of dividends does not create value because it comes at the cost of a dollar of capital gains. Thus, it is of little surprise to find that numerous empirical studies show earnings announcements convey information that prompts investors to revise stock prices. In light of Modigliani and Miller's irrelevance theory, however, it is surprising to find that dividend research also reports a strong empirical tie between dividend announcements and stock price changes. To explain the observed pricing effects of dividends, a host of theories have been developed that model dividend announcements as a means of convey-

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ing information from management to investors. For example, Miller and Rock (1985) motivate dividend announcement effects as occurring because dividends can serve the role of revealing both current and future earnings.[1]

Unfortunately, since dividend announcements typically change the information set that investors have about earnings, providing a test to disentangle dividend and earnings effects has been difficult. Even as they established the theoretical foundations for dividend irrelevance, Miller and Modigliani (1966) realized difficulties confronting empirical work since "the practice of dividend stability . . . means that dividends and dividend changes indirectly convey a considerable amount of information at least about management's expectations of long-run future profits." This earnings information itself is an integral part of the firm's underlying operations and hence would affect firm value, leading to what Miller and Modigliani (1966) termed a potentially "hopeless confounding of the real and purely informational effects" (of dividends). If the share price effects of current dividends are due solely to information conveyed about earnings, one would expect these price reactions to disappear, or at least be mitigated,[2] if the empirical design controlled adequately for earnings information. Moreover, once one controls for information effects, any remaining pricing role for current dividend surprises can be interpreted as a "real" effect.

To date, evidence on the link between dividends and earnings information yields mixed results. Benartzi et al. (1997) study U.S. firms and report that current dividend increases provide little if any information about future earnings changes. Their interpretation of the evidence is that "changes in dividends tell us something about what *has* happened. . . . If there is any information content in this (current dividend) announcement, it is that the concurrent change in earnings is permanent rather than transitory" (p. 1032). Studies of market reactions are less than conclusive regarding the link between dividend and earnings information. For instance, Kane, Lee, and Marcus (1984) find both current dividends and current earnings convey information when they are announced simultaneously. Penman (1983) finds, however, that dividend changes carry little information once one controls for management's future earnings forecast. To meaningfully compare the results of these two studies or other studies is difficult because of the differences in their methodologies and empirical design. To a large extent the lack of conclusiveness is caused by the difficulty of designing an experiment that is capable of yielding compelling results.

[1] For an overview of the theoretical literature see Benartzi, Michaely, and Thaler (1997). Important contributions include Lintner (1956), Miller and Modigliani (1961), Miller and Rock (1985), Bhattacharya (1979), and John and Williams (1985). Confirming empirical studies include Charest (1978), Aharony and Swary (1980), Brickley (1983), Asquith and Mullins (1983), Eades, Hess, and Kim (1985), Healy and Palepu (1988), and Bajaj and Vijh (1990).

[2] Some authors suggest that dividends are more credible signals than management forecasts of earnings because earnings forecasts involve moral hazard (e.g., Bhattacharya (1979)). If this is the case, then dividends may have an information effect about earnings even if managers provide earnings forecasts.

We use the unique circumstances of how earnings and dividends are announced in Japan to construct a straightforward test of the relative pricing effects of dividend and earnings information. Three features provide for a much stronger test than has been available to date from U.S. and other studies. First, the vast majority of Japanese firms make simultaneous announcements of current dividends and earnings. As a result, we can provide explicit tests of the relative contribution of each to share price reactions without concern for whether the announcements are based on different information sets. Second, firms also issue management forecasts of *next* year's dividends and *next* year's earnings on the same date as they announce current year figures. This unique practice by Japanese firms provides a wedge to separate the relative effects of management's forecasts of the future versus both current earnings and current dividends. Third, Japanese analysts make specific forecasts of each of these four variables prior to the day management releases the figures. The analyst forecasts serve as excellent benchmarks against which to assess whether the information announced is a positive or negative surprise to the market.[3]

Using the Japanese setting, we study a large number of firms and announcements: 3,890 announcements over the period from 1988 to 1993. Some of our results are consistent with prior research using U.S. data. For example, we find that current earnings and management forecasts of future dividends and earnings are each significantly linked with the stock market's response when considered independently. We do not, however, find a significant announcement effect for current dividend surprises. When the dividend variables are allowed to compete with earnings, we find that the earnings variables dominate in their ability to explain share price movements. Future dividend surprises remain significant in our regressions but current dividends remain insignificant, suggesting that at least in Japan there is no net pricing role for current dividends after controlling for information effects. This lack of a current dividend effect is consistent with Miller and Modigliani's prediction that dividends have no real (as opposed to informational) effect on stock price. Our results are robust to a wide range of sensitivity tests including how we measure announcement surprises, commemorative dividends, the "five yen" listing rule, Japanese governance (keiretsu), and changes in information effects over time.

In the next section, we describe how dividend policies in Japan differ from U.S. practices. In Section II we detail our empirical design and show how the manner in which Japanese firms release dividend and earnings information provides for a compelling empirical test. Section III presents a detailed description of the distributional properties of the earnings and dividend surprise variables used in our empirical tests, which are presented in Section IV. We present a variety of sensitivity tests in Section V, and our conclusions follow in Section VI.

[3] Past research has shown significant pricing effects in Japan of earnings information using such analyst forecasts (see Conroy, Harris, and Park (1998) and Elton and Gruber (1990)). We know of no research that employs both the dividend and earnings forecasts in Japan.

I. Background on Dividends in Japan

Much of the discussion of dividends in Japan focuses on how Japanese governance structures differ from those in other countries (see Prowse (1990, 1992)) and how such differences affect the role of dividends (for example, see Dewenter and Warther (1998)). In Japan, many companies are bound together in industrial groupings (keiretsu) centered around a main bank and involving strong horizontal and vertical linkages among member companies. The banking relationship is much stronger than in the United States and a much larger proportion of financing in Japan takes place through banks rather than through the issuance of securities. Keiretsu companies usually have interlocking boards of directors with senior managers sitting on each other's boards. Such close-knit relationships between companies are not permitted in countries such as the United States where antitrust and ownership laws would traditionally prohibit their formation and function. In concert with these arrangements, the vast majority of listed shares in Japan are owned by corporations who themselves have substantial share cross-holdings that are infrequently traded to help promote continued business relationships. As a consequence of the large corporate cross-holdings and infrequent trading by the corporations, most of the equity trading volume in Japan is due to the relatively small proportion of shares owned by independent shareholders (such as individuals).[4]

The Japanese governance structure can lead to important differences between Japanese and U.S. firms in terms of corporate monitoring and information sharing. Since most theoretical explanations of dividends rely on such agency and information issues,[5] they would suggest a diminished role for dividends in Japan. For instance, if keiretsu structures lead to less information asymmetry between managers and investors, dividend announcements might have a smaller pricing effect in Japan than in the United States. Additionally, if keiretsu and main bank monitoring of managers is effective, then dividend payments may not be necessary to reduce managers' tendency to overinvest free cash flow. Thus, the Japanese governance style may provide more effective monitoring and reduce the effect of dividend policies on share prices in Japan relative to the United States. Many observers cite the low payout ratios and dividend yields in Japan as supportive of a diminished role for dividends.[6]

[4] For instance, in 1985 corporate investors (including financial institutions) held about 70 percent of all shares in Japanese listed companies. The comparable figure in the United States was about 28 percent (Cooke and Kikuya (1992)). These Japanese corporate investors were involved in only about 27 percent of the stock trading in that year (Zielinski and Holloway (1991)).

[5] See, for example, Bhattacharya (1979), Miller and Rock (1985), Grossman and Hart (1982), Easterbrook (1984), and Jensen (1986).

[6] This evidence is buttressed by findings of a dividend policy survey of 710 Japanese listed companies conducted in 1991 by Nikkei Research Corporation and reported in the *Nikkei Financial Daily*. When asked how shareholders should be rewarded, only five percent of managers said by increasing dividends, 43 percent said stable dividends, and the remainder mentioned other factors such as corporate growth.

Although Japanese tax law is similar to many other countries in that it favors capital gains over dividends (except for corporate investors), other institutional features in Japan make Japanese dividend policies distinctly different. For example, Tokyo Stock Exchange (TSE) listing criteria virtually mandate a minimum of a five yen dividend per share. Traditionally, Japanese companies have expressed dividends as a percentage of the par value of the stock (most often 50 yen per share). Many Japanese observers hold that annual dividends should be at least 10 percent of par (hence a dividend per share of five yen). Although a firm that reduces dividends below the five yen minimum is not automatically delisted, such an occurrence may carry more information than a regular dividend announcement. Japanese firms also have a tradition of avoiding fractional dividend payments like 5.5 yen per share. In keeping with this convention, a company's total dividend is often increased via a small stock split (five percent or 10 percent) after which par and dividend values per share remain constant. Companies also make relatively frequent use of commemorative dividends (approximately 20 percent of the time in our sample) to honor special company milestones. Since commemoratives are typically not continued as part of the regular payout, they are likely viewed as carrying less information than changes in regular dividends.[7]

Unlike in the United States, a major disclosure feature in Japan is that exchanges request companies to publicize forecasts of next year's earnings and dividends. As a consequence, management forecasts are announced simultaneously with actual earnings and dividends. Early in a new fiscal year (typically within six weeks), management holds a press conference to announce financial results for the just completed year, management's recommendation for the current year dividend, and management's forecasts of dividends and earnings for the next year. All of these earnings and dividend figures are reported in the following day's *Nihon Keizai Shinbun* (the major business newspaper in Japan). Most companies and financial analysts have minimal contact between the end of the fiscal year and the public release of financial results. In the vast majority of cases, firms refrain from making any financial announcements in the weeks prior to the press conference. As a result, there is typically a concentrated two-day period in which new information about both dividends and earnings becomes public.[8] The simulta-

[7] See Hodder and Tschoegl (1990) for a discussion of institutional features affecting Japanese corporate finance. The 10 percent figure is cited by Hodder and Tschoegl (1991), Abegglen and Stalk (1985, p. 169), and Zielinski and Holloway (1991, p. 166). Conroy and Eades (1993) estimate that about half of all dividend increases prior to 1991 were associated with stock splits. In this paper, we exploit the simultaneous announcement of per-share figures for both dividends and earnings to study the effects of changes in dividends per share (not stock splits).

[8] Conroy, Harris, and Park (1994) provide a detailed discussion of institutional earnings announcements in Japan. These details were confirmed in a number of 1993 interviews with financial analysts at all of the major security firms in Tokyo. While management forecasts are much less common in the United States, existing evidence shows that they provide valuable information to analysts (Hassell, Jennings, and Lasser (1988), Baginski and Hassell (1990)).

neous announcement of earnings and dividends and forecasts means that all of the variables are based on the same information set, which provides an ideal opportunity to test for their respective impact on stock price.

II. Sample, Data, and Methods

A. Sample and Data

We study Japanese companies listed on the first section of the TSE with fiscal years ending in February, March, and April, over the period 1988 to 1993. The first section has about 85 percent of the trading volume and total market value of the TSE (see Schwartz and Ziemba (1991)) and contains the largest and best-known Japanese firms. In 1993, about 85 percent of first section TSE stocks have a February, March, or April fiscal year end, with March 31 being by far the most common.

Historically Japanese investors have relied primarily on unconsolidated "parent-only" earnings and we focus on these figures. This usage differs from the U.S. standard of consolidated earnings, which includes the net income of subsidiaries, and firms in which the parent holds a 20 percent equity interest. For each company we require announcements of current dividends and unconsolidated earnings (most recently completed year), management forecasts of next year's dividends and unconsolidated earnings, analysts' forecasts of both current and next year's dividends and earnings, and share returns.

For the 1988 to 1990 period, Japanese daily closing prices (adjusted for stock splits) are supplied by Morgan Stanley, Japan, Ltd. Cash dividends come from the Nikkei Needs database. These prices and dividends are combined to compute daily returns. For the period 1991 to 1993, we use Datastream returns, which are also based on closing prices. The use of two return sources is necessary because neither spans the entire sample period.

To measure new information, we use published analyst forecasts as benchmarks for existing market expectations. These analyst forecasts are matched with the corresponding announcements by management of dividends and earnings for the current and next year and are hand gathered from two Toyo Keizai publications: the *Kaisha Shikiho* and its English language version, *The Japan Company Handbook*. Toyo Keizai forecasts are used by essentially the entire securities industry in Japan and are generally the standard against which practitioners gauge announced results.[9] We use forecasts from the March Toyo Keizai publications, because these forecasts are typically the last ones published before management holds a "regular" press conference

[9] See Conroy et al. (1993, 1994) and Conroy and Harris (1995) for a detailed discussion of the accuracy of Toyo Keizai forecasts compared to forecasts in the United States and to other sources of forecasts in Japan.

(typically in May) to announce both current-year results and their forecasts of next year dividends and earnings. These management announcements are collected manually from the *Nihon Keizai Shinbun*.[10]

For the period 1988 to 1993, we identify approximately 6,500 observations (company-years) having Toyo Keizai forecasts. Of these, 5,146 observations satisfy our fiscal year restrictions and have analyst forecasts for current and next year dividends and earnings. Financial companies, for example, are eliminated because Toyo Keizai only has current year forecasts for these firms. Additional screens for the availability of announcement dates, share returns, and nonzero earnings forecast[11] reduces the sample to 4,331. The final screen for our basic sample involved a search of *Nihon Keizai Shinbun*, *Nikkei Telecom Japan News and Retrieval Service*, and company filings with the TSE for any information releases by the company between the end of March and the "regular" press conference.[12] Because such releases might compromise our assumption that the Toyo Keizai forecast is an unbiased proxy for market expectations, we eliminate these observations, leaving a final sample of 3,890 observations.

B. Dividend and Earnings Surprises

To measure new information, we compute the difference between management's announced value and analysts' forecast. To avoid giving undue weight to extreme values, we transform this continuous surprise variable into a grouped surprise variable. As part of our sensitivity analysis, we rerun our tests using continuous measures and report those results in Section V.

[10] We delete all observations where the unconsolidated and consolidated results are announced on the same day. Simultaneous announcements of consolidated and unconsolidated earnings are very rare at the beginning of our sample period and still comprise less than 10 percent of our potential sample in 1993. In the future, consolidated figures will likely play a larger role in Japanese markets as consolidation standards become more uniform and information releases more timely. In 1993 interviews with Japanese security analysts, we found they continued to stress the primary role of parent-only numbers.

[11] As explained later we define earnings surprises as a percentage scaled by the forecast. Thus, to avoid dividing by zero, we eliminate 45 observations with forecasts of zero for either current or next-year earnings.

[12] Studying all first section TSE firms for the decade ending 1991, Kato, Loewenstein, and Tsay (1997) report that 17.5 percent of all firms had some story about dividends (exclusive of the regular press conference) in the *Nihon Keizai Shinbun*. They refer to these as "voluntary announcements" but acknowledge that in only about 48 percent of these cases was the company or an executive cited as the source. One reason for management to make an announcement before the regular press conference involves a Ministry of Finance rule which beginning in 1989 obligated firms to publicize substantial changes in financial performance. The standard is a 30 percent change in earnings from those previously expected by management. Therefore, because voluntary dividend announcements are typically accompanied by earnings disclosures and because Kato et al. do not control for the simultaneous earnings information, their study is better interpreted as a study of early disclosure rather than of dividends per se.

We define a current (year 0) dividend surprise (DS0) as the difference between the actual and expected (by analysts) dividend. Specifically, DS0 = (D0 − FD0) where D0 is the actual reported dividend (typically around the last week of May), and FD0 is the last available analyst forecast of D0 (March publication).[13] We also construct a next year (year 1) dividend surprise (DS1) as the difference between the announced management forecast of next year's dividend (D1) and analysts' previously published estimate of this figure (FD1). Specifically, the surprise variable is DS1 = (D1 − FD1) where D1 is management's forecast of next year's dividend and FD1 is the March analyst forecast of next year's dividend figure. To illustrate, Japanese managers typically announce their estimate of 1990 dividends sometime around May 1989. This announced forecast (D1) is compared to analysts' forecasts of 1990 dividends published in March 1989.

For current dividends, the grouped variable is DGROUP0, which is defined as

$$\text{DGROUP0} = -1 \text{ if } \text{DS0} < 0$$

$$\text{DGROUP0} = 0 \text{ if } \text{DS0} = 0$$

$$\text{DGROUP0} = +1 \text{ if } \text{DS0} > 0.$$

For next year's dividends, DGROUP1 is defined analogously based on values of DS1.

For earnings, we do not observe a large clustering of zero surprises as is the case with dividends. We follow standard practice in the earnings literature and measure earning surprises in terms of percentage deviations. We define a current earnings surprise as ES0 = (E0 − FE0)/|FE0| where E0 is actual reported earnings and FE0 is the March analyst forecast of E0.

For management forecasts of next year's earnings we define the surprise ES1 = (E1 − FE1)/|FE1| where E1 is management's forecast of earnings and FE1 is the March analyst forecast of E1. We delete all observations in which an earnings forecast is zero since the surprise is undefined in those instances. In addition, we set all surprises equal to zero if the numerator is only one yen.

We define grouped earnings surprise variables for current earnings as

$$\text{EGROUP0} = -1 \text{ if } \text{ES0} < -10 \text{ percent}$$

$$\text{EGROUP0} = 0 \text{ if } -10 \text{ percent} \leq \text{ES0} \leq 10 \text{ percent}$$

$$\text{EGROUP0} = +1 \text{ if } \text{ES0} > 10 \text{ percent}.$$

For next year's earnings, EGROUP1 is defined analogously based on ES1. The 10 percent threshold was based on conversations with analysts in Japan (see Conroy, Harris, and Park (1998)).

[13] Abarbanell, Lanen, and Verrecchia (1995) provide a theoretical treatment of using analysts' forecasts as proxies for information. Occasionally, a dividend forecast by either analysts or management would be given as a range (e.g., five to six yen). In such cases, we use the midpoint of the range as the forecast.

Table I

Actual and Forecast Changes in Current Year Dividends

Entries are percentages of the sample observations that are negative, zero, or positive. The sample consists of first section Tokyo Stock Exchange firms for the years 1988 to 1993, N = 3,890. Analyst forecasts are from *Toyo Keizai*, which is generally accepted by the Japanese security industry as the standard publication source for earnings and dividend forecasts.

Measure of Change	Negative	Zero	Positive
Current dividend minus last year's dividend	8.0%	70.4%	21.6%
Toyo Keizai forecast of current dividend minus last year's dividend	13.0%	63.9%	23.2%
Current dividend minus *Toyo Keizai* forecast	7.2%	81.0%	11.9%

C. Share Returns

Stock price adjustments are measured using market-adjusted daily abnormal returns (AR), which are defined as $AR = R - R_M$ where R is the return on the stock and R_M is the return on a market index calculated using equal weighting of all first section TSE firms with fiscal years ending March 31. We array abnormal returns in event time where day 0 is the earnings publication date in the press. To measure announcement effects we sum the AR over days -1 and 0. We do not employ a market model with firm-specific risk parameters because past research (Sakakibara et al. (1988) and Darrough and Harris (1991)) shows that use of the market model in Japan leads to large variations in explanatory power over time, dramatic changes in parameter estimates from year to year, and highly skewed distributions of beta values. Illustrative of the poor performance of the market model in Japan, Darrough and Harris find the association between unexpected earnings and abnormal share returns is stronger when such abnormal returns are measured by simply subtracting a market index than when the market model is used.

III. Patterns in Dividend and Earnings Surprises

Lacking explicit dividend forecasts by analysts, most prior work has used a random walk forecast of no change in dividends to construct measures of dividend surprises. Table I presents information on actual dividend changes in our sample and how well they were forecast by analysts. The first row shows that dividends are relatively stable in Japan: For the vast majority of our sample observations (70.4 percent) there is no change in dividend per share from one year to the next. As a result, a naive random walk forecast of no change would often be accurate. The first row also shows that dividend increases outnumber decreases by more than two and one-half to one. Comparison of the first and second rows in Table I indicates that analysts forecast the same frequency of dividend increases as actually occur (about one-fifth of the sample). Analysts forecast more decreases than actually ma-

terialize (13.0 percent vs 8.0 percent) and hence predict more changes in dividends than actually occur. On balance, however, the third row shows that analysts correctly forecast the current dividend 81.0 percent of the time. This improvement over a random walk forecast (row 1) should come as no surprise given the relatively short time lag from the analyst forecast date (March) and management announcement (early in the fiscal year, typically early May). The improvement is consistent with analysts incorporating new information that becomes available during the year.

The pricing effects of dividends may depend not only on the dividend amount, but also on whether that amount includes a commemorative dividend component. Because commemoratives are usually one-time payments, they are likely viewed as less permanent than regular dividends and hence may have lower information content. Although our data do not allow us to segment dividends per share into their regular and commemorative yen amounts, we do have information on whether a dividend or dividend forecast includes a commemorative component. Table II illustrates patterns in dividend types for our sample. Three conclusions stand out. First, Panel A shows that for our entire sample the vast majority of observations include only regular dividends and that 83.7 percent of the time a "regular only" dividend in the current year follows a "regular only" dividend from the prior year. Second, the last two rows of Panel A illustrate that commemoratives play a proportionately larger role when a company changes its dividend. Almost half of all dividend decreases (44.9 percent) involve elimination of a commemorative paid in the prior year. Almost one-third (31.1 percent) of dividend increases involve instituting a commemorative that was not paid in the preceding year. Third, Panel B shows that analysts forecast the dividend type well. When the current year dividend is regular, analysts have forecast this properly over 99 percent of the time. Analysts' errors are mainly in identifying when commemoratives will occur, though they still get this right at least 65 percent of the time.

Taken together, the evidence in Tables I and II suggests that analysts' forecasts of dividends are quite accurate and more often on target than random walk forecasts. Moreover, most of the time analysts forecast both the dividend amount and the dividend type accurately. Table II also shows that the presence of commemorative dividends, especially their disproportionate use in dividend cuts and increases, creates an additional challenge for detecting the pricing effects of dividends in Japan. Because commemoratives might have a differential information effect, we restrict the sample to observations for which analysts do not forecast a commemorative as part of the dividend payment (N = 3,245). We revisit commemoratives in Section V in our sensitivity analysis.

To examine whether current dividends and management's forecast of next year's dividend potentially convey different information, Table III presents a cross-tabulation of surprises for our two dividend variables. The table reveals that the variables are quite similar. Both dividend announcements typically confirm analysts' expectations; for the current year 81.8 percent of

Table II

The Role of Regular and Commemorative Dividends in Japanese Dividend Changes

Entries reflect the percentage of observations that fall into a particular dividend classification. Dividends are identified by Japanese firms as being regular (recurring) or as containing both a regular and a commemorative (special) component. We classify dividend changes from year-to-year as described by these two components. The sample consists of first section Tokyo Stock Exchange firms for the years 1988 to 1993, N = 3,890. Analyst forecasts are from *Toyo Keizai*, which is generally accepted by the Japanese security industry as the standard publication source for earnings and dividend forecasts.

Panel A: Changes in Regular and Commemorative Components of Dividends
(decreases (increases) mean current dividend is less (more) than last year's dividend)

	Regular Only Announced Both Years	Regular Only Changed to Regular and Commemorative	Regular and Commemorative Changed to Regular Only	Regular and Commemorative Announced Both Years
Full sample (N = 3,890)	83.7%	7.8%	6.8%	1.6%
Decreases only (N = 383)	54.0%	0.5%	44.9%	0.5%
Increases only (N = 950)	59.3%	31.1%	6.7%	2.9%
Panel B: *Toyo Keizai* Forecasts of Dividend Component Changes				
Toyo Keizai correct forecasts	99.1%	73.3%	99.3%	65.6%
Maximum possible correct forecasts	(N = 3,256)	(N = 266)	(N = 304)	(N = 64)

Table III

Surprises in Current Dividends and Management Forecasts of Next Year's Dividends

Entries are the number of observations and the percentage of the total observations. The sample consists of first section Tokyo Stock Exchange firms for the years 1988 to 1993 in cases where the analyst forecasts that the dividend will be a regular dividend only, with no commemorative component, $N = 3{,}245$. Analyst forecasts are from *Toyo Keizai*, which is generally accepted by the Japanese security industry as the standard publication source for earnings and dividend forecasts. DS0 is management's announced current dividend per share minus the analyst forecast of that dividend. DS1 is the announced management forecast of next year's dividend minus the analyst forecast of that figure.

	Next Year Surprise			
Current Year Surprise	Negative (DS1 < 0)	Zero (DS1 = 0)	Positive (DS1 > 0)	Total
Negative (DS0 < 0)	209	10	4	223
	6.4%	0.3%	0.1%	6.9%
Zero (DS0 = 0)	162	2343	148	2653
	5.0%	72.2%	4.6%	81.8%
Positive (DS0 > 0)	48	150	1715	369
	1.5%	4.6%	5.3%	11.4%
Total	419	2503	323	3245
	12.9%	77.1%	10.0%	100%

Pearson correlation (DS0, DS1) = 0.505

the surprises are zero, and the figure is 77.1 percent for next year dividends. Moreover, current and next year dividend surprises typically move together. When DS0 is negative (positive) DS1 is more likely to be negative (positive) as shown by the large clustering of observations along the diagonal in Table III. The correlation of 0.505 confirms that the two metrics mirror much common information on the firm.

Table IV examines links between surprises in dividends and earnings. The rightmost column highlights the fact that dividend and earnings information tend to move together. For instance, when the current year dividend surprise is positive (DS0 > 0) it is 4.90 times as likely for the observation to have a strong positive (ES0 > 10 percent) versus negative earnings surprise. For surprises in management forecast of next year's dividends, the comparable figure is 2.85. One exception to this positive correlation appears for negative current dividend surprises (DS0 < 0) where we see a higher proportion of good earnings news than bad (ratio = 1.71).[14] The overall tendency

[14] When earnings are good (ES0 > 10 percent), most instances of dividend disappointments (DS0 < 0) are the result of a failure to increase dividends as much as analysts forecast but do not involve an actual dividend cut. In Section V we examine the pricing effects of actual changes in dividends as part of our sensitivity analysis.

Table IV

Dividends and Earnings Surprises

Entries are percentages of the row total. The sample consists of first section Tokyo Stock Exchange firms for the years 1988 to 1993 in cases where the analyst forecasts that the dividend will be a regular dividend only, with no commemorative component, $N = 3{,}245$. Analyst forecasts are from *Toyo Keizai*, which is generally accepted by the Japanese security industry as the standard publication source for earnings and dividend forecasts. Dividend and earnings surprises are deviations of management announcements from analyst forecasts. DS0 is the announced current dividend per share minus the analyst forecast of the dividend. ES0 is the announced current earnings per share minus the analyst forecast of the earnings, divided by the absolute value of the forecast. The next year figures, DS1 and ES1, are deviations of management's announced forecast for the upcoming fiscal year from the analyst forecasts of those figures. Ratio is the percent in the highest earnings group (surprise > 10 percent) divided by the percent in the lowest earnings group (surprise < -10 percent).

Dividend Surprise	Earnings Surprise			Ratio
	Panel A: Current Year Dividends and Earnings			
	ES0 $< -10\%$	Middle	ES0 $> 10\%$	High/Low
DS0 < 0, $N = 223$	9.4%	74.4%	16.1%	1.71
DS0 $= 0$, $N = 2653$	9.5%	79.2%	11.3%	1.19
DS0 > 0, $N = 369$	4.1%	77.8%	20.1%	4.90
Total, $N = 3245$	8.9%	78.7%	12.4%	1.39
Pearson correlation (DS0,ES0) = 0.050				
	Panel B: Next Year Dividends and Earnings			
	ES1 $< -10\%$	Middle	ES1 $> 10\%$	High/Low
DS1 < 0, $N = 419$	27.7%	55.4%	17.0%	0.61
DS1 $= 0$, $N = 2503$	24.2%	54.3%	21.5%	0.89
DS1 > 0, $N = 323$	11.2%	57.0%	31.9%	2.85
Total, $N = 3245$	23.3%	54.7%	21.9%	0.94
Pearson correlation (DS1, ES1) = 0.106				

to move together as measured by a correlation coefficient, however, is relatively small compared to the correlation between the two dividend variables. The correlation coefficients for (DS0,ES0) and (DS1,ES1) are only 0.050 and 0.106, respectively.

A prominent message from Tables III and IV is that any test of the pricing effects of current dividends needs to control for information releases about future dividends, current earnings, and future earnings. The pairwise correlations also tell us, however, that using both dividend variables in a multivariate regression may create multicollinearity problems with the interpretation of the coefficients. Therefore, we take care to report a number of regression specifications to shed light on the possible effects of such multicollinearity.

IV. Price Reactions to Surprises in Dividends and Earnings

We use OLS regression analysis to test for the effects of dividends and earnings on stock returns. Such regressions allow us to test for the sensitivity of our results to both grouped and continuous measures of information.

A. The Potential Problem of Clustering

Because the announcements occur within a three-month time period each year, the 3,245 observations are concentrated across 160 calendar days (23 days have single announcements and 137 days have two or more announcements). This clustering of announcements raises potential estimation difficulties.

The regressions explicitly introduce the effects of earnings and dividend information. If there is other information that differentially affects announcing firms, market-adjusted returns may still exhibit a common residual component on a given day when there is clustering. If each day has the same number of announcements and if the non-market-related information occurs randomly over time and with zero mean, we would expect the positive and negative errors to receive equal weight in our regressions. When announcements are not equally distributed across calendar time, however, each day receives a different weight in the regressions according to the number of announcements that happen to occur on that day. Thus, when observations are clustered, day-dependent information effects do not receive equal weight in the regressions and the results may be biased. For example, if many announcements are made on a day with a positive residual that also happens to have a preponderance of positive current dividend surprises, the estimate of the current dividend coefficient would be biased upward.

To control for the potential effects of clustering, we introduce a dummy intercept variable for every calendar day that has two or more announcements. The dummy intercepts capture the day-dependent returns and thus ensure that the regression coefficients on our information variables are not affected by clustering of announcements on a particular day. Therefore, even if day-specific information is not random across the announcement days, the daily dummies ensure that regression coefficients on the information variables are not resulting from day-dependent information. All of our regression models include 137 day-dummies. Our approach is similar to that used to account for time-dependent effects in panel data (Hsiao (1986)). Before presenting the results of those regressions, however, it is important to note that we get qualitatively identical results even if we do not introduce the day dummies to control for clustering.

As another check for potential problems introduced by clustering, we looked at results based on forming daily portfolios. Specifically, using our grouped measures of information, a portfolio is formed for each variable and its outcome on every calendar day. Because we use four independent variables, each with three possible outcomes, it is necessary to form as many as 12 equally weighted portfolios per day. The portfolio-based results are not qualitatively different from the day-dummy results reported in the tables that follow.

Table V

Regression Analysis of Abnormal Returns around Announcement Dates Using Dividend and Earnings Information

The dependent variable is the two-day abnormal return (in percent) starting on the day of management's announcement of dividend and earnings figures. Regression models include 137 dummy variables (coefficients not reported) that allow for day-varying intercepts. Entries are estimated coefficients with t-values in parentheses. DGROUP0 takes on the value of -1 if the announced current dividend is less than the analyst forecast, zero if the current dividend matches the forecast, and $+1$ if the current dividend exceeds the forecast. DGROUP1 is defined analogously based on deviations of management's announced forecast of next year's dividend from the analyst forecast. EGROUP0 takes on the value of -1 if the announced current earnings figure is more than 10 percent below the analyst forecast, zero if current earnings are within 10 percent of the forecast, and $+1$ if current earnings are more that 10 percent above the forecast. EGROUP1 is defined analogously based on deviations of management's announced forecast of next year's earnings from the analyst forecast. The sample consists of first section Tokyo Stock Exchange firms for the years 1988 to 1993 in cases where the analyst forecasts a regular dividend only with no commemorative component, N = 3,245. Analyst forecasts are from *Toyo Keizai*, which is generally accepted by the Japanese security industry as the standard publication source for earnings and dividend forecasts.

Regression	DGROUP0	DGROUP1	EGROUP0	EGROUP1	Adjusted R^2
(1)	0.183				0.090
	(1.35)				
(2)		0.515			0.095
		(4.27)***			
(3)	−0.144	0.580			0.095
	(−0.93)	(4.15)***			
(4)			0.763		0.100
			(6.08)***		
(5)				1.100	0.137
				(13.10)***	
(6)			0.327	1.036	0.139
			(2.55)**	(11.83)***	
(7)	−0.142	0.408	0.326	1.008	0.141
	(−0.94)	(2.98)***	(2.55)***	(11.46)***	
(8)	−0.086		0.325	1.034	0.139
	(−0.65)		(2.53)**	(11.79)***	
(9)		0.344	0.323	1.010	0.141
		(2.90)***	(2.52)**	(11.43)***	

*, **, and *** indicate the coefficient is significantly different from zero at the 0.10, 0.05, or 0.01 levels (two-tailed test), respectively.

B. The Basic Results

As a prelude to testing for separate impacts of dividend and earnings announcements, we study pricing effects of dividends without controlling for earnings. These baseline results provide insights into what a dividend announcement study might find. Results in Table V are based on the same sample used for Tables III and IV; we use only those observations in which the analyst forecast does not include a commemorative (N = 3,245).

When DGROUP0 is entered separately, regression (1) shows that current year dividend surprises have a positive, but insignificant relation with share price movements. This result runs counter to the many empirical studies that document a significant relation between dividend announcements and stock returns and conclude that dividends serve as a signal of firm value. Most of those studies, however, are based on samples of U.S. firms that do not follow the Japanese practice of announcing a forecast of next year's dividend simultaneously with current dividend information. We would expect that any credible forecast of dividends would likely carry as much or more information to the market than an announcement pertaining only to the current year. The results of regressions (2) and (3) are consistent with the conjecture that the Japanese practice of releasing management forecasts of next year's dividend leaves no significant pricing role for announcements regarding current dividends.

It is important to note that regression (3) of Table V can be considered a strong test of Modigliani and Miller's dividend irrelevance proposition. To our knowledge there has never been an empirical test capable of disentangling what Modigliani and Miller term the "information" effect of a dividend announcements and the "real" or cash flow effect. Although our test cannot determine the precise source of the positive effect for DGROUP1, it does reveal that unexpected changes in current dividend cash flows (DGROUP0) are not valued by the Japanese market. Therefore, an insignificant coefficient for DGROUP0 represents a rejection of both the information and the cash-flow hypotheses concerning the role of current dividends, a conclusion that could not be drawn by previous studies.

As discussed earlier, ascribing any pricing effects to dividend variables may be misleading if earnings announcements themselves are strong signals of news. Regressions (4), (5), and (6) show that whether considered independently or together, current earnings (EGROUP0) and next year's earnings surprises (EGROUP1) have a significant impact on stock prices (see Table V). Comparison of the regressions shows that of the two earnings variables, management's forecasts of next year's earnings provide much more explanatory power. These results are consistent with Conroy et al. (1998) and Darrough and Harris (1991) who report that surprises about management forecasts of next year's earnings play a very significant role in Japanese equity pricing.

Regressions (7), (8), and (9) contain both dividend and earnings surprise measures as competing explanatory variables. Comparison of the three regressions reveals that the high correlation between DGROUPO and DGROUP1 has only a limited effect on the dividend coefficients. The sign and significance of DGROUP1 coefficient is not materially changed by the introduction of DGROUP0; moreover, DGROUP0 remains insignificant. Comparing regressions (6) and (7), we see that the introduction of the dividend variables has essentially no effect on the coefficients for either current or next year earnings surprises. Both earnings variables have positive pricing effects, with next year forecasts playing the larger role. While introduction of the earnings variables reduces the coefficient on DGROUP1, the coefficient for

management dividend forecasts remains significant at the 0.05 level. That management forecasts of next year's dividend appear relevant for market pricing suggests that such forecasts convey additional information about future corporate performance.

The results in Table V show that the market reacts significantly to the earnings and dividend information announced by firms. Prices respond very significantly to surprises in management forecasts of next year's earnings performance. There also appears to be some information in current year earnings figures. After controlling for such earnings effects, management forecasts of next year's dividends carry some weight in pricing but are not nearly as important as management's earnings forecasts. None of our model specifications presented in Table V, however, suggest that stock prices are materially affected by current dividend announcements. This lack of a current dividend effect is consistent with Miller and Modigliani's prediction that dividends have no effect on share price once one controls for information effects.

V. Sensitivity Analysis

We test the robustness of our results by changing some of the particulars of our procedures and considering the effects of certain institutional features in Japan. The results for most of these tests reported in this section refer to the regression analysis of Table V, but we introduce Tables VI and VII to report the results of the test for a keiretsu effect and the effect of pricing over time, respectively. For none of our sensitivity tests do we find evidence that changes the basic thrust of our findings. Pricing effects are due to the information contained in earnings figures and, to a lesser extent, management forecasts of dividends. In no case do we find an independent pricing impact of current dividends.

Early Press Conferences. We explore the possibility that our tests have not captured the full pricing effects of earnings and dividend surprises because of a failure to distinguish firms that release information earlier than other firms.[15] A press conference announcement by one firm may cause investors to revise their expectations for *other* firms that have yet to announce. If such revisions are substantial, pooling early and late press conferences may obscure pricing effects of both dividends and earnings. As described below, our analysis of early press conferences does not change the general nature of the results reported in Table V.

We divide observations into quartiles according to when the press conference is held each calendar year. The first quartile contains the announcements occurring earliest in the year and the fourth quartile contains the "late" announcements. To focus on how the pricing of dividend surprises are affected by early announcements, we assign interactive variables that cor-

[15] We thank René Stulz for this suggestion.

respond to the second, third, and fourth quartiles for the dividend slope coefficients and reestimate regression (7) in Table V. If coefficients of the DGROUP0 or DGROUP1 slope dummies for the second, third, or fourth quartiles are significantly negative, we will have evidence that early announcements are primarily responsible for the pricing of dividend surprises.

The results reveal, however, that none of the interactive variables has economic or statistical significance. Although the magnitude of the DGROUP1 coefficient is larger (0.491) than originally reported for regression (7) in Table V (0.408), the estimate loses precision and is no longer significant (t = 1.65). Moreover, the coefficient for DGROUP0 remains insignificant and the coefficients for EGROUP0 and EGROUP1 are not materially affected when we allow for the pricing of early announcements.

Range Forecasts of Dividends. In some instances, dividend forecasts are presented as ranges (e.g., five to six yen). In constructing our dividend metrics we use the midpoint of the forecast range, which could add noise to our dividend measures and hence reduce their explanatory power. When we eliminate all observations with range forecasts, the sample size is reduced by 13 percent. Although significance levels are reduced somewhat, the regression results for this truncated sample are qualitatively indistinguishable from those reported for regression (7) of Table V.

Regular versus Commemorative Dividends. We have presented results using only those observations where analysts forecast regular dividends in the belief that these are the strongest test of dividend effects. We reestimate regression (7) including all sample observations (regular and commemorative, N = 3,890) and introduce slope interaction dummies on the dividend variables to allow for differential pricing of "regular only" versus cases in which forecasts include commemoratives. Coefficients of these dummies are not significantly different from zero. These results do not support a differential pricing effect for commemoratives.

TSE Listing Requirements. Criteria for initial TSE listing include paying dividends for the last three years and the prospect of being able to maintain an annual dividend per share of at least five yen. While delisting is not automatic upon cuts below the five yen figure (including zero dividends), a continued record of not paying dividends is grounds for delisting. As a consequence, in extreme cases of dividend changes a company's TSE listing may be at stake. Such exchange listing may be valuable,[16] hence dividend events

[16] For instance, Kadlec and McConnell (1994) find that during the 1990s, stocks earned abnormal returns of five percent in response to the announcement of listing on the New York Stock Exchange. Their evidence suggests that this value gain is due to both increased investor recognition and to improved liquidity. Michaely, Thaler, and Womack (1995) study dividend initiations and omissions in the U.S.

that increase or decrease the probability of continued listing may have pricing effects. We note, however, that such "listing effects" are the result of particular institutional features rather than being caused by a cash flow effect of dividend payments on firm value. We construct a zero-one dummy variable to capture cuts in dividends to below five yen and reestimate regression (7) adding this variable. The coefficient on the dummy variable is not significantly different from zero at conventional probability levels and introducing the variable does not materially change the coefficients of the dividend and earnings surprise measures.

We also identify all omissions (cuts to zero dividend) and reinstitutions (increases from a zero dividend) in our sample. We reestimate regression (7), introducing zero-one dummy variables (one dummy for omissions, one for reinstitutions). The coefficient on the omission variable is negative but insignificant. The reinstitution coefficient is positive and significant at the 0.02 level. There is thus some evidence that remaining a dividend-paying stock has some value in terms of exchange listing. When these dummy variables are included, the pricing effects of our earnings and dividend surprise measures remain essentially the same as those reported in Table V for regressions (7), (8), and (9).

Dividend Changes versus Dividend Surprises. Analysts' forecasts include recent financial information available to market participants. Illustrative of this effect, Table I shows analysts' dividend forecasts to be more accurate than a naïve, no-change forecast. Nonetheless, it may be possible that dividend changes (cuts or increases from the past year) are more important for market pricing than are deviations from analysts' forecasts. To test for this possibility we repeat our basic regression using last year's dividend rather than an analyst forecast to benchmark dividend surprises. Once we control for the effects of dividend omissions and reinstitutions (by introducing dummy variables as discussed above), estimates for the dividend and earnings effects are almost identical to those reported in Table V.

Cases with Expected Changes in Dividends. In an attempt to see if dividend pricing effects are more pronounced when analysts *forecast* a dividend change, we reestimate regression (7) in Table V using only cases in which Toyo Keizai predicted a change in the current dividend. Using these 906 observations, the coefficients for DGROUP1 and EGROUP0 are reduced in magnitude and are no longer significant at conventional probability levels. The coefficient for EGROUP1, however, remains strongly positive and significant ($t = 7.32$). It is apparent therefore that conditioning on dividend changes that are forecast by analysts does not serve to enhance the information content of dividend vis-à-vis earnings announcements.

Asymmetry in Dividend Effects. U.S. studies suggest that dividend cuts lead to more pronounced pricing responses than do dividend increases. This asymmetric response is not surprising considering the relatively infrequent

occurrence of cuts compared to increases. Because we define dividend surprises relative to analyst forecasts rather than to past dividends, however, we would not expect our tests to exhibit tangible differences between positive and negative surprises. Consistent with this logic Table III shows that positive and negative dividend surprises are relatively balanced in our sample. Moreover, for next year's dividend (DS1) there are actually more negative than positive surprises. Thus, although we have no strong basis to suspect asymmetric pricing effects for dividend surprises, we test for this possibility by replacing DGROUP0 and DGROUP1 with separate variables for positive and negative dividend surprises.

Because of the high correlation between the dividend variables, our estimates of positive and negative dividend surprise effects are more reliable when DGROUP0 and DGROUP1 are estimated in separate regressions. Therefore, we reestimate regression (8) of Table V by substituting positive and negative dividend surprise variables for DGROUP0 as competing independent variables with EGROUP0 and EGROUP1 and we make a parallel substitution for DGROUP1 when reestimating regression (9) of Table V. These regressions reveal that neither good nor bad surprises about current dividends affect stock prices. The coefficient for positive surprises about next year's dividend is significantly positive whereas the negative surprise coefficient is not significant. In both regressions we find that the coefficients for EGROUP0 and EGROUP1 remain positive and significant. Thus these tests suggest that, if anything, there is an asymmetric response in the Japanese market to news concerning next year's dividend. As would be suggested by our method of defining surprises as deviations from analysts' forecasts, however, we find no evidence of heightened responses to bad news announcements as has been observed by researchers who defined surprises as deviations from last year's dividend.

Continuous versus Grouped Measures of Surprise. We repeat regressions (7), (8), and (9) of Table V using continuous measures of both dividend and earnings surprises. For dividends, we scale current year and next year's forecast surprises by the share price (as of the beginning of the calendar year) to create a change-in-dividend yield measure. Likewise for earnings, we scale current year and next year's forecast surprises by the share price to create a change-in-earnings yield measure; that is,

$$\text{DYLD0} = (\text{D0} - \text{FD0})/\text{PRICE}$$
$$\text{DYLD1} = (\text{D1} - \text{FD1})/\text{PRICE}$$
$$\text{EYLD0} = (\text{E0} - \text{FE0})/\text{PRICE}$$
$$\text{EYLD1} = (\text{E1} - \text{FE1})/\text{PRICE}.$$

The explanatory power of the continuous variables is slightly less than that of the grouped variables. For instance, when we regress excess returns against the four continuous surprise variables, the resulting R^2 is 0.125,

slightly less than the comparable figure of 0.141 in regression (7) of Table V. Because of multicollinearity between the dividend variables, we get the strongest results when the dividend variables do not compete as in regressions (8) and (9) of Table V. When these regressions are redone with the continuous variables, the coefficient for the current earnings variable is positive, but marginally significant at the 10 percent level. The results for current dividend, next year's dividend and next year's earnings are not qualitatively affected by the use of continuous variables.

Keiretsu Effects. One possible explanation for reduced pricing effects of both dividend and earnings announcements is that the Japanese keiretsu structure may allow market participants to learn about information prior to it being publicly announced. Many observers contend that the keiretsu structure allows many shareowners (other corporate members of the keiretsu) to have substantial ongoing information about a company's performance. If this information is known before management makes a public announcement, it could be argued that the observed pricing effects would be smaller for keiretsu firms than other companies.[17] An equally plausible counterargument, however, could be made that even if such information sharing is prevalent within a keiretsu, keiretsu firms seldom trade shares and hence their privileged information would not be impounded in market prices prior to management's public announcement.

To test for a possible keiretsu effect, we use 1991 data from *Industrial Groupings in Japan* (IGJ) to classify firms as keiretsu or nonkeiretsu companies. IGJ provides data on the percentage of a firm's shares held by others in a keiretsu group. We classify the firm as keiretsu if 30 percent or more of its shares are held by group members.[18] We introduce slope interaction terms on each of our dividend and earnings surprise variables as additional variables. If information effects are damped for keiretsu, we would expect the coefficients for these interaction terms to be significantly negative. As shown by the regression in Table VI, however, there is no strong evidence of different pricing effects for keiretsu firms. The interaction dummy is marginally significant ($t = -1.59$, $p = 0.11$) for EGROUP1, but none of the other interaction terms is significant. An F-test cannot reject the hypotheses that all four coefficients on the interaction terms are zero (F-value of 0.83, which is significant at only the 0.50 level).

Changes in Response over Time. Conroy et al. (1998) find that information effects of earnings in Japan (especially management forecasts of next year's earnings) change over time. They attribute this change to a larger role for

[17] See Dewenter and Warther (1998) and the references therein.

[18] Classification of a firm's membership in a group is complicated. Our approach using ownership data follows that of other work. See Dewenter and Warther (1998) and Kato et al. (1997).

Table VI

Regression Analysis of Abnormal Returns around Announcement Dates, Allowing for Differences in Keiretsu Firms

The dependent variable is the two-day abnormal return (in percent) starting on the day of management's announcement of dividend and earnings figures. The regression model includes 137 dummy variables (coefficients not reported) that allow for day-varying intercepts. Entries are estimated coefficients with t-values in parentheses. DGROUP0 takes on the value of -1 if the announced current dividend is less than the analyst forecast, zero if the current dividend matches the forecast, and $+1$ if the current dividend exceeds the forecast. DGROUP1 is defined analogously based on deviations of management's announced forecast of next year's dividend from the analyst forecast. EGROUP0 takes on the value of -1 if the announced current earnings figure is more than 10 percent below the analyst forecast, zero if current earnings are within 10 percent of the forecast, and $+1$ if current earnings are more that 10 percent above the forecast. EGROUP1 is defined analogously based on deviations of management's announced forecast of next year's earnings from the analyst forecast. DUMMY is assigned the value of one for keiretsu firms and zero otherwise. The sample consists of first section Tokyo Stock Exchange firms for the years from 1988 to 1993 in cases where the analyst forecasts a regular dividend only with no commemorative component (N = 3,245). Analyst forecasts are from *Toyo Keizai*, which is generally accepted by the Japanese security industry as the standard publication source for earnings and dividend forecasts.

DGROUP0	DGROUP1	EGROUP0	EGROUP1	DUMMY × DGROUP0	DUMMY × DGROUP1	DUMMY × EGROUP0	DUMMY × EGROUP1	Adjusted R^2
−0.155	0.416	0.347	1.115	0.029	−0.000	−0.082	−0.291	0.141
(−0.89)	(2.53)**	(2.27)**	(10.25)***	(0.08)	(−0.07)	(−0.29)	(−1.59)*	

*, **, and *** indicate significant difference from zero at the 0.10, 0.05, or 0.01 levels (two-tailed test), respectively.

fundamental information once the Japanese bubble market of the 1980s subsided. This raises the possibility that a current dividend effect has not surfaced in our tests because it is present in some years, but not in others.

To test for time dependency, we compare the explanatory power of a regression that allows coefficients to vary each year with a model that assumes a constant response coefficient for the six-year sample period. For these tests it is important to specify the independent variables (both earnings and dividends) such that they can distinguish between a change in the response coefficient itself and a temporary shift in the magnitude of information surprises coming to the market. To illustrate the problem, assume the stock price response to a given size of earnings surprise is constant over time, but that 1992 happens to have very large (relative to other sample years) positive current earnings surprises. Because EGROUP0 has a maximum value of 1.0, however, the EGROUP0 variable will not fully capture the larger size of the surprises in that year. Given this scenario, the regression coefficient for EGROUP0 in 1992 could be higher as a result of higher excess returns being linked to larger surprises rather than because of a change in the response function. Because this problem is created by the use of group variables, we use the continuous measure of surprise for the independent variables in the time-dependency tests that follow.

To test for time dependency, we use slope interaction dummy variables to allow response coefficients to vary year by year. The first test is designed to test whether the earnings response is time dependent. For this first test we reestimate regression (6) in Table V with the independent variables EYLD0 and EYLD1 defined as year-dependent variables. The time-dependent specification results in 12 independent variables: One variable for each year for EYLD0 and one variable for each year for EYLD1. The results of this regression are reported as regression (1) in Table VII.

All of the coefficients for the EYLD1 variables in Table VII are positive, and with the exception of 1989 they are also significant. The significance of the estimated coefficients for EYLD0 variables varies considerably from year to year. Three of the years exhibit significantly positive coefficients, but two years are not significant and 1991 has a negative coefficient that is significant. When the overall explanatory power of regression (1) in Table VII is compared to the results of a comparably specified regression without time dependence, an F-test rejects the null hypothesis that time-dependency adds no explanatory power to the specification ($F = 6.46$, $p < 0.01$). Thus, like the findings of Conroy et al. (1998), regression (1) in Table VII shows that earnings surprises are better modeled as time dependent, at least for our sample period of 1988 to 1993.

To test whether dividend effects are time dependent, we start with regression (1) as the base model. Because multicollinearity becomes more noticeable for these annual estimations, we add DYLD0 and DYLD1 variables separately for the time-dependence tests. For example, to test for time dependence of current dividend surprises, we first estimate a model by adding DYLD0 without time dependence to regression (1). The results of this re-

Table VII

Regression Analysis of Abnormal Returns around Announcement Dates, Allowing for Differences Over Time

The dependent variable is the two-day abnormal return (in percent) starting on the day of management's announcement of dividend and earnings figures. The regression models include 137 dummy variables (coefficients not reported) that allow for day-varying intercepts. Entries are estimated coefficients for individual years with t-values in parentheses. DYLD0 is the deviation of current dividends from the analyst forecast; DYLD1 is the deviation of management's forecast of next year's dividends from the analyst forecast; EYLD0 is the deviation of current earnings from the analyst forecast; and EYLD1 is the deviation of management's forecast of next year's earnings from the analyst forecast. All independent variables are scaled by beginning-of-the-year stock price. F-statistics compare the explanatory power of the time-varying model reported in this table with an analogously specified model without year dependent coefficients. The sample consists of first section Tokyo Stock Exchange firms for the years 1988 to 1993 in cases where the analyst forecasts a regular dividend only with no commemorative component (N = 3,245). Analyst forecasts are from *Toyo Keizai*, which is generally accepted by the Japanese security industry as the standard publication source for earnings and dividend forecasts.

Independent Variable		1988	1989	1990	1991	1992	1993	F-statistic
Panel A: Model with Earnings Surprise Variables only as Independent Variables								
(1)	EYLD0	0.12	0.84	2.37	−0.31	0.25	0.09	
		(0.49)	(2.19)**	(2.69)**	(−1.92)**	(2.03)**	(0.33)	6.46^{+++}
	EYLD1	0.98	0.09	2.36	1.42	0.86	0.61	
		(5.49)***	(0.62)	(6.21)***	(6.33)***	(5.21)***	(5.78)***	

Panel B: Model with Earnings Surprise Variables and Current Dividend Surprises as Independent Variables								
(2)	EYLD0	0.12	0.81	2.33	−0.30	0.25	0.10	
		(0.47)	(2.11)**	(2.62)**	(−1.87)**	(2.08)**	(0.37)	
	EYLD1	0.79	0.09	2.36	1.44	0.87	0.62	
		(5.53)***	(0.60)	(6.22)***	(6.47)***	(5.30)***	(5.93)***	0.50
	DYLD0	0.97	1.19	0.28	0.39	−1.73	−0.17	
		(1.28)	(1.49)	(0.20)	(0.55)	(−1.00)	(−0.12)	
	DYLD1	—	—	—	—	—	—	
Panel C: Model with Earnings Surprise Variables and Next Year's Dividend Surprises as Independent Variables								
(3)	EYLD0	0.13	0.85	2.42	−0.31	0.24	0.10	
		(0.52)	(2.21)**	(2.71)**	(−1.92)*	(2.00)**	(0.35)	
	EYLD1	0.99	0.09	2.36	1.41	0.84	0.61	
		(5.54)***	(0.62)	(6.21)***	(6.31)***	(5.11)***	(5.77)***	0.32
	DYLD0	—	—	—	—	—	—	
	DYLD1	0.05	1.37	1.35	0.85	1.85	0.45	
		(0.06)	(1.52)	(0.90)	(1.24)	(1.04)	(0.44)	

*, **, and *** denotes that the *t*-statistic is significantly different from zero at the 0.10, 0.05, or 0.01 levels (two-tailed test), respectively.
$^{+++}$ denotes that the *F*-statistic is significant at the 0.01 level.

gression are then compared to the results of adding six time-dependent DYLD0 to regression (1) in place of the single DYLD0 variable. The F-statistic is computed by comparing the explanatory power of the fixed-effect and the time-variant specifications. The same process is repeated for DYLD1.

Regression (2) in Table VII is the time-variant specification for current-year dividend surprises (DYLD0). The coefficients on the DYLD0 variables vary considerably year by year and are never significant. The F-statistic is only 0.50 and we cannot reject the hypothesis that time dependence adds no explanatory power. The analogous results for DYLD1 are reported as regression (3) in Table VII. Although all of the time dependent variables have positive coefficients, none is statistically significant. Moreover, when compared to a fixed-effect specification, regression (3) does not provide significant additional explanatory power ($F = 0.315$).

Similar to the findings of Conroy et al. (1998), regression (1) in Table VII shows that the response to earnings surprises varies significantly over time. For dividend surprises, however, we do not find that the time-variant specifications add significant explanatory power over a fixed-effect model. In sum, while Table VII does suggest time variation for the earnings response, the results do not change our earlier conclusion that current dividend announcements do not affect market pricing.[19] We also continue to conclude that the effects of management's forecasts of dividends, though significant, are not as pronounced as the effects of earnings forecasts.

VI. Conclusions

We use the unique circumstances of how dividends and earnings are announced in Japan to construct a much stronger test about the relative pricing effects of dividend and earnings information than has been available from U.S. studies to date. The simultaneous announcement by Japanese management of current dividends, current earnings, and forecasts of next year's dividends and earnings provides an ideal opportunity to test for their respective pricing impacts. Our findings suggest that, at least in Japan, earnings variables dominate dividends in their ability to explain share price movements. In particular, we find that the current dividend effect is never significantly related to announcement returns and management's forecast of next year's dividend has a small but significant effect on stock price. Our results are robust to a wide range of sensitivity tests.

We find the insignificant pricing effect of current dividends to be particularly notable. At a minimum, this result stresses the importance of constructing empirical tests with proper control variables. In a larger sense, the

[19] Our result suggests that the market finds no net value in current dividend information and it places no net value on the receipt of more cash flow; both the real and information effects of dividends are negligible. To the extent that dividends do have costs associated with them, we can only conclude that the real and information effects are offsetting on average. Without strong assumptions regarding such costs, however, it appears that little, if any, real or informational value is derived from dividend payments in Japan.

lack of a current dividend effect is consistent with Miller and Modigliani's original irrelevancy proposition: there is no evidence of either an informational or real cash flow effect of current dividends. Moreover, earnings information can apparently be communicated credibly via management announcements and forecasts without a need for current dividends as a signaling device. That management forecasts of next year's dividend also appear relevant for market pricing, though much less important than management's earnings forecasts, suggests that dividend forecasts convey some additional information about future corporate performance. Such dividend forecasts do not, however, have any direct cash flow consequences and hence their pricing effects are not inconsistent with Miller and Modigliani's dividend irrelevancy proposition. We realize that differences between the Japanese and other institutional settings lend caution to generalizations across different countries. Our results do suggest, however, that the pricing effects of dividend announcements are largely, if not entirely, due to earnings information.

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