

**DO FIRMS USE DIVIDENDS TO HELP INVESTORS
INTERPRET ACCOUNTING POLICY CHANGES?
EVIDENCE FROM LIFO ADOPTIONS**

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1. INTRODUCTION

The information content of dividend changes is well documented.¹ Research has also shown that dividend changes by corporations are associated with subsequent earnings changes (Carroll, 1995; Aharony and Dotan, 1994; Healy and Palepu, 1988).² Moreover, dividend changes convey supplemental information about a firm's current economic environment, such as earnings prospects (Leftwich and Zmijewski, 1994; Brown, Choi and Kim, 1994; Ofer and Siegel, 1987). These findings on the informational role of dividends raise an interesting research question: do managers use dividend policies to help investors interpret the "meaning" of their accounting policy changes?

The use of dividends as an information signal would seem particularly appropriate for firms considering the adoption of LIFO inventory method, because, in the absence of additional signals, investors might not be able to interpret the LIFO adoption as either good news or bad news. On the one hand, the LIFO change implies greater cash flows accruing to the firm due to tax benefits. On the other hand, a primary inducement to adopt LIFO is an inflationary environment affecting the firm's factor prices, and this might well be interpreted as generally "bad news" by the investor. The firm might be adopting LIFO in order to remove realized holding gains caused by inflation from the computation of taxable income, and thus to protect

¹References to this literature are given in section 2.

²Additional discussion of these papers is presented in section 2.

the firm from inflation-related tax penalty. Thus, a LIFO adoption decision is an acknowledgment of an upward trend or a greater variability of inventory prices. Hughes and Schwartz (1988) also suggest that LIFO adoption may be a signal of smaller future cash flows.

In sum, firms that adopt LIFO might fall into two groups: those that experience net adverse cash flow consequences due to rising input prices, and those that experience no net negative cash flow consequences, or even experience net positive cash flow consequences due to the mitigating effect of tax savings. Thus, a firm facing a LIFO adoption decision would have an incentive to convey through a dividend increase that the overall impact of the environment on the firm's cash flows is neutral or positive, and thereby distinguish itself from other firms for whom the overall cash flow impact of the inflationary environment is negative. This study examines whether dividend changes play such a role for firms in the year of LIFO adoption.

The methodology is to examine the effect of dividend policy of LIFO adopting firms on their annual abnormal returns, defined here as the excess over a corresponding market index's return, for the year of LIFO adoption, and to examine the effect of dividend change on the linear relationship between abnormal annual returns and unexpected earnings. The results support the conjecture that dividend policy is used by LIFO change firms as an effective tool to convey their underlying economic performance in the year of LIFO adoption. The annual market performance of LIFO change firms is strongly associated with changes in dividend policy: LIFO change firms not announcing a dividend increase (including firms not paying dividends) incur negative abnormal annual returns while firms announcing a dividend increase earn positive abnormal annual returns. Moreover, the regression of unexpected annual earnings with returns shows a stronger earnings response coefficient and large adjusted R^2 when LIFO adopting firms declare

dividend increases. By contrast, it is seen that the effect of dividend increase on the earnings valuation regression for a control sample of non-LIFO change firms is to *lower* the regression R^2 . These results suggest that market participants are able to interpret the information about a firm's LIFO environment more clearly when firms supply additional information in the form of dividend increases.

The rest of the paper is organized as follows: the next section summarizes previous research findings related to dividend policy and earnings information. Section 3 describes sample selection and the characteristics of firms making LIFO accounting changes and dividend changes. Results on annual returns versus dividend change are presented in section 4. The last section provides a summary and conclusions.

2. RESEARCH ON DIVIDEND CHANGES AND EARNINGS INFORMATION

It is well-known that dividend changes are associated with strong market reactions. Aharony and Swary (1980), Eades, Hess and Kim (1985), Kalay and Loewenstein (1985), Bajaj and Vijh (1995), and many others find positive excess returns for dividend increases and negative returns for dividend decreases. Asquith and Mullins (1983), Dielman and Oppenheimer (1984), Bajaj and Vijh (1990), and Bajaj (1992) find similar market reactions for special cases such as dividend omissions, dividend initiations, and large dividend changes.

Clearly, dividend changes convey information of some sort to the market. But what is the nature of this information? Many studies have examined this question. In particular, recent research has examined the hypothesis that dividend changes convey information about a firm's future performance, and has found a strong relationship between dividend changes and subsequent earnings changes. Healy

and Palepu (1988) find that firms that initiate dividends have positive earnings changes for one to two years afterward. Aharony and Dotan (1994) find a similar association between all dividend changes and subsequent unexpected earnings changes. Carroll (1995) and Ofer and Siegel (1987) find that revisions of analyst earnings forecasts following dividend changes are positively associated with dividend changes.

Dividend policy changes also change the firm's information environment so that the informativeness of subsequent earnings announcements is altered. Venkatesh (1989) shows that, when firms initiate dividends, the information content of subsequent quarterly earnings announcements decreases. A number of studies document a similar interactive effect of dividend change announcements on the market reaction to subsequent earnings announcements. Evidence from Aharony and Swary (1980) and Kane, Lee and Marcus (1984), and the theoretical analysis of Miller and Rock (1985) suggest a "corroborative" relationship between the two announcements, and in particular, that dividend announcements can preempt the information in subsequent earnings announcements.³

3. SAMPLE

LIFO Changes

The sample of LIFO accounting changes used here is a subset of the discretionary accounting change firms collected by Dharan and Lev (1993). They identified their firms using a variety of data sources covering the period 1979-89, including *Disclosure, Accounting Trends and*

³See also Brown, Choi and Kim (1994) for related discussion.

Techniques and the *National Automated Accounting Research System* (NAARS), available through Lexis/Nexis. Their sample was restricted to NYSE and ASE firms, and they excluded utilities and firms with multiple accounting changes in a year. With a few exceptions, they chose 1979 as the earliest selection year to exclude the extreme number of LIFO changes that occurred during 1974-76. Hand (1993) identified 821 firms adopting LIFO between 1974 and 1975, or an average of two LIFO adoptions per trading day. By contrast, Dharan and Lev's sample has only 87 LIFO changes over a ten-year period. To keep the effort for manual data collection (of dividend changes, LIFO announcements and earnings announcements) manageable, the latter sample is used here.

Table 1, Panel A, provides the distribution of the LIFO changes by year for this sample. The majority of the LIFO accounting changes took place in the high inflation years of 1980 and 1981. Fifty-four of the 87 firms, or 62 percent of the observations, come from these two years.⁴ By 1983, new LIFO adoptions had tapered off. Between 1983 and 1989, only two firms on average per year were adopting LIFO.

Control Sample

A random set of control firms that had no accounting changes, selected by Dharan and Lev (1993), is also used here to compare the dividend change characteristics and market reactions with the LIFO change firms. Due to the selection strategy used, the industry distribution of the control sample is similar to that of the LIFO change firms. Fiscal years for analysis were

⁴ This frequency of 27 LIFO adoptions per year during 1979-80 is still far below the 400-plus LIFO adoptions per year of the 1974-75 period.

randomly chosen. Panel B of Table 1 provides descriptive data for the LIFO change and no-change firms on mean sales, mean sales growth, and mean values of changes in reported and pre-accounting change earnings. Earnings were measured as the primary earnings before extraordinary items and discontinued operations, divided by the stock price at the beginning of the year.

The control firms (for the fiscal years examined) and LIFO change firms are similar in size, with mean sales of \$1.544 and \$1.698 billion respectively. The sales growth for both groups is also similar, with a mean of 13.5% for LIFO change firms and 11% for the control firms. Overall, LIFO change firms reported a mean growth in earnings (adjusted by beginning stock price) of 1.19% while the control firms reported an average of 0.74% growth. The earnings growth of LIFO change firms, however, would have been 3.54% if the change to LIFO had not been made. Nevertheless, the differences in size, sales growth or earnings growth between the two groups were not statistically different at the 10 percent level.

Dividend Change

Using Compustat Quarterly tape, *Moody's Dividend Record* and *The Wall Street Journal Index*, dividend announcements were examined for each sample firm to identify the dividend change, if any, in the year of the accounting change. The year of the LIFO change, rather than the subsequent year, is chosen as the relevant year because the objective is to examine whether dividends are used by managers as an information signal to clarify the economic environment underlying the LIFO change.

Dividend changes, if any, announced within the first three months of the accounting change

year were excluded because of the possible corroboration effect between such dividends and the previous year's earnings.⁵ Thus a firm was classified as having made a dividend change in the LIFO change year if it announced a dividend change in the last nine months preceding the annual earnings announcement date. A similar strategy was used for the control sample. Excluding the first three months proved not to be restrictive since very few firms announced dividend increases in the first three months after the annual earnings announcement while almost half of the dividend change announcements occurred in the last three months preceding the annual earnings announcement.

An alternative strategy of limiting the identification of the dividend changes to the quarter in which the firm made the decision to change to LIFO was explored but not adopted because of the limited number of sample firms for which the date of LIFO change announcement was available. Most firms do not announce the LIFO adoption separately and instead include the information only with the annual earnings announcement or only in the annual report. The difficulty of determining LIFO announcement dates is well noted in the literature. Using the *Value Line* as well as the *Wall Street Journal Index*, Ricks (1982) could find announcement dates for only about 40% of his sample.⁶ For the eighty seven sample firms studied here, the LIFO adoption was mentioned in the *Wall Street Journal Index* for only twenty-one firms. The LIFO announcement date preceded the annual earnings announcement date for thirteen of these

⁵See Kane, Lee and Marcus (1984). See, also, Chang and Chen (1991), Easton (1991), and Eddy and Seifert (1992).

⁶Using numerous other sources, Hand (1993) had more success in identifying the announcement dates of LIFO adoptions during 1974-76.

firms. Seven of the thirteen firms announced the LIFO adoption within a month preceding the annual earnings announcement. Two others announced within two months before earnings report. These data are consistent with the findings of Ricks (1982) who reports that about 80% of the 1974 LIFO change firms for which he could find the LIFO announcement dates announced the accounting change in the fourth quarter.

Only four of the thirteen firms announced dividend changes on or after the LIFO announcement and before the annual earnings announcement. Moreover, the dividend change classification would change for only two of these four if the period before the LIFO announcement date instead of the annual earnings announcement date had been used to identify dividend change.⁷ Four others did not change dividends throughout the accounting change year and the remaining five announced their dividend changes well before LIFO announcement. Therefore, their classification would also remain unchanged. In summary, LIFO announcement dates are difficult to identify, the dates (when available) are concentrated in the fourth quarter, and dividend changes are also concentrated in the fourth quarter. Thus, it appears reasonable to use the annual earnings announcement date and the nine-month period preceding it for identifying the dividend variable instead of the LIFO announcement date and the announcement quarter.

Table 2 presents the frequency of dividend changes (in Panel A), the mean percentage dividend changes (in Panel B), and firm characteristics by dividend decision (in Panel C), for LIFO change firms and for the no-accounting-change firms. Panel A shows that only 9% of the

⁷One firm announced a dividend increase on the same day it announced LIFO adoption.

LIFO change firms are non-dividend paying, compared to 41% for the random no-accounting-change sample. This difference in dividend paying policy does not seem to be an artifact of control sample selection. In particular, the difference cannot be due to firm size, profitability or industry distribution. More likely, the difference may be due to the fact that manufacturing firms facing incentives to adopt LIFO are older, inventory-heavy firms who pay dividends because of where they are in their life cycle. In any case, among dividend-paying firms, the distribution of firms announcing dividend increases or reductions or not changing dividends is remarkably similar between LIFO change and control firms. The magnitude of dividend changes is also quite similar for LIFO change and control firms, as can be seen from Panel B of Table 2: increases average 15.4% and 18.3%.

While there are some size and performance differences between dividend-increasing firms and other firms, as can be seen from Panel C of Table 2, the differences are not consistent between the various variables examined within the LIFO change firms. LIFO firms that increase dividends are considerably larger in size, with average sales of \$2.4 billion compared to \$1.4 billion for no-change firms. The eight firms that do not pay dividends are much smaller, with average sales of \$641 million. Among control firms, however, dividend-increasing firms are much smaller than no-change firms.

The LIFO change firms appear to be enjoying robust sales growth, with mean values of 23.1%, 9.3% and 31.1% for dividend-increase, no-change and non-paying groups, compared to only 7.6%, -1.3% and -6.4% for similar control firms. Part of the growth, however, may be attributable to the higher inflation faced by LIFO firms. Moreover, the larger sales growth of the non-paying firms may simply be an artifact of the smaller sales base of these firms.

In terms of earnings, while dividend-increasing LIFO change firms are clearly more profitable, they seem only about as profitable as the non-paying firms. Moreover, the no-dividend change LIFO firms are actually as profitable as the dividend-increasing control firms. In summary, the economic parameters such as sales growth and earnings vary considerably between the subgroups of LIFO change firms in such a way that it makes them insufficient to distinguish between the various groups. For the control firms, by contrast, sales growth and earnings growth are clearly higher for dividend-paying firms compared to other firms. This suggests that, for the LIFO change firms, the dividend change decision may have a stronger signaling role to play compared to the control firms.

4. RESULTS

Did the dividend change announcement by LIFO adopting firms make a difference to the market participants in interpreting the company's economic environment? To examine this issue, the annual abnormal returns for the LIFO change year is computed for the LIFO change firms that did and did not announce dividend changes.

Annual Returns and Dividend Changes

To compute the annual abnormal returns, market-adjusted monthly excess returns were first computed by subtracting the monthly return on the equally-weighted NYSE-ASE market index from the firm's monthly return. These monthly excess returns were then geometrically accumulated from month 4 of the year of the accounting change to month 3 of the following year to compute the annual excess return. The accumulation period is designed to allow for the

impact of the announcement of annual earnings data on the computed annual returns. Averages of the annual market-adjusted excess returns were then computed for various subgroups of the sample. Table 3 presents these data.⁸

When computing long-horizon returns such as annual excess returns, the selection of the benchmark market index to compute the excess returns becomes important. Given the significant size differences between the various subgroups classified by the dividend decision (as seen from Table 2, Panel C), the main methodological problem caused by the use of a market-wide index as benchmark is that returns could vary significantly across various firm-size groups, with smaller firms usually known to earn larger returns.⁹ Thus a market-wide index used as a benchmark to compute excess returns would overstate the excess returns for smaller firms and understate them for larger firms.

For LIFO change firms, since larger firms increased dividends and smaller firms did not, the differences in mean returns between these groups would therefore be reduced when market-adjusted returns are used, resulting in reduced statistical significance of the differences. Hence, in this study, annual excess returns were also computed using an alternative methodology in which the benchmark market return used for a firm is the average return of all NYSE-ASE firms belonging to *its size decile*. Table 3 presents these size-decile portfolio adjusted excess returns as well as the usual market-adjusted excess returns. As predicted, the T-ratio for the differences between dividend-increasing and no-change firms is higher for size-decile adjusted returns. The

⁸Firms with dividend cuts were excluded from the analysis in this and subsequent tables, because of the limited number of observations available.

⁹This so-called firm size effect, or the differential returns of small firms relative to large firms, has

following discussion therefore focuses only on the size-decile adjusted returns.

The results, in Table 3, for no-accounting-change firms show that firms that increased dividends had a mean size-adjusted annual return of 6.5%. Firms that did not increase dividends had a mean annual return of only 1.5%. The difference between the two groups, however, is not significant, with a t-ratio of only 1.19. Part of the reason is that firms that did not pay dividends also had positive annual excess returns of 4.0%. Thus, while the dividend increases for the control firms signified larger annual returns, the returns were not generally much higher than what could be obtainable from the average non-dividend-paying control firm.

By contrast, LIFO change firms that did and did not increase dividends differed more clearly in terms of observed mean annual excess returns. In particular, firms that did not increase dividends suffered a mean annual excess return of -5.0% while firms that increased dividends were credited with a mean excess return of 5.3%. The difference is significant at the 10% level. Moreover, the annual returns are negative both for dividend-paying firms that did not increase dividends and non-dividend paying firms. The results are consistent with the inference that LIFO adopting firms that perceive a net positive cash flow impact of their economic environment are able to signal this information to the market participants with dividend increases. The negative returns for non-dividend paying firms also mean that firms that pay dividends, and therefore can signal their economic status with a dividend increase, are in the best position to see a beneficial market impact from LIFO adoption.

Annual Returns, Earnings and Dividend Changes

been widely studied in the accounting and finance literature.

The data in Table 3 are aggregated across firms without controlling for differences in annual unexpected earnings. It can be seen from Table 2, Panel C, that the mean change in annual earnings (which can be viewed as a proxy for annual unexpected earnings) is higher for dividend-increasing firms than for other firms. Thus the results in Table 3 do not indicate whether the returns differ between groups because of the dividend signal or because of differences in unexpected earnings.

To study the impact of unexpected earnings, Panel A of Table 4 presents the results of the regression between annual returns and unexpected earnings, grouped by the type of dividend change.¹⁰ The regression for LIFO change firms is

$$R_a = a_1 + b_1 \text{dAE} + b_2 \text{AC},$$

where the independent variable, dAE, is the change in the annual earnings before the effect of the LIFO change, and AC is the earnings effect of LIFO change.¹¹ The dependent variable is the cumulative size-decile portfolio adjusted annual return. Both earnings variables were divided by the stock price at the beginning of the year, to facilitate cross-sectional comparison. The split-up of the earnings change variable into dAE and AC was done to determine whether the market interpreted the earnings impact of LIFO change (the coefficient on AC) differently for dividend increasing firms. However, the results in Table 4 would be unchanged if the reported earnings change is used instead as the single independent variable (as is done for the control firms and in

¹⁰As noted earlier, dividend cuts were excluded from the analysis because of the limited number of observations.

¹¹An alternative is to define dAE as the change in annual *reported* earnings (i.e., the earnings after the effect of the LIFO change). However, given the relatively magnitude of the AC variable, the results using this formulation are virtually identical to the results reported in Table 4.

Panel B regression described below). The coefficient b_1 in the above equation can thus be viewed as equivalent to the usual earnings response coefficient (ERC).

Instead of estimating the above valuation equation separately for dividend-increasing and other firms, as in Panel A of Table 4, one could include a dividend change variable as an independent variable in the regression and test for the significance of this variable, to assess the impact of dividend policy of LIFO firms on the annual returns. The regression is:

$$R_a = a_2 + b_3 dE + b_4 DIV \times dE,$$

where R_a is the annual size-decile portfolio adjusted return and dE is the change in earnings divided by the beginning-of-the-year price. The dividend change effect is represented by a dummy variable, DIV , with a value of 1 for firms with dividend increases, 0 for firms with no dividend increase (including non-dividend paying firms but excluding dividend cuts). The results of this regression are presented in Panel B of Table 4. The dummy variable is used in the multiplicative form, $DIV \times dE$, to help assess the impact of the dividend increase signal on the earnings coefficient (as opposed to the intercept term). Differentiating the above equation with respect to dE yields the earnings response coefficient term ($b_3 + b_4 DIV$). Hence, a positive and significant b_4 would be consistent with dividend policy improving the impact of earnings in the earnings valuation equation.

The regression results in both panels of Table 4 confirm the inference from Tables 2 and 3 that the ability to convey economic news through dividend increases is helpful for investors in evaluating the impact of LIFO accounting change on firms' performance. For LIFO change firms, Panel A regressions show that the adjusted R^2 for the earnings valuation regression is only 2.70% for no dividend change firms, while it increases to 30.82% for dividend increasing LIFO

adopters. The coefficient of earnings change, b_1 , is also substantially improved by the presence of the dividend increase signal. From Panel A, it is seen that the ERC is 1.45 for LIFO adopting firms that declared dividend increases and only 0.62 for firms with no dividend changes. Correspondingly, in Panel B, the coefficient b_4 for the dividend change dummy is positive and significant. The magnitudes of the estimated coefficients b_3 and b_4 show that the ERC is highly dependent on the dividend change policy, with over 65% of the total value of the estimated ERC for LIFO change firms coming from the beneficial effect of the dividend increase. The effect of the dividend change, thus, is to strongly increase the valuation impact of the annual earnings of the LIFO change firms, relative to firms that do not announce such a change.

The corresponding regressions for the control firms reveal that the adjusted R^2 is lower for firms with dividend increases, though the ERC coefficient b_1 for earnings changes is higher for firms with dividend increases than for other firms. (The coefficient b_4 is significant for control firms also.) The smaller R^2 for dividend increases of control firms is in marked contrast to the larger R^2 for dividend increases of LIFO change firms. Thus the improved explanatory power of the earnings valuation model for firms with dividend increases is a characteristic of LIFO change firms and not all firms.

The coefficient of the earnings effect of LIFO accounting change (b_2) is insignificant and thus not very informative in determining whether the market interprets the earnings effect of LIFO differently based on the prior dividend increase signal. The coefficient is, however, negative for firms with dividend increases, though insignificant, and positive for firms with no dividend changes. Since the earnings impact of LIFO is negative, the negative b_2 coefficient may be interpreted as weak support for the inference that dividend increases lead to a positive

assessment of LIFO's impact on the value of the firm. One implication of this inference is that studies such as Hand (1993) that examine the market reaction to LIFO announcement should consider the presence of prior signals such as dividend increases in interpreting how the market reacts to the LIFO news. Banker, Das and Datar (1993) provide some support for this view: they find that market reaction to stock dividend announcements is conditioned on the available firm-specific prior information, such as capital expenditures and regular dividend history.

Dividends Changes and Subsequent Annual Earnings Announcement

The result in Table 4 on the behavior of earnings and dividends for the control firms requires some additional discussion. There is evidence in the literature to support the results reported here for the control firms that a dividend increase announcement reduces the power of subsequent earnings to explain returns, though earnings remain valuable (as seen from the b_1 coefficient). Venkatesh (1989) examines the impact of dividend initiations on the information content of earnings, and reports that earnings in the post-initiation period play a lesser information role than pre-dividend earnings. The result in Table 4 for control firms also parallels the findings of McNichols and Manegold (1983) that a richer information regime (in the form of initiation of quarterly earnings reports in their study) reduces the power of annual earnings in explaining returns.

Do the results in Table 4, while conforming to these findings with respect to the control firms, contradict the above findings with respect to LIFO firms? The answer may depend on the fact that research on information environment such as Venkatesh (1989) and similar research on the corroboration between earnings and dividends such as Leftwich and Zmijewski (1994) and

Brown, Choi and Kim (1994) focus on earnings announcement dates rather than annual earnings as in Table 4.

To understand whether the dividend increase signal altered the interpretation of the preliminary annual earnings announcement in conformity with the above findings, size-decile adjusted daily excess returns were estimated for each LIFO change firm for the three trading days (-1, 0, +1) surrounding the preliminary annual earnings announcement date, and the returns-earnings regression was estimated for the earnings announcement event. Results are presented in Table 5 for the LIFO change firms. Consistent with the prior literature cited above, adjusted R^2 are -3% for firms that had announced dividend increases previously and +20% for firms that had no dividend changes. The overall R^2 of 6% is in line with similar estimation results in the literature for daily returns (Lev, 1989).

Summary

Table 5 is intended for the specific goal of examining the consistency between the results in Tables 3 and 4 and those of past studies that showed the negative effect of dividend increase announcements on the informativeness of subsequent earnings announcements. Table 5 results show that, for the LIFO change sample, the daily returns around the annual earnings do obey the findings from the prior literature. However, the focus of this study is the behavior of the annual returns in the year of LIFO change, presented in Tables 3 and 4. To summarize the findings in these tables, they show that the effect of a dividend increase signal on a typical firm is to reduce the power of the annual earnings valuation equation, while for the LIFO change firms it is the absence of a dividend increase that reduces the power considerably. The extremely low adjusted

R^2 for the LIFO change firms that did not increase dividends means that investors trying to interpret the firms' prospects find the firms' economic environment murky and confusing in the absence of a dividend increase signal.

5. CONCLUSION

The empirical results presented here show, generally, that dividend policy is an effective signaling tool for LIFO change firms, some of which use it to convey their underlying economic performance. The annual market performance of LIFO change firms is strongly associated with changes in dividend policy: those that do not announce a dividend increase incur negative annual excess returns while LIFO change firms announcing a dividend increase are credited with positive annual excess returns. The earnings response coefficient and R^2 from a regression of annual returns with unexpected annual earnings also show large increases for dividend-increasing LIFO change firms relative to those that do not increase their dividends. This is in contrast to the reduced R^2 usually observed in the earnings-return relationship when firms reveal information through other variables prior to earnings release.

The paper's results shed light on a LIFO change firm's motivations for dividend signaling and, consequently, on the market's ability to interpret a firm's LIFO change decision. The main motivation for a firm adopting LIFO to also announce a dividend increase seems to be the need to provide the market with clarifying supplemental information about its economic environment. It is known that LIFO-adopting firms are faced with variable prices for their inputs and a tax penalty on the consequent inflation-induced holding gains. LIFO-adopting firms also tend to have lower inventory turnovers, perhaps caused by slowing sales or by inventory build-up, and

higher marginal tax rates (Lee and Hsieh, 1985; Dopuch and Pincus, 1988). While the cash savings from LIFO adoption are "good news" to investors, the mix of economic factors leading to LIFO adoption and these cash savings thus presents a "mixed blessing" to investors. The results presented here suggest that LIFO change firms that adopt a dividend increase in the change year are able to signal to the market that even though they face variable factor prices and other potentially unfavorable economic developments, their cash flows are, on average, not affected negatively by the economic environment. Without the dividend increase, the market is unable to interpret the economic environment of the firm as advantageous to the firm's cash flows.

Previous studies on the market reaction to LIFO adoptions have been, on balance, "inconclusive" (Hand, 1993). Researchers have had difficulty, for example, in documenting positive average abnormal stock returns at the initial announcement of LIFO adoption, or at the initial LIFO earnings release. In resolving this impasse, Hand (1993) considers the role of the firm's public disclosures about LIFO adoption prior to LIFO announcement in influencing the market reaction to LIFO adoption. The results presented here suggest that other disclosures by firms such as dividend changes are also likely candidates for influencing market expectations.

Table 4 has interesting results for the sample of non-accounting change firms as well. While the results in Table 4 are generally consistent with those in the literature for the impact of dividend policy on earnings valuation, several additional avenues of research on this issue seem to be open. Lipe (1990) examines the effect of alternative information on the market valuation of accounting earnings, but his focus is on the predictability of future earnings. Brown, Choi and Kim (1994) examine the joint informativeness of dividends and earnings but their analysis

focuses mainly on information timing and firm size. A more general evaluation of dividend policy changes on the informativeness of earnings, in the spirit of Healy and Palepu (1988) and Venkatesh (1989), both of which examine only special cases such as dividend initiations, therefore merits future research.

REFERENCES

- Aharony, J. and A. Dotan. "Regular Dividend Announcements and Future Unexpected earnings: An Empirical Analysis," *Financial Review* (February 1994), pp. 125-151.
- Aharony, J., and I. Swary. "Quarterly Dividend and Earnings Announcements and Stockholders' Returns: An Empirical Analysis," *Journal of Finance* (March 1980), pp. 1-12.
- Asquith, P., and D. W. Mullins. "The Impact of Initiating Dividend Payments on Shareholders' Wealth." *Journal of Business* (January 1983), pp. 77-96.
- Bajaj, M. "Dividend Omissions and Forecasts of Future Earnings: Some Positive Evidence on Information Content of Dividends," Working Paper, University of Southern California (September 1992).
- Bajaj, M., and A. Vijh. "Dividend Clienteles and the Information Content of Dividend Changes," *Journal of Financial Economics* (1990), pp. 193-219.
- Bajaj, M., and A. Vijh. "Trading Behavior and Unbiasedness of the Market Reaction to Dividend Announcements," *Journal of Finance* (March 1995), pp. 255-279.
- Banker, R. D., S. Das, and S. M. Datar. "Complementarity of Prior Accounting Information: The case of Stock Dividend Announcements," *The Accounting Review* (January 1993), pp. 28-47.
- Brown, L. D., D. Choi and K.-J. Kim. "The Impact of Announcement Timing on the Informativeness of Earnings and Dividends," *Journal of Accounting, Auditing and Finance* (Fall 1994), pp. 653-674.
- Carroll, T. J. "The Information Content of Quarterly Dividend Changes," *Journal of Accounting, Auditing and Finance* (Spring 1995), pp. 293-317.
- Chang, S. J., and S.-N. Chen. "Information Effects of Earnings and Dividend Announcements on Common Stock Returns: Are They Interactive?," *Journal of Economics and Business* (May 1991), pp. 179-192.
- Dharan, B. G., and B. Lev. "The Valuation Consequence of Accounting Changes: A Multi-Year Examination," *Journal of Accounting, Auditing & Finance* (Fall 1993), pp. 475-494.
- Dielman, T. E., and H. R. Oppenheimer. "An Examination of Investor Behavior During Periods of Large Dividend Changes," *Journal of Financial and Quantitative Analysis* (June 1984), pp. 197-216.

- Dopuch, N., and M. Pincus. "Evidence on the Choice of Inventory Accounting Methods: LIFO Versus FIFO," *Journal of Accounting Research* (Spring 1988), pp. 28-59.
- Eades, K. M., P. J. Hess, and E. H. Kim. "Market Rationality and Dividend Announcements," *Journal of Financial Economics* (December 1985), pp. 581-604.
- Easton, S. "Earnings and Dividends: Is There An Interaction Effect?," *Journal of Business Finance and Accounting* (Summer 1991), pp. 255-266.
- Eddy, A., and B. Seifert. "Stock Price Reaction to Dividend and Earnings Announcements: Contemporaneous versus Noncontemporaneous Announcements," *Journal of Financial Research* (Fall 1992), pp. 207-218.
- Hand, J. R. M. "Resolving LIFO Uncertainty: A Theoretical and Empirical Re-examination of 1974-75 LIFO Adoptions and Nonadoptions," *Journal of Accounting Research* (Spring 1993), pp. 21-49.
- Healy, P. M., and K. Palepu. "Earnings Information Conveyed by Dividend Initiations and Omissions." *Journal of Financial Economics* (September 1988), pp. 149-175.
- Hughes, P. J., and E. S. Schwartz. "The LIFO/FIFO Choice: An Asymmetric Information Approach," *Journal of Accounting Research* (Supplement 1988), pp. 41-58.
- Kalay, A., and U. Loewenstein. "Predictable Events and Excess Returns: The Case of Dividend Announcements," *Journal of Financial Economics* 14 (1985), pp. 423-449.
- Kane, A., Y. K. Lee, and A. Marcus. "Earnings and Dividend Announcements: Is There a Corroboration Effect?," *Journal of Finance* (September 1984), pp. 1091-1099.
- Lee, C. J., and D. Hsieh. "Choice of Inventory Accounting Methods: Comparative Analyses of Alternative Hypotheses," *Journal of Accounting Research* (Autumn 1985), pp. 468-485.
- Leftwich, R., and M. Zmijewski, M. E. Contemporaneous Announcements of Dividends and Earnings," *Journal of Accounting, Auditing and Finance* (Fall 1994), pp. 725-762.
- Lev, B. "On the Usefulness of Earnings and Earnings Research: Lessons and Directions From Two Decades of Empirical Research," *Journal of Accounting Research* (Supplement 1989), pp. 153-192.
- Lipe, R. "The Relation Between Stock Returns and Accounting Earnings Given Alternative Information," *The Accounting Review* (January 1990), pp. 49-71.
- McNichols, M., and J. G. Manegold. "The Effect of the Information Environment on the

relationship between Financial Disclosure and Security Price Variability," *Journal of Accounting and Economics* (April 1983), pp. 49-74.

Miller, M., and K. Rock. "Dividend Policy Under Asymmetric Information," *Journal of Finance* (September 1985), pp. 1031-1051.

Ofer, A. R., and D. R. Siegel. "Corporate Financial Policy, Information, and Market Expectations: An Empirical Investigation of Dividends," *Journal of Finance* (September 1987), pp. 889-910.

Ricks, W. E. "The Market's Response to the 1974 LIFO Adoptions," *Journal of Accounting Research* (Autumn 1982), pp. 367-387.

Venkatesh, P. C. "The Impact of Dividend Initiation on the Information Content of Earnings Announcements and Returns Volatility," *Journal of Business* (April 1989), pp. 191-211.

TABLE 1
1979-89 LIFO Changes: Descriptive Statistics

Panel A: Distribution of LIFO Change by Year

1978	2
1979	9
1980	29
1981	25
1982	8
1983-89	14

Panel B: Characteristics of LIFO Change and Control Firms

LIFO change firms are compared to a control sample of firms with no accounting changes. Reported and adjusted earnings per share for each firm are divided by the beginning-of-the-year stock price per share. All data (except the number of firms) are mean values.

	LIFO Change Firms	No-Accounting- Change Firms
Number of firms	87	285
Sales (\$ millions)	1,698	1,544
Change in sales (%)	13.48	10.98
Change in earnings (%)	1.19	0.74
Change in pre-accounting change earnings (%)	3.54	N.A.

TABLE 2
Dividend Changes by LIFO Change Firms and Other Firms

Panel A: Frequency of Dividend Changes

The table has the number of firms in each dividend category and the percentages, for LIFO change firms and no-accounting-change firms.

	<u>LIFO Change Firms</u>			<u>No Accounting Change Firms</u>		
	Number	% of All Firms	% of Divid. Firms	Number	% of All Firms	% of Divid. Firms
Dividend increases	32	37%	41%	77	27%	46%
No change in dividends	45	52%	57%	85	30%	51%
Dividend decreases	2	2%	3%	5	2%	3%
Non-dividend paying firms	8	9%		118	41%	

Panel B: Mean Percent Change in Dividends

This table has the mean percentage change in dividends in each category. Means differences between LIFO change firms and control firms are not significant.

	LIFO Change Firms	No-Accounting- Change Firms
Dividend increases	15.4%	18.3%
Dividend decreases	-66.7%	-51.8%

Panel C: Firm Characteristics by Dividend Decision

All data (except the number of firms) are mean values.

	<u>LIFO Change Firms</u>			<u>No Accounting Change Firms</u>		
	Dividend Increase	No Change	Non-Paying	Dividend Increase	No Change	Non-Paying
Number of firms	32	45	8	77	85	118
Sales (\$ millions)	2,419	1,408	641	1,081	2,640	1,109
Change in sales (%)	23.11	9.26	31.15	7.56	-1.34	-6.40
Change in earnings (%)	4.08	0.38	3.50	1.82	0.38	-0.58
Change in pre-accounting change earnings (%)	5.95	2.53	8.33	N.A.	N.A.	N.A.

TABLE 3
Annual Returns and Dividend Changes

The table reports the mean cumulative annual percentage returns for month 4 of the year of the accounting change to month 3 of the following year. Cumulative returns of a firm are computed from its excess monthly returns. For market adjusted return, the benchmark to compute the excess monthly return is the monthly return on an equally weighted NYSE-ASE market index. For size-decile portfolio adjusted return, it is the return on a portfolio of firms in NYSE-ASE belonging to the same size decile. T-ratios are given in parentheses below the returns. The number of non-missing observations is given next to the returns.

	LIFO Change		No-Acctg. Change	
	<u>% Return</u>	<u>Firms</u>	<u>% Return</u>	<u>Firms</u>
<u>Market-Adjusted Returns</u>				
Dividend increase	4.36 (0.79)	32	4.57 (1.43)	77
No change in dividends	-4.48 (-1.60)	53	1.49 (0.56)	201
<hr/>				
T-Test: dividend increase firms vs no change in dividends (unequal variances)	(1.43)		(0.74)	
<hr/>				
No change in dividends (dividend-paying)	-4.63 (-1.48)	45	-2.27 (-0.88)	85
Non-dividend paying firms	-3.62 (-0.58)	8	4.25 (1.01)	116
<hr/>				
<u>Size-Decile Portfolio Adjusted Returns</u>				
Dividend increase	5.26 (1.03)	32	6.54 (1.99)	77
No change in dividends	-5.02 (-1.74)	53	1.53 (0.58)	201
<hr/>				
T-test: dividend increase firms vs no change in dividends (unequal variances)	(1.75)		(1.19)	
<hr/>				
No change in dividends (dividend-paying)	-5.14 (-1.60)	45	-1.85 (-0.74)	85
Non-dividend paying firms	-4.38 (-0.64)	8	4.00 (0.96)	116

TABLE 4
Annual Returns, Earnings and Dividend Changes

The dependent variable, R_a , is the cumulative annual return from month 4 of the year of the accounting change to month 3 of the following year. Annual returns are based on monthly excess monthly returns, computed against the monthly returns for a benchmark portfolio of firms in NYSE-ASE belonging to the same size decile. The independent variable for no-accounting-change firms is dE , the change in annual earnings per share. For LIFO change firms, the independent variables are dAE , earnings change excluding the accounting change effect, and AC , the earnings effect of accounting change. dE , dAE and AC are deflated by the beginning of the year stock price per share. DIV is a dummy variable with value of 1 for dividend increases and 0 for no dividend changes. T -ratios are given below coefficient estimates.

Panel A: $R_a = a_1 + b_1 dAE + b_2 AC$ (LIFO change firms)

$R_a = a_1 + b_1 dE$ (no-accounting-change firms)

Sample	Firms	Intercept a_1	Earnings Change b_1	Accounting Effect b_2	Adjusted R^2
LIFO Change Firms					
All firms	80	-0.0604 (-2.14)	1.0750 (4.11)	0.0616 (0.06)	0.1625
Firms with dividend increases	30	-0.0976 (-1.84)	1.4480 (2.90)	-2.2343 (-0.72)	0.3082
Firms with no dividend changes	50	-0.0608 (-1.79)	0.6218 (1.83)	0.3794 (0.36)	0.0270
No-Accounting-Change Firms					
All firms	250	0.0033 (0.197)	1.2833 (6.44)		0.1397
Firms with dividend increases	76	0.0245 (0.69)	2.2529 (2.76)		0.0812
Firms with no dividend changes	174	-0.0142 (-0.72)	1.1727 (5.80)		0.1589

Panel B: $R_a = a_2 + b_3 dE + b_4 DIV \times dE$

Sample	Firms	Intercept a_2	Earnings Change b_3	Dividend Change b_4	Adjusted R^2
LIFO change firms	80	-0.0550 (-2.49)	0.6097 (1.81)	1.0884 (2.00)	0.1932
No-accounting-change firms	250	-0.0040 (-0.23)	1.1775 (5.69)	1.3530 (1.80)	0.1474

TABLE 5
Dividend Changes and Subsequent Earnings Announcement

The dependent variable, R_d , is the three-day (days -1, 0 and +1) cumulative daily returns around the preliminary annual earnings announcement date. Daily excess returns are computed against the daily return for a benchmark portfolio of firms in NYSE-ASE belonging to the same size decile. dE is the change in annual earnings per share, deflated by the beginning of the year stock price per share. DIV is a dummy variable with value of 1 for dividend increases and 0 for no dividend changes. T-ratios are given below coefficient estimates.

Panel A: $R_d = a_1 + b_1 dE$

Sample	Firms	Intercept a_1	Earnings Change b_1	Adjusted R^2
LIFO Change Firms				
All firms	79	0.0040 (1.02)	0.1239 (2.59)	0.0684
Firms with dividend increases	31	0.0024 (0.33)	0.0213 (0.25)	-0.0322
Firms with no dividend changes	48	0.0091 (1.86)	0.2152 (3.57)	0.1997

Panel B: $R_d = a_2 + b_3 dE + b_4 DIV \times dE$

Sample	Firms	Intercept a_2	Earnings Change b_3	Dividend Change b_4	Adjusted R^2
LIFO change firms	79	0.0067 (1.66)	0.2098 (3.40)	-0.2116 (-2.13)	0.1093