THE RELATIONSHIP BETWEEN DIVIDENDS AND EARNINGS

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Abstract

   The relationship between dividends and earnings has long been a controversy to analysts and investors. Some studies on the subject provide evidence in support of a positive and significant causal relation from dividends to earnings. Theses studies support the view that higher dividend payouts signal an increase in future earnings. In this paper, we provide a critique of these studies and hypothesize that no significant relationship between earnings and dividend holds in the long run. We provide logical and empirical evidence in support of our hypothesis. We argue that empirical studies that conclude a causal relationship exists between earnings and dividends are based on short periods of time and are therefore misleading to potential investors. Our empirical analysis is based on quarterly data for the S&P 500 index over the 1988-2002 period and includes the Dickey-Fuller test, a simple regression test, and the Granger causality test.

Introduction

   The relationship between dividends and earnings remains an unresolved issue. According to some studies in the finance literature, dividends can predict future earnings. The objective of this paper is to present logical and empirical evidence regarding this proposition. Our hypothesis is as follows: dividends have no explanatory power to predict future earnings. We present four cases for possible effects of earnings on future dividends and illustrate that there is no significant relationship between dividends and future earnings in the long run. Applying regression analysis and the Granger causality test to quarterly earnings and dividends of S&P 500 index data over 1988-2002, we find strong support for our hypothesis. The contribution of this study is that it provides financial managers and investors with evidence that it is a mistake to base investment decisions on inferences about dividend/earnings relationships that rely on data from short-term periods. We recommend that investors analyze different possible relations between dividends and future earnings as illustrated in cases 1 through 4 in this paper before making their investment decisions.

Background

   Miller and Modigliani (1961) used logical analysis to explain firms' dividend policy. They asserted that in a perfect market, the value of a firm would be independent of its dividend policy and that a change in dividend policy would indicate a change in the management's view of future earnings. Benartzi, Michaely, and Thaler (1997) found limited support for the view that dividend changes have information content about future earnings of a firm. Using a linear regression model and data for 1025 firms, they found no evidence that dividends contain information about changes in earnings. They stated that "while there is a strong past and concurrent link between earnings and dividend changes, the predictive value of changes in dividends seems minimal." They

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concluded that if there was any information content at all, it was that dividends paid out were adjusted to reflect earnings increases in the previous years.

Mozes and Rapaccioli (1998) utilized data for 681 firms during the time period 1980-1990 and examined the relationship between dividends and corporate earnings. Regressing earnings on lagged dividends, they provided evidence that large dividend increases lead to a decline in future earnings and small dividend increases lead to an increase in future earnings. They further argued that if a firm reported a loss, a decrease in dividends would have to reach a certain amount before it provided enough information that the firm would continue to report a loss. Mozes and Rapaccioli suggested that the relationship between the dividend decrease and future earnings would not be positive and linear.

Kao and Wu (1994) used a time series regression analysis of 454 firms over the 1965-1986 period and showed that there was a positive relationship between unexpected dividends and earnings. They further concluded that the effectiveness of dividend signaling depends upon firm-specific characteristics. Carroll (1995) used quarterly data of 854 firms over the 1975-1984 period and examined whether quarterly dividend changes predicted future earnings. He found a significant positive relationship between earnings forecast revisions and dividend changes. More specifically, his results suggest that dividend increases were followed by an increase in future earnings and dividend decreases were followed by a decline in future earnings. Nissim and Ziv (2001) used annual data over the 1963-1998 period for firms that were listed on either the NYSE or the AMEX. They showed that dividend increases were directly related to future increases in earnings in each of the two years after the dividend change. However, their findings indicated that dividend decreases did not lead to future earnings decreases due to "accounting conservatism."

In this paper, we provide a critique of the above studies that conclude a relationship exists between current dividends and future earnings. We hypothesize that there is no long-term relationship between dividends and earnings. We present empirical evidence in support of our hypothesis. We conclude that empirical studies that suggest any causal relations between earnings and dividends are based on observations in some certain short periods of time and are therefore misleading to potential investors.

Empirical Analysis

The causal relationship from dividends to earnings suggested by some studies reviewed in this paper does not hold in the long run. In practice, while during some periods an increase in dividend payout may be followed by an increase in future earnings, during other periods such an increase may well be associated with declines in future earnings. As a result, no significant relationship between dividends and earnings is expected in the long run. The following cases should clarify this view.

Case 1: An increase in dividends in a certain quarter may be the result of good performance of a firm in previous quarters, which may well continue into future quarters. This is a case in support of a positive causal relationship between current dividends and future earnings that is suggested by the studies reviewed in this paper.

Case 2: An increase in dividends in a quarter may be the result of the management's policy to keep investors satisfied and prevent them from selling the stock at times when future earnings are expected to decline or current losses are expected to continue. A good example for this case is IBM's management decision to increase dividends when the company was continuously losing money in the 1990s. Such a decision was proven to be successful since most of IBM's

stockholders continued to hold the stock during difficult times. This is a clear case of rising dividends followed by declining earnings.

Case 3: An increase in dividends in a quarter may be the result of higher earnings in previous quarters that may not necessarily continue into future quarters. Frequently, corporations announce increases in dividend payouts as a result of abnormal and one-shot increases in earnings. These increased earnings may move back to lower equilibrium levels in future quarters. In this case, higher dividends would be associated with lower earnings.

Case 4: An increase in dividend payout in a quarter may lead to a decline in the funds that are to be reinvested by the firm and thus cause a decline in future earnings. Indeed, this is the main reason why many firms follow the residual dividend policy in which they pay dividends only after all their needs for reinvestment are met. In contrast, firms that pay high dividends without considering investment needs may experience lower future earnings. This would be a case in support of a negative causal relation from dividends to earnings.

In sum, a positive causal relationship from dividends to earnings in some periods (case 1) and a negative relation in other periods (cases 2, 3, and 4) would lead us to hypothesize that the overall long-term relationship should be insignificant. To test our hypothesis, we first perform the Dickey-Fuller test to determine if the time series data used for earnings and dividends are nonstationary. Next, we employ a simple regression test of current earnings on lagged dividends. Finally, we perform the Granger causality test of earnings and dividends. Our empirical analysis is based on quarterly earnings and dividends for the S&P 500 index over 1988-2002. The source of our data is: http://www.standardandpoors.com.

Table 1.
$Y_t = a + bY_{t-1}$, 1988-2002

Y	b	b's t-stat
Earnings Per Share	0.97	31.25
Dividends Per Share	0.89	17.70

To perform the Dickey-Fuller test, we ran two simple regressions of earnings and dividends on their lagged values. Table 1 displays the results. The t-statistics for slopes of lagged earnings and dividends (31.25 and 17.70, respectively) are significantly larger than the critical t value at the 95 percent confidence level, implying that both series are nonstationary. As a result, the regression tests will be applied to the first differences of these variables instead of their levels.

Table 2.
$\Delta E_t = a + b \, \Delta D_{t-I}$, i=1,2,6,8,10, 1988-2002

Lag	b	b's t-stat	R-squared	F-statistic	Durbin-Watson
Lag -1	-0.14	-0.33	0.002	0.11	1.63
Lag -2	0.14	0.32	0.002	0.10	1.65
Lag -6	.09	.13	.0004	.10	1.60
Lag -8	.09	.07	.0003	.01	1.64
Lag -10	.03	.001	.0001	.007	1.61

Next, we tested a regression model of current earnings on lagged dividends over the 1988-2002 period. To capture the short-term as well as long-term effects of dividends on future earnings, we carried out the tests to 1, 2, 6, 8, and 10 lags (3, 6, 18, 24, and 30 months). Table 2 displays the regression test results. The absolute values of the t-statistics for the estimated slope coefficients of all lags are significantly lower than the critical value of t at the 95 percent confidence level. Furthermore, these values become smaller (less significant) for longer lags. This implies that dividends have no explanatory power to predict future earnings in the short term or the long term over the 1988-2002 period. The observed low values of the F statistic and R^2 confirm this inference. These results support our hypothesis and provide evidence against the studies reviewed in this paper that conclude a causal relationship from dividends to future earnings.

Table 3. Granger Causality Test, 1988-2000

Question	F	Answer
Does DPS Granger Cause EPS	3.28	No
Does EPS Granger Cause DPS	0.67	No

Finally, we applied the Granger causality test to our data. The summary of the test results is displayed in Table 3. The small values of calculated F statistics (3.28 and .67) conform well to our hypothesis that no significant relationship exists between dividends and earnings.

Based on our empirical results, we believe studies that conclude significant positive or negative relationships between dividends and earnings are based on observations in some certain short periods of time and are therefore misleading to potential investors. We recommend that investors analyze different possible relations between dividends and future earnings as illustrated in cases 1 through 4 in this paper before basing their investment decisions on certain short-term relations between dividends and earnings.

Conclusion

Some studies that have been reviewed in this paper suggest that dividends can predict future earnings. The objective of this paper was to present logical and empirical evidence against these suggestions. Our hypothesis is that dividends have no explanatory power to predict future earnings. We presented four cases for possible effects of earnings on future dividends and illustrate that there should be no significant relationship between dividends and future earnings in the long run. Applying regression analysis and the Granger causality test to quarterly earnings and dividends of S&P 500 index data over 1988-2002, we found strong support for our hypothesis. The contribution of this study is that it provides financial managers and investors with evidence that it would be a mistake to base investment decisions on inferences about dividend/earnings relationships that rely on some certain short-term periods. We recommend that investors analyze different possible relations between dividends and future earnings as illustrated in cases 1 through 4 in this paper before making their investment decisions.

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