

The lagged relationship between earnings and stock prices

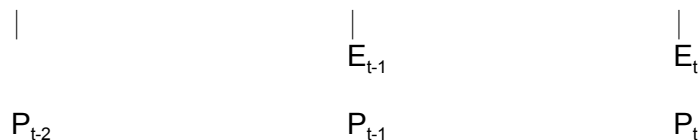
Kothari & Sloan, Information in prices about future earnings, *Journal of Accounting & Economics*, 1992, 143-171

1. Background

Ball & Brown 1968 examine the movement of stock prices around an earnings announcement. They measured returns from 12 months prior to the announcement.

In Beaver Lambert Ryan 1987 this is extended with a slightly different approach. They examine changing stock prices between earnings announcements. That is, they try to explain changes in earnings by the changes in the stock price over the same period. Furthermore, they find that the lagged stock price change is also a determinant of current earnings change as well as contemporaneous stock price change.

Specifically, Beaver Lambert Ryan find that



changes in prices between t-1 and t are significant in explaining the changes in earnings between t-1 and t, but that changes in prices between t-2 and t-1 are also a significant explanatory factor.

2. Kothari & Sloan

Kothari & Sloan carry on the work of Beaver, Lambert & Ryan and look at how current earnings is anticipated in prior stock price changes. This constitutes quite an important attack on the role of accounting numbers in company valuation. If information is impounded in stock prices before it is impounded in accounting numbers, then the role of financial statements is one of confirmation. This means that accounting is even more backward looking than we imagined! Current earnings only partly measures what is going on in the current year; moreover it also reflects what was known to the market in previous years. Accounting is restricted to a confirmation role.

This theme, of the lack of timeliness in accounting, is addressed later on in the literature by studies such as:

Basu, The conservatism principle and the asymmetric timeliness of earnings, *Journal of Accounting & Economics*, 1997, 3-37.

Hayn, The information content of losses, *Journal of Accounting & Economics*, 1995, 125-153.

These studies try to identify situations in which accounting numbers are not quite as untimely as Kothari and Sloan suggest.

I - THE BASIC MODEL

They estimate the equation

$$\frac{P_t}{P_{t-\tau}} = a + b \frac{X_t}{P_{t-\tau}}$$

The LHS of the equation = 1 + the return from t-τ until t

$$1 + \left\{ \frac{P_t - P_{t-\tau}}{P_{t-\tau}} \right\}$$

= 1 + the change in price between t-τ and t, scaled by share price at t-τ

The RHS of the equation = the earnings announced at time t deflated by share price at t-τ

Therefore the equation is trying to test whether earnings announced at t can explain share price movements from t-τ. The equation is estimated for about 2500 companies in each of the years 1950-1988, for τ=1,2,3,4 and the results are given in their Table 2

	τ=1	τ=2	τ=3	τ=4
Mean coefficient on earnings, b	2.56	4.69	5.08	5.45

All coefficients are statistically significant. This means that share price movements over the previous 4 years contain information about earnings announced at t.

II - ADDING MARKET MOVEMENTS, R_m

One improvement that may be made is to add the market return R_m over the period from t-τ to t. The rationale for this is that share returns between t-τ and t will be driven by the market factors as well as by firm specific earnings.

The results are in their Table 4.

	τ=1	τ=2	τ=3	τ=4
Mean coefficient on earnings, b	1.96	3.59	4.31	4.49
Mean coefficient on R _m	0.92	0.75	0.68	0.66

The result of this test is twofold. Firstly, the size of the coefficients are smaller. Secondly, the anticipation of earnings in share prices is reduced; the earnings coefficient for τ=4 is not much different from the coefficient for τ=3. The information in price changes over 4 years prior to the earnings announcement is not that different from the information in price changes over 3 years prior to the earnings announcement. The addition of the 4th year of price changes does not

make much difference.

The interpretation of this is that in the basic model, current earnings X_t is picking up explanations of security returns which are properly attributable to market factors. This arises because company earnings are themselves associated with market movements in previous periods. For example, if all companies are expected to do well in the future, the market will capture this prior to the realisation; also companies may have unexpectedly high (low) earnings when the economy has experienced a boom (slump) situation.

However, some caution is necessary. The coefficient on R_m declines to 0.66. For such a large number of stocks it should average out to approximately 1. This suggests that the assumption of a constant β over the test period becomes increasingly unrealistic as the test period is lengthened.