Predicting earnings with cash flows and accruals

1. Background

In a paper, Dechow, "Accounting earnings and cash flows as measures of firm performance: the role of accounting accruals", Journal of Accounting & Economics, 1994, it is shown that earnings have a stronger association with stock returns than do cash flows. The implicit rationale behind this is that earnings contain less noise than cash flows. The paper supports this with evidence about the first order autocorrelation coefficients shown in Table 2.

For both earnings and cash flow the autocorrelation coefficients are negative, implying that on average rises are followed by falls. However, the reversals for cash flow are far greater than for earnings. This is taken as suggesting that cash flows contain larger temporary components than earnings.

The Dechow paper concentrates on comparing the stock price association of earnings and cash flows. However, apart from the first order autocorrelations, there is less emphasis on *exactly why* stock prices should respond to earnings rather than cash flows. This aspect is considered further in

Richard Sloan, "Do stock prices fully reflect information in accruals and cash flows about future earnings?", Accounting Review, July 1996, 289-315.

2. The properties of cash flow and earnings

Sloan evaluates cash flow and earnings in terms of their ability to predict next period's earnings. The first equation looks at the ability of earnings to predict next period's earnings.

$$\text{Earnings}_{t+1} = \alpha_o + \alpha_1 \text{Earnings}_t + v_{t+1} \quad (1)$$

The drawback of this specification is that it gives equal weight to the accruals and cash flow components of earnings. In the next equation, the weights are allowed to vary.

$$\text{Earnings}_{t+1} = \gamma_o + \gamma_1 \text{Accruals}_t + \gamma_2 \text{Cashflows}_t + v_{t+1} \quad (2)$$

Findings:

In Panel A of Table 2, Sloan finds that

α_o	=	0.015	(t =	32.57)
α_1	=	0.841	(t =	303.98)

In Panel A of Table 3, the finding is that

γ_o	=	0.011	(t =	24.05)
γ_1	=	0.765	(t =	186.53)
γ_2	=	0.855	(t =	304.56)

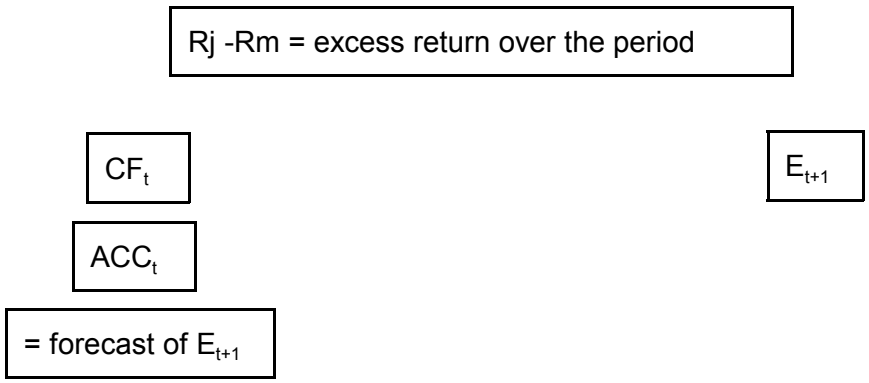
These results suggest that cash flow has more information about next period's earnings than accruals. But how is this consistent with the Dechow (JAE 1994) results that show that earnings outperform cash flows? Presumably the rationale behind the Dechow finding is that earnings contains accruals which contain information not contained in cash flow. Part of the Dechow evidence is that the first order autocorrelation coefficients are more negative for cash flow than for earnings:

> Table 2 (Panel A) of the article shows that the first order annual autocorrelations are:
>
> | | |
> |---|---|
> | Change in NCF | -0.523 |
> | Change in E | -0.175 |
>
> This is what is expected if NCF contains larger temporary components (more noise) than E.

How is this consistent with Sloan's finding? It should be noted that first order annual autocorrelations measure the ability of a variable to predict itself, one period ahead. Sloan results relate to the ability of cash flow and accruals to predict next period's earnings. Beyond this, the discussion is beyond our objectives here.

3. What does the stock market believe?

Is this property of cash flows recognised by the stock market?



From CF_t and ACC_t can be constructed a forecast of E_{t+1} at time t. Comparing this with the outcome E_{t+1} gives a surprise based on the known properties of CF and ACC. This surprise can then be compared with the market's surprise, as measured by the excess return over the period. From this comparison can be judged whether the market has expectation based on the known properties of CF and ACC.

Algebraically, this is shown as follows.

Define

ϕ_t	=	the information which is impounded in prices at time t
r_{t+1}	=	return between time t and time t+1
β	=	the response coefficient of returns to earnings
$r_{t+1} - r_{t+1}\|\phi_t$	=	the abnormal return between time t and time t+1 = the actual return less what is expected based on information at t

Then

$r_{t+1} - r_{t+1}|\phi_t = \beta$ (Earnings $_{t+1}$ - Expectation of Earnings $_{t+1}$, based on ϕ_t)

and we have a method of detecting what the market believes at time t.

We run the two equations:

$$\text{Earnings}_{t+1} = \gamma_o + \gamma_1 \text{Accruals}_t + \gamma_2 \text{Cashflows}_t + v_{t+1}$$

$$r_{t+1} - r_{t+1}|\phi_t = \beta (\text{Earnings}_{t+1} - \gamma^*_o - \gamma^*_1 \text{Accruals}_t - \gamma^*_2 \text{Cashflows}_t)$$

and in a rational market

$\gamma_o = \gamma^*_o$
$\gamma_1 = \gamma^*_1$
$\gamma_2 = \gamma^*_2$

Table 5 gives the results of the tests

γ_1 =	0.765	
γ_2 =	0.855	as in Panel A of Table 3
γ^*_1 =	0.911	
γ^*_2 =	0.826	

This suggests that in its estimation of future earnings, the market places too much emphasis on earnings and not enough emphasis on cash flows.

But one assumption here is that stock returns are a linear function of earnings, which is a simplification of what we know about security valuation from Ohlson's work. We do not know how sensitive the results are to alternative return specifications.