

Predicting cash flows with cash flows and accruals

These notes summarise the paper

Barth, Cram & Nelson, "Accruals and the prediction of future cash flows", Accounting Review January 2001, 27-58

1. Background

The Barth, Cram & Nelson paper (BCN) extends the debate on whether accruals serve a useful purpose. Recall that the intention of accruals is to smooth out cash flows so that performance is measured with less noise. However, the potential downside is that accruals may be managed by the company for its own purposes rather than to inform investors.

Previous work in this area is:

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

P M Dechow, "Accounting earnings and cash flows as measures of firm performance: the role of accounting accruals", Journal of Accounting & Economics, 1994, 3-42.

Both of these papers are summarised elsewhere on this www page.

2. The contribution

The BCN paper is different from Sloan in that:

- it is concerned with predicting future cash flows (rather than earnings as in Sloan) in line with the FASB's objectives for accruals¹ ;
- it decomposes accruals in to components in order to assess their relative importance

3. The results

I - HOW WELL DO CURRENT & PAST EARNINGS PREDICT CASH FLOW?

The first test they run is to see whether current and past earnings can predict future cash flows. The results given in their Table 2 are summarised below.

¹ The 1978 Statement of objectives of the FASB says that information about earnings and its components is generally more predictive of future cash flows than current cash flows.

Future cash flow explained by current and past earnings		
CF_{t+1} is explained by:	regression coefficient	t statistic
constant	0.06	68.83
E _t	0.33	27.47
E _{t-1}	0.08	7.03
E _{t-2}	0.07	5.47
E _{t-3}	0.06	5.32
		R ² = 0.18
Note: all variables are deflated by average book value of total assets		

As might be expected current earnings are the most informative, with a coefficient of 0.33. In addition previous values of earnings are important to a lesser extent; these past values probably contain information about the permanence of current earnings.

II - THE COMPONENTS OF ACCRUALS

Another key result is obtained by taking just the current earnings and decomposing it in to cash flow and the accruals elements. Below are summarised the results of BCN's Table 3.

Future cash flow explained by current cash flow and current accruals		
CF_{t+1} is explained by:	regression coefficient	t statistic
constant	0.01	7.89
CF _t	0.59	61.34
Δreceivables _t	0.42	28.1
Δinventory _t	0.35	21.75
Δpayables _t	-0.56	-28.58
Depreciation	0.42	16.39
Amortisation	0.47	11.05
All other	0.15	10.54
		R ² = 0.35
R² for other mixes of independent variables		
with CF only		R ² = 0.24
with E only		R ² = 0.15
Note: all variables are deflated by average book value of total assets		

When current earnings are decomposed, there are two interesting findings.

- 1 One is that the value of the coefficients vary across cash flow and accruals. For example, the Δreceivables_t is 0.42 whereas the Δinventory_t is 0.35. This means that different accruals make different contributions to the forecasting of future cash flows. Also worthy of particular note is the fact that the coefficient on cash flow is 0.59 compared with a value of 0.33 on earnings in the previous set of results. This implies that cash flow contains more information than earnings about next period's cash flow. This seems counter intuitive since earnings contain cash flow! However, it is the aggregation which does the damage; cash flow and accruals have different information about future cash flows, which is hidden by the aggregation process. This is similar to the finding of Sloan (1996) mentioned above.
- 2 The second is that the R² increases from 0.18 when current and past earnings are used to 0.35 when current cash flow and accruals are used. This again emphasises the differing nature of the components of earnings.

III - WHICH IS BEST, EARNINGS OR CASH FLOW?

An interesting finding of BCN shown in the Table above is that current cash flow by itself outperforms current earnings by itself in predicting next period's cash flow. The R² for current cash flow is 0.24, whereas for current earnings it is 0.15. This highlights the differing nature of cash flow from earnings which is due to accruals.

IV - COMPARISON WITH OTHER FINDINGS

The finding that the components of earnings have different information about future cash flows is similar to Sloan (1996), although his dependent variable is future earnings, not future cash flow.

However, a fascinating finding of BCN is that these differences are such that when accruals are added to cash flow, the aggregated figure (earnings) is *less informative* than cash flows. This aspect contrasts with previous studies, such as Dechow (1994) mentioned above, who finds that earnings outperform cash flows.

A potential explanation for this inconsistency is that in Dechow the predicted variable is current stock returns and not future cash flows. Indeed, when (in their Table 8) BCN perform the Dechow tests, they get the Dechow results. However, more on this below.

4. Discussion points

I - WHY FOCUS ON NEXT PERIOD'S CASH FLOW?

The main benchmark which BCN adopt for current cash flow and accruals is next period's cash flow. This seems odd. In many of the frameworks for setting accounting standards, the objective of measuring performance is to measure the sustainable cash flow from existing assets. The case for current earnings is that it contains less noise than current cash flow. Therefore it is strange to judge earnings by how well it predicts a noisier variable one period ahead.

The proper benchmark should be the cash flows over the horizon required by investors. However, this term is imprecise and researchers have to make it operational. The common benchmarks used in papers are:

- next period's earnings (as in Sloan 1996)
- next period's cash flow (as in BCN)
- current stock return, which should capture the market's beliefs about future cash flows (as in Dechow 1994)

II - THE PRESENT VALUE OF FUTURE CASH FLOWS

A more realistic benchmark to assess current earnings and cash flows is the present value of future cash flows. And this is what BCN report in their Table 8. They construct the present value of cash flows for the next three years as the benchmark and see how cash flows, accruals and earnings perform.

Present value of cash flow explained by current cash flow and current accruals		
PV(CF_{t+j}) j=1..3 is explained by:	regression coefficient	t statistic
constant	0.26	12.37
CF _t	5.65	37.27
Δreceivables _t	5.67	24.85
Δinventory _t	3.81	16.42
Δpayables _t	-2.98	-9.58
Depreciation	5.23	14.18
Amortisation	2.72	2.44
All other	1.97	8.60
		R ² = 0.30
R² for other mixes of independent variables		
with CF and total accruals		R ² = 0.20
with E only		R ² = 0.13
with CF only		R ² = 0.17
with accrual components only		R ² = 0.14
Note: all variables are deflated by average book value of total assets		

The results are similar to those previously :

- current cash flow has a larger coefficient than accruals
- the coefficients on the accruals terms vary widely
- Judging by the R² values
 - CF (0.17) outperforms E (0.13)
 - CF is more important than the accrual components (0.14)

One aspect of the results which needs some discussion is the finding that CF outperforms E. As mentioned above, this contrary to the Dechow (1994) finding, where the benchmark is current stock returns which should incorporate any changes in the market's beliefs about future cash flow. As mentioned above, when BCN perform the Dechow 1994 tests, they get the same results.

So how can the switching of results be explained? One possibility is related to the findings of Sloan (1996). He finds that although cash flow has more information than accruals, the market overweights accruals when predicting next period's earnings. Therefore, it is not surprising that the market overweights earnings compared to cash flows. However, the substance of the matter is that cash contains more information than earnings. This is contrary to the 1978 objectives statement by the FASB.