THE QUALITY OF ACCOUNTING INFORMATION

These notes are concerned with understanding the quality of accounting numbers. If the numbers are used for investment decisions, then investors should understand their characteristics. The headings used for the discussion are:

- The inherent uncertainty in accounting numbers and the audit process
- The incentives for managerial management of accounting numbers
- Identifying earnings management

The inherent uncertainty in accounting numbers

1. The materiality judgements of auditors

There are many inherent uncertainties in accounting numbers. For example, there may be a great deal of subjectivity over such aspects as depreciation rates, valuation methods and provision for bad debts. In this discussion, we shall concentrate, not on those items that are reported but, on those items that are *not* reported because they are deemed to be immaterial by the auditor.

Morris and Nichols, "Consistency exceptions: materiality judgements and audit firm structure", Accounting Review, April, 1988.

The paper by M&N tries to understand what drives a materiality decision, and how consistent the decision is across accounting firms, and how the decision is affected by the firm's audit structure (that is whether there is control from the Centre, say through a computerised expert system, or whether partners and managers are allowed flexibility to make their own decisions).

The issue investigated is SFAS 34 "Capitalisation of interest cost". Previously, companies charged interest cost to the P&L, but the standard allows companies to capitalise the interest under certain conditions. If the decision is made to capitalise, this is a change in accounting policy, which needs to be reported if material. Auditors will then say that “the accounting policies adopted are consistent with the previous year, except for the material changes”; this gives rise to the consistency exceptions analysed in the paper. This is a good opportunity to see what drives auditors' estimates of materiality.

Sample size = 334 having Big 8 auditor; for 127 the capitalisation was thought to be material, 207 not material.

In Table 1, M&N estimate the relationship between the materiality decision by auditors and certain ratios which might thought to be driving the materiality decision, such as Interest Capitalised (IC) to net income, IC to sales, IC to assets.

In general, for a given firm, the ratios for material judgements are larger than for immateriality judgements. For example, for IC to net income:

All firms:	IMM	MAT	Z score
	0.078	.221	9.42**
By firm:			
PMM	0.074	.140	3.86**
DHS	0.057	.246	2.55**

** means significant at 1%

In addition, the immaterial ratios do not differ significantly across firms (comparing 0.074 & 0.057 with the average 0.078); this appears to suggest that firms agree on the immateriality-materiality threshold.

In order to test, more effectively, if materiality judgements vary across Big8 firms, M&N estimate a logistic regression.

The dependent variable: DECISION

takes a value of 1 for when the IC was judged to be immaterial, and 0 for when the IC was judged to be material

Explanatory variables:

IC to net income, IC to sales, IC to assets.

Thus we can see how well the model captures the materiality decision. If the materiality judgements of auditors within firms are the same there should be a high correlation between the DECISION and the accounting variables. In the case of logistic regression, the Somers' D statistic captures the "correlation" between auditor's and the model's classification. The results are in Table 3, as follows.

Firm	Somers' D
PMM	.969**
DHS	.933**
TR	1.00**
AA	.960**
AY	.922**
EW	.619**
PW	.779**
CL	.669**

** indicates that the model explains a significant proportion of the decision.

Although the model explains a good proportion of the decisions, there appears to be differences between the firms: eg TR gets the classification perfectly right, whilst CL and EW are relatively poor. This suggests that the materiality decision may vary significantly across firms. Of course, as with most research results are never unambiguous; it is possible that the accounting variable may not adequately reflect materiality criteria.

But what might determine such variation? M&N hypothesise that the audit structure of the firm may be a cause; that is, the extent to which the firms allows discretion to the partners and managers. The firms in the table above are ranked in order of their audit structure, with PMM

having the strongest and CL the weakest (the scores were provided by the Auditing Standards Board). It seems that the goodness of fit of the model is related to the structure of the audit firm.

In Table 5, M&N give the percentage of cases correctly classified by the model for each firm.

	Cases judged by the auditor to be:	
	IMMATERIAL % of cases correctly classified by model	MATERIAL % of cases correctly classified by model
Firm		
PMM	96.7	91.7
DHS	87.5	93.3
TR	100.0	100.0
AA	93.8	94.1
AY	91.3	80.0
EW	81.0	75.0
PW	93.8	66.7
CL	88.0	53.3

The interpretation of this test can be seen in a 2x2 contingency table. The result below would represent a perfect match.

	Firm decision	
Model decision	Immaterial	Material
Immaterial	X	0
Material	0	Y

The results of the M&N suggest that reality is more like

	Firm decision	
Model decision	Immaterial	Material
Immaterial	X	Z
Material	0	Y-Z

That is, when firms classify an item as immaterial, this accords with the model. There are few instances of firms saying an item is immaterial when it is not. But they more often classify an item as material when it is not (according to the model) and this problem arises more in partnerships with significant partner discretion.

This evidence should be interpreted with some caution. The difference in materiality classifications between a simple statistical model and accounting partners may say something about the model, not about the partners. Furthermore, it may be those decisions which differ most from the model which reflect most about the economic substance of the situation.

The incentives for managerial management of accounting numbers

There are a number of reasons why managers may wish to manipulate accounting numbers.

1. Firm size

The larger the firm, the more likely they will investigated if they earn excess profits. There is an incentive to manipulate earnings downwards. This is the Political Costs Hypothesis in positive accounting theory.

2. Bonus plans

If executives are paid according to the performance of the company, they may manipulate the numbers. However, the direction of the manipulation is unclear. If they are far from the threshold performance they may prefer to delay the recognition of profits until a later period. If they are close to the threshold performance they may prefer to recognise revenues earlier and-or delay costs.

3. Debt covenants

When debt is raised, the debt holders normally protect their interests by inserting covenants to restrict the company raising further debt and thereby devaluing their claim on the firm. These covenants are normally based on accounting ratios such as the total debt to the equity reserves. This will give rise to incentives to manipulate such ratios.

4. Informing capital markets about permanent earnings.

There are incentives for managers of companies to inform capital markets. One case relates to permanent earnings . Managers may smooth earnings so that the market is not misled in to thinking that a temporary increase in performance is permanent. In addition, uninformative reporting will cause information asymmetry between company managers and shareholders; this may lead to an illiquid market in the shares and a higher cost of capital than otherwise.

Identifying earnings management

There is evidence that managers choose and change accounting policies in order to manage earnings. For example,

> Moses, “Income smoothing and incentives: empirical tests using accounting changes”, Accounting Review, April, 1987

attempts to show that earnings numbers can be managed by changes in accounting policies in order to bring earnings more in line with what the market was expecting. However, the management mechanism is rather clumsy. It is not a very subtle way of achieving management objectives and its success relies on the users of accounts not regarding the undoing of the numbers as cost effective. Therefore this type of work has diminished over time. Furthermore, others have claimed that accounting policy changes can actually be informative to investors about permanent earnings. An example of this type of research is

Bartov & Bodnar, "Alternative accounting methods, information asymmetry and liquidity: theory and evidence", Accounting Review, July 1996.

In view of these two factors, attention has shifted from accounting policy choice to the choices that can be made by managers *within* a given accounting policy. In particular, attention has focussed on accruals. Recall that earnings can be defined as:

Earnings = cash flow + ΔDebtors + ΔStock - ΔCreditors + capital purchases - depreciation

This gives rise to a number of ways in which earnings can be managed without an accounting policy change. For example, bad debt provisions or stock obsolescence decisions can be used to affect earnings.

There have been a variety of studies documenting such management. One of the earliest is

Jones, "Earnings management during import relief investigations", Journal of Accounting Research, Autumn 1991.

A paper which reviews this literature is discussed next.

Dechow, Sloan & Sweeney, "Detecting earnings management", Accounting Review, April, 1995.

1. The models used to detect earnings management

I - DEFINITIONS

TA_t = total accruals, the total adjustment to cash flow to derive accounting earnings

= $DA_t + NDA_t$

DA_t = discretionary accruals (such as stock write downs)

NDA_t = non discretionary accruals (such as an increase in Debtors due to increased trading)

The basic idea is to see if discretionary accruals change during particular conditions (for example, import relief investigations, merger periods, when managers are close to bonus thresholds, when companies are close to violating debt covenants). This is done by deducting non discretionary accruals from total accruals for the test period t.

$DA_t = TA_t - NDA_t$

Total accruals are observable but the non-discretionary component needs to be estimated. The basic problem here is that accruals will change with the nature of the business. For example: as the company expands or contracts debtors and creditors will change; if the company sells to a different clientele the amount of debtors may change and the amount of bad debt provision may change; as the company moves in to different markets the rate of stock obsolescence may change.

Therefore we need to get an estimate of non discretionary accruals in the test period t (NDA_t) on the assumption that the accruals of the company are driven by the same forces as in prior periods. Getting these non discretionary accruals correct is important, because if accruals cannot be explained by the company's activity, it is going to be assumed that the accruals are

discretionary and any unexplained change is going to be attributed to earnings management. For example, if the model is not able to capture company growth, accruals will be rising and it will be concluded that accruals are being managed upwards to improve earnings performance.

There have been various specifications. They all assume that in the periods prior to the one under investigation "t", there is no accruals systematic management [1].

II - THE HEALY MODEL

Healy,"The effect of bonus schemes on accounting decisions", Journal of Accounting & Economics, 1985.

NDA_t = the average of TA_{t-j} (j=1 .. n)
= the average of total accruals during the previous periods.

This assumes that all changes in accruals during the event period t from the average are discretionary.

III - THE DEANGELO MODEL

DeAngelo, "Accounting numbers as market valuation substitutes: a study of management buyout of public stockholders", Accounting Review, 1986, 400-420.

This is a special case of the Healy model with j=1; that is non discretionary accruals are last period's total accruals.

NDA_t = TA_{t-1}
= total accruals for the previous period.

Both the Heal and DeAngelo models are rather naive in that they assume that the firm is not changing during the event period. If for example, the firm is growing during period t, then non discretionary accruals will be larger, but the model will indicate that the discretionary accruals are increasing. This problem was dealt with by Jones.

IV - THE JONES MODEL

Jones, "Earnings management during import relief investigations", Journal of Accounting Research, Autumn 1991.

This model specifies that some change in non discretionary accruals should be expected during the event period.

The relationship between total accruals and its drivers is estimated before the event period using the following regression model.

$$TA_{t-j} = \alpha + \beta . \Delta REV_{t-j} + \gamma . PPE_{t-j} + e_{t-j} \quad \text{(for j=1 ... k)}$$

The drivers are (i) the change in revenue (ΔREV) which is a measure of activity and is intended to capture working capital items such as ΔDebtors, ΔStock & ΔCreditors and (ii) the level of plant property & equipment (PPE) which is intended to capture long term accruals such as

[1] In all the tests, the variables are scaled by lagged total assets.

depreciation.

These parameter estimates are used with measures of activity during the event period (ΔREV_t and PPE_t) to estimate non discretionary accruals during the event period.

$$NDA_t = \alpha + \beta . \Delta REV_t + \gamma . PPE_t$$

V - THE MODIFIED JONES MODEL

The problem with the Jones model is that ΔREV_t is included as part of the estimate of non discretionary accruals. But, if revenues are manipulated in the test period, then this will be included in the estimate of *non* discretionary accruals! That is, the earnings management will not be detected.

In order to combat this potential bias in NDA, Dechow Sloan & Sweeney suggest that only cash sales are considered. The nondiscretionary accruals are estimated

$$NDA_t = \alpha + \beta . (\Delta REV_t - \Delta REC_t) + \gamma . PPE_t$$

but notice that the coefficients are from the original Jones model. This seems rather draconian, since it implies that *all* sales on credit are the product of manipulation.

2. Type I errors and the power of the models [2]

They conducted tests on 1000 firm years and then examined the type I error, the probability that the null will be falsely rejected.

I - THE FULL SAMPLE

% of times when null is rejected (5% significance tests):

Null	Negative or no management	Positive or no management
Healy	5.0	5.1
DeAngelo	4.8	5.2
Jones	4.9	5.9
Modified Jones	4.9	5.9

These results given in Table 2 seem OK, but some small problem when then null is positive management. Specifically, the Jones & modified Jones models tend to find negative management when there is none; that is DA is too low and the NDA is (obviously) too high. A possible cause of this may be the assumed linear relationship between NDA and ΔREV, which captures the changes in working capital. If there are economies of scale in the use of working capital, then the assumed linear relationship will overestimate the NDA component and suggest negative management when none exists.

[2] Recall that a type I error is the probability of rejecting the null (of no earnings management) when it is true. The power of the model is the probability of rejecting the null when it is false.

II - VARYING EARNINGS PERFORMANCE

The full sample results are partitioned according to the size of earnings performance, and these results are given in Table 3. The important parts of the table are given below.

% of times when null is rejected (5% significance tests):

Null	Negative or no management	Positive or no management
Very low earnings performance		
Healy		25.9
DeAngelo		13.5
Jones		16.6
Modified Jones		17.6
Very high earnings performance		
Healy	12.8	
DeAngelo	9.5	
Jones	6.5	
Modified Jones	7.6	

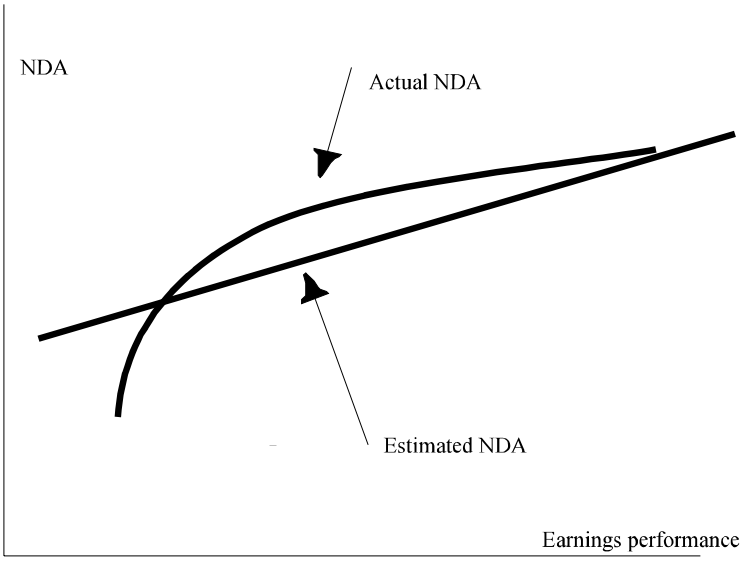
The results show that all the tests have serious problems at both ends of the performance spectrum and can be summarised in the following table:

Circumstances	**NDA**	**DA**	**Finding when no management exists**
very low earnings	too large	too small	negative
very high earnings	too small	too large	positive

When earnings are low, the tests suggest that there is negative management, since the estimate of non discretionary accruals is too large. Similarly, when earnings are high, the tests suggest that there is positive management, since the estimate of non discretionary accruals is too small. This means that the estimate of NDA does not move enough with earnings performance when there is no accruals management.

In the Healy and DeAngelo models the results are simply a reflection of the fact that the benchmark NDA does not move at all to reflect changing NDA in the test year. This is not surprising.

The problem with the Jones and Modified Jones models is consistent with the non linearity suggestion made before. At the lower end estimated NDA is too large; at the upper end of performance, estimated NDA is too small. This would also be consistent with greater problems at the lower end of the performance spectrum as reported in DSS table 3.



III - THE POWER OF THE TEST

Dechow et. al. also examine the ability of the models to find accruals manipulation when it is inserted in to the data. The power of the test is low; this means that the model of non discretionary accruals is capturing discretionary accruals so that it appears that accruals management is not taking place.

The results are given in their Figure 4. The Healy, Jones and Modified Jones all behave in much the same way. For example, for earnings management that is 10% of lagged total assets, in only 40% of cases do the tests indicate the presence of earnings management; only when management rises to 40% of lagged assets is the rejection rate around 80%. Given that company rates of return on assets are around 20% at best, earnings management is likely to be less than 10% of lagged assets. The upshot of this is that the earnings management which is likely to take place in practice is going to be very difficult to detect using these methods.

And there is worse news. The DeAngelo method (which specifies NDA_t as total accruals for the previous period) is even less effective than the other 3 methods.

IV - RESPONSES FROM OTHER RESEARCHERS

In response to the low power of accruals tests for earnings management, there have been two basic responses from other researchers.

1 Some have modified the accruals test to make it more powerful. The paper we shall summarise here is Peasnell, Pope and Young,"Detecting earnings management using cross-sectional abnormal accruals models", Accounting and Business Research, 30(4), Autumn 2000.

2 Others seem to have given up using the accruals detection technology in favour of

more general tests. However, they have concentrated on the situations in which earnings is likely to take place. The representative paper we shall summarise here is Degeorge, Patel & Zeckhauser, "Earnings management to exceed thresholds", Journal of Business, 1999

Peasnell, Pope and Young,"Detecting earnings management using cross-sectional abnormal accruals models", Accounting and Business Research, 30(4), Autumn 2000.

1. The contribution

The objective of this paper is to improve the accruals detection technology in a number of ways:

I - CONCENTRATING ON WORKING CAPITAL ACCRUALS.

PPY argue that deprecation is unlikely to be an efficient method of managing earnings. For example, if the assumed lives of a class of assets were increased to lower the depreciation charge there would be two problems. First, the management would be visible, and secondly it would be quite difficult to reverse when the management was no longer necessary.

In the discussion below we shall indicate that accruals relate to working capital as follows

$DA^W_t = TA^W_t - NDA^W_t$

II - MODELLING THE BEHAVIOUR OF ACCRUALS FROM A THEORETICAL BASE.

In the previous models, non discretionary accruals are modelled as

$NDA_t = \alpha + \beta . \Delta REV_t + \gamma . PPE_t$

Although there is some intuition behind the equation, it is fairly informal. The PPY paper makes a formal connection between working capital accruals and accounting quantities. The links are

$\Delta Stock = PUR - COGS$

where PUR is purchases of materials
COGS is cost of goods sold

$\Delta Debtors = REVC - CRC - BDE$

where REVC is revenue from credit sales
CRC is cash received from customers
BDE is bad debts expense

$\Delta Creditors = PUR - CPS$

where CPS is cash paid to suppliers

We know that $NDA^W_t = \Delta Stock + \Delta Debtors - \Delta Creditors$

$= PUR - COGS + \{REVC - CRC - BDE\} - \{PUR - CPS\}$
$= \{REVC - COGS - BDE\} - \{CRC - CPS\}$

The first term {REVC - COGS - BDE}, is the margin on sales. It is a reasonable assumption that all the terms are a linear function of revenue REV and therefore this part of accruals can be proxied by β_1. REV. Notice that in this specification, non discretionary accruals are a function of REV (the *level* of revenue) and not of ΔREV.

The second term {CRC - CPS}, is the cash contribution from cash collections from customers. It is the cash received from customers less the cash the company has had to pay for the supplies in order to fulfill the order. Assuming that CPS is linear in CRC we can proxy this by the term β_2. CRC. The value of CRC can in turn can be proxied by REV - ΔDebtors

The non discretionary working capital accruals model is then

$$NDA^W_t = \beta_0 + \beta_1 . REV_t + \beta_2 . \{REV - \Delta Debtors\}_t$$

III - USING CROSS SECTION ESTIMATES OF NON DISCRETIONARY WORKING CAPITAL ACCRUALS

In the prior models of non discretionary models of accruals, the parameters are estimated on a time series for each company. This makes significant assumptions about the stability of the model over time and also places considerable restrictions on the companies for which abnormal accruals can be estimated.

The approach in PPY is to use cross sectional estimates of the parameters based on the industry in which each company is located. Specifically, the following model is estimated on the relevant companies for a given period t.

$$TA^W_{t,i} = \beta_0 + \beta_1 . REV_t + \beta_2 . \{REV - \Delta Debtors\}_{t,i} + e_{t,i} \quad \text{(for i=1 ... n)}$$

The paremeter estimates are then used to construct the estimate of NDA^W_t in the previous section.

2. The results

The results are very encouraging. The Figure 1 in PPY gives the power functions[3] for three estimates of abnormal accruals: (i) standard Jones; (ii) modified Jones and (iii) the margin model. For expense manipulation the margin model is a slight improvement over the others. However, for bad debt and revenue manipulation the standard Jones and modified Jones are significantly superior to the margin model.

However, the really striking result is that *all* the models are much better than the time series versions of the two Jones models. For example as discussed above, Sloan, Dechow & Sweeney find that when earnings management is 10% of lagged total assets, in only 40% of cases do the time series tests indicate the presence of earnings management. In stark contrast to this, the PPY results indicate that the cross sectional tests give a power of at least 90% when earnings manipulation is 10% of lagged total assets.

The results indicate that cross sectional models are far superior to time series ones at detecting abnormal accruals.

[3] The power function measures the probability of detecting earnings management when it exists in the data.

Degeorge, Patel & Zeckhauser, "Earnings management to exceed thresholds", Journal of Business, 1999

1. The contribution

Like the accounting policy choice literature, accruals management papers take a clear view of the mechanism for management. In view of the low power of the time series tests of accruals the DPZ paper withdraws from specifying the exact method by which earnings management might take place. Instead they concentrate on showing *the effects* of earnings management [4].

Furthermore, they investigate particular settings which probably apply to all companies consistently throughout time. This contrasts with the occasional nature of other incentives such as bonus schemes and debt covenants which have been the subject of previous work. Their occasional nature is probably a contributory factor to the low power of the tests.

2. Management to sustain recent profitable performance

DPZ introduce 3 earnings benchmarks or thresholds that might be a concern to managers. They are:

making a profit;
maintaining the earnings level reached last year;
meeting the market's forecast of earnings (F_t).

They then plot the distribution of the current earnings with respect to each of these benchmarks or thresholds. Specifically, they plot

Variable	Threshold	Label
E_t	0	Earnings
$E_t - E_{t-1}$	E_{t-1}	Earnings change
$E_t - F_t$	F_t	Earnings surprise or forecast error

When examining the distribution, it appears that at the point zero (where earnings is equal to the threshold), there are too few items to the left of it and too many items to the right of it. This suggests that managers are not very keen to just miss the benchmark. DPZ speculate that when it appears that benchmark will be missed, managers manipulate earnings so that earnings just exceeds the benchmark.

The plot of earnings is in Figure 7. The plot of the change in earnings is in Figure 5. The plot of the forecast error is in Figure 6.

They also plot conditional distributions, and conclude that the order of importance of the thresholds is:

1 making a profit;
2 maintaining the earnings level reached last year;
3 meeting the market's forecast of earnings (F_t).

[4] Another paper in a similar vein is Burgstahler and Dichev, Earnings management to avoid earnings decreases and losses, JAE 24(1), December 1997.

3. Comments

The discontinuity of the variable around zero suggests that there is earnings management, but there are two key reservations to be made about this type of research.

1 How do we know what the distribution should look like under the null hypothesis of no earnings management? The tests assume that the distribution under the null will be smooth and that therefore any discontinuity around the benchmark is the result of manipulation.

2 Since we do not know the source of the supposed earnings management, this is another reason we might hesitate before concluding that it exists.

These two reservations are dealt with in the final paper to be reviewed.

Gore, Pope & Singh, Discretionary accruals and the distribution of earnings relative to targets, Lancaster Management School Working paper, January 2001.

1. The contribution

The basic idea in GPS is devastatingly simple. First, they obtain the DPZ result above of discontinuity in the distribution of earnings, earnings changes and analysts forecast errors (earnings surprises).

Then secondly, using cross sectional estimates of abnormal accruals, they then go on to show that the discontinuity does not exist after taking out the discretionary accruals. This makes a clear link between (i) the discontinuity studies of DPZ and Burgstahler and Dichev (1997) and the accruals manipulation literature.

2. The evidence

Earnings Note a				**Non discretionary earnings** Notes a, b	
	(1)	(2)		(3)	(4)
	Just below zero	Just above zero		Just below zero	Just above zero
Standardised difference	-3.516	1.942		-0.144	-1.144
p value	0.000	0.052		0.885	0.253
Earnings change Note a				**Non discretionary earnings change** Notes a, c	
	Just below zero	Just above zero		Just below zero	Just above zero
Standardised difference	-3.380	2.463		-0.538	-0.705
p value	0.001	0.014		0.590	0.481
Earnings surprise Note a				**Non discretionary earnings surprise** Notes a, d	
	Just below zero	Just above zero		Just below zero	Just above zero
Standardised difference	-3.442	21.225		-0.209	1.085
p value	0.001	0.000		0.835	0.278

Notes:

a: scaled by opening total assets

b: non discretionary earnings are earnings - DACC (discretionary accruals)

c: the non discretionary earnings change is the earnings change - DACC. This is the earnings change which would have been reported without the effect of DACC in the current period.

d: the non discretionary earnings surprise in the earnings surprise - DACC. This is the earnings surprise which would have been reported without the effect of DACC in the current period.

The above table captures the results of GPS. They show (in their Table 2, summarised above) that when considering the reported earnings (ie *with* the discretionary accruals) then there are too few observations just below the threshold (column 1) and too many observations just above the threshold (column 2). This is the DPZ result. The standardised difference statistic they use is based on the null hypothesis of a smooth distribution around the point zero, and is normally distributed. For example, for earnings changes below zero, the null hypothesis is rejected since

the test statistic is -3.380 indicating that there are too few observations. In contrast, for earnings changes above zero, the null is rejected in the opposite direction (too many observations) since the test statistic is +2.463.

These results are eliminated when considering the distributions of earnings with the discretionary accruals taken out. These results are given in column (3) and (4). The distribution of earnings around each of the benchmarks is smooth. The null hypothesis is nowhere near rejection. This suggests that accruals are used by companies to adjust their performance when they are in danger of not hitting a benchmark.

3. Further analysis

The analysis above shows that a discontinuity exists in reported earnings, but not once discretionary accruals have been taken out. However, this evidence is only suggestive of earnings management, since we do not know where the companies were on the distribution prior to the inclusion of discretionary accruals. The *implication* is that those companies which just beat the benchmark with reported earnings, just failed to meet it prior to the inclusion of discretionary accruals; but we do not *know* this from the above table.

This issue is investigated by GPS. They construct a transition matrix between the position on the earnings distribution and the position on the non-discretionary earnings distribution. This further analysis makes explicit that accruals are used for earnings management around the benchmark. For example, for the zero earnings benchmark:

Table which illustrates the movement of companies from (i) their position on the Non-discretionary earnings distribution to (ii) their position on the Reported earnings distribution

Reported earnings	E<=-0.1	-0.01<E<=-0.05	-0.05<E<=0	0<E<=0.05	0.05<E<=0.1	E.0.1	Total
Non discretionary earnings= Reported earnings less discretionary accruals							
-0.05<NDE<=0	47	82	207	550	261	88	1235
	4%	7%	17%	**45%**	21%	7%	100%
0<NDE<=0.05	20	49	166	957	755	170	2117
	1%	2%	8%	**45%**	36%	8%	100%

Note: Earnings are scaled by opening total assets

The first line shows what happens to companies which have non discretionary earnings in the category -5% to 0 (ie a small loss). It shows that 45% of them land up having reported earnings in the category between 0 and +5%. This result is unusual for two reasons:

- non discretionary accruals are zero on average, since they are the residuals from a regression model;

- the 45% figure is the same as companies which had non discretionary earnings in the category 0 to +5%