

SHAREHOLDERS' PAY-OUT-RELATED THRESHOLDS AND EARNINGS MANAGEMENT

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ABSTRACT: *We investigate the thresholds in net shareholder pay-outs (dividends, share buy-backs and issuances) of a large sample of UK quoted firms. Discretionary accruals are analysed at these thresholds in relation to earnings management. By examining distributions and using a robust test for discontinuities, we show the existence of thresholds at zero bins of variables in question. Additionally, by looking at differences in means and medians of discretionary accruals in sorted distributions, we find that they are statistically different from bin to bin in vicinity of previously identified thresholds.*

1. INTRODUCTION AND PRIOR RESEARCH

Earnings, as the primary performance indicator of a firm, can be managed with the intent of companies reaching expectations-set performance thresholds (Burgstahler & Dichev, 1997) meeting analyst forecasts (Degeorge, Patel, & Zeckhauser, 1999), satisfying certain contractual obligations or fulfilling liabilities stemming from borrowing activities. Earnings management is also observed around certain corporate events, for example stock offerings or acquisitions (Erickson & Wang, 1999) or in connection with managers' compensations and bonus schemes (Bergstresser & Philippon, 2006). Still, earnings management cannot only be seen in a negative light. Under certain conditions it may also be beneficial for owners – through application of manager's acquired expertise in forecasting earnings or not dismissing a hired manager (who is good-working) too fast (Arya, Glover, & Sunder, 1998) – or at least neutral in a way that decisions taken with managed earnings in consideration are the same as they would be had earnings not been managed (Ronen & Yaari, 2010).

Among factors, assuming managers' threshold reasoning and, consequently, the possible appearance of earnings management, is also a company's dividend policy. Dividend policy is determined by the company's management and, as there is no unique rule about the dividend policy, similarly efficient and successful companies can – and do – have different dividend pay-outs (Brigham & Ehrhardt, 2005). Miller & Modigliani (1961) proposed

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a model of dividend irrelevance where corporate value should not be related to pay-out policy in a perfect and frictionless capital market.³ Excluding taxes and transaction costs, investors should thus be indifferent between (cash) dividends and capital gains.

Historically, this has not been the case. Lintner's (1956) first study of dividend policy found that managers are reluctant to cut dividends and are willing to increase them only gradually after they are convinced of enough support of a higher level of dividends in the form of higher future earnings. Existing dividend levels thus act as a strong benchmark. In seeking to explain investor preferences for (cash) dividends, Shefrin & Statman (1984) put forward two explanations. Firstly, one of "self-control" where investors decide to consume only from dividends, not portfolio capital and are thus demanding dividends. Secondly, following Kahneman & Tversky's (1979) behaviour theory proposition that losses loom larger than gains, dividends are preferred by people who are averse to regret (a potential increase in share price had they sold their stock instead of receiving a dividend). The behaviourist view can also be a potential explanation for dividend decreases having a more negative market effect than dividend increases. If dividends and their levels present a benchmark for investors, market reactions to dividend changes, especially downward, are found to be substantial (e.g., Grullon, Michaely, & Swaminathan, 2002). Bhattacharyya (2007, pp. 9-10), for example, also provides a short overview of stylized facts on dividends.

A company's dividend policy can be affected by various factors such as market imperfections, behavioural considerations, firm characteristics or managerial preferences (Baker, Powell, & Veit, 2002). They differ in importance to individual firms, but they form the basis for possible earnings management. While the latter two factors include firm- and management-specific factors, the former two factors comprise broader aspects such as different tax treatment of dividends and capital gains, overcoming information asymmetries with signalling new or additional information and shareholder and investor clienteles that favour dividends in various degrees at various times (see Baker & Wurgler (2004) for a catering theory of dividends).

The distributional analysis and existence of thresholds was first suggested by Hayn (1995) who points out the discontinuity of earnings around zero in her study of the information content of losses.⁴ Building on this empirical irregularity, Burgstahler & Dichev (1997) show that firms manage earnings to avoid reporting losses or earnings decreases. They interpret low frequencies of small loss (earnings decline) observations and high frequencies of small profit (earnings increase) observations as a consequence of firms' active efforts to cross the loss (earnings decline) threshold what results in a migration of observations to the right of such divide as seen if a distribution is plotted. Assuming that without

³ DeAngelo & DeAngelo (2006) contested that pay-out policy is not irrelevant as put forward by Miller & Modigliani (1961) but their proposition was reconciled as having assumed different agency costs (Handley, 2008).

⁴ An interesting case of goal reaching behaviour research is also the analysis of Carlsaw (1988) who finds abnormal distribution of income numbers in financial statements with the bias tilting towards numbers just above multiples of powers of ten (i.e., $N \times 10^k$) as cognitive reference points.

earnings management the distribution of earnings would be fairly smooth, they test the documented asymmetry around zero (earnings or changes in earnings) thresholds.

Their findings are confirmed by Degeorge, Patel, & Zeckhauser (1999) who add another threshold of meeting analyst forecasts (i.e., avoid earnings surprises). Additionally, they establish a hierarchical order of the three with positive earnings threshold being predominant, followed by not falling short of previous earnings and lastly meeting analyst expectations. Critique of distribution analysis is based mainly on the effect of deflator and the sample selection procedure, both of which can have an effect on the resulting distribution (Durtschi & Easton, 2005). If the deflator differs systematically between profit and loss firms it can move the scaled observations towards or away from zero, what is most commonly the case when scaling by market price, but also found for other deflators (Durtschi & Easton, 2009). Alternative explanations of the discontinuity include asymmetric effects of taxes and special items that also contribute to observed shapes of distributions (Beaver, McNichols, & Nelson, 2007).

We therefore study thresholds and earnings management from the standpoint of attaining (expected) pay-outs to investors as earnings levels are often directly or at least indirectly connected to the pay-outs, e.g., in companies with fixed pay-out ratio policy or linked to various contractual obligations that set limits on pay-out possibilities. The first study in this area is the analysis of Finnish companies that managed earnings to ensure constant dividend pay-out to large institutional investors who prefer stable dividends (Kasanen, Kinnunen, & Niksanen, 1996), whereas, in the US, Daniel, Denis & Naveen (2008) have shown that firms manage earnings upward to reach expected levels of dividends (defined as last year's dividend) when they expect they would otherwise fall short of it, proving they are important thresholds for managers. Similar findings are reported by Atieh & Hussain (2012) for UK. They show that earnings may be managed by firms which also try to avoid a decrease or even elimination of dividends and show a concern for coverage ratios, but the pressure is lower for larger firms which face less restrictive debt covenants. Debt covenants can impose restrictions on dividend payments if the financial position of the firm does not appear adequate. Moir & Sudarsanam (2007) report three quarters of firms in their study to have covenants attached to debt contracts. Another recent study by Bennet & Bradbury (2007) proposes dividend cover to be considered as a threshold as firms are likely to manage earnings to avoid cutting dividends, i.e., keeping them at least at their prior year's values.

A comprehensive survey of CFOs by Brav et al. (2005) shows that managers are willing to go great lengths to avoid a dividend cut but increases in dividends are a second-order concern. The authors also observe that share repurchases have become an established alternative pay-out instrument to dividends. However, they do not convey the same signals about companies' future behaviour or performance. Dividends are seen as a more permanent commitment to provide shareholders with a reasonably stable cash flow, whereas repurchases (particularly the ones on a discretionary and non-constant basis) are viewed as more flexible. Repurchases would now be the primary choice of many firms had their dividend history not existed. Interestingly, little support is found for the signal-

ling hypotheses, that is, not many managers state they are paying dividends to convey a company's true state (future prospects) or to intentionally separate them from competitors. Taxes are also not a primary concern in deciding about the payment/increase of dividend or in choosing between them and repurchases.

Repurchases are gradually replacing dividends as the primary pay-out method with higher correlation to possible swings in earnings levels (with a shorter lag than for dividends). Skinner (2008) reports that firms which pay dividends only practically do not exist anymore. Other research has also found a decline in dividends paid by US listed firms, attributing it to both different firm characteristics and lower propensity to pay in general (Fama & French, 2001). Contrary to the latter, Grullon & Michaely (2002) find repurchases to be important in substituting dividends and US corporations financing them with funds that would have been otherwise used for dividend increases. What further motivates our research is a finding of Hribar, Jenkins & Johnson (2006) who assert that share repurchases are used by some companies to reach analysts' earnings per share forecasts. This implies that repurchases might be viewed as a possible earnings management tool.

In this paper we analyse a UK sample with focus on three theoretically possible shareholder-related cash flows.⁵ Next to dividend pay-outs we also consider share repurchases and issuances of new shares, where the company is receiving funds from investors, resulting in a "negative" pay-out to shareholders. As these three shareholder-related cash flows might all be broadly regarded as dividend (pay-out) related decisions, we investigate the existence of thresholds in all three cases. This view is in line with Ohlson's (1995) valuation model that confirms Miller & Modigliani (1961) value displacement property as dividends are paid out of book value and consequently reduce market value on an one-for-one basis rendering dividend policy irrelevant. Ohlson's model allows (requires) negative net dividends, i.e., capital contributions (share issuances) exceeding pay-outs.

As accruals, and more precisely their discretionary component, are often associated with lower earnings quality and possible earnings management, (e.g., see Dechow, Ge & Schrand (2010) for an overview) we are also interested to what extent discretionary accruals are present at the hypothesized pay-out thresholds. Although Yong & Miao (2011) find that dividend paying status is associated with the quality of earnings in general, they also find that the association is stronger when dividends increase in size. Therefore, inspecting the margin of dividend payment or dividend increase would be informative since firms potentially having difficulties in reaching these thresholds could still make use of discretionary accruals to arrive to them.

H1: Companies attempt to reach thresholds of net shareholders pay-outs, which results in breaks in distributions of net shareholder pay-outs.

H2: Thresholds are associated with significant discretionary accruals levels.

⁵ Beginning of section 3 (*Sample selection and description*) explains our choice of the UK market.

This study helps to determine if repurchases and new share issuances, although not typically regular events, affect the pay-out level targeted by the management. This would broaden the perception of flows that are viewed as important in setting companies' dividend policy. In the process, a robust test of discontinuity of distribution is used (Garrod, Ratej Pirkovic, & Valentincic, 2006). Moreover, discretionary accruals as a proxy for earnings management are analysed in relation to the pay-out levels.

The remainder of the paper is structured as follows. Section 2 presents the research design employed in our analysis, followed by sample selection and data description in the next section. Section 4 presents main empirical results and section 5 reports additional tests. Section 6 concludes.

2. RESEARCH DESIGN

We begin our investigation by constructing the variables representative of pay-out-related thresholds. Typically, dividend pay-outs are investigated, either in their total amount or as change from year to year, both relative to opening total assets to account for size differences among firms. We denote DIV as the ratio of dividends to lagged total assets and D_DIV as the ratio of change in dividends from the previous year to the current year, scaled by lagged total assets. The variable D_DIV_DIV scales the dividend change from the previous year to the current year by previous year's dividends level to get a variable representing relative yearly pay-out changes.

We calculate net shareholder cash flows as the sum of all cash flows investors might be dealing with, i.e., dividends received plus stock repurchases (as positive cash flows from the company to shareholders) less any share issuances in a given year (negative cash flows from shareholders to the company):

$$\text{net shareholder cash flows} = \text{dividends} + \text{share repurchases} - \text{share issuances}$$

Analogous to the dividend variables above, $NSCF$ denotes the ratio of net shareholder cash flows to lagged total assets, D_NSCF scales yearly changes in net shareholder cash flows by lagged total assets and D_NSCF_NSCF is the change in net shareholder cash flows scaled by its lagged value. We also calculate and perform initial analyses on the scaled sums of dividends and stock repurchases only but, as dividends are highly dominating this sum, the results do not differ in any important way from dividend-only findings and offer no incremental insights. This part is therefore not investigated further in this paper.

Variables as defined above are then distributed into bins of widths 0.005 for total assets scaling and 0.01 for pay-out scaling.⁶ That corresponds to forming groups that contain

⁶ These bin widths were selected for both, comparability with prior research investigating distributions, although of different analysed and scaling items (Burgstahler & Dichev, 1997; Durtschi & Easton, 2005; Bennet & Bradbury, 2007) and ease of interpretation. As setting the bin width can have a huge effect on the histogram

observations with values within 0.5% of lagged total assets or 1% of lagged pay-out. These increments are also used for all subsequent bins. Bin widths for pay-out scaling are twice as big as for total assets scaling because the latter are much larger in absolute value and their use as a denominator results in much smaller ratios that have to be presented with higher accuracy to prevent artificial “histogram over-smoothing” (Scott, 1979). All bins are defined to include lower bound as we want the central bin to include observations with zero and small positive values and exclude the upper bound. Although debatable, we consider zero (as the scaled amount, or change, where applicable) as the first non-negative signalling value and thus the threshold to investigate. The so-called “zero bin” is therefore defined as including x if $0 < x < 0.005$ or $0 < x < 0.01$ in the case of scaling the variables by lagged pay-out. We also draw attention to the distinction between the terms used in subsequent analysis. The terms central bin, zero bin and bin(0) all denote the first bin of the distributions immediately to the right of zero, containing smallest positive scaled observations and the exactly-zero observations at its lower bound. The bins further to the right are denoted as bin(1), bin(2), etc., and bins further to the left are denoted as bin(-1), bin(-2), etc. We use the expressions zero observations, zero values or zeros to denote observations in the central bin for which the values of the variables analysed exactly equal to zero.

We plot histograms for all variables in this paper, with and without zero values. We do so because we expect a large number of observations to have the value of zero (either no dividends are paid out or the dividend level is the same as in the previous year, resulting in zero change) and we investigate whether zero values are predominant in threshold-attaining behaviour or does this behaviour exist without zeroes as well. Furthermore, a visual inspection of the distributions might reveal other potential points (bins) of interest that would be investigated further.

To formally test our assumption that zero bins in dividends and net shareholder cash flows are a valid and valuable threshold for companies, we employ a robust test for discontinuity of a distribution proposed by Garrod, Radej Pirkovic & Valentincic (2006) – henceforth GRPV test – which requires no strict assumptions about the underlying distribution that one is testing. Requiring an assumption of normality in the test statistic was a shortcoming that accompanied (dis)continuity of distribution tests applied thus far in the literature, e.g., in Burgstahler & Dichev (1997). Developed with earnings-management applications in mind, the GRPV test is especially reliable in samples with more than 5,000 observations, a number that we easily exceed in our analysis.

being constructed (Wand, 1997), we considered various alternative widths in the process. While the software suggested widths for histograms of intervals in the following section were between 0.0045 and 0.0048 for total assets scaling and between 0.010 and 0.011 for pay-out scaling, various optimal bin width formulas (Scott, 1979; Wand, 1997; Garrod, Radej Pirkovic & Valentincic, 2006) produced a span of results. These ranged from widths of below 0.001 using Freedman-Diaconis' formula ($h = \frac{7.4 \cdot \sigma_n}{3 \cdot n^{1/3}}$) to over 100 using the Sturges' rule ($h = \frac{\max - \min}{1 + \log_2 n}$), also dependent on the variable. The latter widths were drastically reduced to 0.400 or less if outliers at 1% were removed before the calculation. Suggested bin widths obtained using the Scott's formula ($h = 3.49 \times \sigma n^{-1/3}$) were between the two extremes.

The GRPV test statistic τ , derived from Chebyshev inequality, is computed as follows in equation (1) below, while assuming independent events gives us the inputs $E(X) = N \times p$ and $\text{var}(X) = N \times p \times (1 - p)$, where N is the total number of observations in the sample and p is the probability that an observation will fall into interval (i), primarily computed as an average of two adjacent intervals: $p_i = \frac{X_{i-1} - \tilde{X}_{i+1}}{2N}$.

$$\tau_i = \frac{\tilde{X}_i - E(X_i)}{\sqrt{\text{var}(X_i)}} \quad (1)$$

where \tilde{X}_i is the actual number of observations in interval (i). Values of the test statistic are tabulated in Garrod, Radej Pirkovic & Valentincic (2006) and a break in the distribution at interval i is identified at standard significance levels of 10%, 5% and 1% corresponding to absolute values of the τ statistics of 3.16, 4.47 and 10.00 respectively.

We are also interested in the role accruals have at the hypothesized thresholds and in particular the discretionary component of total accruals. We use the modified Jones model (Dechow, Sloan, & Sweeney, 1995) to estimate non-discretionary accruals which we then use to determine the discretionary component of accruals as the difference between estimated values and total accruals. Firstly, total accruals are computed as:

$$TACC = (\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - Dep_t) / TA_{t-1} \quad (2)$$

where ΔCA_t is the change in current assets, ΔCL_t is the change in current liabilities, $\Delta Cash_t$ is the change in cash and cash equivalents, ΔSTD_t is the change in short term debt, Dep_t are depreciation and amortization charges and TA_{t-1} are lagged total assets. The modified Jones model is of the following form:

$$NDACC = \alpha_1(1/TA_{t-1}) + \alpha_2(\Delta REV_t - \Delta REC_t) + \alpha_3(PPE_t) \quad (3)$$

where TA_{t-1} are lagged total assets, ΔREV_t is the change in revenues, scaled by lagged total assets, ΔREC_t is the change in receivables, scaled by lagged total assets and PPE_t is gross property plant and equipment, scaled by lagged total assets. Estimates of α_1 , α_2 and α_3 are obtained by estimating the model in equation (3) by industries with total accruals on the left-hand side. The estimated coefficients are then used to generate non-discretionary accruals.

The residuals of this model are discretionary accruals. Discretionary accruals are then analysed bin-wise for possible differences in their mean or median values. For this purpose, the t-test for means and the Wilcoxon rank-sum for medians are used. We expect statistically significant differences of discretionary accruals in bins around zero thresholds that would link the two potential indicators of earnings management and suggest discretionary accruals' use in connection with these thresholds.

3. SAMPLE SELECTION AND DESCRIPTION

We acquire data of publicly listed UK companies from *Datastream*. This market is selected because companies in the UK have historically paid considerable dividends that still persist. A large majority (almost 85%) of UK firms paid dividends in the 1990s and dividend pay-outs dominated proportion-wise, although repurchases have been on the rise (Renneboog & Trojanowski, 2005).⁷ Even recently, despite the trend of declining pure dividend pay-outs (Skinner, 2008), UK firms still tend to pay out dividends relatively more often than elsewhere (Denis & Osobov, 2008). As we want to have the initial sample as broad as possible, companies in the period from 1990 to 2012 are considered. Prior to 1990, the lack of data availability hinders a more detailed analysis and an incomplete set of companies' financial information was provided for 2012 at the time of data collection.

A note is necessary about dividend inputs from the database. Since IFRS-compliant reporting became mandatory for all listed companies in the EU for annual periods beginning on or after 1st January 2005, a provision in the standards requires companies to account differently for dividends paid. Before 2005, under the Statement of standard accounting practice (SSAP 17 - Accounting for post balance sheet events, 1980), dividends were accounted for as an adjusting post balance sheet event in the period to which they related. After 2005, it is prohibited to recognise dividends declared after the end of reporting period as a liability to that same reporting period (IAS 10 - Events after the reporting period). Instead, such dividends are disclosed in the notes but accounted for in the period in which they are paid. Thus, actual pay-out liability has priority over its source (earnings). This results in reported dividends in period (t) consisting of final dividend for period (t-1) and interim dividend(s) for period (t). Final dividend for period (t) is then recognised in period (t+1) financial statements etc.⁸

Table 1: *Sample construction procedure*

firm-year observations of listed UK companies in the period 1990 – 2012	38,429
observations with missing essential data	742
observations with zero total assets or sales	2,065
observations of financial and utility firms	5,380
final sample firm-year observations (3,177 distinct firms)	30,242

Notes: This table presents sample selection process. Starting sample of listed UK companies is obtained from *Datastream* and identified using nation code (WC06027). All financial industry related firms and utilities are excluded due to their specific operating properties.

⁷ Dividend payments have been more frequent in the UK also due to the more favourable tax treatment of dividends in the past (prior to the Finance Act 1997, see section *Additional tests* for more information) but remained high after the change as well.

⁸ For example, GlaxoSmithKline (GSK) in its 2005 annual report shows a breakup of dividends into four interims of (all in £m) 568, 567, 568 and 792 for 2005 respectively and 575, 573, 571 and 684 for 2004 respectively. But, since GSK normally pays a dividend two quarters after the quarter it is relating to, dividends actually paid in 2005 were the last two interims for 2004 and the first two interims for 2005. The sum of those, £m 2390, is then reported as dividends for 2005 and also found as the database entry.

We first eliminate entries with missing data that are essential for the analysis, e.g., missing total assets or industry codes. We then remove observations with zero total assets and/or zero sales as these are not believed to be truly operational and the former would imply division by zero in the construction of our variables of interest. Lastly, as a common step, we remove firms from financial and utility sectors because of their operating specifics. We end up with 3,177 distinct companies and 30,242 firm-year observations as presented in Table 1. Out of these, 62% include dividend payments, 60% report proceeds from sale or issuance of stock and 11% show a change in redeemed, retired or converted stock. A substantial share of issuances indicates a possible large effect on NSCF, whereas the extent of repurchases is somewhat smaller than expected. Examination of the data also revealed some confounding entries in form of negative values of repurchases (14 identified) and negative values of issuances (134 such cases), both of them are not supposed to be negative following the definition of *Datastream* datatypes. A subset of each was, where possible, manually checked back against firms' annual reports and entries were corrected accordingly, e.g., into positive values. Lastly, otherwise sound observations with missing dividends, repurchase or issuance data had those set to zero.⁹

Table 2 presents sample structure by years. As there are no big deviations in any specific year, we can observe a first peak in the number of listed UK companies in 1997, followed by a slight decrease and another gradual but steady increase in the years following up to 2006. However, in the last years there is quite a strong decline coinciding with the development and deepening of the financial crisis. Data for 2012 were not fully populated at the time they were collected.

Table 2: *Year composition*

Year	N	in %	Year	N	in %	Year	N	in %
1990	1,154	3.82	1998	1,462	4.83	2006	1,551	5.13
1991	1,166	3.86	1999	1,389	4.59	2007	1,491	4.93
1992	1,147	3.79	2000	1,398	4.62	2008	1,352	4.47
1993	1,152	3.81	2001	1,443	4.77	2009	1,236	4.09
1994	1,184	3.92	2002	1,474	4.87	2010	1,124	3.72
1995	1,183	3.91	2003	1,502	4.97	2011	1,063	3.51
1996	1,467	4.85	2004	1,553	5.14	2012	658	2.18
1997	1,542	5.10	2005	1,551	5.13			

Notes: Year distribution of the sample is presented in this table. Total number of observations is 30,242. At the time of data collection year 2012 was not fully populated, therefore the number of observations is accordingly smaller.

Descriptive statistics in Table 3 suggests skewed distributions in almost all variables. As we are interested in the centre of distributions and especially in specific breaks, quartiles are reported along with the average, but standard deviations indicate that there are

⁹ There were 1,521 such cases, of those only 390 with missing dividends. Remaining missing repurchases and/or issuances would prevent the construction of NSCF with dividends mostly available. Omission of these cases does not change the results.

substantial extreme observations.¹⁰ The number of observations is mostly affected by the denominator, particularly when scaling by past dividends and less so when scaling by past NSCF. The first four variables use lagged total assets for scaling and are limited by that. Only DIV and D_DIV have comparable means and medians, dividends amounting on average to around 2% of previous year's total assets and dividend change being positive but of minor amount compared to total assets. The remaining four variables have means and medians differing in both sign and magnitude, once more implying skewed distributions.

Table 3: *Descriptive statistics*

Variable	Mean	25%	Median	75%	SD	N
DIV	0.024	0	0.015	0.033	0.086	26813
NSCF	-0.256	-0.001	0.009	0.030	6.274	26813
D_DIV	0.002	0	0	0.004	0.097	26813
D_NSFC	-0.156	-0.012	0.001	0.016	9.047	26813
D_DIV_DIV	0.425	-0.004	0.084	0.241	11.836	17201
D_NSFC_NSFC	39.208	-1	-0.039	0.229	2,175	22829

Notes: This table presents descriptive statistics for analysed variables. DIV = dividends (WC04551) scaled by lagged total assets (WC02999); NSCF = (dividends + repurchases (WC04751) – issuances (WC04251)) = net shareholder cash flows scaled by lagged total assets; D_DIV = change in dividends from year (t-1) to (t) scaled by lagged total assets; D_NSFC = change in net shareholder cash flows from year (t-1) to (t) scaled by lagged total assets; D_DIV_DIV = change in dividends from year (t-1) to (t) scaled by lagged dividends; D_NSFC_NSFC = change in net shareholder cash flows from year (t-1) to (t) scaled by lagged net shareholder cash flows. Number of observations varies due to availability of respective denominators used in variables' construction.

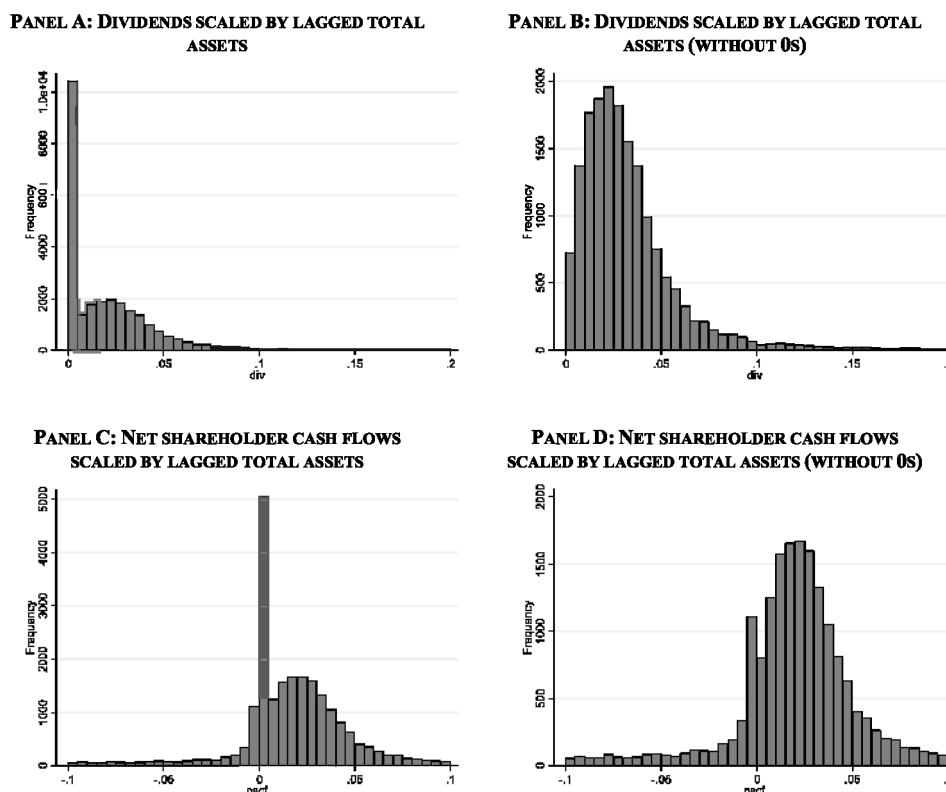
For visual representation, we plot histograms of respective variables sorted into bins 0.005 or 0.01 wide as described in the previous section to arrive at distributions of interest. Almost all distributions imply a threshold at the zero bin, firstly in amounts relative to total assets (attaining dividends or non-negative net shareholder cash flows). Panels A and C in Figure 1 show striking mode bins of small non-negative pay-outs and a comparison of the two panels suggests that dividends clearly dominate also in NSCF calculation. Although halved in size (10,419 observations in bin(0) for DIV and 5,047 observations in bin(0) for NSCF), the zero bin of the latter is still clearly outstanding from the remaining distribution. There are also changes, with observations shifted to bins left of zero due to effect of issuances, but the distribution to the right of zero is not much different compared to DIV.

Bin(0) modes disappear when observations equalling exactly zero are excluded in panels B and D. What remains is a mode in some of the subsequent positive bins (around 2-3% of lagged total assets) for both DIV and NSCF. While the zero bin in DIV is not standing

¹⁰ We did not exclude any outliers since our central analysis is concerned with specific observations at the centre of respective distributions. As all our variables are ratios, outliers can arise due to disproportionate numerators and denominators in the span of one year. This may be related to one variable only. Therefore, by excluding outliers relating to one variable we could lose economically-sound observations in other variables.

out in any way, the one in NSCF is missing almost 400 observations (estimated as the difference to the average of adjacent bins) for a smooth, normal-like distribution. This case could indicate that NSCF are not a threshold of their own, in a way that firms would target its combined value as a reference point for investors.

Figure 1: *Histograms of selected distributions*

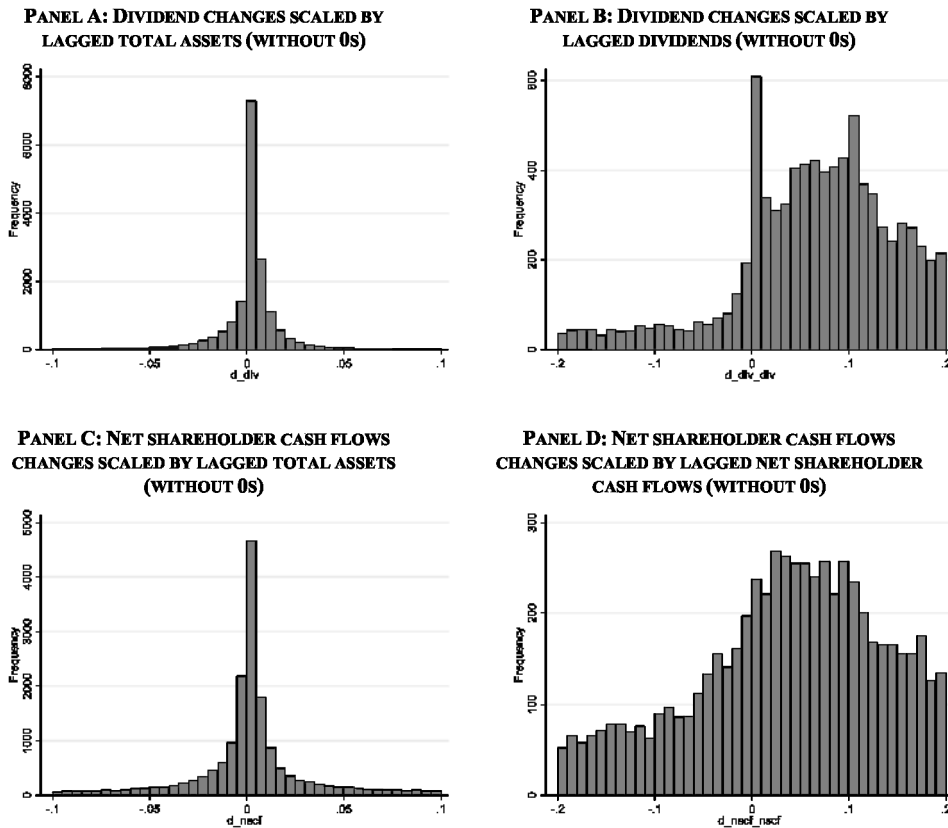


Notes: This figure presents distributions of variables of interest. Panels A and B graph DIV, with and without zero observations, and panels C and D graph NSCF, with and without zero observations. DIV = dividends (WC0451) scaled by lagged total assets (WC02999) and NSCF = (dividends + repurchases (WC04751) – issuances (WC04251)) = net shareholder cash flows scaled by lagged total assets. Bin width is 0.005 with lower bound inclusion, i.e., “zero bin” includes x if $0 < x < 0.005$, “bin one” includes x if $0.005 < x < 0.01$ etc.

As observations of zero in given variables have such an overwhelming effect on distributions, they are not reported in FIGURE 2 but they are still included in the analysis that follows. Findings of clearly modular bin(0) are confirmed for scaled changes in dividends (D_DIV, Panel A) and scaled changes in net shareholder cash flows (D_NSCF, Panel C) – even without observations equalling exactly zero. What is of interest is that, in case of D_NSCF, the bin with the second highest frequency is actually the first negative (and not positive, as more commonly expected) bin and this pattern is even repeated bin-wise as

we move away from zero bin. The negative effect issuances have on D_NSCF outweighs the combined positive effect of dividends and repurchases in these cases.

Figure 2: Histograms of selected distributions



Notes: This figure presents distributions of variables of interest. Panel A graphs D_DIV, panel B graphs D_DIV_DIV, panel C graphs D_NSCF and panel D graphs D_NSCF_NSCF, all without zero observations. D_DIV = change in dividends (WC0451) from year (t-1) to (t) scaled by lagged total assets (WC02999); D_DIV_DIV = change in dividends from year (t-1) to (t) scaled by lagged dividends; D_NSCF = change in net shareholder cash flows (= dividends + repurchases (WC04751) – issuances (WC04251)) from year (t-1) to (t) scaled by lagged total assets; D_NSCF_NSCF = change in net shareholder cash flows from year (t-1) to (t) scaled by lagged net shareholder cash flows.

For panels A and C bin width is 0.005 with lower bound inclusion, i.e., “zero bin” includes x if $0 < x < 0.005$, “bin one” includes x if $0.005 < x < 0.01$ etc., and for panels B and D bin width is 0.01 with lower bound inclusion, i.e., “zero bin” includes x if $0 < x < 0.01$, “bin one” includes x if $0.01 < x < 0.02$ etc.

Lastly, looking at pay-out changes relative to their lagged values (D_DIV_DIV and D_NSCF_NSCF, Panels B and D, respectively), zero bin threshold mode remains obvious in dividend changes scaled by lagged dividends, but with a lot lesser difference to surrounding bins. In the case of D_NSCF_NSCF zero bin practically blends in the distribution and does not even seem to represent a threshold on the left (negative) side, the distribu-

tion itself not displaying any noticeable breaks whatsoever. This is once more suggestive that no systematic threshold attaining behaviour can be observed with regard to net shareholder cash flows.

Frequencies of dividend increases and net shareholder cash flows increases relative to their lagged values rise and/or remain high up to bins denoting growth in the order of 10% (note that bin width is 0.01 in these two cases as the denominators are considerably smaller than total assets used beforehand). Another interesting observation is bin(10) of D_DIV_DIV , denoting cases of dividend increase between 10% and 11% compared to previous year's dividends. The bin in question appears to jut out of the distribution and is also statistically evaluated in the next section.

4. RESULTS

We attempt to formally confirm observations derived from histograms in the previous section with the use of GRPV discontinuity of distribution test. Table 4 reports values of the GRPV test applied for all cases inspected earlier (with and without zero observations) and fully confirms our assumptions. In all six cases of zero values of variables included, zero bin represents a discontinuity from the remaining distribution, inferences being done at P-values far below 1% (critical values of the test in absolute terms for significance levels of 10%, 5% and 1% are 3.16, 4.47 and 10, respectively). The discontinuity is stronger in dividend-related variables compared to NSCF-related ones, implying that repurchases and issuances lessen the break to some extent by moving some observations away from zero bin. Scaling by total assets results in stronger breaks than scaling by lagged values of pay-out, suggesting that the choice of scaling variable also plays an important role in distribution analysis as also suggested by previous research (Dechow, Richardson, & Tuna, 2003; Durtschi & Easton, 2005).

On the other hand, in cases where zero values of variables are excluded from distributions, discontinuity is still statistically confirmed in four out of six cases. The H_0 of continuity of distribution cannot be rejected in the first (DIV) and last case (D_NSCF_NSCF) as suggested and anticipated by the histograms in the preceding section, whereas other variables have results significant at the 1% level although test values are considerably lower than before the exclusion of zeros. A comparison of the four variables representing scaled changes in either dividends or net shareholder cash flows shows consistently larger breaks in dividends. We thus regard them as the driving factor for threshold existence. The fact that breaks are lessened with the inclusion of repurchases and new share issuances implies that these are not used with the intent of reaching a NSCF-related threshold, but rather for other purposes.

Table 4: GRPV discontinuity of distribution test

	(1) zero observations included	(2) without zero observations
DIV	376.61	1.42
NSCF	115.39	-11.36
D_DIV	336.51	123.70
D_NSCF	124.24	62.61
D_DIV_DIV	73.02	21.16
D_NSCF_NSCF	39.97	1.95

Notes: Reported are τ values of GRPV discontinuity of distribution test for zero bins of variables analysed. First column reports test statistics computed including observations of zero in selected variables, and second column reports test statistics computed without these observations.

With H_0 : the distribution function is continuous, the values of τ at standard levels of significance are: at 10% $|\tau| = 3.16$, at 5% $|\tau| = 4.47$, and at 1% $|\tau| = 10$. As the number of observations in adjacent bins is required by the test, in the first row (case of DIV) bins on the left of zero (negative bins) are empty (there are no negative dividends) and are as such affecting test statistic computation.

DIV = dividends (WC04551) scaled by lagged total assets (WC02999); NSCF = (dividends + repurchases (WC04751) – issuances (WC04251)) = net shareholder cash flows scaled by lagged total assets; D_DIV = change in dividends from year (t-1) to (t) scaled by lagged total assets; D_NSCF = change in net shareholder cash flows from year (t-1) to (t) scaled by lagged total assets; D_DIV_DIV = change in dividends from year (t-1) to (t) scaled by lagged dividends; D_NSCF_NSCF = change in net shareholder cash flows from year (t-1) to (t) scaled by lagged net shareholder cash flows.

We therefore confirm breaks at zero bins in the distributions of scaled pay-outs, which is indicative of existence of thresholds. The exclusion of zero observations has different meanings, depending on the variable in question. The DIV variable is specific, as it is bounded to the left of zero, i.e., there are no negative cash dividends. Zero observations in this case are firms that do not pay dividends at all. Therefore, their exclusion is justified as they obviously do not try to attain any pay-out threshold. The majority of dividend pay-outs are concentrated in the first ten bins, i.e., up to 5% of previous year's total assets. Nevertheless, we keep the analysis of DIV in both versions as a reference. Similarly, in NSCF, it is practically never the case that the three components would sum up to exactly zero, meaning that zero observations are those of zero values in all three components and these again are validly excluded.¹¹ This is not as straightforward in scaled changes of dividends and net shareholder cash flows. D_DIV or D_DIV_DIV equal to zero may indicate a non-payer, but it can also indicate a no-change in dividends, keeping their level unchanged from the previous year. Analogously, D_NSCF and D_NSCF_NSCF values of zero can mean non-payers, no-changes in the sense that the firm only pays dividends and does not use repurchases and/or issuances or rare cases of the NSCF components summing exactly to zero.

We also separately evaluate bin(10) of the D_DIV_DIV distribution. The value of the test statistics of the GRPV test amounts to 6.22 and is significant at the 5% level. As the bin corresponds to a 10% to 11% increase of the dividends from the previous year, it also looks like a convenient orientation value for possible future pay-out increases. The GRPV

¹¹ Actually, there are seven cases in which dividends, repurchases and issuances sum up to exactly zero, but only pairwise – in none of them all three at the same time.

test value in bin(10) of the variable D_NSCF_NSCF is 0.33, limiting previous reasoning to cash dividend pay-outs only.

Focusing back on central bins, in Table 5 we investigate statistically significant (a 5% level is tested) differences between mean (median) values of discretionary accruals from the modified Jones model across bins. For each variable, with and without zeros, mean and median discretionary accruals from the model were computed for each bin in range from (-10) to (10), representing $\pm 5\%$ of lagged total assets or $\pm 10\%$ of lagged pay-outs, the difference due to different bin widths in the two approaches. Only the values for bins from (-2) to (2) are tabulated. We do this, firstly, because this is where our research interest lies as these are the most likely places in the distributions of pay-outs where the discretionary component of accruals would be important. Secondly, because there are not many significant differences further away from the centres of distributions. Finally, we keep our analyses compact for brevity of exposition. Bin means (medians) of discretionary accruals are compared to the means (medians) of discretionary accruals in the next bin using a t-test for the means and the Wilcoxon rank-sum test for the medians. For example, a boldfaced mean of DIV in bin(0) (0.955) indicates that it is significantly different from the mean in bin(1) (0.032). Similarly, a boldfaced median for NSCF in bin(-1) (0.011) indicates that it is significantly different from the median in the following bin(0) (0.091).

Note that seemingly missing values are actually excluded for clarity. Variable DIV does not have negative bin observations (no negative dividends), while the results for bins (-2), (1) and (2) are not listed for versions of variables without zero observations because they are exactly the same as on the left-hand version. The versions only differ in the number of observations in the central bin (bin(0)) and possible differences only arise in comparisons of bin(-1) to bin(0) and of bin(0) to bin(1).

In almost all instances significant differences in both means and medians of discretionary accruals are found at bin(0) or bin(-1) – the two that compare the central bin(0) with the neighbouring bins. Bin means of discretionary accruals are generally much larger than medians of discretionary accruals as a consequence of skewed distributions and are usually biggest in bin(0), means of bin(0) in first four variables being much bigger than means of other bins. Interestingly, excluding zero observations results in smaller bin(0) mean and median discretionary accruals compared to cases with all observations included and with the last two variables (D_DIV_DIV and D_NSCF_NSCF) they even become insignificantly different to other bins' means and medians. Assuming that discretionary accruals are associated with some form of purposeful managerial actions, and may be a tool to manage earnings or some other operating result by the management, their size and significance in central zero bins of distribution is at least indirect evidence of such actions.

Table 5: Means and medians of discretionary accruals by bins

Bin	Mean	Median	Mean	Median	Mean	Median	Mean	Median
	DIV		DIV (without 0)		NSCF		NSCF (without 0)	
-2					0.169*	0.056*		
-1					0.114*	0.011*	0.114*	0.011*
0	0.955*	0.128*	0.006*	-0.025*	0.699*	0.091*	0.011	-0.026*
1	0.032	-0.012			0.027	-0.007		
2	0.038	-0.008			0.028	-0.010		
	D_DIV		D_DIV (without 0)		D_NSCF		D_NSCF (without 0)	
-2	0.025*	-0.030			0.063*	-0.018		
-1	0.003*	-0.035*	0.003	-0.035*	0.028*	-0.020*	0.028	-0.020
0	0.564*	0.034*	0.005*	-0.023*	0.347*	0.004*	0.025	-0.022*
1	0.049*	0.006*			0.035*	-0.007*		
2	0.099	0.028*			0.071	0.007		
	D_DIV_DIV		D_DIV_DIV (wo 0)		D_NSCF_NSCF		D_NSCF_NSCF (wo 0)	
-2	-0.012	-0.039			0.056	-0.028		
-1	-0.022*	-0.051*	-0.022	-0.051	0.099	-0.015*	0.099	-0.015
0	0.054*	-0.016*	-0.023	-0.043	0.102	0.007*	-0.002	-0.036
1	-0.007	-0.037			0.051	-0.038		
2	-0.007	-0.035			0.015	-0.033		

Notes: This table reports means and medians of discretionary accruals from the modified Jones model by central bins of distributions. Each variable has bin means reported in the first column and bin medians in the second column of its box and is firstly evaluated with all observations included and then with zero observations excluded (“wo 0” in the last variable row stands for “WITHOUT o”).

Bolded font and asterisk denote that respective means (medians) are different from means (medians) in the following bin at the 5% significance level, i.e., a bolded* mean (median) in bin(0) is different from the mean (median) in bin1 at 5%. Tests used were t-test for means and Wilcoxon rank-sum test for medians.

Modified Jones model is of the form: $NDACC = \alpha_1(1/TA_{t-1}) + \alpha_2(\Delta REV_t - \Delta REC_t) + \alpha_3(PPE_t)$. $NDACC$ are non-discretionary accruals, TA_{t-1} are lagged total assets (WC02999), ΔREV_t is the change in revenues (WC01001), scaled by lagged total assets, ΔREC_t is the change in receivables (WC02051), scaled by lagged total assets and PPE_t is gross property plant and equipment (WC02301), scaled by lagged total assets. To estimate α_1 , α_2 and α_3 total accruals are considered as the dependent variable and calculated as: $TACC = (\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - Dep_t)TA_{t-1}$. ΔCA_t is the change in current assets (WC02201), ΔCL_t is the change in current liabilities (WC03101), $\Delta Cash_t$ is the change in cash and cash equivalents (WC02001), ΔSTD_t is the change in short term debt (WC03051), Dep_t are depreciation and amortization charges (WC01151) and TA_{t-1} are lagged total assets. Finally, discretionary accruals are obtained as the difference between total accruals and non-discretionary accruals predicted by the model.

DIV = dividends (WC04551) scaled by lagged total assets; NSCF = (dividends + repurchases (WC04751) – issuances (WC04251)) = net shareholder cash flows scaled by lagged total assets; D_DIV = change in dividends from year (t-1) to (t) scaled by lagged total assets; D_NSCF = change in net shareholder cash flows from year (t-1) to (t) scaled by lagged total assets; D_DIV_DIV = change in dividends from year (t-1) to (t) scaled by lagged dividends; D_NSCF_NSCF = change in net shareholder cash flows from year (t-1) to (t) scaled by lagged net shareholder cash flows.

For variables DIV, NSCF, D_DIV and D_NSCF bin width is 0.005 with lower bound inclusion, i.e., “zero bin” includes x if $0 \leq x < 0.005$, “bin one” includes x if $0.005 \leq x < 0.01$ etc., and for variables D_DIV_DIV and D_NSCF_NSCF bin width is 0.01 with lower bound inclusion, i.e., “zero bin” includes x if $0 \leq x < 0.01$, “bin one” includes x if $0.01 \leq x < 0.02$ etc. Bins in the range from -10 to 10 were tested but are not tabulated. Mean and median results of variables without zero observations are also not reported for bins -2, 1 and 2, as they are the same as in with zero observations included (the two versions differ only in the frequency of the zero bin).

The two signals combined, that of accruals and breaks in pay-out distributions, indicate that the thresholds identified in this study can be associated with some firms' management activity. As firms aim to meet their planned, announced or established levels of pay-out on one side, and face anticipations of shareholders and potential investors on the other side, thresholds in form of positive pay-outs or pay-out changes gain in importance. Not wanting to fail expectations firms may make use of accrual manipulation to arrive at desired financial results that enable a suitable pay-out policy.

5. ADDITIONAL TESTS

To address the potential sensitivity of discontinuity tests to neighbouring bin values suggested by previous research (Bennet & Bradbury, 2007), we first recalculate GRPV test statistics using two adjacent bins on either side of bin(0) (i.e., bins -2, -1, 1 and 2) and report it in column 1 of TABLE 6. The only difference to the main test is that the break in NSCF without zero observations is now only significant at 5% compared to previous 1% significance. All the other variables' τ values are very similar to previously reported ones. We also re-calculate the GRPV test using only next-to-adjacent bins (i.e., -2 and 2) and the results (not tabulated) remain quantitatively and qualitatively substantially unchanged. This confirms the robustness of earlier our results to the details of test specifications.

Extending the analysis beyond the primary hypotheses, we then use the test statistics to study what happens with the breaks in the distributions in relation to specified cut-offs, identified as potentially important for pay-out time dynamics. In columns 2 and 3 of TABLE 6 we look at the pre- and post- 2008 financial crisis periods. The inferences are unchanged with an adjustment in significance to 5% for NSCF and D_DIV_DIV, both without zero observations. What we do observe comparing the two sub-periods is that for the years 2008 and following all test values are smaller, mainly in the order of one half, than in pre-2008 period (apart from DIV and D_NSCF_NSCE, both without zero observations, which are insignificant as in the main test specification). Smaller values imply a less pronounced break in the distribution (although still highly significant) meaning less observations are concentrated in zero bins and more in the adjacent bins. This could be interpreted as some of the firms not pursuing or not being able to pursue pay-out thresholds in the crisis period, given the harsher economic conditions they found themselves in.

Table 6: *Additional GRPV discontinuity of distribution tests*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	4 bins used	pre-2008	crisis effect 2008&→	no	ifrs used yes	pre-1997	finance act 1997&→
DIV	349.19	297.96	251.13	274.89	278.36	74.53	400.21
DIV (wo 0)	2.28	0.82	1.61	1.03	1.07	2.97	0.23
NSCF	124.50	90.59	75.17	86.61	78.64	33.14	112.96
NSCF (wo 0)	8.39	9.88	5.62	8.94	7.10	0.19	12.75
D_DIV	401.72	281.52	201.50	261.58	227.93	109.76	335.98
D_DIV (wo 0)	155.96	114.15	47.71	107.18	62.14	68.41	103.21
D_NSCF	158.15	108.84	61.19	105.74	65.54	51.50	115.40
D_NSCF (wo 0)	86.81	58.07	23.54	56.50	27.28	33.03	53.32
D_DIV_DIV	78.00	69.00	24.20	66.44	30.39	52.07	52.27
D_DIV_DIV (wo 0)	23.69	20.58	5.56	19.44	8.42	18.54	12.57
D_NSCF_NSCF	39.52	36.85	15.56	36.82	15.64	27.51	29.31
D_NSCF_NSCF (wo 0)	1.75	1.41	1.77	1.46	1.47	2.83	0.31

Notes: Reported are τ values of GRPV discontinuity of distribution tests for zero bins of variables analysed with and without zero observations (the latter denoted by “wo 0” abbreviation). Column 1 reports statistics using 2 adjacent bins on either side of bin(0), columns 2 and 3 use 2008 as a cut-off-year to analyse the effect of financial crisis, columns 4 and 5 analyse the effect of IFRS and column 6 and 7 use 1997 as a cut-off-year to analyse the effect of change in legislation (Finance Act).

With H_0 : the distribution function is continuous, the values of τ at standard levels of significance are: at 10% $|\tau| = 3.16$, at 5% $|\tau| = 4.47$, and at 1% $|\tau| = 10$. As the number of observations in adjacent bins is required by the test, in the first two rows (case of DIV) bins on the left of zero (negative bins) are empty (there are no negative dividends) and are as such affecting test statistic computation.

DIV = dividends (WC04551) scaled by lagged total assets (WC02999); NSCF = (dividends + repurchases (WC04751) – issuances (WC04251)) = net shareholder cash flows scaled by lagged total assets; D_DIV = change in dividends from year (t-1) to (t) scaled by lagged total assets; D_NSCF = change in net shareholder cash flows from year (t-1) to (t) scaled by lagged total assets; D_DIV_DIV = change in dividends from year (t-1) to (t) scaled by lagged dividends; D_NSCF_NSCF = change in net shareholder cash flows from year (t-1) to (t) scaled by lagged net shareholder cash flows.

Our next cut-off is IFRS implementation. International Financial Reporting Standards and their predecessors, International Accounting Standards, are mainly regarded as being of higher quality than existing local standards (e.g., Barth, Landsman, & Lang, 2008; Armstrong et al., 2010), although alternative views are also not uncommon (Soderstrom & Sun, 2007; Ahmed, Neel, & Wang, 2013), and they also directly affected accounting for dividends as noted under sample selection. IFRS are compulsory since 2005 and this appears as a ready candidate for assessing the standards’ effects. We deem it a second-best option as before 2005 firms could voluntarily adopt IFRS and even after 2005 data shows some financial statements in our sample as being prepared under UK GAAP. Our database allows us to identify the standards which the company used in preparing its reports and we thus classify 7,678 observations as prepared under IFRS. These mainly coincide with the period after 2005, but there is some overlapping with local standards, especially in years 2004-2007. The results (columns 4 and 5 in TABLE 6) in terms of subsample comparisons are analogous to that for the crisis effect. IFRS observations exhibit notably lower test values than non-IFRS observations for all but two insignificant variables lead-

ing us to conjecture that IFRS usage is associated with “smoother” distributions. Potential explanation for this is the negative effect of stricter standards on firms’ willingness and/or ability to achieve pay-out thresholds, positioning less of them in central bin(0).

We identify the last cut-off to be 1997 as pointed out by the dividend taxation literature. Namely, in order to end the discriminatory tax treatment in favour of dividend pay-outs compared to capital gains, the Finance Act of 1997 increased taxation of dividend income, primarily affecting pension funds that were the largest class of investors in UK equities.¹² Consequently, Bell & Jenkinson (2002) find a significant reduction in valuation of dividend income after the tax reform and initial evidence of reductions in dividend pay-out ratios, whereas Bond, Devereux & Kleem (2005) observe that it was the form of dividend payment that changed with the level marginally affected. Our two subsamples comparison in columns 6 and 7 of Table 6 reveals considerably smaller (yet again, still above critical values) values of discontinuity tests for most of the significant variables in the pre-1997 years compared to the later period. A potential explanation would be that after the 1997 tax reform dividends were not as large as before but still present (due to other investors’ interests, signalling and other reasons), which resulted in their concentration in the smallest positive bin(s) of our distributions, producing a higher value of the test statistic. It has to be acknowledged however, that all these additional tests analyse only a specific factor possibly affecting pay-out dynamics and that firms’ distributional decisions in real life are based on many elements, relative importance of which are changing in time. Moreover, even in our cases, there are overlapping effects especially towards the end of analysed time period.

6. CONCLUSION

This paper investigates the existence of pay-out-related thresholds as an extension of documented earnings management thresholds. With dividends and distinct net shareholder cash flows defined variables, discontinuities in their distributions are statistically analysed, employing a robust test that does not assume that the distributions of underlying variables are normal. The importance of pay-out policy for the firms’ economic environment and for the firms’ themselves (as a signalling mechanism, clientele and tax induced decisions etc.) leads us to consider threshold analysis to be of considerable importance for our study.

We find evidence of breaks in distributions at suggested thresholds of zero or zero change of variables in question, supporting our reasoning that these are important for firms. Dividend thresholds are more pronounced than net shareholder cash flows thresholds suggesting the dominating role of cash dividends over share buybacks and over the netting role of new shares’ issuances. Although repurchases are almost as common as dividend pay-outs, their effect is much smaller. Adding share issuances in the calculation to

¹² More specifically, the 1997 Finance Act abolished repayment of dividend tax credits to tax-exempt investors, UK pension funds being the largest beneficiaries of the previous regulation.

arrive at net shareholder cash flows disperses the pay-out distributions and reduces the breaks. Hence, repurchases and issuances are relatively much less important drivers of targeted pay-out level in the broader sense and net shareholder cash flows do not represent a separate threshold independent of cash dividends.

Discretionary accruals as a proxy for earnings management are analysed at identified thresholds. We find significant differences and/or magnitudes of discretionary accruals at or in the closest proximity of central bins of distributions. This is another sign of their importance for firms as accruals are considered as a convenient and potentially strong earnings management tool. Additional analyses employ the discontinuity test to examine various sample partitions to arrive at more insightful results. We also find that a 10% dividend increase in the dividend paid is significant, suggesting the increase of dividends of 10% is common.

Known caveats relate to distributional analysis being questioned as an earnings management measure and, although supportive of our hypotheses and considered general, the accrual model employed is merely one of several accruals modes and these have been found to produce results of different significance or even conclusions. In a related, but not directly comparable research, Dechow, Richardson & Tuna (2003) are not able to confirm that discretionary accruals are driving the breaks in earnings distributions and offer supplementary explanations. Nevertheless, we consider the evidence in this paper strong enough to stress the importance of firms' pay-out policy, shedding additional light on the effects of pay-out policy components.

Finally, we also identify some potential areas for future research. For example, it might be possible to derive more precise tests that would be able to distinguish the effects of the financial crisis and the effects of new standards, where the two periods overlap significantly. This might be related to the use of more refined discretionary accruals models. These models might also be investigated independently of the breaks due to standards, financial crisis, etc. We also do not consider possible "real" earnings management (Roychowdhury, 2006), which might be a significant component of the overall management to achieve earnings and net shareholders' flows thresholds.

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