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UNIVERSITEIT
LEUVEN

DEPARTEMENT TOEGEPASTE ECONOMISCHE WETENSCHAPPEN

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EARNINGS QUALITY IN PRIVATELY HELD FIRMS: THE ROLES OF EXTERNAL AUDITS, STAKEHOLDERS, AND GOVERNANCE MECHANISMS

by
P. SERCU
H. VANDER BAUWHEDE
M. WILLEKENS

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Earnings quality in privately held firms: the roles of external audits, stakeholders, and governance mechanisms

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Piet Sercu, Heidi Vander Bauwhede and Marleen Willekens[#]

Abstract. While the extant empirical literature on earnings management focuses on incentives, constraints and consequences in US listed companies, we present results on *non*listed companies that operate in a continental European environment (Belgium); and we consider not just the effects of internal mechanisms and external auditing but also of stakeholder relations. Methodologically, special care is taken of an errors-in-variables problem induced by a two-step procedure. We find clear evidence that earnings are managed (downward) for tax purposes, but also that relationships with banks and suppliers act as a restraining factor in this field. Another factor of moderation of downward manipulation appears to be a large board. Employee power does not seem to affect accruals management. Lastly, in our sample, audit quality does not exhibit any statistically clear relation with the auditor's visibility (for instance, big-N or not).

Key words: earnings management, audit quality, governance, stakeholders

Data availability: all data used in this study are publicly available

Correspondence:

Katholieke Universiteit Leuven
Department of Business Studies
Naamsestraat 69, B-3000 Leuven

Piet Sercu@econ.kuleuven.ac.be
Heidi.Vanderbauwhede@econ.kuleuven.ac.be
Marleen.Willekens@econ.kuleuven.ac.be

[#]Katholieke Universiteit Leuven. The authors are listed alphabetically. We gratefully acknowledge useful comments from Linn Barkess, Ann Gaeremynck, Jere Francis, Robert Knechel, Martina Vandebroek, Staf Van Herck, and other participants at the International Symposium on Auditing Research (Sydney 2002), the University of Florida Conference on Corporate Governance and Assurance (Gainsville Florida 2002) and the KU Leuven workshop series in Accounting and Finance. The authors remain responsible for any remaining errors

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Abstract. While the extant empirical literature on earnings management focuses on incentives, constraints and consequences in (US) listed companies, we present results on *non*listed companies that operate in a continental European environment (Belgium); and we consider not just the effects of internal mechanisms and external auditing but also of stakeholder relations. Methodologically, special care is taken of an errors-in-variables problem induced by the two-step procedure. We find clear evidence that earnings are managed (downward) for tax purposes, but also that relationships with banks and suppliers act as a restraining factor in this field. Another factor of moderation of downward manipulation appears to be a large board. Employee power does not seem to affect accruals management. Lastly, in our sample audit quality does not exhibit any statistically clear relation with the auditor's visibility (for instance, big-N or not).

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Introduction

Concerns about the quality of reported earnings and the adequacy of mechanisms that may constrain earnings management have been around since long before the scandals of the early 2000s. In the late 80s and 90s, for instance, these issues were already on the agenda of the corporate-governance task forces that sprang up in many countries. While these committees' initial recommendations mostly bore on internal governance characteristics, like the composition and size of the board of directors,[1] more recently attention was shifted towards the role that external auditors play, or should play, in the provision of high-quality financial information. The same trend appears in recent empirical work: it has refocused on the quality effects of external auditing, especially big-N versus non big-N, on reporting by Anglo-Saxon listed companies.[2] Our paper complements the extant literature in many directions. We present empirical results on *non*listed companies; these firms operate in a continental-European environment (Belgium); and we consider not just the restraining effects of external auditing and internal mechanisms but also of stakeholder relations. As a result, many interesting issues crop up that are new or have at least received comparatively little attention thus far.

Nonlisted companies are interesting because they have different incentives and constraints relative to listed ones. For small, privately held companies the traditional agency problems that dominate the Anglo-Saxon literature should be mitigated by, on the equity side, a close association of ownership and control and, on the debt–financing side, relationship banking. Still, it remains an empirical issue whether and to what extent the company's board and the house bank succeed in constraining earnings management, and whether factors like board size play a material role in this. Also, nonlisted companies, being smaller and not subject to the pressure from a stock market, may be more sensitive to other stakeholders with whom there is either an implicit contract (like customers or suppliers) or even an explicit, regulated relation (employees, trade unions sitting in the works council). These more powerful incentives to practice earnings management may actually go hand in hand with ampler

opportunities to do so. Because of their close association with management, the firm's owners and house bank can actually be briefed privately about the firm's financial situation; this would then give the company more room to use the financial statements as an ingredient in the relations with other stakeholders. To external auditors, lastly, whether big-N or not, the fact that the customer is small and nonlisted may make a difference too. For one thing, the likelihood that an audit failure is found out is lower, as the annual reports are not pored over by analysts or stock-market regulators. And the cost of being found out is also smaller, as the customer is less visible to the public and an audit failure likely to inflict less damage to shareholders and auditors than it does in the case of a large, quoted corporation.

Also the environment of the firms considered in this paper, continental European rather than Anglo-Saxon, is likely to make a difference. We have already mentioned one utterly non-Anglo-Saxon entity, the works council, which must be briefed by the managers and auditors. Another characteristic of the European setting is that it is traditionally far less litigious, a feature that may, again, seriously affect the motivation of an external auditor. Corporate financing is different, too. Listed companies represent a far smaller part of economic life than in the UK or the US. In addition, even quoted European firms differ less from nonlisted private firms than from listed US firms: they tend to have relatively concentrated ownership and rely more on private debt (loans from shareholders and the house bank) than on arm's-length borrowing (bonds). A last group of country-specific features that make a difference relative to the standard US-UK setting include the mandatory nature of published financial statements and of external audits, even for nonlisted companies; and the non-separation between the income statements for tax purposes and for reporting to the share- and debtholders, exacerbated by the absence of consolidation for tax purposes.

We study a large sample of Belgian closely-held companies and find compelling evidence that earnings (i.e. discretionary accruals) are managed for tax purposes. However, it turns out that the relationships with banks and suppliers act clearly as restraining factors in this field. Another factor of moderation of downward manipulation appears to be a large board. Employee power does not seem to affect accruals management. Lastly, in our sample audit quality does not exhibit any statistically clear relation with the auditor's visibility (for instance, big-N or not).

The remainder of the paper is organised as follows. We first provide a brief description of the Belgian reporting and auditing environment. In Section 2 we then develop our research hypotheses *re* incentives for and constraints on earnings management in privately held Belgian companies. Section 3 presents our specification of the variables and the regressions. We report our sample selection procedure and descriptive statistics in Section 4. Our major results, along with some sensitivity checks, follow in Section 5. Section 6 concludes.

1. The nature of reporting and auditing in Belgium

Some of the institutional elements mentioned in the introduction have profound implications for the demand and supply of reporting and auditing in Belgium. The tradition of dominant shareholders and relationship banking, even among listed firms, means that the desire to monitor management was historically not a major source of demand for financial statements and audits in Belgium. However, one obviously needs an income statement for tax purposes; and, in the traditional European view, also employees are entitled to adequate information about the firm. Thus, the production of financial statements has become mandatory: all firms in Belgium, whether publicly or privately held, that meet certain criteria on legal form and size must publish annual statements, and present these not just to the general assemby of shareholders but also to the works council. In addition, they must file financial statements with the Belgian National Bank, where any interested party can look them up.[3] That logic also extends to external auditing: it is mandatory for all (public and private) companies as of a certain size.

This, then, has implications for concentration of the market for auditing services. The large number of firms to be audited, many of them SMEs, creates a natural niche for smaller local auditing firms. The mandatory nature of auditing may also lessen the customers' desire for a high-quality audit report; and this, in turn, may reduce demand for big-N services (if and to the extend that these do deliver better reviews—an empirical issue to which we return). Whatever the reason, in 2000 the big-5 audit firms served less than 50% of the companies to be audited, against over 90 % in the US. Statistically, that feature should increase the power of any test for big-N-related quality differences.

Still with respect to audit environment, another notable difference between the US and Belgium is the *de facto* lack of auditor litigation in Belgium. Since the creation of the Belgian Kingdom in 1831, only eight cases against external auditors have been tried (Aerts 2002). In a litigious environment the threat of being sued works as a deterrent against below-standard audit quality. When such a threat is absent the auditor may be more likely to succumb to the temptation of preserving a friendly relationship with his/her client in order to safeguard the appointment, and thus be less inclined to constrain earnings management.[4]

We have already mentioned the lack of separation of statements for fiscal purposes *v* for external reporting, and the absence of consolidation for tax purposes, as relevant institutional features. The implications are obvious. A last regulatory detail that needs to be explained is the works council, another example of European regulation to protect employees. Such a council is required for companies with more than 100 employees. The Board of Directors must provide the works council with company information over and beyond what is contained in the standard financial statements, and the statutory auditor is required to attest and explain that information.

2. Hypotheses

Earnings management is the result of an interaction between preparers and users of the financial statements, and of some governance mechanisms. In this section we elaborate on two groups of determinants of earnings management (i.e. discretionary accruals management) in privately held firms, namely incentives and restraining factors.

- Hypotheses about incentives are unidirectional in sign, but the predicted size probably depends on the sign of discretionary accruals (*DAC*). For instance, the tax incentive is to correct earnings downward under all circumstances, whether the other incentives point in the same direction or not, and whether the overall correction turns out to be down or up. Nevertheless, one would expect a "don't overdo it" effect: a tax-related urge to correct downward, for instance, should be weaker when income is already being decreased for other reasons (*i.e.* when $DAC < 0$) than when there are, by and large, reasons to increase earnings (*i.e.* when $DAC > 0$). One motivation for such a "don't overdo it" effect may be fear of detection, for instance by the tax authorities. Also, when too many incentives point in the

same direction, the company risks running out of earnings-management tricks, in which case the effect of any particular incentive on *DAC* would again be empirically smaller.

- Restraining factors, in contrast, tend to work towards zero rather than being unidirectional; for example, a good auditor is expected to curb both upward and downward earnings management.[5]

Table 1 provides an overview of the hypotheses. Among the restraining factors, Table 1 distinguishes stakeholders- and governance-related ones. Incentives, in contrast, are purely stakeholder-related. Many entries in that table are self-evident. Thus, our discussion, below, is confined to the less obvious items and to references to the literature.

Table 1. Overview of hypotheses

Regarding the stakeholder-related incentives, Trueman and Titman (1988) merely predict higher levels of earnings management, whether income-increasing or -decreasing, in companies that depend to a higher extent on financiers, suppliers and employees. Others (e.g. Bowen *et al.*, 1995; Burgstahler and Dichev, 1997; Liberty and Zimmerman, 1986) predict specific directions: they expect more income-increasing earnings management for firms that rely more on external financiers, need additional external finance and suppliers, and more income-decreasing earnings management for firms that depend more on employees. Our hypotheses in Table 1 adopt that second, direction-specific approach.

The opposite idea—stakeholders acting as monitors and, thus, dampening any earnings management—has deep roots in the finance literature: debt generally imposes discipline onto management (Gul and Tsui, 1998, p. 222; Rubin, 1990; Jensen 1986, 1989; Stulz, 1990; Maloney *et al.*, 1993, Ang *et al.*, 2000, p. 88), and especially banks monitor customers that have no credit reputation (Diamond, 1991). We extend that logic to vendor financing and employee power: the fear that suppliers or the works council catch management bending the rules may act as a restraining factor.

We now turn to the internal and external governance mechanisms. The primary responsibility towards stakeholders regarding the quality and fairness of the information in a firm's financial statements rests with the firm's management, or more specifically with its board of directors. Evidence on what board characteristics appear to affect reporting practice is scarce, mixed, and confined to listed firms. Dechow *et al.* (1996) examine the impact of

various board characteristics on the likelihood of earnings overstatements (signalled by an SEC enforcement release) and do not find any significant association with board size. Beasley *et al.* (1996) investigate the association between board characteristics and the likelihood of financial statement fraud, and find evidence of a weak association between board size and the likelihood of fraud. Peasnell *et al.* (2000, 1999) examine the impact of board quality on earnings management through discretionary accruals. They look at the role of outside directors and the audit committee, and find that board composition is the major factor influencing earnings management, regardless of board size or the existence of an audit committee.

We focus on the impact of board size. Our motivation for excluding board composition is that, in privately held companies, shareholders do not need independent directors to counterbalance the managers: the shareholders *are* the managers, or are at least very closely associated with them. Consistent with this, we find that our privately held firms rarely appoint outside and independent directors to the board.

As to the type of relation between board size and board effectiveness, there seems to be a consensus in favour of an interior optimum (see, for example, Jensen 1993; Lipton and Lorsch, 1992). A minimum number of board members is necessary for the board to cover a sufficient range of monitoring abilities. However, boards that are too large may become ineffective: in the end, the increase in expertise brought by an additional board member is more than offset by communication problems. The optimal board size presumably depends on various firm characteristics and is difficult to pin down.[6] However, for small privately held companies one would not expect that a wide range of expertise is needed. Consistent with this, our sample companies typically only have a few board members: three is the (very prominent) mode, and less than 20 percent of our firms have more than four. On the other hand, very few companies have less than three members on the board; thus, for all practical purposes the upward-sloping section of the performance curve (the domain below three) is simply not present in the sample.

The last entry in Table 1 relates to external auditing. External auditors attest the credibility of firms' financial statements and also have a legal responsibility, albeit secondary, towards stakeholders regarding the quality and fairness of the information in those statements. Therefore, it is interesting to assess the impact of external audit quality on earnings management.[7] Most empirical auditing studies hypothesise that big-N auditors are higher-

quality auditors than non-big-N auditors:[8] larger audit firms have more to lose—quasi rents (DeAngelo, 1981) or brand-name reputation (Klein and Leffler, 1981)—when audit failure occurs. Francis *et al.* (1999) and Becker *et al.* (1998) provide evidence that big-6 auditors constrain earnings management more than other auditors, at least in publicly held American firms.

3. Specification of variables and regressions.

3.1. Methodological issues

From the above, we need to be able to estimate different regression coefficients depending on whether earnings management was upward and downward. This means that we must do the empirical work in two steps. First, accrued earnings are decomposed, via regression, into a normal part and a residual one. The normal component estimates the accruals that the average firm with the same characteristics would have shown; the residual, therefore, is our measure of discretionary accruals (*DAC*). Because this step is of tangential interest only and breaks the flow, we merely mention that we use a Jones (1991)-Kasznik (1999) regression, expanded with lagged accruals as an additional regressor. Further details are relegated to the Appendix.

In step 2 we estimate the following switch-like multiple-regression models:

$$\frac{DAC_{i,t}}{TA_{i,t-1}} = \begin{cases} \boldsymbol{K'X} + \nu_{i,t}\,, & \text{if } DAC_{i,t} \le 0 \\ \boldsymbol{L'X} + \nu_{i,t}\,, & \text{if } DAC_{i,t} > 0 \end{cases} \qquad (1)$$

where

$$\boldsymbol{K'X} = \kappa_0 + \kappa_1\, I(TAX_{i,t}) + \kappa_2\, I(100Empl_{i,t}) + \kappa_3 \frac{AP_{i,t}}{TA_{i,t-1}} + \kappa_4 \frac{FinD_{i,t}}{TA_{i,t-1}} + \kappa_5\, I(\Delta FinD_{i,t}) + \kappa_6\, \mathrm{Ln}(BSize_{i,t}) + \kappa_7\, I(Big6_{i,t}) + \kappa_8\, I(GROUP_{i,t}) + \kappa_9 \frac{OCF_{it}}{TA_{i,t-1}} + \kappa_{10} \frac{EARN_{i,t}}{TA_{i,t-1}},$$

$$\boldsymbol{L'X} = \lambda_0 + \lambda_1\, I(TAX_{i,t}) + \lambda_2\, I(100Empl_{i,t}) + \lambda_3 \frac{AP_{i,t}}{TA_{i,t-1}} + \lambda_4 \frac{FinD_{i,t}}{TA_{i,t-1}} + \lambda_5\, I(\Delta FinD_{i,t}) + \lambda_6\, \mathrm{Ln}(BSize_{i,t}) + \lambda_7\, I(Big6_{i,t}) + \lambda_8\, I(GROUP_{i,t}) + \lambda_9 \frac{OCF_{it}}{TA_{i,t-1}} + \lambda_{10} \frac{EARN_{i,t}}{TA_{i,t-1}}.$$

The switch regression can be estimated by forming separate samples for positive and negative *DAC*s, and using joint ("seemingly unrelated") regression. The regressors themselves are defined as in Table 2, below, and are discussed in Section 3.2.

There are, however, several methodological barbs associated with (1). Note, first, that the switching is based on the entire left–hand-side variable (*DAC*), not on the basis of E(*DAC*|***X***), the regression line itself—that is, the part of the accruals valuation decision that is explicitly modelled in the regression. The economic motivation for switching on the basis of *DAC* not E(*DAC*|***X***) is that, in principle, we interpret the regression "error" not as meaningless noise but as the result of management's conscious decisions. The fact that these decisions are reactions to circumstances too diverse to be modelled explicitly does not mean that they are less meaningful than the ones that are modeled explicitly. Statistically, however, this way of characterising the switch process creates a peculiar problem for the observations with fitted values around zero. For instance, in the positive-*DAC* sample only the observations with realised values above zero (i.e. the ones with sufficiently large regression errors) are retained, which makes the error sampling process a-select. The implication of this feature of (1) is that we should use truncated regression rather than OLS. There is, however, another problem associated with the *DAC*-based switch process: the *DAC* regressand generated in step 1 is measured with error. This means that there is a misclassification problem: some observations that we deem to be positive earnings adjustments in reality are downward corrections and *vice versa*. This problem is, of course, not solved with truncated regression. We try to deal with the twin issues in two ways. In a first approach we simply use OLS and argue that for all coefficients but one the resulting estimation bias is towards zero, that is, against acceptance; this makes the significance statements conservative. Alternatively, we get rid of the troublesome *DAC*-observations around zero and focus on the extreme ones. We discuss each solution in turn.

In the full-sample OLS estimates, using OLS instead of truncated regression creates a bias towards zero because, as shown in Figure 1, in the X-zone where truncation matters the surviving regression errors are negatively (positively) correlated with X when the true slope is positive (negative). As a result of the bias towards zero, any significance statement is conservative. Regarding misclassification, the normal effect is that the computed regression coefficient is a mixture of the slopes in each of the sub-populations.[9] It turns out that for all

test variables but one—$I(TAX)$—the *prima facie* significant coefficient is in the negative-DAC sample, with the corresponding slope from the positive-DAC sample smaller in both absolute and statistical terms. Thus, for all variables except $I(TAX)$, the significant coefficient for the negative-DAC sample was biased towards zero, which again makes significance inferrals conservative. True, in the positive-DAC sample misclassification must then have created some bias away from zero; but as no slope, apart from $I(TAX)$, is significant, any such bias would not affect the conclusions. Thus, the only problem variable is $I(TAX)$, where part of the negative coefficient in the negative-DAC sample may have been due to a rub-off effect, via misclassification, from the positive-DAC population.

Figure 1: The effect of Truncation on the error structure

In our alternative attempt to deal with the combined truncation/misclassification problem, we add two more steps to the above procedure. In step 3, we compute fitted values from (1), rank observations on the basis of these fitted values, and retain only the observations corresponding to the top and bottom 25% $\hat{DAC}$s. The purpose of dropping the middle 50% data is to eliminate most of the observations that could be truncated or misclassified, even if in the process many correctly-signed data get dumped too. Importantly, however, the selection is not done on the basis of DAC itself but on the basis of some linear combination of regressors, thus avoiding any induced non-random sampling of regression errors.[10] Having side-stepped the selection-criterion issue and (most of) the misclassification problem, we lastly rerun (1) on just the extreme-DAC sample. The simplicity of this solution comes at the cost of a loss of power because the range of the regressors is narrower and the number of observations is down.

3.2. Regressors and Hypotheses.

The variables themselves are defined in Table 2, along with the signs predicted by the hypothesis or by the competing hypotheses. Again, most entries are self-explanatory so that our discussion, below, is confined to a few finer points. If there is a monitoring hypothesis about a variable, its prediction is less action at either sign, *i.e.* $\lambda < 0$, $\kappa > 0$.

Table 2: Model specification and variable measurement

Taxes. While we do not know whether firms have sufficient tax-loss carry-forwards to avoid taxation in year t prior to massaging the earnings figure, we do know whether they paid taxes

in year *t–1*. If tax was paid, there surely is no tax-loss carry forward this year; if no tax was paid, there almost surely is a carry-forward (albeit of uncertain size). The indicator (or dummy) variable $I(TAX_{i,t})$ is set equal to unity iff the firm did pay taxes last year. Thus, that variable should be associated with income-decreasing action, but less so when other considerations already point towards lowered profits (that is, when $DAC \leq 0$). In short, the "don't overdo it" logic predicts $\lambda < \kappa < 0$.

Employee stakeholders. We report coefficients for the indicator $I(100Empl)$ signalling that there must be a works council. Under the incentive hypothesis (to stave off wage hikes) the existence of a works council prompts the firm to decrease earnings under all circumstances, but less so when other considerations already point towards lowered profits (that is, when $DAC \leq 0$). Thus, we again expect $\lambda < \kappa < 0$.

Supplier stakeholders. The variable is A/P scaled by total assets at the beginning of the period, $AP_{i,t}/TA_{i,t-1}$. Under the incentives hypothesis, management wants to obtain attractive credit terms by boosting earnings, and but less so when other considerations already point towards increased profits (that is, when $DAC > 0$). Thus, the hypothesis is $\kappa > \lambda > 0$.

Bank stakeholders. The importance of good relations with the house bank is proxied for by Financial Debt scaled by lagged total assets, $FinD_{i,t}/TA_{i,t-1}$, and by an indicator that a new loan is being taken up next year, $I(\Delta FinD_{i,t})=1$. The logic is the same as for suppliers relations, so the prediction is $\kappa > \lambda > 0$.

Board Size. $\mathrm{Ln}(BSize_{i,t})$ is the natural logarithm of the number of directors on the board. We prefer the logarithm of the number of directors, as a plot of the discretionary accruals of a given sign against board size flattens out. A large board could mean inefficient monitoring and, therefore, $\lambda > 0$, $\kappa < 0$; or it could mean more expertise, in which case we should see $\lambda < 0$, $\kappa > 0$.

Big-6 auditor is indicated by $I(Big6_{i,t})=1$. Conventional wisdom and US evidence suggests that its effect is to moderate all forms of earnings management (*i.e.* $\lambda < 0$, $\kappa > 0$).

Control variables (1): transactions with related companies. If the firm *is* part of group (*i.e.* $I(GROUP_{i,t})=1$), then opportunistic transfer pricing is more likely in, *a priori*, either direction: $\lambda > 0$, $\kappa < 0$.

Control variables (2): operating cash flow and earnings. We further include cash flow from operations ($OCF_{i,t}/TA_{i,t-1}$) and earnings before taxes ($EARN_{i,t}/TA_{i,t-1}$), both scaled by lagged

total assets, to control for potential misspecification that may occur in tests of earnings management for firms with extreme financial performance (Dechow *et al.* 1995). Prior research (Dechow *et al.* 1995) obtained a negative coefficient on operating cash flow and a positive coefficient on earnings.

4. Sample selection and descriptive statistics

Table 3 gives an overview of the sample selection procedure for the event sample that we use to test the explanatory model in equation (1). Firms in our population have to satisfy the following criteria: (*i*) submit full financial statements, (*ii*) have these statements audited by an auditor and (*iii*) be an industrial or commercial company (NACE codes 0-7)[11], in an industry that has at least 100 companies in each of the sample years, so that at least 50 are available for estimation of the *DAC* regressions, and 50 for testing. We identify our population from the Belfirst CD-ROM, June 1999. Our analysis bears on the period 1994-6. Of the about 18,000 observations in the population, a random event sample of over 3000 candidate firm-years was selected to test the main hypothesis, while the about 15,000 remaining observations were used for estimation of discretionary accruals.

Table 3: Sample Selection Procedure

From the over 3000 resulting observations we further deleted (*i*) firm-years for which the auditor could not be identified or where the firm changed auditors (there is evidence that firms have negative discretionary accruals in the last year with the original auditor; see, for example, DeFond and Subramanyam 1998); (*ii*) observations that bore on listed companies; (*iii*) firm-years with missing data for the variables in our accruals expectations model or explanatory model, occasionally including some lagged variables, like $TA_{i,t-1}$, and leading financial debt number used in $\Delta FinD_{i,t}$. Table 4 gives a breakdown of our sample by industry.

Table 5 presents the descriptive statistics for our sample. It shows that income-decreasing earnings management is somewhat more prevalent (54.3 percent) than income-increasing action. The mean (median) absolute level of discretionary accruals ($|DAC|$) is about 4.9 (3.1) percent of lagged total assets. 37 percent of our firm-year observations are audited by big-6 auditors. This is fairly consistent with the anecdotal evidence on the market shares held by big-6 and other auditors in the private client segment of the Belgian audit market. Mean

(median) amount of financial debt is 17.32 (10.25) percent of total assets. For almost 48 percent of the sample firm-year observations, there was an increase in financial debt in the year after consideration. Mean (median) trade credit is over 28 (24) percent of total assets. Trade credit is a more prevalent source of external finance than financial debt. 28 percent of our sample firm-years have more than 100 employees and thus should have a works council. 71 percent of our sample firm-years paid taxes in the prior year, and have no tax-loss carry-forwards. More than 50 percent of our sample firms have boards of 3 or less members. 73 percent of the firm-year observations report that they have financial assets in or have accounts receivables from or debt to an affiliated company, and hence are considered to belong to a group. Mean (median) cash flow amounts to over 7.79 (6.67) percent of lagged total assets. Mean (median) earnings, lastly, are about 5 (2.86) percent of lagged total assets.

Table 4: Industry classification of firm-year observations

Table 5: Descriptive statistics on the variables of our explanatory model

5. Empirical Results

Table 6 reports our empirical results on the incentives for and constraints on earnings management in privately held firms. Columns 2-3 present the coefficients and p-values for the negative-*DAC* subsample, columns 4-5 for the positive-*DAC* subsample and columns 6-7 the p-values for differences in the coefficient estimates between both subsamples. The t- or F-test statistics are based on the White heteroskedasticity-consistent covariance matrix (White, 1980). The overall F-value and adjusted R^2 (55.29 percent) are significant. The correlation matrix in Table 7 does not indicate any severe multicollinearity problems.

In our discussion we will focus mostly on the full-sample estimates, except for *I*(*TAX*) where, for reasons noted above, significance inferences from the full-sample results are not reliable.[12] We first discuss the two possible motives for downward earnings manipulation: taxes, and wage negotiations. We then proceed with the remaining stakeholders: bankers and suppliers.

Table 6: Results from the full sample (N=1302)

Table 7: Correlation matrix for explanatory variables in our basic model

- *Taxes.* In Table 6 we report a significantly negative coefficient on *I*(*TAX*) for negative *DAC*s, an even more negative (and significant) coefficient for positive *DAC*s, and a significant difference between the two; but, as noted before, the misclassification problem makes the negative-*DAC* estimate suspect. Fortunately, in Table 8, the result from the extreme-*DAC* sample is that both coefficients remain negative and statistically clear, even though their difference is no longer significant. The conclusion is that if a firm *is* in a tax-paying position, then its upward corrections, if any, are clearly toned down relative to a non-tax-paying firm. Likewise, if the firm ends up with, on balance, downward corrections, there again is a clear tax-related component. All this conforms with the predictions of the tax incentive hypothesis.

- *Works council.* Table 6 further shows that the estimated coefficients on the variable *I*(100*Empl*) are not significant, whether in the negative- or in the positive-*DAC* subsample. When we use, instead of *I*(100*Empl*), the log of the number of employees we obtain the same non-result. Thus, there is no evidence that earnings are manipulated downward to prevent wage-hike demands. Nor is there any indication that the works council acts as a monitor, prompting management to go easy on earnings management.

- *Financing stakeholders.* As reported in Table 6, we find that the coefficients for the variables *FinD*/*TA*, Δ*FinD* and *AP*/*TA* are very significantly positive in the negative-*DAC* subsample. In the positive-*DAC* sample, in contrast, all coefficients are insignificant. Not surprisingly, then, for two of the variables, namely *FinD*/*TA* and *AP*/*TA*, the difference between the coefficients of the negative- and positive-*DAC* subsamples is significantly negative. This does not fit in with the monitoring hypothesis: in that case one would expect pressure to moderate especially increases and, perhaps, decreases. Rather, the picture is one of incentive-based management. When the firm *is* decreasing its earnings—because of taxes, for instance—these decreases are clearly toned down when the firm needs to make a good impression on its banker or suppliers. But, in don't-overdo style, when the firm already is in an earnings-increasing mode for some other reason, then pleasing the banker and suppliers does not seem to be a noticeable concern.

We now turn to the governance-related mechanisms: board size, and big-6 auditor:

- *Board size.* Do larger boards have more expertise at detecting earnings management, or do they simply lose efficiency, or does the number of directors hardly matter for this purpose?

The answer seems to be that it depends on the situation. The coefficient estimate for the income-decreasing subsample is significantly positive. That is, the level of income-decreasing earnings management is definitely more moderate when the board is large. In contrast, for the positive-*DAC* subsample the coefficient is insignificantly negative; and the test on the difference between the positive- and negative-*DAC* samples confirms that the board-size effects do differ. In short, there is no clear evidence of a moderating influence under all circumstances, a normal sign of a monitoring effect. But as the board cannot be associated with an incentive to manage earnings upward,[13] our diagnosis still is that monitoring does happen when the unrestrained *DAC* would have otherwise been very negative.

- *Big-6 auditor.* Table 6 indicates that none of the coefficients associated with the *Big6* dummy are significant. As this contradicts the extant evidence, we have added extensive robustness tests, experimenting with other potential indicators of quality such as size—also local firms can be large— or being in the top-5 sizewise, and with interactions between *I*(*Big6*) and various measures of the customer's financial risk, but to no avail.

Lastly, we discuss the results on the control variables. The coefficients associated with the *group-membership* dummy are significant and point towards more manipulation: the slope in the negative-*DAC* sample is clearly negative, the one in the positive-*DAC* sample clearly positive, and the difference between the two slopes is significant, too. This finding of more manipulation across the board when there are related companies is what one would expect. When we split this dummy into two dummies, "parent" and "subsidiary", both are significant. Finally, the coefficients on the other two control variables, *OCF/TA* and *EARN/TA*, are significant and their signs are as predicted, in both the income-decreasing and increasing subsamples. Table 8 confirms that these results are not due to misclassification.

Table 8: Results from the sample of extreme fitted *DAC* (N=651)

6. Summary and discussion

Prior studies have focused on the impact of governance and monitoring mechanisms on earnings management in publicly held firms. In this paper we formulate hypotheses on incentives for, and constraints on, earnings management in privately held continental-

European companies. A broad sample of industrial and commercial privately held Belgian companies was used to test whether discretionary accruals management is influenced by firms' relationships with bankers, suppliers, employees and tax authorities; and by more traditional internal and external governance mechanisms such as the board of directors and external auditing.

Confirming conventional wisdom in Belgium, we find clear evidence that privately held firms decrease earnings for tax reasons. Another unambiguous effect is that financial stakeholders (banks and suppliers) have an impact on earnings management by privately held firms. In particular, we find that firms that rely to a higher extent on financial or commercial debt are detectably more moderate in their income-decreasing earnings management. Such income-decreasing earnings management is, similarly, less pronounced in the year before firms raise additional financial debt on non-public capital markets. This is consistent with firms toning down tax avoidance to please crucial stakeholders. By contrast, we do not find that firms manage earnings to influence the terms of trade with employees. This is consistent with earlier results of Liberty and Zimmerman (1986) and Konings, Labro and Roodhooft (1998).

As to more traditional governance mechanisms, we find that earnings management, and specifically the downward version, is less pronounced in firms with larger boards. Somewhat unexpectedly, our results do not support the hypothesis that big-6 auditors constrain earnings management more than do non-big-6 auditors. This evidence contrasts with evidence on differences in earnings management between big-6 and non-big-6 clients for listed US firms (see Becker *et al.* 1998, Francis *et al.* 1999). It is not clear what explains the difference with the US results. It may be a consequence of the lower probability of detection of an audit failure, for either of the following reasons. First, financial statements of nonlisted firms are not scrutinised by financial analysts, investors, or market overseers. Second, the Belgian audit environment is less litigious, which not only reduces the probability that audit failures will be detected, but also the probability that the auditor will indeed incur adverse effects of an audit failure.

Other evidence as to audit–quality differentiation in the Belgian audit market is mixed. Gaeremynck and Willekens (2002) find that there are no differences as to audit reporting between big-6 and other audit firms when problems in client firms are very obvious, but do find more stringent reporting by big-6-auditees when the problems in client firms are more subtle.

Willekens and Achmadi (2002) report fee premia for big-6 auditors, but report a significant decrease of these premia during the 1990s. Vander Bauwhede, Willekens and Gaeremynck (2001) find that big-6 auditors do constrain income-decreasing earnings management in the large nonlisted-client segment and the listed-client segments of the Belgian audit market, but they find no evidence that they constrain income-increasing earnings management.

Appendix: Measurement of Discretionary Accruals (*DAC*)

We measure the extent of earnings management through discretionary accruals. Discretionary accruals were estimated using an accruals expectations model. From the literature, existing accruals expectations models have a low predictive power. We have started from the Jones (1991)-Kasznik (1999) regression but have substantially improved its performance by adding lagged total accruals as a regressor. That is, we estimate the following accruals expectations model, on all the year- and industry-specific records that were *not* randomly selected to be part in our event sample (the one used for our analysis of constraints on earnings management)[14,15]:

$$\frac{TAC_{i,t}}{TA_{i,t-1}} = \beta 0_{j(i),t} + \beta 1_{j(i),t}\frac{GPE_{i,t}}{TA_{i,t-1}} + \beta 2_{j(i),t}\frac{AdjRev_{i,t}}{TA_{i,t-1}} + \beta 3_{j(i),t}\frac{\Delta OCF_{i,t}}{TA_{i,t-1}} + \beta 4_{j(i),t}\frac{TAC_{i,t-1}}{TA_{i,t-1}} + \varepsilon_{it},$$

where:

$TAC_{i,t}$ = total accruals for firm i in industry $j(i)$ and year t;

$TA_{i,t}$ = total assets for firm i in industry j in year t;

$GPE_{i,t}$ = gross property plant and equipment for firm i in industry j in year t;

$AdjRev_{i,t}$ = change in revenues minus change in receivables for firm i in industry j in year t;

$\Delta OCF_{i,t}$ = change in operating cash flow for firm i in industry j in year t.

Total accruals are computed as working capital accruals minus depreciation. Gross property plant and equipment is included in the accruals expectations model to account for the part of total accruals that is derived from depreciation accruals, while change in revenues is included to account for changes in working capital accruals (Jones, 1991). Change in revenues is adjusted for change in accounts receivables to account for the fact that credit sales may be discretionary (Dechow *et al.*, 1995). Change in cash flow from operations is included following Dechow *et al.* (1994) who report that this variable is significantly related to total accruals (Kasznik, 1999). We included lagged total accruals because the components of prior year *t*otal accruals may include information as to the magnitude of this year's total accruals. Including this variable is in line with Guay *et al.* (1996), who argued that standard accruals expectations models might be enhanced by recognising that (some of the) accruals reverse over time.

Further, Beneish (1997) also proposed to include lagged total accruals in order to respond to the fact that the current accruals expectation model (*i.e.* the Modified Jones Model) did not seem to capture the accruals patterns that are observed in firms that were identified to violate GA*AP*. Note that all the variables in our accrual expectations model are scaled by lagged total assets to allow for any heteroskedasticity being present in the regression in levels (Jones, 1991).[16]

The sample selection is described in Section 4. Having estimated the total-accruals model, we compute, in the event sample, the fitted values, to be interpreted as the normal accruals for a firm with the same characteristics. Discretionary accruals, then, are the out-of-sample residuals. Appendix Table A1 reports summary statistics on the estimated coefficients of discretionary accruals. The explanatory variables are generally significant and have acceptable signs. The explanatory power—a mean (median) adjusted R-squared of 0.7522 (0.7639)—is quite satisfactory: in our sample, our regression's R^2 outperforms the Kasznik (1999) equation by over 25 percent. The concomitant reduction of estimation error in discretionary accruals should, in turn, increase the power of our tests of earnings management. Appendix Table A2 reports summary statistics of total accruals, and the estimated discretionary and non-discretionary accruals.

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[1]For example, the Cadbury report in the UK, the Viénot report in France, the report of the Peters Commission in the Netherlands, and, in Belgium, the reports by the Government Commission on Corporate Governance and the Banking and Finance Commission.

[2]Examples of studies of differences between Big-N and other firms include 1) as to audit fees charged, with higher fees for Big-N firms: Simunic (1980), Palmrose (1986a,b), Francis and Simon (1987), Gist (1992), Craswell et al. (1995); 2) as to audit reports issued, with more qualifications (ceteris paribus) issued by big-N firms: Mutchler *et al.* (1996); Gaeremynck and Willekens (2002); 3) as to earnings management with Big-N firms constraining earnings management more: Becker *et al.* (1998) and Francis *et al.* (1999).

[3]A firm is obliged to prepare and publish financial statements in case of limited liability of the owners. The amount of detail in the financial information provided depends on the size of the firm. If the firms meet two of the following criteria, total assets > 3,125,000 Euro, turnover > 6,250,000 Euro and the number of employees > 50, it qualifies as a 'large' firm and then the full version of the financial statements is to be submitted. Companies appointing more than 100 employees always classify as 'large' firms.

[4]This is not to say that there are no other mechanisms that enforce auditing standards in Belgium: the Institute of Auditors may impose disciplinary sanctions, and an audit firm's reputation will still be damaged in case a violation of the auditing standards is revealed. Furthermore, for the Big-N firms (which are Belgium's largest auditors) the standardised US-based audit methodologies and training programmes apply throughout the world.

[5]Regarding the stakeholder-related incentives, Trueman and Titman (1988) merely predict higher levels of earnings management, whether income-increasing or -decreasing, in companies that depend to a higher extent on financiers, suppliers and employees. Others (e.g. Bowen *et al.*, 1995; Burgstahler and Dichev, 1997; Liberty and Zimmerman, 1986) predict specific directions: they expect more income-increasing earnings management for firms that rely more on external financiers, need additional external finance and suppliers, and more income-decreasing earnings management for firms that depend more on employees. We adopt that second, direction-specific approach.

[6]Some claim though that a board should optimally include 8 to 12 directors. The Belgian Committee on Corporate Governance decided that boards should not include more than 12 directors. Lipton and Lorsch (1992) recommend that boards should not include more than 10 directors, and preferably only include 8 or 9 directors. Prior studies on publicly held firms, report mean and medians that range between 7 and 12 board members. In particular: Mean and median board size in Peasnell *et al.* 1999 is 8; and mean and median board size in Dechow *et al.* 1996 : 9 and 7 respectively.

[7]An assessment of whether external auditing *per se* affects a firm's earnings management behaviour is impossible as all firms in the sample have an auditor by law.

[8]See for example Carpenter and Strawser (1971), Simunic (1980), Francis (1984), Palmrose (1986), Francis and Simon (1987), Simunic and Stein (1987), Francis and Wilson (1988), Palmrose (1988), Simon and Francis (1988), DeFond (1992), Francis *et al.* (1999).

[9]This is true only when the means do not differ substantially across the samples. A tell-tale symptom of this would be that the slopes of a pooled-sample regression is not in-between the slopes of the two separate regressions. This turned out to be no problem here.

[10]The solution is, conceptually, akin to 2SLS/IV, where a regressor is replaced by its fitted value from an auxiliary regressor. Note also that, as the purpose of the linear regression merely is to provide fitted variables that do a reasonable job in *ranking* the true conditional expected values, it is not so crucial that the fitted values are estimated inconsistently.

[11]The NACE-code is an industry classification chart, comparable to the US SIC. We do not include firms in the rather deviant financial and insurance industries (NACE code 8) and the overly heterogeneous lot that provide "other services" (NACE code 9).

[12]It can be verified that generally the extremes sample produces similar results except that significance levels tend to be lower. The lower significance level could be due to the halving of the sample size, a narrowing-down of the variance of the regressors, or to a flattening-out of the relation between DAC and X for very high or low X, that is, a misspecification of the linear regression.

[13]True, board members get a profit share ("*tantième*") which could provide an incentive to increase profits. But in the absence of any separation between ownership and control and any tax discrimination between dividends and *tantième*, dividends can be used equally well to reward the board, and dividends have the advantage of not messing up any earnings-management that may have been intended.

[14]We refer to the (industry- and year-) specific samples as "the estimation samples", and the random sample used for the analysis of constraints on earnings management as the "event sample".

[15]Before estimation we deleted from the estimation and event sample all observations that were influential w.r.t. our accruals expectations model. Influential observations were identified by using the DFFITS and COOK's distance measures.

[16]Glesjer tests indicated that there was indeed a heteroscedasticity problem, and that lagged total assets were the best scaling variable.

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Graph 1: The effect of Truncation on the error structure

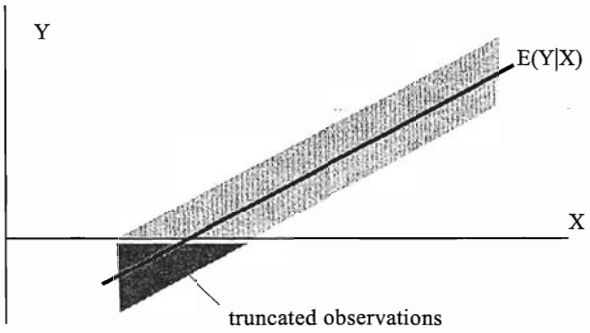

Table 1. Overview of hypotheses

Incentives (stakeholder-related)
• *Tax-incentive* hypothesis: The firm always has an incentive to manage earnings *downward*, but especially so when there are no loss carry-overs.
• *Wage-cost incentive* hypothesis: To stave off demands for higher wages, the firm has an incentive to manage earnings *downward*. This incentive is stronger when there are more employees and when there is a works council.
• *Trade-credit incentive* hypothesis: To preserve or improve trade-credit terms, the firm has an incentive to manage earnings *upward*. This incentive is stronger, the more important trade credit is.
• *Interest–cost incentive* hypothesis: To keep down the cost of rolled-over or new loans, the firm has an incentive to manage earnings *upward*. This incentive is stronger, the more important loans are and when borrowing is to be increased in the near future.
Restraining factors

• *monitoring effect of stakeholders* hypothesis: to avoid the cost of a loss of trust and reputation that follow upon detection of earnings management by a stakeholder, firms tend to avoid such management the more they depend on stakeholders, e.g.
  • when there are more employees and when there is a works council
  • the more important credit is
  • the more important loans are or when borrowing is to be increased.

• *monitoring effect of governance structures* hypothesis: the firm tends to practice less earning management,
  • the smaller its board is,
  • if the auditor is a big-N company

Table 2: Model specification and variable measurement

	main test variable definition	*Incentive hypothesis*	*Restraint hypothesis*
$I(TAX_{i,t})$	Dummy, =1 if client firm *i* paid taxes in t–1, = 0 otherwise	$\lambda_1<\kappa_1<0$ (avoidance)	$\lambda_1<0$, $\kappa_1>$ (smoothing)
$I(100Empl_{i,t})$	Dummy, =1 if the client firm, having ≥ 100 employees, has a works council; = 0 otherwise	$\lambda_2<\kappa_2<0$	$\lambda_2<0$, $\kappa_2>$ (monitoring)
$\frac{AP_{i,t}}{TA_{i,t-1}}$	Amount of commercial debt over initial total assets of client firm *i* in year *t*	$0<\lambda_3<\kappa_3$	$\lambda_3<0$, $\kappa_3>0$ (monitoring)
$\frac{FinD_{i,t}}{TA_{i,t-1}}$	Amount of financial debt over initial total assets of client i in year *t*	$0<\lambda_4<\kappa_4$	$\lambda_4<0$, $\kappa_4>0$ (monitoring)
$I(\Delta FinD_{i,t})$	Dummy, = 1 if client i's financial debt increases between years t and t+1, = 0 otherwise	$0<\lambda_4<\kappa_4$	$\lambda_5<0$, $\kappa_5>0$ (monitoring)
$\mathrm{Ln}(BSize_{i,t})$	Natural logarithm of number of directors on the board of client firm *i* in year *t*	—	size=expertise: $\lambda_6<0$, $\kappa_6>0$ big=inefficient: $\lambda_6>0$, $\kappa_6<0$
$I(Big6_{i,t})$	Dummy, =1 when the audit firm of client firm *i* in year *t* is a big-6 auditor; = 0 otherwise	—	$\lambda_7<0$, $\kappa_7>0$ (monitoring)
	control variable definition	*hypothesis*	
$I(GROUP_{i,t})$	Dummy, = 1 if client firm *i* in year *t* reports it has financial assets in an affiliated company and/ or reports receivables from or debt to an affiliated company	$\lambda_8<0$, $\kappa_8>0$	
$\frac{OCF_{i,t}}{TA_{i,t-1}}$	Operating cash flow of client firm *i* in year *t* scaled by lagged total assets	$\lambda_9<0$, $\kappa_9<0$ (Dechow *et al.*, 1995)	
$\frac{EARN_{i,t}}{TA_{i,t-1}}$	Earnings before taxes of firm *i* in year *t* scaled by lagged total assets	$\lambda_{10}>0$, $\kappa_{10}>0$ (Dechow *et al.*, 1995)	

Table 3: Sample Selection Procedure

Random Sample from Total Population		3137
Firm-years without auditor data or of firms that changed auditors		–963
Firm-years of publicly held companies		–15
Firm-years whose industry- and year-matched portfolios had less than 50 obs		–613
Firm-years with missing data for discretionary accruals calculation		–126
Firm-years with missing data for variables of explanatory regression		–118
Remaining number of firm-years		1302
Whereof	Number of firms in year 1994	344
	Number of firms in year 1995	517
	Number of firms in year 1996	441
Number of firms with one year of data		99
Number of firms with two years of data		249
Number of firms with three years of data		235
Total number of firms		583

Table 4: Industry classification of firm-year observations

NACE Code	Description (1-digit level)	NACE Code	Description (2-digit level)	# firm-years	# firms
2	Chemical industry	24	Manufacture of non-metallic mineral products	55	21
		25	Chemical industry	37	18
3	Metal	31	Manufacture of metal articles	42	25
		32	Mechanical engineering	45	17
		34	Electrical engineering	12	5
4	Other manufacturing	41	Food drink and Tobacco industry	31	16
		42	Food drink and Tobacco industry	41	17
		43	Textile industry	36	15
		45	Leather industry	10	4
		46	Timber and wooden furniture industries	23	11
		47	Manufacture of paper and paper products, printing and publishing	43	19
		48	Processing of rubber and plastics	20	9
5	Building and civil engineering	50	General building and engineering	160	70
6	Distributive trades, hotels, catering, repair	61	Wholesale distribution	478	211
		63	Agents	22	11
		64	Retail distribution	41	19
		65	Retail distribution	41	19
		66	Hotels and catering	19	8
		67	Repair of consumer goods and vehicles	19	14
7	Transport and communication	72	Other (than railway) transport	53	23
		76	Supporting services to transport	10	4
		77	Travel agents and agents facilitating transport, storage and warehousing	64	27
Total				1302	583

Table 5: Descriptive statistics on the variables of our explanatory model[a]

Variable	N	Mean	St.Dev.	Min.	Q1	Median	Q3	Max
*DAC*SIGN	1302	0.457	0.498	0	0	0	1	1
|*DAC*|	1302	0.049	0.055	0.000	0.014	0.031	0.066	0.571
FinD/TA	1302	0.173	0.191	0	0.001	0.103	0.306	0.920
Δ*FinD*	1302	0.484	0.500	0	0	0	1	1
AP/TA	1302	0.282	0.205	0	0.132	0.242	0.381	0.988
I(100*Empl*)	1302	0.279	0.449	0	0	0	1	1
I(*TAX*)	1302	0.713	0.452	0	0	1	1	1
LN*BSize*	1302	1.299	0.336	0	1.098	1.098	1.386	2.565
BSize	1302	3.890	1.541	1	3	3	4	13
I(*Big6*)	1302	0.372	0.483	0	0	0	1	1
I(*GROUP*)	1302	0.732	0.443	0	0	1	1	1
OCF/TA	1302	0.077	0.196	-1.255	-0.019	0.067	0.152	1
EARN/TA	1302	0.052	0.115	-0.407	0.002	0.029	0.094	1.140

*DAC*SIGN = dummy that takes the value 1 if discretionary accruals are positive and 0 when discretionary accruals are negative; *BSize* = number of directors on the board; for other variable definitions, see Table 3.

Table 6: Results from the full sample (N=1302)

	Negative-*DAC* subsample (N1 = 707)		Positive-*DAC* subsample (N2 = 595)		difference between estimates, negative- *v* positive-*DAC* subsamples	
Variable	estimate	p-value	Estimate	p-value	Estimate	p-value
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	−0.0637	<0.0001***	0.0560	<0.0001***	0.1197	<0.0001***
I(*TAX*)	−0.0091	0.0556*	−0.0281	0.0001***	−0.0190	0.0156**
I(100emp)	0.0013	0.3733	0.0029	0.2732	0.0016	0.3988
AP/TA	0.0247	0.0049***	−0.0111	0.1532	−0.0358	0.0062***
FinD/TA	0.0365	0.0006**	0.0001	0.4988	−0.0365	0.0169**
I(Δ*FinD*)	0.0068	0.0335**	0.0008	0.4156	−0.0059	0.1331
ln(*BSize*)	0.0136	0.0130**	−0.0065	0.1272	−0.0201	0.0082***
I(*Big6*)	−0.0020	0.3176	0.0018	0.3533	0.0037	0.2755
I(*GROUP*)	−0.0133	0.0003***	0.0073	0.0459*	0.0206	0.0002***
OCF/TA	−0.1034	<0.0001***	−0.1159	<0.0001***	−0.0125	0.3451
EARN/TA	0.2620	<0.0001***	0.2616	<0.0001***	−0.0004	0.4976

F-value 77.6100, p-value 0.0001, R^2adj = 0.5529

Variables are defined in Table 2. p-values in (3) and (5) are one-sided, those in (7) two-sided. All are computed using the White heteroskedasticity-consistent covariance matrix (White 1980).

*** significant at 1 % level; ** significant at 5 % level; * significant at 10 % level.

Table 7: Correlation matrix for explanatory variables in our basic model

Pearson Correlation Coefficients, N = 1302; Prob>|r| under H_0: ρ=0

	Big6	*LNBSize*	*FinD/TA*	*AP/TA*	*I*(Δ*FinD*)	*I*(100*Empl*)	*I*(*TAX*)	*I*(*GROUP*)	*OCF/TA*
LNBSize	0.00023 0.9933	1.00000							
FinD/TA	0.01111 0.6888	0.01560 0.5737	1.00000						
AP/TA	0.08132 0.0033	−0.06622 0.0169	−0.21553 <.0001	1.00000					
I(Δ*FinD*)	−0.05102 0.0657	0.04761 0.0859	0.12600 <.0001	−0.00213 0.9387	1.00000				
I(100*Empl*)	0.00145 0.9584	−0.06321 0.0226	0.01344− 0.6280	0.04899 0.0772	−0.01510 0.5863	1.00000			
I(*TAX*)	−0.04588 0.0980	0.08753 0.0016	−0.22328 <.0001	0.02385 0.3899	−0.03817 0.1687	0.06162 0.0262	1.00000		
I(*GROUP*)	0.34790 <.0001	0.14451 <.0001	0.01319 0.6344	−0.00948 0.7326	−0.03074 0.2676	0.04857 0.0798	−0.01144 0.6801	1.00000	
OCF/TA	−0.03002 0.2791	0.00565 0.8385	−0.29128 <.0001	0.00250 0.9282	−0.05845 0.0349	0.02223 0.4229	0.19768 <.0001	0.00010 0.9970	1.00000
EARN/TA	0.04955 0.0739	0.00515 0.8526	−0.28258 <.0001	−0.08181 0.0031	−0.13262 <.0001	0.05870 0.0342	0.29393 <.0001	0.01597 0.5648	0.52706 <.0001

Table 8: Results from the sample of extreme fitted *DAC* (N=651)

	Negative–*DAC* subsample (N1 = 326)		Positive–*DAC* subsample (N2 = 325)		difference between estimates, negative– *v* positive–*DAC* subsamples	
Variable	estimate	p–value	Estimate	p–value	Estimate	p–value
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	−0.0528	0.0001***	0.0471	0.0010***	−0.0999	0.0001***
I(*TAX*)	−0.0200	0.0230**	−0.0278	0.0149**	0.0078	0.1920
I(100emp)	0.0036	0.2802	−0.0021	0.7834	0.0057	0.2806
AP/TA	0.0127	0.2103	−0.0099	0.6310	0.0226	0.1920
FinD/TA	0.0598	0.0069***	−0.0072	0.3529	0.0526	0.0152**
I(Δ*FinD*)	0.0033	0.3089	0.0025	0.3477	0.0006	0.4644
ln(*BSize*)	0.0150	0.0885**	−0.0026	0.7890	0.0176	0.1151
I(*Big6*)	0.0040	0.2721	0.0023	0.3755	0.0017	0.4292
I(*GROUP*)	−0.0134	0.0829**	0.0066	0.4414	−0.0200	0.0609*
OCF/TA	−0.1452	0.0001***	−0.1465	0.0005***	0.0003	0.4903
EARN/TA	0.4442	0.0001***	0.3142	0.0004***	0.1300	0.1652

F-value 46.37, p-value 0.0001, R^2adj = 0.5944

The regression is run on the observations corresponding to the 25% highest and lowest of the fitted values from the full-sample regression (Table 6). Variables are defined in Table 2. p-values in (3) and (5) are one-sided, those in (7) two-sided. All are computed using the White heteroskedasticity-consistent covariance matrix (White 1980).

*** significant at 1 % level; ** significant at 5 % level; * significant at 10 % level.

Table A1: Descriptive statistics of the year- and industry- specific OLS estimation of the accruals expectations model on the estimation sample

$$\frac{TAC_{i,t}}{TA_{i,t-1}} = \beta 0_{j(i),t} + \beta 1_{j(i),t}\frac{GPE_{i,t}}{TA_{i,t-1}} + \beta 2_{j(i),t}\frac{AdjRev_{i,t}}{TA_{i,t-1}} + \beta 3_{j(i),t}\frac{\Delta OCF_{i,t}}{TA_{i,t-1}} + \beta 4_{j(i),t}\frac{TAC_{i,t-1}}{TA_{i,t-1}} + \varepsilon_{it}$$

with $TAC_{i,t}$= total accruals for firm i in industry j(i) and year t; $TA_{i,t}$ = total assets for firm i in industry j in year t; $GPE_{i,t}$ = gross property plant and equipment for firm i in industry j in year t; $ADJREV_{i,t}$ = change in revenues minus change in receivables for firm i in industry j in year t; $\Delta OCF_{i,t}$ = change in operating cash flow for firm i in industry j in year t.

	N	Mean	Median	St. Dev.	Min	Q1	Q3	Max	% Pos.
b0	66	0.001	0.002	0.014	–0.036	–0.007	0.011	0.01	56.06
t–stat	66	0.252	0.234	1.413	–2.710	–0.784	1.107	5.341	
b1	66	–0.017	–0.018	0.015	–0.049	–0.027	–0.006	0.008	7.55
t–stat	66	–1.701	–1.459	1.527	–5.060	–2.986	–0.606	1.867	
b2	66	0.020	0.016	0.028	–0.049	0.004	0.039	0.153	84.85
t–stat	66	1.286	1.296	1.493	–2.270	0.326	2.036	5.300	
b3	66	–0.731	–0.737	0.105	–0.970	–0.788	–0.671	–0.268	0
t–stat	66	–23.623	–19.253	14.274	–87.110	–26.255	–15.542	–7.540	
b4	66	0.701	0.709	0.116	0.267	0.644	0.774	0.963	100
t–stat	66	20.133	16.979	13.956	3.431	13.110	23.449	85.860	
Nobs	66	251.480	155.500	426.970	50.000	107.250	202.750	2392.00	
adj R^2	66	0.752	0.764	0.106	0.2892	0.697	0.814	0.971	
p–value of White test	66	0.297	0.277	0.214	0.0001	0.116	0.427	0.892	

Table A2: Descriptive statistics on total accruals, discretionary and non–discretionary accruals for the event sample

	N	Mean	st. dev.	Var.	Min.	Q1	Median	Q3	Max
TAC	1554	–0.045	0.164	0.027	–2.086	–0.118	–0.043	0.030	1.101
NAC	1554	–0.042	0.142	0.020	–1.862	–0.108	–0.041	0.026	0.164
DAC	1554	–0.004	0.077	0.006	–0.413	–0.038	–0.003	0.029	0.571

TAC = Total accruals; NAC = non-discretionary accruals, the out-of-sample fitted values from the regression estimated in table 3; *DAC* = *TAC* – *NAC* = discretionary accruals, the out–of–sample residuals.