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EARNINGS MANAGEMENT AND TRADE UNION ACTIVITY: RESULTS FOR BELGIUM

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abstract

It has often been documented in the accounting literature that earnings are managed in the presence of contracts that implicitly or explicitly use accounting numbers. This paper examines the hypothesis that, in firms with strong trade unions, management manipulates reported earnings downward, as compared to firms without trade union activity. We use a direct output measure of trade union activity based on firm level information in a Belgian context. This country is characterised by important labour union bargaining over wages and employment. Using the Jones and modified Jones model to detect earnings management we find no evidence of lower reported earnings in Belgian firms with fierce trade union activity relative to firms without trade union activity.

key words: earnings management, trade unions.

Earnings Management and Trade Union Activity: Results for Belgium

1. Introduction

In this paper, we investigate whether management of firms with strong trade union activity manipulates earnings more than management of firms without trade union activity. We use a direct output measure of trade union activity, based on firm level information. The research question is addressed in a Belgian context, which is characterised by important trade union bargaining over wages, working conditions and employment.

It is well known that in the presence of contracts that implicitly or explicitly use accounting numbers managers have incentives to manipulate accounting earnings. In the context of debt contracts DeFond and Jiambalvo (1994) find that in the year prior to violation of debt covenant restrictions abnormal total and working capital accruals are significantly positive, indicating an income-increasing accounting choice. Holthausen, Larcker and Sloan (1995) find evidence in the context of management compensation contracts that managers tend to manipulate earnings downward when their bonuses are at the maximum. In addition, positive accounting theory predicts that firms facing high political visibility and costs associated with this visibility will make income-decreasing accounting choices to mitigate the possible wealth transfers (Watts and Zimmerman, 1986: chap. 10). The political hypothesis has often been tested in the contexts of potential crises and rate regulation taking size of the firm as a proxy for political visibility.

In this paper we investigate the relation between earnings management and trade union activity. Accounting numbers are explicitly used in all sorts of labour contracts. Implicitly, high accounting earnings make management more vulnerable to fierce trade union activity. Workers consider their claims to be more justified and hence union power will increase. It has often been documented in the literature that trade unions have an effect indeed on wage levels, total compensation and employment (Ehrenberg and Smith, 1996: 508-512) and even on market share performance (Konings and Walsh, 1994). There exist two main bargaining models. The first one is the right-to-manage model in which unions bargain over wages only, thereby forcing firms to pay higher wages, which leads to lower employment. In contrast, in the efficient contract model unions bargain over both wages and employment (Ehrenberg and Smith, 1996: 482-485). In both models unions' objective is to capture a part of the profits generated by the firm. Hence management has incentives to manipulate earnings down in order to curb union bargaining power.

The existing literature on the relation between financial accounting information and trade union activity is limited and results diverge. Some authors find effects of trade unions on the manipulation of financial accounting information, while others do not. Yamaji (1986) hypothesises that management of Japanese firms is inclined to manipulate accounting information to reduce its labour costs. He investigates the ratios of forecasted future accounting income numbers to the realised numbers for the same items by firms that disclose important accounting information before the Japanese collective bargaining period begins and compares them to those ratios of firms that disclose them after the start of the collective bargaining period. Some of the ratios are indeed lower for firms that disclose the accounting information before the

bargaining period. Liberty and Zimmerman (1986) do not find evidence of lower than expected earnings during labour union contract negotiations in the USA in their longitudinal time series analysis. They identified the dates of the labour contract signings in the Wage Calendar and the Wall Street Journal Index. In their first analysis they compare actual earnings to expected earnings assuming annual earnings follow a random walk and taking into account seasonality and trend effects. In their second analysis they compare the total accruals in the negotiation period to the total accruals of the preceding period using three approximations for accounting accruals: (1) the sum of changes in accounts receivable and inventories less the sum of depreciation, the change in accounts payable, the change in income taxes payable and deferred taxes; (2) the change in accounts receivable and (3) the change in inventory balances. DeAngelo and DeAngelo (1991) find evidence of lower reported income during union negotiations, controlling for cash flows, in the troubled US steel industry of the eighties. Cullinan and Knoblett (1994) find no relationship between the extent of unionisation in a firm and accounting policy choices related to inventory and depreciation in an overall American sample. Only in certain industries they discover a significant association of unionisation and inventory accounting policy choice. As a publicly available measure of unionisation they use the percentage of employees covered by collective bargaining contracts.

To our knowledge, this paper is the first to use the earnings management detection methods that are currently regarded as working the best in the accounting literature to investigate whether trade union activity has an impact on earnings management. Using the Jones (1991) and the modified Jones (Dechow, Sloan and Sweeney, 1995) model cross sectionally, we do not find evidence of lower reported earnings in Belgian firms

with fierce trade union activity relative to firms without trade union activity. A second contribution of the paper is that we use a direct output measure of union activity, based on firm level information. This measure captures various effects of the bargaining process such as bargaining over wages, employment, working conditions etc. Third, we address the relationship between earnings management and trade union activity in a Belgian context. Since the Belgian economy is characterised by important labour union bargaining over wages, working conditions and employment, it is an interesting candidate for study. Union bargaining can occur at national, industry or company levels. This is also the case for Belgium where bargaining on a lower hierarchical level proceeds upon what is settled on a higher level. We match on industry sector to exclude effects of higher hierarchical bargaining levels. Using an output measure of trade union activity at the micro level, we study only discretionary decisions at the firm level. Veugelers (1989) documents the bargaining power of Belgian trade unions and finds that union power in Belgian sectors is substantial and highly correlated with competition in the product market. This suggests that unions are able to attract rents from profitable firms. Hence, there is an incentive for firms to manipulate earnings in order to minimise the rent sharing they might be forced to do with unions.

In what follows we will first describe the Belgian data. The third section will present the earnings management models used to investigate the hypothesis that management of firms manipulates earnings during periods of fierce trade union activity. The fourth section discusses the model specification. Section 5 presents the results. A final section concludes the paper.

2. Data

The sample of Belgian firms we look at, covers trade union activity between 1/1/92 and 31/3/95 and shows that trade unions are fairly important, especially in highly concentrated sectors. We compiled the sample by examining the CD-ROM of the Financieel Economische Tijd, Belgium's leading financial newspaper. Word searches were done for the terms trade union, social pressure, strike, collective labour agreement, collective dismissal, trade union front, syndicate, syndicalism and social commotion. Each time the article was read to see whether it was an example of a firm with fierce trade union activity. We classified a firm as having strong unions when the firm experienced strikes or other social conflicts over the period 1992-1995. Note that we use a direct output measure of trade union activity, instead of the more classically used input measures as for example number of members of a trade union. 236 names and geographical locations of firms were noted; 40 of these firms with trade union activity had to be skipped since no financial information was available on the CD-ROM's of the Belgian National Bank (NBB). The NBB compiles the accounting information of all Belgian firms that are obliged by Belgian law to make their financial statements public. Banks, insurers and hospitals who do not have to make their annual accounts public following Belgian law counted for 19 of these 40 firms. The other 21 were missing on the CD-ROM's due to take-overs, bankruptcies or simply missing observations.

For every firm with trade union activity (dummy UNION = 1) in the sample, we looked for a matching partner without trade union activity (dummy UNION = 0). The firms were matched on sector (three or four digit NACE-code), number of employees

and turnover. All these matching firms were checked by their name on the CD-ROM of the Financieel Economische Tijd to ensure there was no trade union activity that was not found with the word searches. When assigning the dummy 1 to UNION it is assumed that trade union power is persistent during time. One period of fierce trade union activity creates a similar threat during the whole period of observation. Three firms with trade union activity had to be deleted from the sample since no matching partner without trade union activity was found. This procedure gives us a sample of 193 different firms with trade union activity and a matched sample of 193 firms without trade union activity. The accounting accruals for the period 1992 - 1995 necessary to perform the Jones and modified Jones tests of earnings management were taken from the annual accounts of the companies as published by the Belgian National Bank. Table 1 presents the descriptive statistics for our sample.

- insert table 1 about here-

3. Detecting Earnings Management

To test the earnings management hypothesis we use the Jones model (1991) and the Jones model as modified by Dechow, Sloan and Sweeney (1995), which prove to be working the best of all published earnings management detection models (Dechow, Sloan and Sweeney,1995; Guay, Kothari and Watts, 1996). Total accruals can be divided in discretionary and non-discretionary accruals. In an attempt to measure the net effect of all accounting choices that impact reported income, earnings management models try to examine the behaviour of discretionary accruals. The models we use

estimate non-discretionary accruals as a function of the change in revenue and the level of property, plant and equipment. These variables control for changes in accruals that are due to changes in the firm's economic condition, as opposed to accruals manipulation.

First, total accruals are defined as the difference between changes in income and changes in cash flow. Following the literature, we scale total accruals by lagged totals assets.

$$\frac{TA_{it}}{A_{it-1}} = \frac{\Delta CA_{it} - \Delta CL_{it} - \Delta CASH_{it} - DEP_{it}}{A_{it-1}} \qquad (1)$$

with TA_{it} = total accruals in year t for firm i

A_{it-1} = total assets at t-1 for firm i

ΔCA_{it} = current assets at year t minus current assets at year t-1 for firm i

ΔCL_{it} = current liabilities at year t minus current liabilities at year t-1 for firm i

$\Delta CASH_{it}$ = cash and cash equivalents at year t minus cash and cash equivalents at year t-1 for firm i

DEP_{it} = depreciation at year t

Then the Jones model (1991) estimates discretionary accruals in year t from the following model:

$$\frac{TA_{it}}{A_{it-1}} = \frac{a_1 + a_2(\Delta REV_{it}) + a_3(PPE_{it})}{A_{it-1}} + \varepsilon_{it} \qquad (2)$$

with ΔREV_{it} = revenues in year t minus revenues in year t-1 for firm i

PPE_{it} = gross property plant and equipment in year t for firm i

a_1, a_2, a_3 = parameters.

Changes in revenue and gross property plant and equipment are considered non-discretionary. Discretionary accruals for firm i are defined as the error term ε_{it} from the above regression, multiplied by lagged total assets.

The Jones model as modified by Dechow, Sloan and Sweeney (1995) estimates discretionary accruals in the event year as the error term from the following model:

$$\frac{TA_{it}}{A_{it-1}} = \frac{a_1 + a_2\left(\Delta REV_{it} - \Delta REC_{it}\right) + a_3\left(PPE_{it}\right)}{A_{it-1}} + \varepsilon_{it} \qquad (3)$$

with ΔREC_{it} = net receivables in year t minus net receivables in year t-1 for firm i.

The only adjustment compared to the original Jones model is that the change in revenues is adjusted for the change in receivables in the event period. The modified Jones model implicitly assumes that all changes in credit sales in the event period result from earnings management, because it is easier to manage the recognition of revenue on credit sales than on cash sales (Dechow, Sloan and Sweeney, 1995).

4. Model specification

The purpose of our analysis is a cross-sectional comparison of discretionary accruals across our trade union activity and non trade union activity samples. First, we conduct a number of univariate tests regressing the estimated discretionary accruals on a dummy variable UNION, indicating whether the firm is subject to intensive trade union activity (UNION = 1) or not (UNION = 0). But our primary analyses are multivariate tests that control for potential differences across the sample groups that may confound simple univariate comparisons. Other explanations than trade union activity for the manipulation of accounting accruals by management are controlled for

either by a matched sample design or by the inclusion of control variables in the regression.

Kinnunen, Kasanen and Niskanen (1995) find that, in the Finnish case, core sectors have more predisposition and opportunities to earnings management behaviour than periphery sector firms. However, they cite literature where partial evidence is found for a converse behaviour. To exclude the possible effects of the industry in our study, we match on sector.

To control for the political cost / size hypothesis that bigger firms with higher political visibility are likely to make income-decreasing accounting choices, we match on number of employees and turnover and include the logarithm of number of employees (log(EMPLOY)) in the regression as a proxy for size.[1] The matching on EMPLOY controls for the between group variances in size, while the adding of log (EMPLOY) in the regression controls for possible within group variances in size.

The capital structure of the firm has also been associated with discretionary accruals, though with different signs. The positive accounting debt hypothesis (Watts and Zimmerman, 1986: chap. 9) predicts that highly leveraged firms are about to violate debt covenants and therefore have incentives to increase discretionary accruals. DeAngelo, DeAngelo and Skinner (1994) however find that high leveraged troubled companies have large negative accruals related to the renegotiating of their debt

[1] By using log(EMPLOY) as a proxy for size instead of log (A_t), often used in the accounting literature, we circumvent a potential endogeneity problem, because of the implicit scaling of the independent variable of regression (4) by lagged total assets.

contracts. To control for these possible effects, either positive or negative, we include the debt/equity ratio(CAPSTR).

Becker, DeFond, Jiambalvo and Subramanyam (1998: 13) find a significant relationship of firms with larger absolute values of total accruals, as a proxy for accruals generating potential, having also larger discretionary accruals. Therefore we include the absolute value of total accruals ($|TA|$) as a control variable in the multivariate cross sectional tests.

On the basis of the previous discussions, the following regression model is estimated:

$$DA_{it} = cons + \alpha UNION_i + \beta \ln(EMPLOY_{it}) + \gamma |TA_{it}| + \delta \frac{DEBT_{it}}{EQUITY_{it}} + errorterm \qquad (4)$$

with DA_{it} = discretionary accruals for firm i in year t

5. Results and discussion

We ran the regressions using two econometric techniques. First, OLS regressions with robust standard errors are run to protect against heteroscedasticity, which is often prevalent in micro-data. Table 2 presents the univariate and multivariate results for the Jones and modified Jones model, pooled over 1992 - 1995, the period for which the information on trade union activity was captured. Second, we also used robust regression analysis which takes into account potential outliers. The procedure of robust regression exists in weighing the data, whereby outliers are given a lower weight. As shown in Hamilton (1998) robust regression almost achieves OLS

efficiency in situations in which the error term is independently but not normally distributed. We believe this to be a sensible approach given that there are a number of outliers in both categories of firms. The results are summarised in table 3.

- insert table 2 and 3 about here-

All our statistical analyses indicate that there is no significant effect of trade union activity on the manipulating of earnings, although we find a negative coefficient on UNION as hypothesised. This could have two explanations.

First, earnings manipulation by management implicitly assumes that either there are prohibitively high cost for the other contracting party to process the information to undo the manipulation or that the other party has a limited ability to do so e.g. due to lack of skills or asymmetric information. Shipper (1989) reasons that concentrated user groups with substantial financial sophistication and material sums at stake are likely candidates for undoing earnings management. Liberty and Zimmerman (1986) and Foley and Maunders (1979) argue that union officials or research staff can see through the accrual manipulations. McBarnet, Weston and Whelan (1993) go even further to contend that a trade union is a sophisticated user of financial information, will undo the earnings management, exposes it and uses it selectively and strategically to its own advantage. Employees might sometimes be in a stronger position for looking through management figures than shareholders because unions are more suspicious of income-decreasing earnings management, are better organised, have special rights to the information of the company and, above all, possess insider information to the company. In Belgium workers' councils must indeed be provided

with periodic information on sales volume, orders, market position, productivity, costs, stocks, employment, the realisation of targets set by the firm, budgetary control and the future evolution of all these factors (Lefebvre and Flower, 1994).

Second, it is plausible that there is more trade union activity in firms with financial difficulties because workers fear loosing their employment. DeAngelo, DeAngelo and Skinner (1994) suggest, when studying a sample of troubled companies during a recession, that managers can improve their bargaining position with unions through income-decreasing accounting choices only when there is confirmatory evidence of financial trouble and sacrifices by other stakeholders. This would suggest that firms with low or negative real earnings would manipulate downward their accruals even more. However, the control for the debt/equity (CAPSTR) ratio already captures this effect of financial difficulties.

With respect to the other variables included in the model, we can derive the following conclusions. We do not find a significant effect of log(EMPLOY) meaning that bigger firms within a subsample are not managing accruals more downward than smaller firms to mitigate possible wealth transfers. Following Becker, DeFond, Jiambalvo and Subramanyam (1998), we find a negative effect of $|TA|$ as a proxy for accruals generating potential in all our analyses that is statistically significant at the 1 % level. Firms with larger absolute value of total accruals also have larger discretionary accruals. Just as DeAngelo, DeAngelo and Skinner (1994), we find a negative effect of the debt/equity structure (CAPSTR) that is statistically significant at the 5 % level, indicating that managers tend to manipulate earnings downward when their firms are highly leveraged. This could be due to the renegotiating of their debt contracts.

6. Conclusion

Using the Jones and modified Jones model for detecting earnings management, we find no evidence of lower reported earnings in Belgian firms with fierce trade union activity relative to firms without trade union activity. We use a direct output measure of trade union activity based on firm level information in a Belgian context, characterised by high trade union bargaining power.

We gave two explanations for the fact that there is no earnings management in relation to trade union activity. First, trade unions are a sophisticated financial statement user group that is capable of undoing accounting tricks. Second, the debt/equity ratio used as a control for the capital structure of the firm may already have captured the effect of financially distressed firms in which trade unions are probably more active.

However, we find a significant negative effect of two of the control variables that were previously identified in the literature, the absolute value of total accruals and the debt/equity ratio.

References

Becker, C.L.; DeFond, M.L.; Jiambalvo, J.; Subramanyam, K.R. (1998) The effect of audit quality on earnings management. *Contemporary Accounting Research* 15(1), pp. 1-24.

Cullinan, C.P.; Knoblett J.A. (1994) Unionization and accounting policy choices: an empirical examination. *Journal of Accounting and Public Policy* 13, pp. 49-78.

DeAngelo, H.; DeAngelo, L. (1991) Union negotiations and corporate policy choice. *Journal of Financial Economics* 30, pp. 3-43.

DeAngelo, H.; DeAngelo, L.; Skinner, D.J. (1994) Accounting choice in troubled companies. *Journal of Accounting and Economics* 17, pp. 113-143.

Dechow, P.M.; Sloan, R.G.; Sweeney, A.P. (1995) Detecting earnings management. *The Accounting Review* 70(2), pp. 193-225.

DeFond M.L.; Jiambalvo J. (1994) Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics* 17, pp. 145-176.

Ehrenberg, R.G.; Smith, R.S. (1996) Modern labor economics. Addison-Wesley, New York, USA.

Foley, B.J.; Maunders, K.T. (1979) Accounting information disclosure and collective bargaining. Holmes & Meier Publishers, New York, USA.

Guay, W.R.; Kothari, S.P.; Watts, R.L. (1996) A market-based evaluation of discretionary accrual models. *Journal of Accounting Research* 34(supplement), pp. 83-105.

Hamilton, L.C. (1998) Statistics with Stata 5. Duxbury Press, Brooks/Coole Publishing, Pacific Grove, CA.

Holthausen, R.W.; Larcker, D.F.; Sloan, R.G. (1995) Annual bonus schemes and the manipulation of earnings. *Journal of Accounting and Economics* 19, pp. 29-74.

Jones, J.J. (1991) Earnings management during import relief investigations. *Journal of Accounting Research* 29, pp. 193-228.

Kinnunen, J.; Kasanen, E.; Niskanen, J. (1995) Earnings management and the economy sector hypothesis: empirical evidence on a converse relationship in the Finnish case. *Journal of Business Finance and Accounting* 22(4), pp. 497-520.

Konings, J.; Walsh, P.P. (1994) Evidence of efficiency wage payments in UK firm level panel data. *The Economic Journal* 104(May), pp. 542-555.

Lefebvre, C.; Flower, J. (1994) European financial reporting: Belgium. Routledge, London, pp. 313.

Liberty S.E.; Zimmerman, J.L. (1986) Labor union contract negotiations and accounting choices. *The Accounting Review* 61(4), pp. 692-712.

McBarnet, D.; Weston, S.; Whelan, C.J. (1993) Adversary accounting: strategic uses of financial information by capital and labour. *Accounting, Organizations and Society* 18(1), pp. 81-100.

Shipper, K. (1989) Commentary on earnings management. *Accounting Horizons* dec, pp. 91-102.

Veugelers, R. (1989) Wage premia, price-cost margins and bargaining power in Belgian manufacturing. *European Economic Review* 33, pp. 169-180.

Watts, R.L.; Zimmerman, J.L. (1986) Positive Accounting. Prentice Hall, New York, USA

Yamaji, H. (1986) Collective bargaining and accounting disclosure: an inquiry into the changes in accounting policy. *The International Journal of Accounting* 22(1), pp. 11-23.

Table 1: Descriptive statistics for sample firms

	median of observations with trade union activity	median of observations without trade union activity
TA/A_{t-1}	-0.025	-0.023
A_t (in BEF)	1772675	788563
CAPSTR	2.162	2.019
EMPLOY	351	176.5

with TA/A_{t-1} = total accruals in year t scaled by lagged total assets

A_t = total assets in year t

CAPSTR = debt / equity ratio

EMPLOY = number of employees

Table 2: Results for regression with robust standard errors

	Jones		Modified Jones	
	univariate	multivariate	univariate	multivariate
constant	0.0068784	0.0081336	0.0072352	0.0064306
	(-1.206)	(0.258)	(0.903)	(0.204)
UNION	-0.0148468	-0.0103743	-0.0156168	-0.0114419
	(0.849)	(-0.744)	(-1.281)	(-0.822)
log(EMPLOY)		0.0003201		0.0007306
		(0.058)		(0.132)
|TA|		$-6.39e^{-9}$		$-6.51e^{-9}$
		(-2.847)*		(-2.916)*
CAPSTR		-0.0001596		-0.0001666
		(-2.242)**		(-2.361)**

t-statistics in between brackets

* significant at the 1% level

** significant at the 5% level

Table 3: Results for robust regression analysis

	Jones		Modified Jones	
	univariate	multivariate	univariate	multivariate
constant	0.0022716	-0.0062486	0.0023308	-0.0066305
	(0.497)	(-0.454)	(0.508)	(-0.481)
UNION	-0.005323	-0.0023677	-0.0056524	-0.0027633
	(-0.792)	(-0.343)	(-0.839)	(-0.399)
log(EMPLOY)		0.0019376		0.0020346
		(0.769)		(0.806)
|TA|		$-6.05e^{-9}$		$-6.08e^{-9}$
		(-3.484)*		(-3.492)*
CAPSTR		-0.0001619		-0.0001642
		(-2.129)**		(-2.155)**

t-statistics in between brackets

* significant at the 1% level

** significant at the 5% level