

# Managers' discretionary behavior, earnings management and corporate governance: An empirical international analysis\*

**Abstract:** In the present debate about corporate governance, the role played by boards of directors has become more and more relevant. Facing important incentives problems due to the separation between ownership and control, the board of directors is supposed to act, on behalf of the shareholders, as an important mechanism to monitor managers' discretionary behavior. Among the several ways to measure discretionarity, we have focused on that one stemming from accrual decisions in order to manage earnings. The innovation of our paper relies on the use of accruals and earnings management as a measure of discretionary behavior. Accruals are understood as some means to manipulate financial statements for the sake of managers' profit. Although, accruals are not the only instrument the managers have for earnings management, there are some characteristics of them justifying the increasing importance accruals are being given in earnings management. Based on these issues, the aim of our paper is to test the board of directors ability to monitor by using the discretionary component of earnings management as an indicator of managers' discretionarity.

Using a sample of 450 non-financial companies from 10 OECD countries, we have found empirical evidence showing the link between some board of directors features and the discretionary financial statements manipulation by managers. Specifically, and as most of the literature has pointed, our main result stresses the positive and robust impact of board size on earnings management. As far as other characteristics of boards of directors are concerned, our research does not lend conclusive support to the effect of board composition or meeting frequency on earnings management.

**Keywords:** Accruals, boards of directors, corporate governance, earnings management, managers discretionarity.

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## 1. Introduction

The separation between finance and management in the large modern companies grounds the so-called general agency capitalism problem, “the credibility problem facing entrepreneurs of firms when they seek to convince outside investors to contribute funds” (Berglöf, 1997). The resolution of this problem, most of the times presented in terms of ownership and control separation, demands the outline of corporate governance mechanisms allowing an efficient manager control (Shleifer and Vishny, 1996). This issue becomes relevant since, as Macey (1998) underlines, shareholders face collective action problems preventing them to monitor and discipline managers of the company they are investors of.

From this point of view, corporate governance can be defined as the process through which investors try to minimize contractual costs raised by the transactions inside the company. These costs are those related both to finance and management separation and the conflict of interests among all the cash flow claimholders. This is why, in order to achieve a good corporate governance, boards of directors, by law, are charged with such an important role. Shareholders delegate in the board their decision and control rights and the boards delegate in the managers the company running. Therefore, the board of directors is supposed to monitor firm managers by shareholders delegation.

In recent years, scientific literature has reflected the increasing attention boards of directors are paid and a number of papers have tried to evaluate their influence and the degree to which boards achieve their aim. As synthesized by Hermalin y Weisbach (2000), most of the empirical work can be classified into three main fields: (1) The way board characteristics such as size or composition are related to firm performance; (2) How these features impact on board actions; and (3) What factors affect the makeup of boards and how they evolve over time. Although previous research has achieved some evidence such as the negative relationship between board size and firm performance and the indetermination about the link between board composition and firm efficiency, there is still a number of issues demanding further analysis.

Our paper adds to the existing body of work in this area by studying the effect of some board characteristics and actions on monitoring and controlling managers discretionarity. The innovation of the paper relies on the use of accruals and earnings management as a measure of discretionary behavior. Accruals are understood as some means to manipulate financial statements for the sake of managers' profit<sup>1</sup>. Among the earnings management instruments potentially available to managers, the literature has stressed accruals and accounting method choices (McNichols y Wilson, 1988; Watts y Zimmerman, 1990; Peasnell *et al.*, 1999a). As a consequence of it, several models to detect and identify earnings management have arisen (Healy, 1985; DeAngelo, 1986; Jones, 1991; Dechow and Sloan, 1991; Dechow *et al.*, 1995 and Peasnell *et al.*, 2000), having all of them in common the distinction between the discretionary and the non-discretionary component of accruals.

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<sup>1</sup> Of course, accruals are not always used for wrong intentioned manipulations. Since cash flows suffer from timing and matching problems, they might be an inaccurate measure of firm performance. In order to mitigate these problems, accounting rules allow to use accruals to alter the timing of cash flows recognition in earnings (Dechow, 1994).

The accruals discretionary component is the most affected one by the managers' ability and necessity to modify the firm accounts and, hence, it is the most dependent on the corporate governance ability to reduce managers' discretionary behavior. In this framework, our aim is to analyze the relationship between boards of directors and discretionary accruals for a sample of 450 OECD quoted companies: by cross-section regressions we firstly estimate discretionary accruals and, secondly, we relate these accruals to several characteristics and actions of boards. The most outstanding result reveals that higher accruals are linked to those companies having the least efficient boards of directors in terms of monitoring ability –mainly due to too large boards.

Our paper is divided into five sections. Section 2 introduces earnings management and connects this topic with the corporate governance general problem. Section 3 presents the empirical foundations of the paper, the sample and the methodology, while results are provided in paragraph 4. There is a final section where some concluding remarks are exposed and some directions for future research are suggested.

## **2. Managers' discretionary behavior, earnings management and boards of directors.**

As a consequence of the ownership and control separation, shareholders face collective action problems preventing them from monitoring and disciplining firm manager team. Besides, decision rights delegation enhances managers' discretionary decisions. This is why asymmetric information makes shareholders run the risk of adverse selection and moral hazard on managers side.

Agency theory can shed some light on this problem and emphasizes the idea that managers' behavior should be featured as being broadly discretionary. Because of their jobs, some inside information is only available to managers and not to outside investors. Additionally, this information is usually lately disclosed, so that acquiring information is costly either due to the limited rationality hypothesis or because the disclosure could benefit firm competitors. Therefore, information becomes imperfect and enhances managers' discretionarity to look for their own utility function instead of maximizing company owners' value.

The shareholder and other stakeholder problems to control managers' behavior lead to the lack of reliable information about managerial acts. In turn, some internally generated measures of firm performance to be reported over intervals are especially necessary (Dechow, 1984). Consequently, earnings are used as a summary measure of managers' efficiency for a wide range of users: for example, in executive compensation plans, in debt covenants, in the reports of firms seeking to go public, etc.

Notwithstanding, managers are fully conscientious of the informative content of earnings and try to alter financial statements for the sake of their own utility and prestige. A number of acts, aimed to modify earning reports and, more generally, to vanish managers' discretionary behavior, arises. Although newspapers and not too specialized journals have often reported this situation, scientific literature has also proved and confirmed it. Hayn (1995) and Burgstahler and Dichev (1997) provide evidence that firms manage reported earnings to avoid earnings

decreases and losses. At the same time, the incentives to exercise discretion are bigger when the level of earnings is near a round number (Carslaw, 1988; Thomas, 1989). Not only earnings are not uniformly distributed around zero –what would be justified if earnings smoothing took place–, but also there is a strong bias toward positive values. So, whereas it is quite possible companies having little positive earnings, the proportion of companies having losses on the same amount is considerable smaller. As well as that, as predicted by positive accounting theory (Watts and Zimmerman, 1986), firms approaching covenant violation makes income-increasing accounting choices to loosen their debt constraints (DeFond y Jiambalvo, 1994; DeAngelo *et al.*, 1994).

A foregone conclusion is the existence of earnings management, that is to say, a set of accounting choices to modify earnings reports for the sake of managers' benefits. As shown by previous research (Peasnell *et al.*, 1999c), there is a series of earnings management instruments ranging from asset sales (Bartov, 1993 and Black *et al.*, 1998) or changes in R&D expenditure (Bange and DeBondt, 1998 and Bushee, 1998) to pure financial reporting decisions such as accounting method changes (Watts and Zimmerman, 1986) or accrual choices (McNichols and Wilson, 1988).

Accruals choices have been recently paid a lot of attention to and have become the core of a promising research field. Among the causes explaining the increasing importance of accruals in earnings management, according to Peasnell *et al.* (1999a) one should refer to their relative low cost and opaque nature. Furthermore, accrual-based measures are appealing not only from a pragmatic point of view but also because theoretically they aggregate into a single measure the net effect of several measurement and recognition decisions (Watts y Zimmerman, 1990).

In spite of some authors supporting accruals role as an instrument to improve earnings ability to measure firm performance compared to other firm efficiency measures (Bowen *et al.*, 1987; Dechow, 1994; Subramanyam, 1996), the above mentioned reasons explain the necessity to recognize the factors affecting earnings. This recognition is more and more necessary given that capital markets and analysts are not always able to identify them (Sloan, 1996; Bradshaw *et al.*, 1999). Keeping this in mind, and in order to find out the accruals-based earnings management, a number of models have been arisen such as the Healy model (1985), the DeAngelo model (1986), the Jones model (1991), the modified Jones model (Dechow *et al.*, 1995), the industry model (Dechow and Sloan, 1991) and the margin model (Peasnell *et al.*, 2000)<sup>2</sup>. Any case, all of them seem to be well specified and capable of generating relatively powerful tests for economically plausible levels of accruals management.

All the accrual-based models for earnings management detection have in common the division of accruals into two different components: the non-discretionary accruals and the discretionary ones. While the first ones include those accruals oriented to improve the information content of earnings reports, the discretionary accruals are those related to managers concern in their own interests. On the one hand, non-discretionary accruals are likely to depend

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<sup>2</sup> An interesting comparison and evaluation of these models for detecting earnings management in terms of specification and power of test statistics can be found in Dechow *et al.* (1995) y Peasnell *et al.* (2000).

on the firm level of business, so they are usually calculated based on firm sales and Property, Plant and Equipment (hereinafter, PPE). On the other hand, discretionary accruals are affected by managers ability and necessity to manipulate firms accounts, so they are conditioned by corporate governance to limit managers discretionarity.

As far as the relationship between corporate governance mechanisms and discretionary accruals is concerned, most of the empirical evidence available focuses on the effect of the board of directors. A close relationship between board composition and earnings management has been found, so that the higher the proportion of outside directors the less the likelihood of earnings management (Peasnell *et al.*, 1999a). Moreover, outside directorships are the main factor to reduce managers' discretionarity, so that even the presence of an audit committee does not significantly affect the likelihood of financial statement fraud (Beasley, 1996). This negative relationship is more evident when managerial stock ownership is relatively low (Peasnell *et al.*, 1999d). Along with board composition, and as other board of directors focused papers have underlined (Yermack, 1996, Eisenberg *et al.*, 1998), the size of the board is supposed to have a negative impact on financial statement quality and the higher the number of directors, the easier the accounting fraud (Beasley, 1996).

However, there are other links between corporate governance characteristics and earnings management choices. Firstly, managerial stock ownership is positively related to earnings explanatory power and, at the same time, reduces discretionary accruals (Warfield *et al.*, 1995). Moreover, it is a nonlinear relationship: as forecast by the entrenchment and the convergence hypothesis, the sign of the relationship for high enough levels of managerial ownership is the opposite to the one for low level of ownership. Secondly, institutional ownership has a noticeable influence on managers' discretionary behavior. In spite of the traditional view of the institutional investors as transient and too short-termed focused (Porter, 1992), institutional ownership pressure reduces discretionary accruals and earnings manipulation (Rajgopal *et al.*, 1999) and makes stock prices tend to reflect a relatively greater proportion of the information in future period earnings (Rajgopal and Venkatachalam, 1998).

### **3. Data and methodology**

#### **3.1. Sample**

Our sample has been built by combining two data bases: the *Spencer Stuart Board Index* providing information about the boards of directors for 1996 and the *Standard & Poors' Global Vantage* containing economic and financial firm-level data. After dropping out banks and assurance firms, the *Spencer Stuart Board Index* constrains the available information up to 450 non-financial companies from ten countries. Three out of the ten countries could be classified as an Anglo-Saxon or market-oriented corporate system (Canada, USA and UK), whereas the seven remaining countries belong to the so-called continental or bank-oriented corporate system (Germany, Belgium, Spain, France, Holland, Italy and Switzerland). As reported in table 1, there are big differences in terms of size and number of companies per country. However, there is not any sample bias on our part since the observations correspond to the largest listed companies in each country.

**Table 1. Number and size of included companies by country**

	# of companies	Average size (mill \$ sales)		# of companies	Average size (mill \$ sales)
Belgium	12	4787.37	Holland	37	7339.03
Canada	79	3270.19	Spain	28	1015.68
France	42	9819.12	Switzerland	17	7224.85
Germany	33	7881.16	United Kingdom	66	13581.53
Italy	56	2531.88	U.S.A.	80	41456.74
Total			Total		
			450		
			12770.90		

The method used by Spencer Stuart allows for homogeneous information structure of the companies from the ten countries. Notwithstanding, the collected information is not completely equivalent due to the different requirements each country imposes, so that Anglo-Saxon model countries release more information than their counterparts. In short, the Board Index provides information on board size and composition (number of insiders, outsiders and foreign directors), the number of meetings per year and the compensation the members of the board receive. For some countries there is information available about directors' average age, the directors' average tenure, the number of committees the board delegates its authority to and, just for a few countries, the kind of committees.

On its side, *Global Vantage Database* provides with market information and financial statement information about the firms. This information has been basically used to calculate the total accruals, the explanatory variables and the control variables. The method used by *Standard & Poors* also allows for homogeneous companies information structure.

### 3.2. Variables and methodology

As other previous authors, we use a two-stage approach to partition total accruals into their managed and unmanaged components: we first estimate discretionary accruals as the residuals of total accruals regression and subsequently we find out the impact of corporate governance on abnormal accruals. Since firm data are available just for one single year, we are forced to use a cross-sectional approach, which allows us to overcome the survivorship bias problem inherent in the time-series version of some accruals models. Total accruals are defined following the Jones and the modified Jones models we referred to in section 2. Total accruals are calculated as non-cash working capital variation minus PPE amortization and depreciation.

The set of independent variables total accruals will be regressed on includes the change in sales ( $\Delta$  REV) and the gross level of PPE. The intuition underlying the choice of these variables is that they help to control for unmanaged accruals associated with changes in economic activity and the depreciation charge. As far as the forecast sign of these variables is concerned, there is a clear difference: whereas the second one is obviously positive, it is not easy to predict any sign for the change in sales. On the one hand, the higher the sales revenues the higher the receivables but, on the other hand, sales increases usually imply increases in short-term commercial debt, so the net effect on working capital is uncertain. Any case, the Jones model specification in order to calculate total accruals would be (all the variables are scaled by total assets):

$$TA_{it} = \alpha + \beta_1 \Delta REV_{it} + \beta_2 PPE_{it} + \varepsilon_{it} \quad [1]$$

This model has the tendency to measure discretionary accruals with error when discretion is exercised over revenues. In order to avoid that shortcoming, in the modified Jones model the change in revenues is adjusted for the change in receivables, implicitly assuming that all changes in credit sales result from earnings management<sup>3</sup>. Taking into account that total assets, in the modified model, must scale all variables, total accruals are estimated as:

$$TA_{it} = \alpha + \beta_1 \Delta REVM_{it} + \beta_2 PPE_{it} + \varepsilon_{it} \quad [2]$$

where  $\Delta REVM_{it}$  is the difference between the change in sales and the change in net receivables.

As explained previously, equations [1] and [2] are the first stage to estimate discretionary or abnormal accruals (AA) given that these accruals are defined as the residuals of the estimation. Hence, discretionary accruals are calculated as:

$$AA_i = TA_i - [a + b_1 \Delta REV_i + b_2 PPE_i] \quad [3]$$

where  $a$ ,  $b_1$ , and  $b_2$  are the estimates of the parameters  $\alpha$ ,  $\beta_1$  and  $\beta_2$ .

Discretionary accruals (AA) proxy managers' ability to deviate from standard accounting rules for their sake, so they are extremely useful to analyze the efficiency of corporate governance mechanisms. Since our purpose is to evaluate the board of directors role in reducing managers discretionarity, we should explain abnormal accruals based on the board characteristics and functioning.

There is a quite large number of boards of directors features which could be used to characterize boards. Recent literature about boards is basically empirical and focuses on three main questions: the size of the board (Eisenberg *et al.*, 1998; Fernández *et al.*, 1998; Huther, 1997; Jensen, 1993 and Yermack, 1996); its composition and independence (Baysinger and Butler, 1985; Bhagat and Black, 1998; Hermalin and Weisbach, 1988 and 1991; Rosenstein and Wyatt, 1990 and 1997; Weisbach, 1988); and, its internal structure and functioning (Klein, 1998). These papers show the negative influence of board size on firm value, the indetermination of the effect of board independence on firm value and a certain endogenous relationship among directors turnover, board composition and some external elements.

This paper joins this empirical literature by analyzing the influence of board size, composition and functioning on firm value. Consequently, let us explain how we have dealt with each one of those boards characteristics. Firstly, we have measured board size as the logarithm of the number of directors (BOASIZ). As reported in table 2, the mean board size is 11.7 directors, which is consistent with the figure of 12 reported by Yermack (1996), Barnhat *et al.* (1994), Rosenstein and Wyatt (1997) and Klein (1998), and slightly higher than Fernández *et*

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<sup>3</sup> The intuition underlying is that it is easier to manage earnings by exercising discretion over revenue on credit sales than over the revenue on cash sales.

*al.* (1997) and Denis and Sarin (1998) data, whose results are around 9 directors per board. The differences in board size are closely related to the firm size and country features.

The second characteristic of the board, its composition, is measured by the proportion of outside directors<sup>4</sup> (OUTP). This variable has been usually considered to proxy board independence as long as outside directors are not managers. We would have liked to distinguish between *grey*<sup>5</sup> directors and true outside directors, but the available information was not enough to separate both groups.

As displayed in table 2, the average value of the percentage of outsiders is high, which means that more than half of the boards were dominated by outsiders (we consider it an outsider-dominated board when OUTP is higher than 0.7) while insider-dominated boards (INSIP) were only 17% of the sample. This is relevant because outsider-dominated boards are *a priori* more independent and are supposed to monitor more effectively. Nonetheless, the empirical evidence is not conclusive and balanced boards, which benefit both from insider expertise and from outsider independence, seem to be preferable.

With reference to board internal functioning, there is an unbalance between the great amount of factors related to it and the scarcity of information available about them. We have chosen the number of board meetings held per year (COMYEA) as an indicator of the extent to which directors feel involved in managers control.

Had only board related explanatory variables be included we could have introduced a serious omission bias. Therefore, we have incorporated a set of variables related to earnings management incentives and firm performance as firm size, firm profitability and some other control variables. Regarding firm size, two proxy variables have been taken into account: total assets (TASS) and sales (SALES). As regards firm profitability we have chosen ROA as an indicator of firm performance. Later on, we will introduce a set of dummy variables (based either on the SIC classification or on nationality criteria) in order to incorporate both industry and country effects. These last groups of variables enhance a sensitivity analysis to test the robustness of the results to the influence of industry and country effects.

Finally, another dummy variable concerned with the audit report is also used (ADVERSE). This variable equals 1 when the audit report reveals serious and negative reservations about the quality of the firm financial statements or the standard accounting principles fulfillment and equals 0 otherwise. The variable is defined for 1997 year too (ADV97). This new variable is interesting not only because of its additional explanatory power but also because it allows to divide the whole sample into two sub-samples, so that differentiated effects can be found. In addition, it would have been very useful to have information available about audit committee

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<sup>4</sup> According to most of the previous literature, *Spencer Stuart Board Index* defines inside directors as those directors having executive responsibilities (managers), whereas outsiders are the non-manager directors.

<sup>5</sup> *Grey* directors are those keeping any special relationship with the firm, either due to professional services, family ties or any other sort of non-managerial links. Nevertheless, it is not the only possible classification and there might be other kinds of special *status* directors as the blockholders, i.e. those owning a significant proportion of stocks.

existence, since the chances are that such a committee reduces managers' discretionarity. Unfortunately, our data base does not provide with those data<sup>6</sup>. Although the auditor's opinion allows to overcome partially that lack, there is no doubt that information about audit committee would have been more accurate.

All these variables are displayed in table 2, where mean, minimum and maximum values are reported along with the standard deviation after having dropped out the observations we lack of data for. In addition, table 3 reports information, to a country-level, for the variables to be the basis of the estimation.

**Table 2. Variables descriptive statistics**

Total accruals, revenues and PPE have been scaled by total assets. Sales and assets are in million of US dollars. PBV is the equity market-to-book ratio.

	no.	Mean	Std. dev.	Minimum	Maximum
TA	387	-5,760E-2	7,823E-2	-0,52	0,29
REV	403	6,348E-2	0,1734	-0,65	0,82
PPE	350	0,5667	0,2891	0,00	2,67
BOASIZ	419	11,7470	3,7324	4,00	26,00
OUTP	381	0,7082	0,1971	0,00	1,00
INSID	381	0,2831	0,1959	0,00	1,00
COMYEA	408	6,5944	3,1658	0,00	19,00
AA	393	0,1714	0,1450	-0,3340	0,8648
PBV	419	3,3786	3,6581	0,11	28,74
ROA	418	5,873E-2	7,848E-2	-0,43	0,82
ADVERSE	428	0,1192	0,3244	0,00	1,00
ADV97	428	9,579E-2	0,2947	0,00	1,00
TASS	406	10939,15	22944,17	27,90	243283,0
SALES	404	9517,57	16814,08	0,00	165370,2

<sup>6</sup> *Spencer Stuart Board Index* provides information about the board of directors committees just for four out of the ten countries in the sample, so it would have dramatically reduced the number of observations.

**Table 3: Descriptive statistics by country**

Dutch boards are a special case since companies are forced by law to have a two-tier board system with a Supervisory Board and a Management Board. These is why the proportion of outside directors is not reported

no.			AA96	LNBOASIZ	OUTP	ROA	TASS
CAN	69	Mean	0,2326	2,4981	74,88%	4,18%	3441,4
		$\sigma$	0,1659	0,1905	17,11%	7,28%	4556,4
USA	71	Mean	0,1728	2,5328	78,07%	7,61%	18375,8
		$\sigma$	0,1440	0,1670	11,21%	6,53%	15586,0
UK	61	Mean	0,2356	2,4674	48,00%	10,06%	8201,6
		$\sigma$	0,1288	0,2359	12,19%	6,28%	8889,9
SP	22	Mean	0,0860	2,4966	74,07%	8,39%	3384,8
		$\sigma$	0,1638	0,4047	19,99%	7,65%	4607,6
FR	41	Mean	0,1561	2,5138	81,19%	5,35%	11875,1
		$\sigma$	0,0690	0,3090	15,67%	12,81%	13236,1
IT	25	Mean	0,1441	2,2300	73,93%	3,66%	5047,7
		$\sigma$	0,1261	0,2926	25,21%	5,52%	12196,2
GE	30	Mean	0,0914	2,6910	59,82%	2,91%	12892,5
		$\sigma$	0,1180	0,3338	9,85%	2,44%	19085,3
NETH	36	Mean	0,1274	1,8762		5,30%	4137,6
		$\sigma$	0,1727	0,2862		3,93%	6329,7
BE	10	Mean	0,1474	2,5195	77,93%	5,11%	5748,3
		$\sigma$	0,1063	0,4210	9,01%	6,26%	7551,8
SW	16	Mean	0,1257	2,1620	89,90%	4,40%	5136,0
		$\sigma$	0,0791	0,2669	12,04%	6,28%	9391,8

After having calculated the discretionary accruals, the models to be estimated are the following equations:

$$AA_{it} = \alpha + \beta_1 \ln BOASIZ_{it} + \beta_2 OUTP_{it} + \beta_3 COMYEA_{it} + \beta_4 ROA_{it} + \beta_5 SIZE_{it} + \epsilon_{it} \quad [4]$$

$$AA_{it} = \alpha + \beta_1 \ln BOASIZ_{it} + \beta_2 OUTP_{it} + \beta_3 COMYEA_{it} + \beta_4 ROA_{it} + \beta_5 SIZE_{it} + \beta_6 PAIS_{it} + \epsilon_{it} \quad [5]$$

$$AA_{it} = \alpha + \beta_1 \ln BOASIZ_{it} + \beta_2 OUTP_{it} + \beta_3 COMYEA_{it} + \beta_4 ROA_{it} + \beta_5 SIZE_{it} + \beta_6 INDUSTR_{it} + \epsilon_{it} \quad [6]$$

## 4. Results

As previously stated, the first stage in the empirical analysis aims the achievement of discretionary accruals as the residuals of the ordinary least squares estimation of equations [1] and [2]. Results reported in table 4 show, as theoretically forecast, a negative impact of PPE on total accruals and an uncertain effect of sales. Any case, these results do not deserve further comments and have only instrumental interest as long as they proxy manager discretionarity as abnormal accruals.

**Table 4: Discretionary accruals estimation**

Ordinary least squares cross-section estimation. The dependent variable is total accruals (TA). Variables have been scaled by total asset. Table presents the variables coefficients and p-value (in brackets) along with some statistics about the whole estimation. (\*\*\*) stands for significant to a confidence level higher than 99%, (\*\*) for a level higher than 95% and (\*) for a level higher than 90%

	Model 1	Model 2
Intercept	-0.002 [.552]	-.002 [.757]
REV	.021 [.685]	
REVM		-.020 [.700]
PPE	-.359 *** [.000]	-.349 *** [.000]
R <sup>2</sup>	12.6 %	12.4 %
Adj.-R <sup>2</sup>	12.1 %	11.9 %
F-Ratio	24.44 *** [.000]	24.01 *** [.000]

These results are the basis to estimate the influence of the board of directors on managers' discretionary behavior. To do so, we have regressed discretionary accruals on boards characteristics and control variables. Results are displayed in table 5 and it is worthy stress some issues.

The most outstanding and significant result is the role board size plays to limit managers' discretionarity. All the estimations run have in common a clear and strong positive relationship between discretionary accruals and the number of directors. This result confirms the theoretical foundations the literature has suggested to justify the effect of board size. Obviously, the higher the number of directors the more in depth the control undertaken by boards since there are more people devoted to monitor managers. However, a high number of directors implies some difficulties due to the poorer coordination, communication or flexibility associated with large boards, so that the benefits of more detailed monitoring seem to be outweighed by these problems. This last kind of relationship is the most frequent and is empirically supported by a

number of papers (Lipton and Lorsch, 1992; Jensen, 1993; Yermack, 1996; Huther, 1997; Eisenberg *et al.*, 1998).

Secondly, as far as OUP is concerned, no significant relationship between managers' discretionarity and the proportion of outside directors has been found. It is also a result closely related to previous research since, despite the theoretical background supporting outside directorships, no conclusive empirical evidence has been found yet (Hermalin and Weisbach, 2000). Therefore, the benefits tied to outside directors' independence and monitoring incentives seem to be outweighed by the expertise and better knowledge about the company and the industry held by inside directors. Although this result is not proved enough, we could make out, as previous research has pointed at, the pertinence of a balanced board makeup (Rosenstein and Wyatt, 1997).

The third variable related to the board of directors is the number of meetings held per year. As reported in columns 3 and 4, it is not significant at all. It means that board activity -gathering of the board as a whole body- does not seem to be relevant in order to reduce earnings management. Once again, there are theoretical foundations for this result since Vafeas (1999) explains and tests how the limited time outside directors spend together could not be used for the meaningful exchange of ideas but for routine tasks

Along with board size, the other significant variable is firm performance (ROA). Nevertheless, and contrary to other authors' previous evidence (Peasnell *et al.*, 1999b), firm performance is positively related to discretionary accruals. No doubt it is an outcome that should be elucidated in future research and it is very likely to require further refinements of our measures. For instance, instead of using firm proficiency single-handedly, it might be more pertinent to introduce the performance of other firms whose executives the firm managers are going to be compared with.

The last control variable is firm size and it has been measured in two different ways: sales and assets (columns 1 and 3, and 2 and 4 respectively). In both cases, this variable inclusion has scarcely affected the results but its switching sign (positive for TASS, negative for SALES). Any case, it is not a relevant fact given that this variable is not significant at all, although the switching sign might be partially explained by the opposite sign REV and PPE exhibit in the total accruals estimation.

Before presenting the reporting tables, let us summarize the results achieved up to now by stressing the fact that the board size seems to be the only relevant characteristic of the boards affecting managerial discretionarity. In addition, this relationship comes out to be negative.

**Table 5. Discretionary accruals and corporate governance.**

Ordinary least squares cross-section estimation. The dependent variable is discretionary accruals (AA), that is to say, Jones model residuals. Variables have been scaled by total asset. Table presents the variables coefficients and p-value (in brackets) along with some statistics about the whole estimation. (\*\*\*) stands for significant to a confidence level higher than 99%, (\*\*) for a level higher than 95% and (\*) for a level higher than 90%

	(1)	(2)	(3)	(4)
Intercept	-0.019 [.793]	-0.006 [.552]	-0.030 [.682]	-0.016 [.829]
lnBOASIZ	0.133 ** [.016]	0.118 ** [.036]	0.136 ** [.015]	0.121 ** [.031]
OUTP	0.038 [.476]	0.038 [.479]	0.035 [.517]	0.034 [.521]
ROA	0.136 ** [.012]	0.136 ** [.012]	0.124 ** [.024]	0.126 ** [.022]
COMYEA			0.047 [.391]	0.040 [.464]
SALES	-0.030 [.583]		-0.040 [.473]	
TASS		0.023 [.678]		0.013 [.822]
R <sup>2</sup>	3.4 %	3.4 %	3.6 %	3.4 %
Adj.-R <sup>2</sup>	2.3 %	2.3 %	2.1 %	2.0 %
F-Ratio	3.027 ** [.018]	3.003 ** [.019]	2.501 [.031]	2.417 ** [.036]

Once identified the effect of the board of directors on abnormal accruals, let us test the robustness of the estimations by introducing country and industry effects. This is why, as reported in table 6, the group of explanatory variables has been enlarged with a set of dummy variables reflecting the national identity of each company. Columns 1 and 2 report the coefficients for all the variables, whereas the results of the stepwise estimation are displayed in column 3 –only the last model variables are reported after having taken into account colinearity (tolerance) statistics. Estimations have been reproduced with several alternative variables for

board composition. Since the results remain basically unchanged, for the sake of brevity they have been not reported.<sup>7</sup>

In spite of being slightly modified, results are totally consistent with previous ones. The most outstanding issue is board size keeping the positive and significant impact on managers' discretionary behavior. Outside directors proportion is more significant than previously and is positively related to abnormal accruals. Although this last result points at a negative effect of directors independence on firm performance, it is neither robust nor significant in the stepwise estimation, so its impact is not very reliable. The last comment on table 6 concerns  $R^2$  and adjusted- $R^2$  coefficients, given that the explanatory power of the model is noticeably enhanced by the country variables introduction compared to table 5.

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<sup>7</sup> All this alternative estimation results are available from the authors upon request.

**Table 6. Discretionary accruals and corporate governance (Country effect).**

Ordinary least squares cross-section estimation. The dependent variable is discretionary accruals (AA), that is to say, Jones model residuals. Dummy variables stands for Switzerland (SW), United States (USA), France (FR), Spain (SP), Belgium (BE), the Netherlands (NETH), United Kingdom (UK) and Germany (GE).

	(1)	(2)	(3)
Intercept	-0.080 [.289]	-0.066 [.383]	-0.0314 [.623]
lnBOASIZ	0.169 *** [.003]	0.155 *** [.006]	0.174 *** [.003]
OUTP	0.145 ** [.029]	0.147 ** [.026]	
ROA	0.111 ** [.036]	0.110 ** [.038]	
SALES	0.022 [.701]		
TASS		0.071 [.218]	
SW	-0.116 ** [.037]	-0.120 ** [.031]	
USA	-0.169 ** [.011]	-0.189 *** [.004]	
FR	-0.163 *** [.005]	-0.171 *** [.003]	
SP	-0.235 *** [.000]	-0.233 *** [.000]	-0.166 *** [.001]
BE	-0.089 * [.089]	-0.089 * [.086]	
NETH	-0.034 [.522]	-0.036 [.502]	
UK	.104 [.136]	.097 [.164]	.151 *** [.004]
GE	-.246 *** [.000]	-.250 *** [.000]	-.213 *** [.000]
R <sup>2</sup>	16.7 %	16.9 %	11.7 %
R <sup>2</sup> -Aj.	13.7 %	13.9 %	10.7 %
F-Ratio	5.540 *** [.000]	5.660 *** [.000]	11.254 *** [.000]

Closely related comments should be repeated in face of table 7, where industry classification has been introduced. As stated above, column 3 exhibits stepwise estimation results and only the final model variables are reported. Once again, the board size comes out to be a significant and positive determinant of managers' discretionarity, whereas board makeup

has not any longer significant effect and confirms prior caveats about its role. The explanatory power of the model ( $R^2$  and adjusted- $R^2$  coefficients) improves too compared to the non-industry effect model.

**Table 7. Discretionary accruals and corporate governance (Industry effect).**

Ordinary least squares cross-section estimation. The dependent variable is discretionary accruals (AA), that is to say, Jones model residuals. Previous regressions are run again and industry effect introduced by a set of dummy variables. Companies have been sorted out based on the SIC code first digit (for instance, from 1000 to 1999: COD1)

	(1)	(2)	(3)
Intercept	-0.022 [.780]	-0.012 [.871]	-0.0314 [.623]
lnBOASIZ	0.102 * [.066]	0.093 * [.095]	0.114 ** [.024]
OUTP	0.019 [.728]	0.019 [.722]	
ROA	0.091 * [.097]	0.092 * [.094]	0.113 ** [.027]
SALES	-0.032 [.564]		
TASS		0.003 [.955]	
COD2	0.193 [.101]	0.184 [.119]	
COD3	0.064 [.579]	0.058 [.616]	-0.088 * [.088]
COD4	0.302 *** [.004]	0.298 *** [.004]	0.129 ** [.017]
COD5	0.148 [.123]	0.141 [.139]	
COD6	0.004 [.945]	0.003 [.955]	
COD7	0.113 [.105]	0.113 [.106]	
COD8	0.066 [.277]	0.066 [.278]	
$R^2$	8.9 %	8.8 %	6.8 %
Adj.- $R^2$	5.8 %	5.8 %	5.9 %
F-Ratio	2.942 *** [.001]	2.916 *** [.001]	6.942 *** [.000]

The last group of results is due to the auditor opinion introduction by two dummy variables ADVERSE and ADV97 (table 8). These variables are aimed to control for circumstances when the auditor report warns about financial statement not reflecting the real

situation of the firm or not meeting the standard accounting principles (columns 1 and 3). Results are quite similar to the previous ones, so no further comments are required and they corroborate the close relationship between board size and discretionary accruals. ADVERSE variable was also used to separate the firms with a negative auditor report (columns 2 and 5) from the remainder companies in the sample (columns 3 and 6). Broadly speaking, the relevant influence of board size is confirmed once again, although the  $R^2$  and adjusted- $R^2$  coefficients are quite different across the sub-samples. The six estimations have been additionally run including the country and industry effect. Since results have not noticeably been changed –with the only exception of  $R^2$ , we have just reported the basic estimation for the sake of brevity and clarity.

**Table 7. Discretionary accruals and corporate governance (Auditor's report).**

Ordinary least squares cross-section estimation. The dependent variable is discretionary accruals (AA), that is to say, Jones model residuals. ADVERSE is a dummy variable equaling 1 when the auditor's report is negative.

	(1)	(2)	(3)	(4)	(5)	(6)
		ADV=1	ADV=0		ADV97=1	ADV97=0
CTE	-0.015 [.835]	-0.008 [.958]	-0.013 [.868]	-0.015 [.837]	-0.201 [.274]	0.0046 [.952]
lnBOASIZ	0.131 ** [.019]	0.086 [.593]	0.132 ** [.025]	0.130 ** [.019]	0.350 ** [.048]	0.115 ** [.048]
OUTP	0.042 [.437]	0.017 [.908]	0.038 [.502]	0.040 [.456]	-0.176 [.299]	0.043 [.445]
ROA	0.131 ** [.015]	0.429 *** [.007]	0.110 * [.055]	0.134 ** [.013]	0.498 *** [.006]	0.119 ** [.035]
ADVERSE	-0.054 [.313]					
ADV97				-0.053 [.322]		
SALES	-0.025 [.649]	0.179 [.275]	-0.052 [.378]	-0.026 [.645]	0.151 [.373]	-0.043 [.462]
$R^2$	3.7 %	26.8 %	2.9 %	3.7 %	44.1 %	2.7 %
Adj.- $R^2$	2.3 %	18.2 %	1.6 %	2.3 %	33.9 %	1.4 %
F-Ratio	2.626 ** [.024]	3.116 ** [.027]	2.217 * [.067]	2.618 ** [.024]	4.337 *** [.010]	2.130 * [.077]

## 5. Concluding remarks

The company ownership and control separation grounds a number of conflicts of interest and has encouraged the research for mechanisms mitigating those conflicts. This is why both academia and practitioners have paid an increasing attention to corporate governance. Although both the external and the internal corporate governance mechanisms have been in the core of this attention, the most prominent interest has focused on the boards of directors. In turn, the boards of directors are considered as the main instrument at the shareholders disposal to monitor and control managers behavior. It makes then much sense any intent to identify the boards features and actions in order to know more in depth their ability to reduce the possible managers' discretionarity.

The recent literature suggests that board effectiveness relies on three main issues: board size, composition (in terms of outside and inside directorships) and internal functioning structure. Our empirical research, aimed to determine the impact of the board of directors on earnings management, is also founded on these issues. Earnings management is defined as the accounting processes aimed to modify financial reports for the sake of managers. The main contribution of our paper is the introduction of the discretionary component of earnings management as an indicator of managers' discretionary behavior.

The sample includes 450 non-financial companies from ten OECD countries. Three out of them could be classified as Anglo-Saxon or market-oriented corporate systems (Canada, USA and UK), whereas the seven remaining countries belong to the so-called continental or bank-oriented corporate system (Germany, Belgium, Spain, France, Holland, Italy and Switzerland). The availability of data for a number of countries allows us to broaden our analysis to a wider basis than the Anglo-Saxon area to which most of the previous research is linked.

As far as the results are concerned, we have found evidence supporting the relationship between some boards features and the managers' ability to discretionary alter the information stemming from the financial statements. More specifically and according to most of the previous literature, our main result shows a positive and significant impact of board size on earnings management. This result is quite consistent to alternative measures of firm size, or country and industry effect. Consequently, the coordination and communication problems arising in large boards seem to outweigh the possible benefits from a more detailed control by a higher number of directors.

Regarding other characteristics of the boards, our research does not support any conclusive evidence either about board composition or about meeting frequency. Although both characteristics are theoretically related to board monitoring ability, our results do not lend any support and claims for further research. This is a quite promising direction for future research, so that new ways to identify directors independence are proposed. There are also other directions for future research as the analysis of the boards internal functioning, stressing the committees structure as a meaningful issue that should be taken into account. It would provide a better knowledge of inside vs. outside directorships.

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