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OWNERSHIP CONCENTRATION, DEBT FINANCING AND THE INVESTMENT OPPORTUNITY SET AS DETERMINANTS OF ACCOUNTING DISCRETION: EMPIRICAL EVIDENCE FROM SPAIN

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ABSTRACT

Using a sample of 783 observations, belonging to 109 firms quoted in the Spanish capital market over the period 1991-1999, our research analyses the discretion and restrictions of accounting policy in a Continental European country, where firms present important differences in ownership structure and corporate governance compared to that of Anglo Saxon countries.

This article shows that the absolute value of discretionary accruals declines with ownership concentration, this result being consistent with large shareholders playing an active role in corporate governance. In our financial system, where firms and banks enter into long term relationships, debt financing generates incentives for the exercise of accounting discretion, as also occurs in market oriented financial systems. The third variable analysed refers to the investment opportunity set. This variable exhibits a positive relation, that is, the more growth opportunities firms have the more accounting discretion managers exercise. The results reported in this study are also important because they are obtained from the estimation of a dynamic panel data model, which allows us to control for the reversion of accruals.

KEYWORDS

Earnings management, corporate governance, discretionary accruals, ownership concentration, debt financing, investment opportunity set.

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1. INTRODUCTION

Over recent decades earnings management has received much attention from regulators, the financial press and academic research. Research based on the theory of the firm, particularly on agency theory, has demonstrated that the analysis of agency problems contributes to a better understanding of managerial choice of investment, financing and dividend policies. In the same way, we show, in this work, that this analysis can also help towards a better comprehension of managerial choice of accounting policy.

According to the positive accounting theory, and in light of the agency approach, the accounting choice is a problem of managerial discretion that originates from the assignment of decision rights and that has its limits in the different governance structures. So when studying the accounting choice it is fundamental to contemplate these two sides: the incentives of one of the parties to act in a favourable way to its interests; and the incentives of the other party to preserve its own, supervising and disciplining the behaviour of the first. Based on this conceptual framework, this article reports the results of an investigation into how corporate characteristics, like ownership structure, financial leverage and the firm investment opportunity set affect the exercise of accounting discretion by managers. Hence, this study is fed by two important lines of investigation: earnings management and corporate governance.

Prior research suggests and documents a link between earnings management and firm attributes. During the late seventies, eighties and nineties researchers have used management compensation, debt contracts and political sensitivity to generate hypotheses about accounting procedure variations across firms and industries. This literature considers that the goal of accounting choice is to influence the firm's contractual arrangements. Watts and Zimmerman [1986, 1990] and Field et al. [2001] have made interesting reviews of this literature. Apart from these three basic hypotheses, other incentives for managers to lower or increase earnings have also been analysed such as union contracts negotiations [Liberty and Zimmerman, 1986], proxy contests [DeAngelo, 1988], management buyouts [Perry and Williams, 1994], the many implicit contracts that exist between a firm and its stakeholders [Bowen et al., 1995], the initial public offerings [Teoh et al., 1998b], seasoned equity offerings [Teoh et al.,

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1998a], stock finance acquisitions [Erikson and Wang, 1999], and analysts' expectations [Burgsthaler and Eames, 2000; Kasznik, 1999], among others.

The joint consideration of the incentives generated by different contractual relationships and the limitations arising from the governance structures constitutes an important chapter in earnings management investigation. This is so because the analysis of the governance mechanisms explicitly recognises the different opportunities managers have to exercise accounting discretion. In this sense, a very important feature of the earnings management literature for the last decade has been the relevance attributed to external auditing [DeFond and Subramanayam, 1998; Francis et al.,1999] and to internal governance structures, especially to the board of directors [Beasley, 1996; Dechow et al.,1996; Klein, 2000; Peasnell et al., 2000; Andrés et al., 2001; Chtourou et al., 2001]. Within corporate governance investigation, the exercise of accounting discretion constitutes a link in the chain of the supervision task where the board of directors has to show itself to be a control mechanism. Other mechanisms like the existence of large shareholders also contribute to alleviate the conflict of interests over accounting policy.

The interpretation of the exercise of accounting choice made in most of the earnings management literature falls into the definition of earnings management proposed by Shipper [1989:92]: *as a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain [as opposed to, say, merely facilitating the neutral operation of the process].* In these studies the private gain obtained could be for stockholders or managers. An efficient accounting choice or the information perspective have scarcely been adopted in the literature although they can provide important light on a better comprehension of the accounting policy followed by different firms[2].

In this study the accounting system is considered an integral part of the governance structures. Adverse selection and moral hazard problems, caused by information and uncertainty problems, give accounting, together with control mechanisms, an important

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[2] Healy and Whalen [1999:368] shape the following definition of earnings management: *it occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.* These authors explicitly state that decisions to use

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function because it contributes to the reduction of information asymmetry and it takes part in the design and control of different contractual relations. In contrast to markets, organisations do not generally delegate both decision rights and the alienability[3] of those rights to the agent. In the absence of alienability, organisations must solve both the right assignment and control problems by alternative systems, which according to Jensen and Meckling [1992] include: a system for partitioning decision rights out to agents in the organisation, a control system that provides a performance measurement and evaluation system and, finally, a reward and punishment system. The accounting information system plays an important role since it feeds these systems information, so it can be considered an important piece in the organisational architecture.

This investigation expands prior research in several ways. Firstly, it contributes to the earnings management and corporate governance debate by testing empirically the relationship between the exercise of accounting discretion and firm characteristics, such as the ownership structure and financial leverage in a European continental country, with important differences in corporate finance and corporate governance mechanisms compared to the United States and United Kingdom, where most of the research has been done. These differences primarily concern the concentrated holdings of the firm's financial claims, both debt and equity, which are not simply accidents of history or culture but a result of striking differences in the firms' legal and regulatory environment [Prowse, 1994]. Another important difference is related to the properties of accounting earnings. Accounting systems in code law countries are more concerned with providing protection for suppliers of capital than providing information for investors in the capital market. Jarne [1997] and Nobes and Parker [1991] provide empirical evidence revealing the existence of a clear division between common law countries and code law countries referring to the following aspects: regulation system, accounting principles and valuation practice. More recently, Ball et al. [2000] show that common law accounting income exhibits significantly greater timeliness than code-law income, but that this is due entirely to greater sensitivity to economic losses [income conservatism]. These specific accounting features, mainly due to the existence of different institutional factors, are likely to

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accounting judgment to make financial reports more informative for users do not fall within their definition of earnings management.

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affect the accounting based contracting in code law countries, which provides a strong motivation to perform the present study outside Anglo-Saxon countries.

Secondly, we also analyse whether the investment opportunity set explains the exercise of accounting discretion. Smith and Watts [1992] suggest that corporate policies are determined by firm characteristics that govern contracting relationships among parties that comprise the firm, the investment opportunity set being one of the most important. When discussing the use of leverage ratio to proxy for the existence, proximity, likelihood and costs of debt covenant violations, some authors, like Zimmer [1986] and Pres and Weintrop [1990], point out that the association between leverage and accounting choice may be due to other factors such as the investment opportunity set. After Skinner [1993], Keating and Zimmerman [1999] and Ke [2001], the present work is one of the few studies that consider this variable in the explanation of the exercise of accounting discretion.

Thirdly, this investigation is innovative since it applies the econometrics of panel data to analyse the determinants of accounting policy. This methodology allows us to provide a picture of a wide set of firms for a long period of time, and at the same time to control not only for the data belonging to the same firm or year but also for an important feature of our dependent variable: accrual reversion. So, when estimating our dynamic panel data model the results of accounting discretion determinants are obtained after having controlled for that important property of accruals. McCulloch [1998] explicitly incorporates the reversal of discretionary accruals in the accrual model he proposes, both to facilitate the estimation procedure, and to enable examination of the multi-period implication of discretionary accounting choice. Hunt et al. [1996] examine managers' objectives in subsequent years and how adjustment reversals affect these objectives.

And finally, our research has a general character, that is, our study is not limited to firms that undertook extreme earnings management, which have received much attention in the literature and whose internal governance structures are characterised by their weaknesses. On the contrary, since we are interested in more subtle ways to direct earnings our sample is made up of firms managing earnings within the bounds of GAAP.

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[3] A right is alienable if its owner has the right to sell a right and capture the proceeds offered in the exchange

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The remainder of this paper is organised as follows. Section 2 discusses the rationale behind the hypotheses which become the focus of the data analysis, that is, the incentives and limitations to the exercise of accounting discretion. Section 3 details the sample selection, specifies the variables used in the empirical test and introduces an empirical model for the determinants of accounting discretion. Section 4 presents descriptive statistics for explanatory variables and the empirical results for the dynamic panel data estimation. Finally, concluding comments and implications for future research appear in section 5.

2. RESEARCH HYPOTHESES

In a context characterised by information asymmetry and contractual cost, the separation of ownership and control and debt financing generate agency problems that arise from the inability to write complete contracts for all possible future eventualities [Hart, 1995]. Contracts contingent on accounting-based constraints are designed to either restrict or promote certain managerial behaviour. Since contracting and monitoring are costly, not all managers' opportunistic behaviour is eliminated nor is the latitude available in the selection and application of accounting techniques entirely removed, and consequently there will be place for managerial discretion over accounting policy [Warfield et al.1995].

The aim of this investigation is to test the contractual nature of accounting discretion. So, we analyse whether the exercise of accounting discretion can be explained by the incentives and restrictions managers have to direct earnings, derived from   accounting information playing an important role both in contract terms and monitoring these terms. In this section we briefly review the conflicts of interests between managers and shareholders, and also between the latter and other providers of funds such as bondholders or banks. finally, we outline the incentives to manage earnings generated by the existence of growth opportunities.

2.1.Corporate Ownership Structure

[Jensen and Meckling, 1992].

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Berle and Means [1932] point to the high number of widely held corporations in the United States. Their work stimulated an enormous *managerialist* literature on the objectives of managers. La Porta et al. [1999] point out how the modern field of corporate finance has developed around the same image of a widely held corporation, as can be perceived in the central contribution of Jensen and Meckling [1976] or Grossman and Hart [l980]. A bit later, the positive accounting theory, introduced by Watts and Zimmerman [1978, 1986, 1990], also incorporated this conceptual framework.

The advantages of the separation of ownership and control, such as the specialisation of risk taking and management functions, are counteracted by the agency problems derived from the manager shareholder relationship. The consequent manager-owner incentive problems will be materialised in non-value maximising behaviour from managers. Examples of such behaviour could be shirking, perquisite taking and the adoption of investment and financing policies that are not in the best interests of shareholders.

When there is separation of ownership and control the agency costs become higher and there will be a higher demand for accounting based contracts to alleviate these costs. In such a situation, managers are also expected to react to the contractual environment by selecting the accounting policy that best suits their own interests. The earnings-based bonus schemes, as a mean of rewarding corporate executives, can be given as an example of these contracts designed to align managers' and shareholders' interests.

The ownership structure has usually been analysed in the literature through three variables: managerial ownership, ownership concentration and the identity of large shareholders. In this paper we focus on one of these variables that influences the manager-shareholder relationship: ownership concentration. As Shleifer and Vishny [1997] suggest, the most direct way to align cash flow and control rights of outside investors is to concentrate share holding. Ownership concentration solves the agency problems because, due to their holdings, large shareholders have enough voting power and incentives to collect information and monitor the management, avoiding the *free rider* problem. Referring to the conflict of interest between shareholders and managers over accounting policy, Niehaus [1989] and Dyl

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[1989] provide evidence on the resolution of this agency problem through a higher ownership concentration.

We consider ownership concentration an important determinant of accounting discretion for the following two reasons. Firstly, the need for accounting-based incentives or restrictive contracts will be higher in firms with diffused ownership and so will the need for managerial evaluation, where accounting information plays an important role. Secondly, the explicit or implicit accounting based contracts give incentives to managers, through the exercise of accounting discretion, to provide the level of earnings that best suits their interests, so that their compensation and the value of their human capital will be increased and the probability of being removed will be decreased. In widely held firms, the lack of incentives for small shareholders to monitor management will facilitate a higher exercise of accounting discretion. Consequently, the ownership concentration hypothesis can be expressed as follows:

H1: The exercise of accounting discretion will be lower in firms with a higher ownership concentration.

Sloan [2001] considers that financial accounting information is an important input to the governance process but also is, in itself, a product of the governance process. In this investigation we focus on the effectiveness of a specific mechanism monitoring the financial reporting process: large shareholders.

We refer now to the other two variables related to the ownership structure: managerial ownership and the identity of large shareholders The entrenchment or the convergence of interests are usually considered as arguments for managerial ownership to be a determinant for the exercise of accounting discretion [Niehaus, 1989; Warfield et al. [1995][4]. In this paper this variable has been taken into account when controlling for board monitoring function, which depends on some board characteristics such as directors ownership. Executive and non-executive directors have different incentives to exercise accounting discretion and to allow it,

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[4] However, most of the studies have analysed the incentives generated by the existence of bonus compensation schemes. When this information is not available, the authors introduce managerial ownership because the proportion of earnings-based management compensation is larger for management controlled firms than for owner controlled firms.

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that is, to supervise it. We would like to control for it in our paper but, unfortunately, it is not possible since this information is not available. So, we point out that directors ownership includes both. The nature of large shareholders, that is, the group they belong to, may also have implications for governance. As Prowse [1994] suggests, individuals or families, financial institutions and non financial corporations, may have different monitoring skills, a greater or lesser incentive to monitor or even different objectives. In this sense, in a framework of international comparison, Shleifer and Vishny [1997] questioned what type of large investor is best in the governance of the firm. Rajgopal et al. [2000] point to the special monitoring role of institutional stockholders. In this paper we do not posit a relation between the nature of the largest shareholders and the exercise of accounting discretion but we consider it an important governance feature and we control for it through the introduction of several dichotomic variables.

2.2. Debt Financing

The demand for accounting information is not confined to residual claimants[5]. Bond covenants restrict the firm from engaging in specified actions. In this sense, debt-covenants are included to resolve potential conflicts originated by dividend payment, claim dilution, asset substitution and underinvestment, that is, corporate decisions that increase stockholder wealth while reducing the wealth of bondholders. The constraints imposed through covenants are frequently specified in terms of accounting numbers. A technical violation, that is, a violation of debt covenants other than one specifying promised payments, gives lenders the option to exercise contractual rights that potentially impose renegotiation, refinancing and restructuring costs, so managers will try to avoid these costs by exercising accounting discretion.

Most of the research testing the impact of bond covenants on accounting method choices[6] has been done in Anglo-Saxon countries[7]. Rajan and Zingales [1992] investigate whether enterprises in the G-7 borrow differently in bank oriented systems than in countries like the U.K. and the U.S. where relations with capital suppliers are more at arms' length.

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[5] Residual claimants or residual risk bearers are those who contract for the rights to net cash flows [Fama and Jensen, 1983] .
[6] These studies have used leverage ratio or have selected firms that actually violated covenants agreements.

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They conclude that in developed bank oriented economies, like Japan and Germany, large businesses do not borrow more, nor do firms appear to enjoy a comparative advantage. In a later study, Rajan and Zingales [1996] also show how firm leverage is fairly similar across the G-7 countries. Andrés et al. [1996] find some differences in financial leverage between countries such as France, Italy and Japan with respect to the United Kingdom and United Stated although the time series suggest a convergent tendency in the two financial systems. An important aspect in financial leverage is the kind of debt, that is, whether it is made up basically of bonds negotiated in the market or, on the contrary, of bank loans. In Spain the protagonist of financial debt is banks. In a cross-country setting it may be interesting to consider the different contractual demand for accounting information derived from the different providers of funds.

Financial statements are an important source of information in the assessment of credit risk by bank officers, especially when they estimate the probability of default, and consequently the cost of debt, that is, the interest rate charged on the loan. The need for accounting information does not take place only when bank officers analyze whether to grant or refuse a credit but also during the life of the credit. In this sense, financial covenants incorporated in debt contracts primarily rely on this information. Other specific information related to the project that is being financed is also required by banks during that period[8]. Taking into account the important role played by accounting information in debt contract, we can expect managers to exercise accounting discretion in order to provide financial reports that favour the terms negotiated in the contract and also to avoid financial covenant violation throughout the life of the credit. The following debt hypothesis we investigate is particular in the sense that banks are the main providers of finance compared to bondholders in other research.

H2: The exercise of accounting discretion will be higher in firms with a higher financial leverage.

Other factors can also influence the relation, in the opposite sense to that we have just hypothesised, between debt financing and the exercise of accounting discretion such as the

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[7] See Watts and Zimmerman [1986] and Fields et al. [2001] for a review of these studies.

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concentration of debt and the coincidence of a bank as creditor and shareholder. The degree of concentration on one or a few banks make them powerful creditors that may have insider access to information, that can also better monitor management and therefore have less need for accounting-based contracting. These aspects are especially relevant when the bank is also a shareholder. Moreover, if the bank is an important shareholder it will condition debt policy. Once again, we are not able to control for it since it is not possible to know the identity of creditors. If this information were available we would have hypothesised a negative relation between the exercise of accounting discretion and debt concentration and also a negative relation between the exercise of accounting discretion and the bank being a creditor and an important shareholder at the same time. We have to point out that a related variable, which controls for a large part of this problem, is included in our model: whether the principal shareholder is a bank.

2.3. The Investment Opportunity Set

The analysis of a firm's growth opportunities complements the group of corporate characteristics that we consider relevant in the explanation of accounting discretion. Myers [1977] describes the firm's potential investment opportunities as call options whose values depend on the likelihood that management exercise them. Smith and Watts [1992] consider that in making investment and employment decisions, firms invest in specialised physical and human capital, and these firm specific investments result in a variation in firms' investment opportunity sets and offer a potential explanation for different policies existing across firms and time. These authors and also Gaver and Gaver [1993] have analysed the association between the investment opportunity set and corporate financing, dividend and compensation policies. Baber et al. [1996] extend this research by analysing associations between investment opportunities and the sensitivity of CEO [chief executive officer] compensation to performance measures.

The implications for accounting policy have also been suggested, and to a lesser extent empirically tested, in some studies. Two recent papers have pointed to the importance of the investment opportunity set in accounting policy. Keating and Zimmerman [1999] find that firms making non-income-increasing depreciation policy changes experience significant

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[8] Personal interviews with bank officers confirmed these terms.

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changes in investment opportunities while firms not making such changes do not. Ke [2001] uses *the book to market* ratio as a proxy for the market's expectation on future growth opportunities, because the market value of growth stocks contains a high expectation on future growth and accounting earnings are viewed as an important signal for future growth opportunities. Growth stocks suffer a disproportionately large decline in market value when they report an earnings disappointment as has been documented by Skinner and Sloan [1999]. Since a significant decline in stock price may ruin the manager's reputation, increase the costs of capital and also the likelihood of CEO turnover and takeovers, managers of growth stocks would have greater incentives to manage earnings to avoid not only earnings disappointments of the current year but also in the future.

In the present article we focus on a particular characteristic of firms that present higher values for the market to book ratio: the need for financing in the future. Since the capital market reflects investors expectations, we can look at it to determine the relative importance of growth opportunities versus assets in place. The firms present more important investment opportunities the more financing they need in the future, so managers will try to influence, through the exercise of accounting discretion, the probability of obtaining it and also its cost. Particularly, if firms depend on the capital market to finance new projects or continue others just initiated, managers will have special incentives to provide a certain level of earnings to be able to pay dividends. An important characteristic of the investment opportunity set analysis is its projection to the future.

The analysis of this firm characteristic yields the next hypothesis:

H3: There is a positive relation between the investment opportunity set and the exercise of accounting discretion.

Apart from the ex ante proxies for the demand for external financing for firms with important investment opportunities, we alternatively added two ex post proxies for the demand for external financing. These variables adopt the value of zero if the change in firm financing is below the industry median change in the following year and one in the opposite case.

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3. SAMPLE SELECTION, VARIABLES, THE EMPIRICAL MODEL AND METHODOLOGY

3.1. Sample Selection

Our sample is drawn from the population of Spanish firms listed on the Madrid Stock Exchange over the period 1991-1999[9]. In this investigation we can differentiate two samples of firms: the sample used to estimate the Jones model [TABLE 1] and the sample used to estimate the earnings management model [TABLE 2]. Hansen [1999] has detected important measurement errors in accruals when structural changes take place. In order to avoid these errors and others derived from special situations we have dropped 585 observations due to mergers, segregation, non comparable information in consecutive periods, financial distress, etc… So, the estimation sample for the Jones models has been reduced from 1634 to 1049 firms, distributed throughout the nine years.

To conform the sample used to estimate the earnings management model we have excluded more observations because we need a minimum of four consecutive years for the analysis of panel data, and because we also require corporate governance information. From the 1049 observations used for the estimation of the Jones model, 266 observations have been eliminated, the final sample being of 783 observations, belonging to 109 firms. As usually happens in most economic applications of panel data, the number of firms is larger than time periods. Moreover, our panel data is unbalanced because the firm observations do not belong to the same period, varying between four and nine years over the period 1991 to 1999.

The main source of information for financial reports has been the database *Auditoría de cuentas anuales* published by the regulatory and supervisory agency of Spanish stock markets *Comisión nacional del mercado de valores* [CNMV] on a computer support, which includes the annual accounts and audit reports of most of the companies under the control of this commission. This database covers the period 1991-1996, so we have completed this financial information from the web page of this commission. Significant shareholders have to disclose their firm ownership to this commission when it is equal to or greater than 5 %, and board members have to disclose any amount of ownership. The ownership structure variables have been obtained from this register.

3.2. Variables

3.2.1. *The estimation of earnings management: the discretionary accruals.*

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[9] Financial firms are excluded from the sample because of fundamental differences in the nature of their accruals and cash flows that are not captured by expectation models of normal accrual activity.

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Different accrual models, through the estimation of what is called *non-discretionary, expected or normal accruals*[10], provide earnings management investigation with a benchmark for the exercise of accounting discretion. The goal of these models is to separate total accruals into discretionary and non discretionary components. The discretionary component is estimated by the difference between total accruals and the non-discretionary accrual estimation from an expectation model. The Jones model and the modified Jones model are the methods most frequently employed to break down operating accruals into their components. Dechow et al. [1995] present evidence consistent with the low power of tests and also show how these models produce reasonably well specified tests for a random sample of firms[11]. Additional studies carried out in our Spanish context [Azofra et al., 2000] reveal similar performance to these two models within their cross sectional version[12]. In this investigation the non discretionary accrual component is estimated by applying the cross sectional Jones model, which adopts the following expression:

$$TA_t = a_1 [1/A_{t-1}] + a_2 [GPPE_t] + a_3 [DREV_t] + a_n INDUSTRY + å_t$$

where,

TA_T $= [D\,Current\ Asset - D\,Cash\,] - [D\,Current\ Liabilities - D$ $Short\mbox{-}term\ debt] - Depreciation\ and\ amortization\ expense[13],$ $all\ scaled\ by\ total\ asset\ at\ t\mbox{-}1;$

A_{t-1} $= total\ assets\ at\ t\mbox{-}1;$

$DREV_t$ $= revenues\ in\ year\ t\ less\ revenues\ in\ year\ t-1\ scaled\ by\ total$ $assets\ at\ t\mbox{-}1;$

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[10] Due to the fact that the accrual models of discretionary accruals are really expectations models, Healy [1996] proposed a renaming of some terms: *unexpected accruals* for *discretionary accruals* and *expected earnings* for *non-discretionary earnings.*

[11] Guay et al. [1996] however, are critical of these models.

[12] Bartov et al. [2001] show how the cross sectional Jones model and the cross sectional modified Jones model perform better than their time-series counterpart in detecting earnings management. The modified Jones model may be interesting in event studies where the researchers expect a sales based manipulation for a particular period or group of firms. However, in our case this expectation does not hold. Moreover, as Beneish [1998] discusses [$\Delta REV_t - \Delta REC_t$]can be rewritten as [$CR_t - REV_{t-1}$] where CR_t equals Cash Received in period t and re–specification of the modified Jones model in this way highlights the absence of any strong economic intuition for the purposed adjustment in the estimation sample.

[13] Contingency estimates are taken into account in the computation of TA through the variable Depreciation. Tax related accruals are not included in this definition, except from tax contingencies. Another important feature of this measure is that it does not include accruals from extraordinary items.

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$GPPE_t$ = *gross property plant and equipment in year **t** scaled by total assets*[14] *at **t**-1;*

$INDUSTRY = 0 , 1$ *if the firm belongs to industry n.*

This model determines non discretionary accruals for each firm by regressing total accruals on the change in sales revenues [ΔREV] during the period and the gross level of property, plant and equipment [GPPE] using cross sectional observations.

Since the number of firms in the same industry and year is small [mean 11.6 and median 10], we have added to the model an industry set of dummy variables and we have estimated this model for each year, the sample estimation being composed of all firms from that year. We have followed the industry classification of the regulatory and supervisory agency of the Spanish stock market to establish the industry the firm belongs to. TABLE 3 shows the results obtained in the estimation of this model. The GPPE coefficient has the expected negative sign and the ΔREV coefficient is positive, as usually occurs in cross sectional estimations, and they are significant in most of years.

3.2.2. Explanatory variables

In this part of section three we describe corporate variables used as a proxy for the incentives and restrictions managers have to exercise when accounting discretion. Starting with ownership structure; an important related variable is its concentration. In our investigation we have considered three alternative variables: CEXT1, CEXT2 and CEXT5, measured as the percentage of shares owned by the largest, the two largest and the five largest shareholders that are not directors. This percentage can be owned directly or through third parties of companies.

Financial leverage has been measured by the ratio "total debt to total asset" [LEV], and is the proxy variable used for the incentives managers have to direct towards earnings due to the use of accounting information in bank loans. And finally, the investment opportunity

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[14] This variable includes intangible assets, tangible fixed assets and start-up expenses (from balance sheet) because period amortisation refers to these three concepts. We have also considered asset revaluation that took place in 1996.

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set is considered through the variable market to book ratio, which takes into account the relative importance of assets in place and growth opportunities in the value of the firm. Firms with relatively more assets in place [i.e. those assets whose ultimate value does not principally depend on future discretionary investment by managers] will present a lower value of this ratio. However, this ratio will be higher for firms whose value is made up principally of growth opportunities. This ratio has been used in other studies analysing the investment opportunity set [Baber et al., 1996; Andrés et al., 2000; Hutchinson and Gul, 2002]. Following Hutchinson and Gul [2002], we also incorporate the ratio *gross property, plant and equipment to market value of the firm* as an alternative proxy, although in this case the higher this ratio is the less important are growth expectations for the value of the firm. We have also added two ex post proxies for the demand for external financing. These variables adopt the value of zero if the firms have increased their financing below the industry median and one in the opposite case. More precisely, FIN1 adopts the value of one if, looking at the following year, the sum of equity issues plus debt increases is higher than the year-specific industry median and FIN2 adopts the value of one if, also looking at the following year, firm has issued equity, or debt has increased above the year-specific industry median.

3.2.3. Control variables

The first group of control variables is related to another feature of ownership structure: the kind of largest shareholder. It is incorporated in our model through five dichotomic variables that adopt the value of one if the largest shareholder is another firm, a multinational firm, a financial entity, a public entity or a family group [OEN, OEMU, BA, PU, FA].

Managerial accounting discretion will find its limits in the direct exercise of residual control rights by large shareholders, as we have hypothesised, or in the indirect exercise of these rights through its delegation to control mechanisms as the board of directors. The board of directors is an important component of corporate governance that helps solve the agency problems inherent in managing any organisation. Moreover, in Spain, as happens in other countries, corporate law defines an explicit responsibility for boards of directors in the financial reporting process. The association between board of directors characteristics and the accounting choice have been documented in extreme cases of earnings management, such as

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fraudulent financial reporting [Beasley, 1996] and SEC enforcement actions [Dechow et al.1996], and also in more subtle ways to direct earnings [Andrés et al., 2001; Klein, 2000; Peasnell et al., 2000; Chtourou et al., 2001; Azofra et al., 2002]. Independence, size, directors' financial motivation, board committee structure, board meeting frequency, audit committee composition and its activity are the characteristics most frequently analysed and with which board effectiveness may depend. In this investigation we control for two of these characteristics: board size and directors ownership. Board size [BDSIZE] is defined as the logarithm of the number of directors and directors ownership [BDOWN] is measured through the percentage of shares owned by directors.

We have also considered a proxy variable for political visibility *government grants and government assistance to sales revenue ratio* [POL] in order to control for political incentives to direct earnings. Four more variables have been included: *firm size* [SIZE], *cash flow* [CF], *growth rate* [growth] and *the average fixed asset life* [life]. We have considered firm size, defined as the logarithm of revenues, because empirical literature has shown a relation between size and accounting choice. And finally, the reason we have controlled for operating cash flow, firms growth and the average fixed asset life, is the association between the proxy variable employed for the exercise of accounting discretion [discretionary accruals from the Jones model] and these three variables [Young, 1999]. Special importance needs to be given to the inclusion of firms growth since it may be correlated with the explanatory variable representative of future growth: the investment opportunity set.

3.3. The Empirical Model

In order to test the relationship between the exercise of accounting discretion and ownership concentration, debt financing and the investment opportunity set, after having controlled for the variables above, we estimate the following panel data regression:

$$|DA|_T = \alpha + \beta_1 |DA|_{T-1} + \beta_2 \text{ CEXT1} + \beta_3 \text{ LEV} + \beta_4 \text{ IOS} + \beta_5 \text{ OEN} + \beta_6 \text{ OEMU} + \beta_7 \text{ FAPA} + \beta_8 \text{ BA} + \beta_9 \text{ PU} + \beta_{10} \text{ BDOWN} + \beta_{11} \text{ BDSIZE} + \beta_{12} \text{ POL} + \beta_{13} \text{ SIZE} + \beta_{14} \text{ CF} + \beta_{15} \text{ GROWTH} + \beta_{16} \text{ LIFE}.$$

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This model attempts to explain the contractual determination of the exercise of accounting discretion. An important aspect of this model that we would like to emphasise is its dynamic character, that is, the lagged dependent variable [$|DA|_{T-1}$] which appears as an explanatory variable. We have included this variable in order to control for potential inertial discretionary accrual behaviour, due to the reversing nature of accruals.

The hypotheses we test in this paper predict a higher or lower exercise of managerial accounting discretion, but they do not predict the direction of earnings management [to increase or decrease earnings], so the absolute value of discretionary accruals [$|DA|_T$] has been used as a proxy for accounting discretion[15].

3.4. Methodology

In this paper we have applied the econometric analysis of panel data to estimate the earnings management model. Apart from its limitations, like the design and data collection problems, Baltagi [1995] points out several benefits from using panel data such as the control for individual heterogeneity, the identification and measurement of effects that are not detectable in pure cross-sections or pure time-series data, the less colinearity among variables, etcetera.

Our model is a dynamic panel data model. The dynamic relationship is characterised by the presence of a lagged dependent variable among regressors. This lagged dependent variable is correlated with the error term, complicating its estimation. The Arellano and Bond two step estimator appears to be the optimal estimator [Baltagi, 1995]. This estimator allows us to differentiate between exogenous and predetermined variables within the right hand variables. Taking into account the influence of past decisions on some variables, we have considered firm size, its leverage, the investment opportunity set and the level of operating cash flow as predetermined variables.

In the estimation of a dynamic panel data model it is important to test the implicit assumption of white noise perturbance. The presence of first-order autocorrrelation in the

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[15] Other studies using the absolute value of discretionary accruals as a proxy for accounting discretion, combining income increasing and income decreasing earnings management, are Warfield et al. [1995], Becker et al. [1998] and Klein [2000].

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differenced residuals does not imply that the estimates are inconsistent. However, the presence of second-order autocorrelation would imply that the estimates are inconsistent. It is also important to test the null hypothesis of the over identifying restrictions. The Sargan test allows us to know whether we cannot reject the null. Finally, the Wald statistic helps us to test the null hypothesis of all coefficient estimates but the intercepts are zero, that is, the joint significance of all variables in the model.

4. EMPIRICAL RESULTS

In this section we present the results obtained from the descriptive and multivariate analysis of the data related to the exercise of accounting discretion and corporate variables.

4.1. Descriptive Analysis

Descriptive statistics in TABLE 4 offer a different ownership structure picture than that of firms in Anglo-Saxon countries, a context characterised by a strong market orientation as a way to organise financing activity and as a control mechanism in corporate governance, and where specialisation of risk taking and management function is reflected in widely dispersed ownership. As can be perceived in the mean value of the external ownership, 32%, 38% and 41% for the largest, two largest and five largest shareholders who are not directors, Spanish firm ownership is highly concentrated, as was expected since it belongs to Continental Europe. Another interesting feature of the ownership structure is the nature of the principal shareholders. As can be seen in the mean value of the variable relating to this aspect we could say that there is not a dominant form of controlling ownership in Spanish firms as opposed to the results in La Porta et al. [1999] which state that within corporations in a world where we can identify the principal owners, these owners are families or the State. In our sample, another national firm [OEN] is the principal shareholder in 27% of the firms and there is not much difference with other shareholders except when the largest shareholder is a public entity [PU] [12%]. The less important role played by State ownership is due to the privatisation that took place during the nineties. We complete the description of the ownership structure with the percentage of shares held by directors, the mean value being of 20% [BDOWN]. TABLE 5

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reports a combination of these three ownership structure variables. It can be seen that the percentage of shares owned by external shareholders is lower [13 %] when the principal shareholder is a family group. However, the percentage of shares owned by directors is higher when a family is the largest shareholder [39%].

The mean value for the *market to book* ratio, proxy for the investment opportunity set, is 1.7. Specific characteristics of the Spanish capital market, not so lquid as those of market-oriented systems, can explain this value. Andrés et al. [2000] report an even lower mean value, which may be due to the period their sample of firms refers to: 1991-1995.

The average level of leverage in our Spanish firms is 46%, quite close to the value reported by Peasnell et al. [2000] for the United Kingdom. It confirms the small difference between Anglo-Saxon countries and Continental European countries, but the kind of debt will be the main difference.

TABLE 6 shows the correlation matrix where we can appreciate, as expected, that the absolute value of discretionary accruals is negatively correlated with ownership concentration and positively correlated with financial leverage. The absolute value of discretionary accruals, exhibits a significant and positive correlation with the ratio *market to book value*, but only if we consider the Pearson correlation because the Spearman correlation coefficient is not significant.

4.2. Regression Analysis

This second part of section four addresses the central issue of the paper: whether ownership structure, debt financing and growth opportunities generate incentives and restrictions to the exercise of accounting discretion. To test the significant relation between the absolute value of discretionary accruals and ownership concentration, financial leverage and the investment opportunity set, our research design relies on regression coefficient estimates obtained from the application of the econometrics of panel data that are reported in TABLE 7.

The first result we would like to emphasise is the significant coefficient for the lagged dependent variable, which confirms the dynamic character of the model. The positive sign

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reveals that periods where discretionary accruals are high [either positive or negative, since we use the absolute value] are followed by periods where the exercise of accounting discretion is also important, and periods where discretionary accruals are low [either positive or negative] are followed by periods where this variable presents a similar pattern. The negative autocorrelation of accruals documented by Dechow [1994], which the cross-sectional Jones model does not control for, may be a possible reason for this. When accrual reversion is not considered in the estimation of the cross sectional accrual model it will be included in the error term, that is the dependent variable in the earnings management model, and it will probably make the lagged dependent variable significant.

The significant negative coefficient estimates on the variables: CEXT1, CEXT2 and CEXT5, that is the percentage holdings of the largest, two largest and five largest shareholders, are consistent with a lower use of discretionary accruals as ownership concentration increases, which reveals the incentives for shareholders to monitor management, thereby avoiding the traditional *free rider* problem. Niehaus [1989] and Dyl [1989] have tested the hypothesis that ownership concentration is related to management choice of LIFO or FIFO inventory valuation methods. The results show that managers of widely held firms are more likely to select an alternative which increases reported income [FIFO], than are the managers of closely held firms. These results reveal management control through ownership concentration. The evidence of the role of large shareholders in exercising corporate governance goes further than accounting policy. Shleifer and Vishny [1997] review some examples related to the performance improvement in the presence of blockholders and also related to management discipline such as turnover of directors, manager replacements in response to poor performance and discretionary spending.

In our study the results for ownership concentration are attained after having controlled for another two complementary features of ownership structures: the identity of the largest shareholder and directors ownership. Coefficient estimates show the importance of controlling for them. Increasing directors ownership implies a higher alignment of interests with shareholders as the negative coefficient estimate for this variable reveals [the coefficient of board of directors variable is –0.005 with a z-statistic of –2.74 significant at 1% level]. The exercise of accounting discretion appears to be higher when the largest shareholder is a

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financial entity, a public institution or a multinational firm. However, the opposite happens when the principal investor is a family group or another national firm. Particularly, the negative and significant coefficient of the family variable [-0.005 with a z-statistic of –3.28 significant at 1% level] is probably due to the fact that family owners make use of direct monitoring instead of accounting-based contracts. It may be interesting for future research to analyse different conflicts of interest over accounting policy for these groups of investors, and the consequential incentives they have to allow for, promote or monitor accounting discretion.

The use of accounting information by creditors, especially by banks due to their prevalence in our financial systems, generate incentives for the exercise of accounting discretion as the positive and significant coefficient estimates of the variable *financial leverage* proves. These results are consistent with prior evidence from Anglo-Saxon countries, where public debt negotiated in the capital market plays in important role in firm financing. There appears to be a conflict of interests over accounting policy between shareholders and creditors, regardless of whether they are banks or bondholders. Even though monitoring and renegotiation are more feasible and less costly when a firm's debt is concentrated in the hands of a small number of lenders, as happens in the case of banks, there remains a higher exercise of accounting discretion the higher the financial leverage ratio is. We have considered the following ratios as alternative measures of leverage: *debt to market value of firm*, *debt to equity*, *debt to market value of equity*, and a proxy variable for financial risk defined as *earnings before taxes and extraordinary items to earnings before interest, taxes and extraordinary items.* The positive and significant relation remains when introducing these alternative variables. Finally, we have added a ratio that considers the percentage of bank loans in total debt and in total assets, these variables also exhibiting a positive relation.

It may be particularly interesting to analyse the exercise of accounting discretion generated by debt financing when the principal shareholder is a financial entity, since shareholder-debtholder conflict would have special characteristics influencing the use of accounting information in debt contracts. In this sense, we have studied the correlation between *the absolute value of discretionary accruals* and *leverage* ratio and it is not significantly positive when the largest shareholder is a financial institution. Further analysis

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of this question will provide interesting insight into the determinants of accounting policy[16]. Another interesting question is the relation between the exercise of accounting discretion and the concentration of debt financing, that is, whether funds are provided by few banks or, on the contrary, they hold a small stake in the firms.

The investment opportunity set is also relevant in explaining not only dividend, compensation and financing, as other studies have proved, but also accounting policy. However, this variable has not received much attention in accounting literature. Ke [2001] shows how growth firms are more likely to report small increases in earnings and to maintain a longer string of consecutive earnings increases. Since growth firms are more likely to need financing in the future, managers in these firms will exercise accounting discretion to influence the probability of obtaining it and also its costs. The significant positive relation we report in this paper supports this idea, that is, managers have larger incentives to direct earnings the more growth opportunities firms have[17]. This positive relation has been confirmed when we use a dichotomic variable referring to the use of new financing in the next year [the coefficient estimate for variable FIN1 is 0.012 with a z-statistic of 12.49 significant at 1% level and the coefficient estimate for variable FIN2 is 0.014 with a z-statistic of 15.55 significant at 1% level].

Apart from the nature of the largest shareholder and directors ownership, other control variables also appear to be determinants in the exercise of accounting discretion such as board size, growth sales, asset life and sometimes cash flow and size. The coefficient estimate on the proxy for political visibility is the only one that does not have a significant value.

There could be a problem in our model derived from the fact that our explanatory variables are potentially stationary [particularly leverage and ownership concentration] and the lagged dependent variable is also considered as an explanatory variable[18]. However, this is not in fact a problem because of the method used to estimate our model and the results obtained. In this sense the implementation of Arellano & Bond's method in STATA 7.0 does

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[16] As an example of the interdependence between different contractual relationships, Griner and Huss [1995] study the effect of insider ownership on the types of debt covenants required by creditors.

[17] For variable PPEMA the coefficient estimate is negative as expected [-0.004 with a z-statistic of -9.96 significant at 1% level].

[18] The authors acknowledge an anonymous referee for this point.

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not allow one to consider explanatory variables, which are time-invariant as they are removed when computing first differences. Thus, concerns on the spurious effects of potentially stationary variables are minimised by using Arellano & Bond's method: only the "jumps" in the "quasi time-invariant" variables will be relevant for estimation. For instance, if ownership concentration remains constant between consecutive periods, their differenced value will be zero and consequently the variation of the endogenous variable would not be attributable to this factor. In our case, both leverage and ownership concentration exhibit highly significant estimates and therefore their hypothetical low time variation is not a crucial caveat for inference purposes.

Under the aforementioned logic, there would be no problem in specifying as an original equation one that considers one or more explanatory variables expressed in differences instead of their value in levels. Actually, in linear models coefficients are unaltered even after computing differences of orders greater than two. Hence we have estimated our dynamic model considering the change in the explanatory variables related to our three hypotheses [ownership concentration, leverage and investment opportunity set]. The three alternative variables, stated as changes instead of levels variables, produce significant z-statistics: the coefficient estimate for the change in ownership concentration is –0.012 with a z-statistic of -4.21 significant at 1% level, for the change in leverage is 0.024 with a z-statistic of 5.65 significant at 1% level and for the change in the investment opportunity set is 0.003 with a z-statistic of 9.69 also significant at 1% level. The results we obtain confirm our theoretic model: there is a negative relationship between the exercise of accounting discretion and the ownership concentration and a positive relation between the exercise of accounting discretion and both leverage and the investment opportunity set. That is, after performing this additional analysis we can conclude that these relationships are for the level and also for the change in the ownership concentration, leverage and the investment opportunity set. We also continue to observe the lagged dependent variable to be significantly positive at 1% level.

To assess the stability of the findings to the accrual model estimation, we replicate the previous analysis [the empirical model in section 3.3.] after estimating the Jones model industry by industry. Industries with too few observations [less than six] are excluded from the sample. Apart from the coefficient of the lagged dependent variable being significantly

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positive at 1% level, the results obtained indicate a significant negative relationship between ownership concentration and earnings management [the coefficient of CEXT1 is –0.007 with a z-statistic of –2.59 significant at 1% level]. We also observe a significant positive relationship between earnings management and both leverage and the investment opportunity set [the coefficient of LEV is 0.033 with a z-statistic of 2.91 significant at 1% level and the coefficient of IOS is 0.010 with a z-statistic of 21.9 significant at 1% level]. So tests using this alternative accrual measure continue to support the three hypotheses of this article.

5. CONCLUSIONS

Previous studies document that contractual structures generate incentives for and limitations to earnings management. In this investigation we analyse this contractual nature of the exercise of accounting choice by considering capital structure in a broad sense, that is, we take into account not only the origin or nature of financing but also its characteristics related to property and control rights. So, we argue that differences in ownership concentration and financial leverage should be associated with different discretionary accrual patterns. We complete the analysis of corporate characteristics with the relative importance of assets in place versus growth opportunities in the value of the firm. Using a sample of firms quoted on the Spanish capital market during the period 1991-1999, the objective of this research is to examine the determinants of the exercise of accounting choice, in a setting quite different from what we are used to observing: a country belonging to continental Europe, with important differences in corporate governance compared to Anglo Saxon countries.

Despite these important differences, our findings support the view that large shareholders play an active role in corporate governance, particularly in the agency problem arising from the conflicts of interest over accounting policy, as can be perceived in the reduction of the exercise of accounting discretion as ownership concentration increases. Debt financing, that is, suppliers of capital whose risk is limited through specified fixed payoffs as opposed to residual risk bearings, provide incentives for managers to exercise accounting discretion in order to avoid financial covenants violation and to obtain better conditions in their financing. Finally, managers in firms with relatively more growth opportunities are using accounting discretion because of their need to finance new projects or others just initiated. Moreover, these firms have to provide certain levels of earnings to pay dividends as a signal

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to the market, and the cost of financial covenants violation will also be higher in these firms in terms of inhibiting their future investment decisions.

These results were obtained after having controlled for important determinants of the exercise of accounting discretion such as board characteristics: board size and directors ownership, on which its monitoring function may depend. Other interesting factors we have controlled for, this time due to the proxy variable used for accounting discretion, are accrual reversion and accrual relation with cash flow levels, sales growth and asset life. Finally, size and a proxy for political visibility have also been included in the model. The main limitation, however, is that we have not contemplated either tax incentives or tax accruals. These incentives and also this tool require special attention and a specific and detailed analysis.

The main contribution made by this paper, apart from being the first in Spain that analyses corporate characteristics and accounting policy, is to document the contractual nature of accounting discretion in a Continental European country whose governance structures differ considerably from those of Anglo-Saxon countries, to which most of this research refers. In this investigation we have analysed the importance of specific mechanisms, like ownership concentration, in monitoring accounting discretion. In particular, the results reached in this study are relevant for the following reasons:

Firstly, this investigation provides evidence on the importance of one alternative control mechanism, shareholders ownership concentration, as a determinant of accounting policy. The important role of large shareholders in corporate governance has been proved in studies that have focused on particular situations where managers have to be disciplined or, on a more general basis, when analysing whether blockholders improve firm performance. As far as we know, with regard to accounting discretion, this paper is the first to provide additional evidence for these relevant corporate characteristics since Dyl [1989] and Niehaus [1989].

Secondly, the use of accounting information in debt contracts, especially bank loans, generates incentives for the exercise of accounting discretion, even though the Spanish financing system can be classified within bank-oriented systems, where banks enter into long-

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term relationships as opposed to the arm's length finance associated with market oriented regimes.

Thirdly, the investment opportunity set appears to be important in explaining, not only financing, executive compensation and dividend policies as has been proved in other studies, but also accounting policy. This relation is significantly positive and reveals the incentives managers in growth firms have to influence the probability of obtaining funds in the future.

Fourthly, the results we present in this paper are obtained from the estimation of a dynamic panel data, which implies an analysis of accounting policy across 109 firms throughout several years, and more importantly, this econometric methodology allow us to control for the reversion of accruals. The significant coefficient of the lagged dependent variables, that is, the absolute value of discretionary accruals for the previous year, reveals the need to consider the inertial behaviour of discretionary accruals when explaining accounting policy through this variable. Dechow [1994] considers it important that research on earnings management incorporates the implication of her findings in modelling the non discretionary component of accruals: cash flows and accruals exhibit strong negative correlation and accruals exhibit strong negative autocorrelation. Since we have not considered these two accrual properties when estimating non discretionary accruals, we have included cash flow and discretionary accruals from the year before in our empirical earnings management model, the results revealing the significance of these two variables.

This paper opens several interesting avenues of future research. The results presented here suggest that it is not only ownership concentration that matters for accounting choice but also the kind of largest shareholders. Further investigation into the conflict of interests over accounting policy depending on who owns the firm will help to improve the understanding of the exercise of accounting discretion. Moreover, this analysis will also have implications for debt financing hypotheses since in Continental European countries bank loans are the protagonists of debt, and the need for accounting based financial covenants will differ considerably when this supplier of finance is also the principal shareholder.

The level of managerial ownership affects both the informative ability of earnings and the magnitude of discretionary accrual adjustments [Warfield et alt, 1995]. We particularly

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consider it important in earnings management and corporate governance to research the joint consideration of the following aspects: the incentives and constraints managers have to exploit the latitude available over accounting choice to their own benefits, the incentives or conditions needed for managers to communicate information to the capital market, the firm's financial dependence on the capital market to continue with an investment project, and the different capital market maturity to process information and consequently to be a credible valuation framework on which its effectiveness as an active control mechanism depends.

The use of externally reported financial accounting data in control mechanisms, which promote the efficient corporate governance, appears to be of great interest for future research into the effects of financial accounting information on economic performance [Bushman and Smith, 2001]. Under this consideration, that is, accounting information being an important part of corporate governance, we cannot forget the importance of different decision right assignments and control mechanisms in the accounting process because the accounting information generated in this process will feed different contracts and capital markets.

From this viewpoint, it is important to consider the crucial role played by other control mechanisms because the accomplishment of accounting information's objectives in the governance of the firm will depend on them. Failure in a control mechanism may produce a chain reaction and accounting information, as one of these mechanisms, is likely not to accomplish its function in corporate governance due to the poor performance of other control mechanisms. We can look at recent accounting scandals as examples of consecutive failure in corporate governance mechanisms, where accounting did not play its role but neither did others like the board of directors, auditing, etc… So we think that good performance of different control mechanisms will make accounting information important in corporate governance and it will lead to an equilibrium situation in the governance of earnings management.

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TABLE 1. Distribution of sample estimation firms by industry group(Jones Model)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total	%
Listed firms*	207	201	190	192	174	173	177	169	154	1,634	100%
Firms dropped	57	62	69	76	60	61	68	66	66	585	36%
Cement, glass and building material	18	16	13	11	11	11	10	8	7	105	10%
Chain stores and other services	7	5	5	7	8	9	9	11	12	73	7%
Building	10	10	11	11	9	9	4	5	3	72	7%
Energy and water	18	17	18	14	17	16	15	15	5	135	13%
Chemical industry	7	6	5	5	5	5	4	3	2	42	4%
Property companies	19	20	14	18	17	15	12	13	14	142	14%
Basic metal	7	7	3	3	3	3	4	4	3	37	3%
Other transformation	36	35	30	27	25	26	28	24	25	256	24%
Metal transformation	19	15	14	12	11	10	12	12	10	115	11%
Transport and communications	9	8	8	8	8	8	8	8	7	72	7%
Total (1,049)	150	139	121	116	114	112	106	103	88	1,049	100%

Listed firms*: All listed firms except financial firms (banks, holdings, assurance, etc.)

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TABLE 2. Distribution of sample estimation firms by industry group(proposed earnings management model)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total	%
Cement, glass and building material	10	10	10	11	10	10	10	8	7	86	11%
Chain stores and other services	1	2	2	6	6	6	6	5	4	38	5%
Building	7	8	8	8	7	6	3	3	2	53	7%
Energy and water	9	11	12	12	16	16	15	14	3	108	14%
Chemical industry	2	4	4	4	4	4	4	3	2	31	4%
Property companies	9	10	10	11	12	11	11	10	10	94	12%
Basic metal	3	3	3	3	3	3	3	3	2	26	3%
Other transformation	22	23	24	24	24	24	22	17	16	196	25%
Metal transformation	10	11	11	11	11	10	8	8	5	85	11%
Transport and communications	8	8	8	8	8	8	7	7	5	67	9%
Total (783)	81	90	92	98	101	98	89	78	56	783	100%

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TABLE 3. Ordinary Least Squares estimates for cross sectional Jones Model

$TA = \alpha_1 + \alpha_2\ GPPE + \alpha_3\ \Delta\ REV + \quad \alpha_n INDUSTRY + \mathring{a}$

	AdjR2	F-statistic	$\alpha2$	$t\alpha2$	$\alpha3$	$t\alpha3$
1991	0.34	7.70 ***	-0.06	-3.70***	0.20	4.79***
1992	0.34	7.46 ***	-0.06	-3.16***	0.18	3.94***
1993	0.19	3.50 ***	-0.08	-3.23***	0.03	0.56
1994	0.08	1.92 **	-0.04	-2.53**	0.13	2.77***
1995	0.20	3.37 ***	-0.07	-3.41***	0.19	3.8***
1996	0.24	4.05 ***	-0.01	-1.09	0.06	1.11
1997	0.09	1.93 **	-0.01	-0.7	0.11	2.07**
1998	0.27	4.42 ***	-0.07	-1.73*	0.46	5.49***
1999	0.28	2.71 ***	-0.08	-3.03***	0.38	3.56***

*** Statistically significant at the 0.01 level
** Statistically significant at the 0.05 level
* Statistically significant at the 0.10 level

Where TA are total accruals, Δ REV revenues in year t less revenues in year t-1, GPPE gross property plant and equipment, industry is a dichotomic variable that adopts the value of 1 if the firm belongs to industry n.

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TABLE 4. Descriptive statistics

Variable	Mean	Standard deviation	Minimum	Maximum
$|DA|_T$	0.051	0.053	0	0.414
CEXT1	0.317	0.280	0	0.992
CEXT2	0.375	0.291	0	0.993
CEXT5	0.413	0.299	0	0.993
LEV	0.463	0.183	0.040	0.933
IOS	1.706	2.207	0.114	25.705
PPEMVA	1.229	1.681	0.006	15.192
FIN1	0,527	0,499	0	1
FIN2	0.600	0.490	0	1
OEN	0.267	0.442	0	1
OEMU	0.181	0.385	0	1
FAPA	0.231	0.422	0	1
BA	0.204	0.400	0	1
PU	0.117	0.322	0	1
BDOWN	0.203	0.245	0	0.986
BDSIZE	0.959	0.238	0	1.744
POL	0.002	0.010	0	0.157
SIZE	4.265	0.740	2.041	6.218
CF	0.098	0.098	-0.313	0.515
GROWTH	0.098	0.758	-0.837	19.382
LIFE	23.075	76.217	1.404	92.238

Where the different variables are defined as follows: $| DA |_T$, the absolute value of discretionary accruals from Jones Model; CEXT1, CEXT2 and CEXT5 are the percentage of shares owned by the largest, two largest and five largest shareholders not directors; LEV, total debt/ total asset; IOS, market value (equity) / book value (equity); PPEMVA, gross property, plant and equipment / (market value of the firm + non current liabilities); FIN1 adopts the value of zero/ one if the sum of equity issues plus debt increases is lower/higher than the industry median in the following year; FIN2, adopts the value of zero/one if firm has not /has issued equity, or debt has increased below/above the year industry median in the following year; OEN, OEMU, FAPA, BA, PU adopt the value of zero/one if the principal shareholder is other national firm, a multinational firm, a family group, a financial entity or public sector; BDOWN, the percentage of shares owned by directors; BDSIZE, log. of number of directors; POL, government grants and government assistance/ revenues; SIZE, log. revenues; CF, cash flow from operations/ total assets t-1; GROWTH, change in sales scaled by lagged sales; LIFE, measured as gross value of property, plant and equipment divided by the depreciation expense.

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TABLE 5. Ownership concentration, board holding and the identity of the largest shareholder

1991-1999	Another national firm	A multinational firm	Family group	Financial entity	Public sector	General
CEXT1 (mean)	0.35	0.40	0.13	0.35	0.42	0.32
CEXT2 (mean)	0.42	0.44	0.17	0.44	0.47	0.38
CEXT5 (mean)	0.48	0.46	0.21	0.47	0.50	0.41
BDOWN(mean)	0.17	0.23	0.38	0.07	0.14	0.20
Percentage	0.27	0.18	0.23	0.20	0.12	100%

Where CEXT1, CEXT2 and CEXT5 are the percentage of shares owned by the largest, two largest and five largest shareholders not directors and BDOWN the percentage of shares owned by directors.

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TABLE 6. Correlation table

		$|DA|_T$	CEXT1	CEXT2	CEXT5	LEV	IOS		
$|DA|_T$	Pearson corr.	1.000	-0.115	-0.118	-0.106	0.095	-0.044	Spearman corr.	$|DA|_T$
	Sig.	.	0.001	0.001	0.003	0.008	0.217	Sig.	
CEXT1	Pearson corr.	-.150	1.000	0.968	0.922	-0.131	0.082	Spearman corr.	CEXT1
	Sig.	.000	.	0.000	0.000	0.000	0.021	Sig.	
CEXT2	Pearson corr.	-.152	.961	1.000	0.974	-0.142	0.088	Spearman corr.	CEXT2
	Sig.	.000	.000	.	0.000	0.000	0.014	Sig.	
CEXT5	Pearson corr.	-.135	.904	.970	1.000	-0.154	0.075	Spearman corr.	CEXT5
	Sig.	.000	.000	.000	.	0.000	0.035	Sig.	
LEV	Pearson corr.	.116	-.134	-.138	-.141	1.000	0.060	Spearman corr.	LEV
	Sig.	.001	.000	.000	.000	.	0.092	Sig.	
IOS	Pearson corr.	.067	-.034	-.014	.010	.196	1.000	Spearman corr.	IOS
	Sig.	.062	.338	.691	.790	.000	.	Sig.	

Bilateral significance. Pearson correlation: below the diagonal. Spearman correlation: above the diagonal
Where the different variables are defined as follows: $|DA|_T$, the absolute value of discretionary accruals from Jones Model; CEXT1, CEXT2 and CEXT5 are the percentage of shares owned by the largest, two largest and five largest shareholders not directors; LEV, total debt/ total asset; IOS, market value (equity) / book value (equity).

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TABLE 7. Regression of absolute discretionary accruals on ownership concentration, financial leverage, "market to book" ratio

	INTERCEPT	/DA t-1/	CEX T1	CEX T2	CEX T5	LEV	IOS	WALD	SARGAN	AUTO (1)	AUTO (2)
COE.	0.012	0.056	-0.074			0.017	0.011	40,0134.9	94.35	-4.96	-0.23
Z	4.85	9.16	-4.17			2.43	57.00	15*	93*	0.000**	0.819**
P>/Z/	0.000	0.000	0.000			0.015	0.000				
COE.	0.015	0.056		-0.009		0.018	0.011	55,9651.33	93.88	-4.97	-0.23
Z	5.38	8.82		-5.66		2.52	57.65	15*	93*	0.000**	0.819**
P>/Z/	0.000	0.000		0.000		0.012	0.000				
COE.	0.014	0.057			-0.008	0.018	0.011	48,3205.86	93.62	-4.98	-0.24
Z	5.09	9.08			-5.38	2.74	59.69	15*	93*	0.000**	0.8129**
P>/Z/	0.000	0.000			0.000	0.006	0.000				

Wald : Wald Test. Test with the chi-square distribution

Sargan: Sargan Test. Test with the chi-square distribution

Auto (1): Test that average autocovariance in residuals of order 1 is 0

Auto (2): Test that average autocovariance in residuals of order 2 is 0

* Degree of freedom

** p-value

This table exhibits coefficient estimates (Arellano and Bond two step estimator) for ownership concentration (the percentage of shares owned by the largest, two largest and five largest shareholders not directors), financial leverage (total debt to total asset ratio), the investment opportunity set (market to book ratio of equity), constant term and lagged dependent variable (the absolute value of discretionary accruals from the year before). Other variables included in the model are: the group the largest shareholder belongs to, the percentage of shares owned by directors, board size, political visibility, firm size, cash flow, sales growth and asset life.

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