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Determinants of Financial Conservatism: Evidence from Low-Leverage and Cash-Rich UK Firms

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This paper investigates the characteristics of firms that adopt persistent policies of low leverage and substantial cash reserves. In doing so, specific attention is paid to the role of internal corporate governance mechanisms in influencing firms' conservative financial policies. The analysis of this paper classifies firms as financially conservative if they adopt both low-leverage and high-cash policies at the same time. Using a large sample of non-financial UK firms over the period 1984-2001, we provide evidence that conservative firms tend to undershoot (overshoot) their target leverage (cash holdings) levels. Our results also suggest that managerial ownership, board composition and, to some extent, ownership concentration are important determinants of the likelihood of firms adopting conservative financial policies.

Keywords: Financial conservatism, leverage, cash holdings, ownership structure.

JEL Classification: G32.

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Abstract

This paper investigates the characteristics of firms that adopt persistent policies of low leverage and substantial cash reserves. In doing so, specific attention is paid to the role of internal corporate governance mechanisms in influencing firms' conservative financial policies. The analysis of this paper classifies firms as financially conservative if they adopt both low-leverage and high-cash policies at the same time. Using a large sample of non-financial UK firms over the period 1984-2001, we provide evidence that conservative firms tend to undershoot (overshoot) their target leverage (cash holdings) levels. Our results also suggest that managerial ownership, board composition and, to some extent, ownership concentration are important determinants of the probability of firms adopting conservative financial policies.

1 Introduction

It is suggested that firms normally desire to have financial flexibility in financing investments in order to avoid excessive costs of raising funds externally (see, e.g., Myers, 1984; and Myers and Majluf, 1984). In addition, flexibility is more valuable for firms with greater growth opportunities and those that are associated with severe information asymmetries and greater financial distress risk. It is also recognised that financial flexibility can be achieved through conservative financial policies. That is, firms may choose to hold substantial cash reserves and/or have spare debt capacity as a buffer against possible future financial constraints which would prevent them from taking up valuable investment opportunities.

There has been a great deal of empirical work that studies firms with substantial cash balances. This strand of literature revolves around the questions of why some firms hold ample cash and cash equivalents (see, e.g., Kim et al., 1998; Opler et al., 1999; and Ozkan and Ozkan, 2004) and what the consequences of such policies are (Mikkelson and Partch, 2003). However, much less empirical work has been done on firms that adopt policies of low leverage, with notable exception of Minton and Wruck (2001). More importantly, thus far, there has been no attempt to investigate the coexistence of these two policies and the way in which they work to shape firms' financially conservative policies. The existing studies use either cash holdings (Mikkelson and Partch, 2003) or leverage (Minton and Wruck, 2001) of firms to decide whether firms can be classified as financially-conservative.

The main objective of this paper is, therefore, to identify a sample of firms that best captures the behaviour of financially conservative firms and to analyse the empirical determinants of financially conservative policies. In doing so, it contributes to the literature on financial conservatism on two major grounds.

Our first major contribution lies in the approach we adopt in identifying financially-conservative firms. It has several important aspects that make, we believe, our analysis a more satisfactory basis to study conservative firms. First, as opposed to the existing studies that choose fixed threshold levels of cash holdings and leverage, we use a discriminant analysis based on the non-parametric estimate of the distribution of cash holdings and leverage to identify financially conservative firms. This allows us to estimate the appropriate cut-off points without imposing *a priori* arbitrary threshold levels. We carry out this analysis for each year throughout the sample period 1984-2001 in order to allow these cut-off points to vary over time.

Second, in identifying a firm's financial status, we combine both aspects of financial conservatism, namely leverage-conservatism and cash-conservatism. We argue that, to the extent that leverage and cash holding policies of firms are interdependent, investigating these two policies separately can lead to misleading conclusions. As noted earlier, the flexibility in financing investments can be attained either through substantial cash holdings or spare debt capacity. It is then hard to explain why firms should not have both forms of conservatism in place as complementary policies, rather than treating them as substitutes, which seems to be the

implicit assumption of the prior research on financial conservatism. It is, for example, possible that low-leverage firms can also hold large cash balances when they have sufficient growth opportunities.

Moreover, it is argued that financially constrained firms have more incentives to hold large cash reserves (Hovakimian and Titman, 2003; Fazzari, Hubbard and Petersen, 1996; and Kim et al., 1998). Then, to the extent that substantial cash holdings point to current - or expected future - financial constraints, firms with large cash balances are more likely to be restricted in the access to external finance and hence follow low-leverage policies.[1] That is, these firms may adopt leverage-conservative policies due to precautionary motives against financial constraints. Another reason for the coexistence of cash and leverage-conservative policies is that managers may have incentives to stockpile cash in order to avoid the use of debt financing. Taken together, these arguments possibly point to a significant interaction between firms' cash holdings and leverage to determine their conservative financial policies. As a result, in an attempt to take a closer look at what constitutes a financially-conservative firm, we investigate cash and leverage policies both in isolation and jointly.

Last but not least on our classification approach, we investigate whether firms that are likely to be conservative also deviate from their optimal behaviour persistently.[2] We do so by estimating target levels of leverage

[1] However, others suggest that firms with large cash balances are not constrained since their investment is not limited by a lack of finance (Kaplan and Zingales, 1997; and Kashyap, Lamont and Stein, 1994). The implication in this case would be that cash-conservatism and leverage-conservatism act as substitutes.

[2] Prior work that provides evidence that firms in general behave as though they

and cash holdings and comparing them with the observed ones. This is to avoid the circumstances in which, for example, a firm is classified as leverage-conservative (cash-conservative), because its leverage (cash holdings) ratio is lower (higher) than the cut-off level of leverage (cash holdings) determined by the discriminant analysis, but its observed level of leverage (cash reserves) is higher (lower) than the target one.[3]

Our second major contribution in this paper concerns itself with the empirical investigation of the impact of the internal corporate governance mechanisms - such as the equity ownership structure of firms and the board of directors - on financial conservatism. Prior research provides support for the significant influence of various governance characteristics on firms' leverage and cash holdings decisions (see, e.g., Berger, Ofek and Yemarck, 1997 and Ozkan and Ozkan, 2004). However, to the best of our knowledge, the importance of the internal governance mechanisms in determining financial conservatism has not been analysed. We attempt to do so by incorporating a unique set of information on managerial ownership, board structure and ownership concentration in the analysis for a large sample of UK firms over time.

The arguments so far suggest that conservative financial policies may

have target levels of leverage and cash holdings includes Opler et al. (1999) and Shyam-Sunder and Myers (1999).

[3]We recognise that target leverage of a firm may differ from its debt capacity and spare debt capacity may be more appropriate in considering leverage-conservatism. However, given that it is difficult to estimate the firm's debt capacity, we assume that the deviation of target debt level from debt capacity is negligible (or constant). Accordingly, we consider target levels of debt in comparing them with the observed ones.

serve shareholders' interests through lower costs of investment financing. It can also be argued that conservative policies may serve managers' interests. For example, managers may have incentives to follow a conservative cash policy to increase the amount of liquid assets under their control to pursue their own objectives at the expense of those of shareholders (Jensen, 1986). Moreover, the extent to which leverage puts disciplinary pressures on managers, a persistent policy of low leverage may be pursued by managers in an attempt to reduce such pressure.

We argue that the extent to which higher levels of managerial ownership lead to a greater degree of managerial discretion and cash holdings mainly serve managers' interests, the likelihood of cash-conservatism will increase with managerial ownership. Alternatively, to the extent that leverage exerts disciplinary pressure on managers and greater managerial shareholdings in the firm make managers more risk-averse regarding the risk of bankruptcy, managerial ownership should increase the likelihood of leverage-conservatism. Consequently, financial slack reduces or eliminates discipline provided through raising external financing.

In testing these hypotheses we distinguish between executive and non-executive shareholdings. This is due to the argument that non-executive directors are normally expected to perform a monitoring and disciplining function over executive directors. This would, in turn, suggest that the effective presence of non-executive directors may affect firms' financial policies. For example, one can argue that firms with stronger non-executive directors are less likely to adopt conservative financial policies because of the expected reduction in the cost of external finance due to more ef-

ficient monitoring and disciplining exercised by non-executive managers. To analyse the influence of non-executive directors on firms' conservative policies, we include in the empirical analysis both non-executive ownership and firms' board composition, given by the ratio of non-executive directors on the board.

We incorporate in our analysis the view that in the presence of large shareholders managerial discretion is curbed and agency costs between managers and shareholders are reduced (Stiglitz, 1985; Shleifer and Vishny, 1986). To the extent that this argument holds, the cost of external financing would be lower for firms with large shareholders, implying less need to hold substantial cash balances and a desire to have spare debt capacity. However, it is recognised that there may be private benefits of control accruing to large shareholders, not necessarily shared by minority shareholders. Consequently, large shareholders might have incentives to increase the amounts of funds under their control to consume private benefits at the expense of minority shareholders. This, in turn, suggests that firms with greater ownership concentration are more likely to be at least cash-conservative.

We have a set of interesting results. Our findings reveal that firms having financially-conservative policies also tend to be persistently off-target with regard to both leverage and cash holdings decisions. They persistently hold larger than target-cash balances and lower than target-levels of debt than predicted by theories of capital structure. Moreover, the probability of adopting a conservative policy is affected by the firm's ownership structure. Our results suggest that cash conservative policies

are positively associated with ownership concentration and the shareholdings by executive directors. Moreover, we find that leverage-conservatism is negatively correlated with the fraction of shares held by non-executive directors. Finally, the probability of adopting a financially-conservative policy decreases as the percentage of non-executive directors in the board increases.

The rest of the paper is organized as follows. Section 2 discusses the interaction between the ownership structure of companies and conservative financial policies. In section 3, we describe our methodology and the data. Section 4 presents our empirical results. Finally, section 5 concludes.

2 Conservatism and ownership structure

In this section, we discuss the ways in which the ownership structure of companies may shape the conservative financial policies firms adopt. We mainly focus on the role of executive and non-executive shareholdings and on whether ownership concentration can influence the incentives of firms to adopt financially-conservative policies. In addition, we discuss the relationship that may exist between board composition and financial conservatism.

The conflicts of interest between managers and shareholders have been well-documented in the corporate finance literature. One of the main conflicts relates to the firm's cash holdings. Jensen (1986) argues that managers can have incentives to hold large amounts of cash to pursue

their own objectives at the expense of those of shareholders. They can, for example, squander funds by consuming perquisites and/or making inefficient investment decisions (Jensen and Meckling, 1976). Moreover, it is worth noting that greater cash holdings serve managers' interests by possibly providing protection against disciplining pressure exerted by external investors.

In addition, it has been argued that managerial ownership can help align the interests of managers with those of shareholders. That is, with increased managerial ownership, managers are less likely to divert resources away from value maximisation as they bear part of the costs resulting from their actions. To the extent that the alignment of interests is achieved, the firm's ability to raise external finance should improve with increased managerial holdings, implying less need to accumulate cash and to have spare debt capacity. This argument suggests a negative influence exerted by managerial ownership on the likelihood of firms adopting conservative financial policies.

However, it is also possible that greater ownership gives managers more direct control over the firm, increasing their ability to resist outside disciplinary pressures. Consequently, entrenched managers who are relatively free of external discipline would choose to accumulate more cash and to have lower leverage to pursue their own interests without risking replacement. The net impact of these two effects would determine the sign of the effect of managerial ownership on the likelihood that the firm will adopt financially-conservative policies.

One increasingly important issue relating to the agency conflicts be-

tween managers and shareholders concerns the role of board composition in influencing managerial incentives (see, Hermalin and Weisbach, 2002 for an extensive survey). It is argued that non-executive directors are appointed to act in shareholders' interests (Rosenstein and Wyatt, 1997; and Mayers et al., 1997) and they can perform a significant monitoring and disciplining function over executive directors.[4] To the extent that these arguments hold, the interests of managers and shareholders are likely to be aligned better in boards with greater representation of non-executive directors than those dominated by executive directors.[5] That is, managers' incentives to hold substantial cash balances would be reduced and the cost of external financing would fall, making firms less likely to adopt financially-conservative policies.

It is suggested that another way of alleviating the agency problem between managers and shareholders is for shareholders to monitor managers to ensure that they act in the interests of shareholders. However, for an average shareholder there may be little or no incentive to monitor managers as the cost of monitoring is likely to outweigh the benefit. In contrast, large shareholders, having claims on a large fraction of the firm's cash flows, can have more incentives to monitor and can do so more effectively. Consequently, in the presence of a large shareholder, managerial discretion can be curbed and agency costs between managers

[4]Fama and Jensen (1983) suggest that they have incentives to signal that they indeed act in that way.

[5]There is some empirical evidence supporting these predictions that the market reacts more positively to decisions taken by outsider-dominated firms than those taken by insider-dominated firms (see Borokhovich et al., 1996 for an extensive discussion).

and shareholders are reduced (Stiglitz, 1985; Shleifer and Vishny, 1986). To the extent that these arguments hold, the cost of external financing would be lower for firms with large shareholders, implying less need to hold higher (lower) levels of cash (debt).

While enhanced monitoring by large shareholders can help reduce some of the agency problems associated with management, there are also private benefits of control accruing to large shareholders, not necessarily shared by minority shareholders (Shleifer and Vishny, 1997; Faccio et al., 2001; and Holderness, 2002). Consequently, large shareholders might have incentives to increase the amounts of funds under their control to consume private benefits at the expense of minority shareholders. This, in turn, suggests that firms with large shareholders are more likely to be at least cash-conservative and possibly also leverage-conservative due to an increase in the cost of external financing.

3 Methodology and the data

3.1 Classification of financially-conservative firms

As mentioned earlier, the definition of financial conservatism across alternative studies varies depending on the variable used in classifying financially-conservative firms. Prior research considers fixed classification rules using either leverage or cash holdings of firms. For example, Mikkelson and Partch (2003) define a firm as being financially-conservative if it holds large cash holdings persistently, i.e. if it holds more than 25 percent of its assets in cash and cash equivalents for five years. On the other

hand, Minton and Wruck (2001) define a firm as financially-conservative if it adopts a low leverage policy persistently, i.e. if its annual ratio of total debt to total assets belongs to the first 20 percent of all firms for five consecutive years.

In our analysis we consider both leverage-conservatism and cash-conservatism. We argue that one should investigate these two policies jointly to account for the possibility that firms can use leverage and cash holdings as substitutes. As we argued earlier, the main motive for firms to choose conservative financial policies is the precautionary motive that places much emphasis on the costs arising from the foregone investment opportunities. The literature implies that this can be achieved either through substantial cash balances or spare debt capacity. Clearly, it is possible that firms may have both forms of conservatism at the same time and it is not obvious why they should not do so. However, it would be inconsistent with the main theoretical capital structure explanations to observe cash-conservative firms having high leverage in their capital structures. The pecking order theory, for example, predicts that firms should first exhaust internally available funds and then resort to more expensive external debt and equity financing.

It is also difficult to explain why a firm that is classified as leverage-conservative should not be expected to hold large cash balances when it has, for example, sufficient growth opportunities. We suggest that these possibilities should be controlled for in identifying firms that are said to have conservative financial policies.

In an attempt to successfully deal with these concerns, we determine

three categories of firms by using cash holdings and leverage levels of firms, namely, cash-conservative, leverage-conservative and financially-conservative firms that are conservative with respect to both cash and leverage decisions. For a firm to be classified into one of these categories we impose that firms must display the required characteristics for at least three consecutive years. For our sample period over 1984-2001, illustrated in Figure 1, this leads to six non-overlapping three-year panels, where each panel will be treated as an observation in the subsequent analysis.[6]

INSERT FIGURE 1 ABOUT HERE

The drawbacks of the fixed classification rules and the advantages of adopting an approach similar to the one used in this paper may now be clearer. First, we argue that they are discretionary in the sense that it is difficult to explain why, for example, the 25 percent rule for cash holdings is appropriate in classifying cash-conservative firms. Instead, as explained below in detail, we allow the distribution of the relevant variable to determine the so-called cut-off level. Second, the approach using a fixed classification rule does not account for the evolution of the distributions of leverage and cash holdings over time. We allow for the

[6] Obviously, using a three-year definition reduces our sample size relative to a one-year definition adopted, for example, in Fama and French (1999) and Graham (2000). However, there are obvious benefits of not using a one-year definition. For example, our sample is less likely to be subject to problems generated by mean reversion. Moreover, a single year definition would be clearly unable to distinguish between transitory and persistent conservative policies.

possibility that the cut-off points, which split the firms into two groups, to change over time simply because the distributions of these variables may change in the long-run.

Finally, the existing studies do not account for differences in target levels of cash holdings and leverage across firms. As we discussed earlier, it is not sufficient only to observe that firms have historically low levels of debt and/or hold large amounts of cash and equivalents. It is also essential to know whether firms' observed behaviour is different from their target one. This would enable us to avoid the circumstances in which, for example, a firm is classified as leverage-conservative because its leverage ratio is lower than the cut-off leverage level but its observed leverage is higher than the target one.[7]

3.2 Methodology

To examine the empirical determinants of financial conservatism, we start by an analysis to identify financially-conservative firms. We carry out our classification analysis as follows. First, we use a discriminant analysis based on the non-parametric estimates of the distribution of leverage and cash holdings (see Silverman, 1981 and Bianchi, 1997).[8] More specifically,

[7]It can be argued that that persistently low levels of debt may be a proxy for firms' low debt capacity and hence these firms may run into financial constraints more quickly. Our analysis allows us to distinguish between these firms and financially conservative ones that optimally choose to maintain some precautionay spare debt.

[8]Since we are interested in studying the shape of the density function, we do not impose any particular shape to the density to be estimated, and we adopt a fully non-parametric approach.

we estimate T densities of leverage and T densities of cash balances for each year from 1984 to 2001 to account for changes over time of the point at which the sample is split. We define a firm in a particular year as leverage-conservative if its leverage ratio is lower than the first interior minimum in the leverage distribution for that year. Similarly, in a particular year a firm is classified as cash-conservative if its cash-holdings ratio is greater than the last interior minimum in the distribution of cash balances. To capture persistency, firms are required to remain in the same panel for three consecutive years. Finally, a firm is classified as being financially-conservative if it is both leverage and cash conservative in the same panel.

As we mentioned earlier, we also investigate if firms that are initially classified as conservative in the first round are also persistently off-target with regard to the levels of leverage and cash holdings. For this purpose, we estimate target levels of cash holdings and leverage for each of the six panels and examine whether firms persistently deviate from these targets within each panel. This classification allows us to examine the financial policies of firms that are both cash and leverage conservative and, at the same time, are away from their target behaviour in a particular way, i.e. overshoot their target cash holdings and undershoot their target debt levels.[9]

The model we use to estimate target levels of cash holdings and lever-

[9] These criteria to identify conservative firms are obviously stricter than those used in the previous literature and, as displayed later, lead to a smaller number of firms classified as financially-conservative.

age are borrowed from the existing literature on cash holdings and capital structure (see, e.g., Opler et al., 1999 and Ozkan and Ozkan, 2004 for cash holdings; and Rajan and Zingales, 1995 for capital structure). In particular, the model we use to estimate optimal level of cash holdings for each panel takes the form of

$$\begin{aligned} CASH_i = \beta_0 + \beta_1 CFLOW_i + \beta_2 LIQ_i + \beta_3 LEV_i + \\ + \beta_4 MTB_i + \beta_5 CAPEX_i + \beta_6 SIZE_i + \varepsilon_i \end{aligned} \tag{1}$$

where $CASH$ stands for the ratio of holdings of cash and cash equivalents to total assets; $CFLOW$ is the ratio of pre-tax profits plus depreciation to total assets; LIQ is the ratio of current assets minus current liabilities and total cash to total assets; LEV is the ratio of total debt to total assets; $CAPEX$ stands for the ratio of capital expenditures to total assets; MTB is the ratio of book value of total assets minus the book value of equity plus the market value of equity to book value of assets; and $SIZE$ is the logarithm of total assets in constant prices. The leverage model we estimate is

$$\begin{aligned} LEV_i = \alpha_0 + \alpha_1 FIXAST_i + \alpha_2 MTB_i + \alpha_3 CASH_i + \\ + \alpha_4 PROFIT_i + \alpha_5 SIZE_i + \omega_i \end{aligned} \tag{2}$$

where $FIXAST$ denotes the ratio of tangible assets to total assets and $PROFIT$ denotes the ratio of earnings before interest payments and tax to total assets.[10]

In estimating both cross-sectional models, each panel is treated as one cross-sectional observation, where we use the average values of each of the

[10] Both model (1) and (2) are industry adjusted.

firm characteristics over the two years preceeding the final year in each panel. We measure leverage and cash holdings (the dependent variables) in the final year. This is done in an attempt to mitigate problems that might arise due to short-term fluctuations or extreme values in one year. Moreover, this approach to some extent controls for the problem of endogeneity. Using past values reduces the likelihood of observed relations reflecting the effects of leverage and cash holdings on other firm-specific factors (see Rajan and Zingales, 1995 for a similar approach).

The estimated parameters from models (1) and (2) are then used to calculate the target levels of leverage LEV_p^* and cash holdings $CASH_p^*$ for each firm in each year. We next use these values to calculate deviations of the observed leverage and cash holdings of firms, $DLEV$ and $DCASH$ respectively, from the target values as follows:

$$DLEV_i = LEV_i^t - LEV_p^* \text{ and } DCASH = CASH_i^t - CASH_p^* \qquad (3)$$

where firms are represented by subscript i, time by t, and non-overlapping panels by $p = 1...6$. This enables us to identify firms that are cash and/or leverage conservative and that deviate from their targets in a particular way. For example, by doing so, one would be able to identify those firms that are cash-conservative according to the distribution criterion and for which $DCASH_i > 0$ for all years in a panel. Similarly, the same classification for leverage leads to the identification of firms that are leverage-conservative and $DLEV_i < 0$ for all years in a panel. Finally, we are also able to identify firms that are both cash and leverage-conservative and for which $DLEV_i < 0$ and $DCASH_i > 0$ for each year in a panel. For comparison purposes we also use the criteria adopted in Minton and Wruck

(2001) and Mikkelson and Partch (2003) to identify leverage-conservative, cash conservative and financially-conservative firms.

Consequently, we create the following nine dummy variables, underlying alternative conservative policies adopted by firms:

$$D_j = \begin{cases} 1 \text{ if a firm belongs to a conservative group} \\ 0 \text{ otherwise} \end{cases} \quad (4)$$

for $J = 1, ..., 9$

We use these dummy variables as dependent variables in our logistic regression models in Section 4.3 to empirically investigate the determinants of the probability of adopting a leverage, cash or a financially-conservative policy.

3.3 The data

Our sample of firms is taken from Datastream and includes includes an unbalanced panel of publicly traded UK firms for the years 1984 to 2001.We exclude financial firms from the sample. We also exclude missing firm-year observations for any variable in the model during the sample period. Finally, from these firms, we choose only those with at least six continuous time series observations. These criteria provide us with 1,196 firms and 14,317 firm-year observations.

In addition to the variables discussed above, we include several other variables to describe corporate ownership structure. We employ the fraction of shares held by executive directors, the fraction of shares held by non-executive directors, and the number of non-executive directors in the board as a percentage of all directors to describe the board composition.

Finally, we use the fraction of shares held by major shareholders as a proxy for ownership concentration. Ownership data were collected from several editions (1995, 1997, 1999 and 2001) of the Price Waterhouse Corporate Register. Managerial ownership data consist of beneficial as well as non-beneficial directors' holdings, in which the latter refers to holdings by directors on behalf of their families and charitable trusts. Although managers do not obtain benefits from these holdings directly, they usually have control rights. Obviously, we are able to incorporate ownership information only in panels D, E and F in Figure 1 and hence use only these three panels in the empirical analysis.

4 Empirical results

4.1 Classification results

We present in Figure 2 four examples with regard to the discriminant analysis based on the estimated distributions of leverage and cash holdings, which were obtained using a Gaussian Kernel and a Least-Squares Cross-Validation bandwidth (Silverman 1981). Panel A shows the estimate of the leverage distribution for 1999. The solid line represents the cut-off points for leverage, where firms whose leverage is located to the left of this point are defined as leverage-conservative for this year. For comparison purposes, the dotted line represents the splitting point resulting from the fixed classification rule, i.e. the bottom 20 percent of all firms. In Panel B we present the results for 1989 to note that the two alternative criteria of conservatism may lead to similar results as in

Panel A or rather different ones as in Panel B. We carry out a similar exercise for cash holdings in Panels C and D. As can be seen from Panel C, our criterion, represented by the solid line, identifies a cut-off level of cash holdings, which points to a lower level of cash holdings above which firms are classified as cash-conservative. Furthermore, Panel D reveals that our criterion may suggest a splitting point that is significantly different from that suggested by a fixed cash holdings to total assets ratio of 25 percent.

INSERT FIGURE 2 ABOUT HERE

Table 1 reports the total number of firm-year observations we have for each year and results arising from the alternative classification schemes we employ. For example, consider 1992 for which we have a total number of 920 firm-year observations. Of these, 184 are leverage-conservative according to the fixed classification rule of 20 percent, criterion suggested by Minton and Wruck (2001); 100 are cash conservative according to the fixed classification rule of 25 percent, criterion adopted in Mikkelson and Partch (2002); and 52 firms satisfy both fixed classification rule criteria. According to the discriminant-based analysis, however, they are recorded as 135 (LEV), 129 (CASH) and 54 (CONS) respectively. In this case, our criterion on leverage is stricter than the 20 percent rule and less strict than the 25 percent rule. However, it should be noted that a different pattern may emerge across different years as, for example, in 1988.

INSERT TABLE 1 ABOUT HERE

From this table we generate the panels we use in the subsequent analysis. As shown in Table 2 we have six non-overlapping panels.[11] As expected, the results reveal that our classification criterion leads to different results in each panel than those resulting from the fixed classification rule approach. As far as leverage-conservatism is concerned, our findings are similar to those obtained following the 20 percent rule. We are able to classify 475 firms as leverage-conservative across all panels as opposed to 484 firms we would classify under the 20 percent criterion. However, our results for cash-conservatism are less consistent with those implied by the 25 percent criterion adopted in Mikkelson and Partch (2002). The results suggest that the 25 percent criterion is too restrictive in the sense that across all panels our approach classifies more firms as cash-conservative, i.e. 375 as opposed to 271 firms. We also observe that 181 firms are both cash and leverage-conservative, shown under the column $CONS$, and hence are classified as financially-conservative. The number that we arrived using the fixed classification rule is 149.

INSERT TABLE 2 ABOUT HERE

[11] Note that the number of firms recorded for each year is different from the number of firms for the corresponding panel. To take an example, consider years 1990, 1991 and 1992, which compose our panel C in Table 2. The number of firms available to analyse in this panel is 878 that is lower than that for each individual year. This is because, for a firm to be included in the panel, we require that it survives in all the years composing this panel. This is the case in four panels out of six.

Table 2 also shows the results regarding our last classification criterion. More specifically, the columns denoted as $DLEV$ and $DCASH$ report results on persistent deviations from optimal leverage and cash levels respectively and $DCONS$ reports the number of firms that deviate from both targets. 144 firms display such characteristics. Note that the number of firms (144) classified as financially conservative using the deviation criterion is different from that (181) derived from our earlier analysis of conservative firms. This raises the question as to what extent the firms classifed as conservative under each approach match. The findings of this investigation are presented in Figure 3.

INSERT FIGURE 3 ABOUT HERE

The upper part of this figure, Panel A, reports the findings with respect to the discriminant analysis for each variable without considering the deviations, which correspond to the columns LEV, $CASH$ and $CONS$ in Table 2. Panel A also shows explicitly, for example, the number of firms that are leverage-conservative and not cash-conservative, and *vice versa*. This is implicit in Table 2. On the other hand, the lower part of the figure reports an inverted classification tree relative to all panels constructed by means of $DLEV$, $DCASH$ and $DCONS$. Some of the findings derived from this investigation are interesting. For example, it seems that all firms that are found to be persistently deviating from their optimal leverage, $DLEV$, are also classified as leverage-conservative by the discriminant analysis - see the dotted line (1). The same holds for

the other two categories of firms, $DCASH$ and $DCONS$, denoted by the dotted lines (3) and (2) respectively. We argue that these results in general provide support for the validity of the distributional approach.

4.2 Characteristics of conservative firms

In this section, we provide a descriptive analysis of the main characteristics of financially conservative firms and a comparison of these charateristics with those of firms in the control group. Statistics presented are based on the average values from the six non-overlapping three-year panels. It shows that the mean cash ratio is 10.8 percent and the median value is 6.9 percent. Moreover, the mean leverage is 17.9 percent and the median value is 16.4 percent. The mean value for market-to-book is 1.62. The percentage shares held by executive and non-executive directors are 9.1 percent and 2.7 percent respectively. The ratio of the number of non-executive directors to the total number of directors on the board is less than 50 percent, at 44.5 percent. The capital expenditures ratio of the UK firms in our sample is 8 percent.

INSERT TABLE 3 ABOUT HERE

Table 4 reports correlations among variables. Results point out that leverage is, as expected, negatively correlated to cash holdings. In turn, cash holdings are positively correlated to the market-to-book ratio, supporting the view that firms with greater growth opportunities tend to hold more cash. The fraction of shares held by non-executive directors

is positively correlated to the fraction of the shares held by executive directors. Note, however, that the shares held by the latter are negatively correlated to the number of non-executive directors. Clearly, size of the board is positively and highly correlated to the firm size.

INSERT TABLE 4 ABOUT HERE

Table 5 reports tests for differences in mean values of the main variables used in our analysis for each group of firms and the control firms in the relevant category. By construction, the mean values of cash holdings and leverage for conservative firms are significantly different from those for firms in the control sample. Furthermore, in line with predictions, conservative firms seem to have superior growth opportunities than the control firms, evidenced by the significantly higher value of the market-to-book ratio for conservative firms. Conservative firms across all categories are significantly smaller than those in the control group, which may be seen as evidence for the view that smaller firms face more severe asymmetric information problems and hence higher costs of external finance. Also consistent with the findings of prior research, conservative firms do not spend as much on capital expenditures as control firms do.

INSERT TABLE 5 ABOUT HERE

The results in Table 5 also reveal that conservative firms and control firms have ownership structures which are significantly different.

Executive directors in financially-conservative firms have greater shareholdings than those in the control firms. However, the shareholdings of non-executive directors are greater only in leverage-conservative groups when compared with the non-executive directors' holdings in the control firms. These results possibly provide support for the risk-averse managers who tend to have low leverage, and the free cash flow hypothesis which predicts that managers have incentives to increase the amount of liquid funds under their control. It is also interesting to note that the ratio of non-executive directors in conservative firms is smaller, possibly providing executive directors with greater discretion. Furthermore, the board size in financially-conservative firms is significantly smaller than that in firms in the control group. However, there is no evidence that shares held by large shareholders differ between conservative firms and firms in the control group.

Finally, financially-conservative firms significantly deviate from their targets of leverage and cash holdings. More specifically, it seems that conservative firms undershoot their leverage target and overshoot their target for cash holdings.

4.3 The logistic regression results

In the following, we present the results of our logit regression analyses regarding all three types of financial conservatism. For comparison purposes, for each type of conservatism, the results with respect to the alternative classification schemes are given separately. That is, in each table, Model A reports results based on the fixed classification rule; Model B

reports those results based on the discriminant analysis; and, finally, the dependent variable in Model C is based on the definition of conservatism that accounts for persistent deviation from optimal behaviour. All three models include time and industry dummies.

INSERT TABLE 6 ABOUT HERE

Table 6 presents the estimation results of logistic models that relate firm-specific characteristics to the probability of adopting a leverage-conservative policy. The results in most cases are consistent across the alternative classification schemes. In accordance with predictions, firms that are classified as cash-conservative are also likely to adopt a leverage-conservative policy. There is strong evidence that larger firms are less likely to be leverage-conservative. This finding possibly provides support for the view that larger firms find easier to raise debt financing as the cost of doing so is lower for them than it is for smaller firms. If this is the case, one could also interpret this finding as a support for the view that smaller firms are more financially constrained.

The results also suggest that the probability of pursuing a leverage conservative policy is positively related to the firm's profitability and its market-to-book ratio. The former finding is in line with the prediction of the pecking order theory, while the latter provides support for the view that firms with greater growth opportunities have incentives to have spare debt capacity, i.e. the precautionary motive. The positive coefficient of the market-to-book variable is also in line with the findings of the prior

research on capital structure, which provide strong evidence for a negative relationship between leverage and growth opportunities (see, e.g., Barclay et al., 2003; Rajan and Zingales, 1995; and Smith and Watts, 1992).

Corporate ownership structure seems to exert some significant influence in determining leverage-conservative policies. Shares held by non-executive directors are significantly and positively associated with the probability of adopting such policy. To the extent that higher leverage increases the probability of financial distress and bankruptcy, it seems that non-executive directors become more risk-averse with respect to leverage decisions. Alternatively, it can be argued that the interests of executive and non-executive directors are better aligned as their shareholdings in the company increase. This would in turn reduce the disciplinary pressure exerted on executive directors by non-executives and increase the cost of external debt, leading to lower levels of leverage. However, the impact of the ratio of non-executive directors on the probability of a conservative leverage policy is negative and significant. To the extent that non-executive directors monitor executive directors and leverage disciplines executive managers, this result is not surprising. That is, it appears that non-executive directors let leverage act as a disciplining device when their influence in the board diminishes. Another possible explanation might be that the cost of debt financing possibly falls as the number of non-executives increases and hence raising debt becomes relatively easy, leading to higher leverage.

INSERT TABLE 7 ABOUT HERE

Table 7 reports the estimations results of the logistic regressions with respect to the probability of adopting a cash-conservative policy. Similar to the findings we reported earlier for leverage-conservatism, the findings from all specifications reveal that the probability of cash-conservatism is positively and significantly associated with leverage-conservatism. The leverage-conservatism among cash-conservative firms may reflect the preferences of managers who choose to hold substantial cash balances to avoid the use of debt financing. In addition, the results suggest that the higher the growth opportunities, the higher the probability that firms will accumulate cash, possibly in an attempt to avoid situations in which they will have to give up profitable investments. Not surprisingly, evidenced by negative and significant coefficient of the capital expenditures ratio, firms with greater capital expenditures are less likely to hold substantial cash balances.

As in the case of leverage conservatism, we find that ownership structure matters. It is clear that holdings by executive directors positively contributes to the probability of a conservative cash policy. This finding provides support for our earlier argument that greater shareholdings by executive managers make the monitoring of managers' actions by outside shareholders difficult as a result of greater direct control over the firm. This would, in turn, increase the ability of insiders (executive directors) to resist outside pressures and, consequently, entrenched managers who are relatively free of external discipline would choose to accumulate more cash to pursue their own interests without risking replacement. We are not able to provide any evidence in favour of the argument that man-

agerial ownership can help align the interests of managers with those of shareholders. If that happened, one would expect that lower expected agency costs, due to the alignment of interests, would increase the firm's ability to raise external finance, which would in turn reduce firms' incentives to accumulate cash, implying a negative influence exerted by executive shareholdings on the probability of a conservative cash policy.

INSERT TABLE 8 ABOUT HERE

Finally, in Table 8 we report estimation results regarding the models which estimate the relationship between firm characteristics and the probability of adopting a financial conservative policy, where firms are both cash and leverage conservative. There is strong evidence that larger firms are less likely to have conservative financial policies, providing support to the view that the cost of external financing for large firms is lower than that for smaller firms and hence they do not have incentives to stockpile cash and have spare debt capacity. This can also be interpreted as support for the pecking order theory in the sense that firms first use internal funds available to them and then resort to external financing. It seems that precautionary behaviour is dominant for smaller firms.

Evidence also shows that capital expenditures are negatively and significantly associated to the probability of adopting a financially-conservative policy. As predicted, the higher the firm's capital expenditures with respect to its total assets, the lower the likelihood that the firms will be

financially-conservative. Across all specifications, the market-to-book ratio is positively associated with the probability of using a financial conservative policy.

Last but not least, there is evidence that the fraction of shares held by executive directors exerts influence on the probability of adopting a conservative financial policy. Moreover, to the extent that executive directors receive private benefits from conservative financial policies not shared with outside shareholders, non-executive managers seem to play a monitoring role by preventing firms to stockpile cash and to create spare debt capacity. All else equal, non-executive managers appear to like firms to hold lower levels of cash and have higher levels of debt in the firm's capital structure.

5 Summary and conclusions

In this paper we have examined the incentives and characteristics of firms that seem to have conservative financial policies by using a large sample of UK firms during the period 1984 to 2001. There are important features of our analysis, which, we believe, significantly extend the literature on financial conservatism. First, we combine the literature on capital structure and leverage-conservatism with the literature on cash holdings and cash-conservatism, which leads to an alternative view as to what constitutes a financially-conservative firm. Second, as opposed to the existing studies that choose fixed threshold levels of cash holdings or leverage to identify financially conservative firms, we estimate the ap-

propriate cut-off points without imposing *a priori* arbitrary threshold levels. Moreover, in order to allow these cut-off points to vary over time, we carry out this analysis for each year throughout the sample period. Third, distinct from previous empirical studies, we allow for the possibility that firms that seem to be financially-conservative may also deviate from their optimal behaviour. That is, we account for differences not only in the observed pattern of cash holdings and leverage but also in target levels of cash holdings and leverage across firms. Then, we study to which extent variables proxying for the firm ownership structure - namely, the size and the composition of the board, ownership concentration and the fractions of shares held by executive and non-executive directors - affect the decisions of pursuing a financially conservative behavior.

Our results suggest that firms having a financially conservative policy also tend to be persistently off-target with regard to cash and leverage policies. Consistent with the prediction of the pecking order theory, we find that firms with greater growth opportunities persistently exhibit higher cash holdings and lower levels of leverage. Moreover, we find that the ownership structure of firms is significant in determining whether they adopt a conservative financial policy. In particular, cash-conservatism is positively related to the ownership concentration and to the amount of shares held by executive directors in the board, while leverage-conservatism is positively related to the fraction of shares held by non-executive directors. Finally, the probability of adopting conservative policies, either defined by using cash holdings or leverage or both, decreases with the number of non-executive directors.

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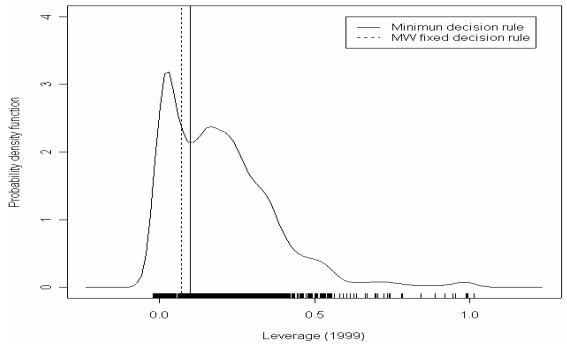
Figure 1
Non-overlapping Panel Formation

Panel:	A	B	C	D	E	F
Years	[1984-1986]	[1987-1989]	[1990-1992]	[1993-1995]	[1996-1998]	[1999-2001]

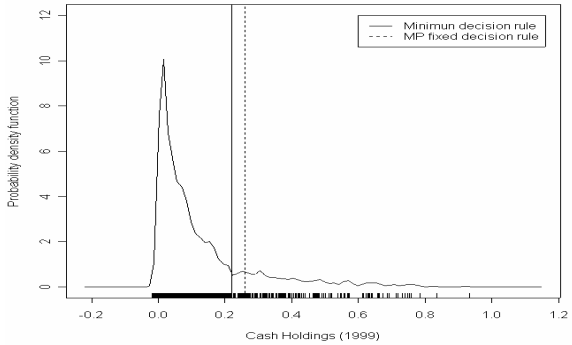
Figure 2
Alternative Classification Criteria

Estimates are performed using a Gaussian Kernel and the Least-Squares Cross-Validation bandwidth. Panels A and B (C and D) report estimates of the leverage (cash holdings) distribution in 1999 and 1989 respectively. MW fixed classification rule denotes to the bottom 20 percent of all firms; and MP fixed classification rule refers to the cash holdings to total assets ratio of 25 percent.

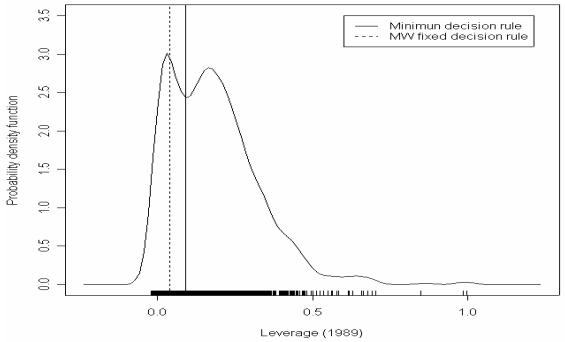
Panel A



Panel C



Panel B



Panel D

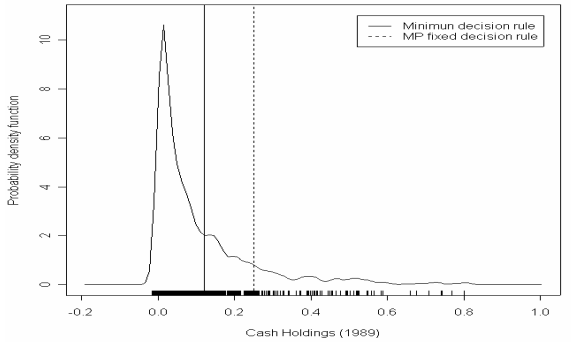


Table 1
Time Distribution of Firms According to Alternative Classification Criteria

The sample period is 1984-2001. The total number of firms over the sample period is 1196. Column marked as Total reports the number of firm-year observations in each year. Firms are classified as MW if their leverage belongs to the first 20% of the leverage distribution. Firms are classified as MP if they display a cash holding-total assets ratio greater than 25%. MW-MP are firms satisfying both MP and MW. A firm is classified as LEV if the firm leverage is smaller than the first interior minimum of the leverage distribution. A firm is classified as CASH if the firm cash holdings is bigger than the last interior minimum of the cash holdings-total assets ratio distribution. A firm is classified as CONS if it satisfies both LEV and CASH.

Year	Total	MW	MP	MW-MP	LEV	CASH	CONS
1984	147	30	6	5	30	11	7
1985	205	41	16	9	54	25	16
1986	246	49	24	11	61	27	13
1987	489	98	62	32	142	101	53
1988	786	153	92	48	234	129	76
1989	848	170	87	51	227	153	85
1990	882	176	97	54	134	180	72
1991	902	180	105	55	202	213	91
1992	920	184	100	52	135	129	54
1993	956	191	117	61	184	255	105
1994	1012	202	120	77	215	213	109
1995	1069	214	126	75	191	158	81
1996	1141	228	136	85	228	181	99
1997	1115	223	162	100	245	211	121
1998	1033	207	147	84	191	196	102
1999	924	185	118	64	163	145	72
2000	849	170	105	59	199	137	76
2001	793	159	106	63	128	109	58
Total	14317	2860	1726	985	2963	2573	1290

Table 2

Time Distribution of Firms across Panels according to Alternative Classification Criteria

Column marked as Total reports the number of observations per panel. Firms are classified as MW if their leverage belongs to the first 20% of the leverage distribution for all years of a panel. Firms are classified as MP if they display a cash holdings-total assets ratio bigger than 25% for all years of a panel. MW-MP are firms satisfing both MP and MW. A firm is classified as LEV if the firm leverage is smaller than the first interior minimum of the leverage distribution for all years of a panel. A firm is classified as CASH if its cash holdings are gretaer than the last interior minimum of the cash holdings distribution for all years of a panel. A firm is classified as CONS if it satisfies both LEV and CASH. Firms are classified as DLEV if they undershoot their target leverage for all years in a panel. Firms are classified as DCASH if they overshoot their target cash holdings for all years in a panel. Firms are classified as DCONS if they satisfy both DLEV and DCASH.

Panel		Total	MW	MP	MW-MP	LEV	CASH	CONS	DLEV	DCASH	DCONS
A	1984-1986	147	13	3	3	19	5	4	14	5	2
B	1987-1989	489	47	26	13	76	41	19	71	41	15
C	1990-1992	878	112	63	30	85	91	38	80	88	32
D	1993-1995	949	112	58	36	109	90	45	102	90	39
E	1996-1998	1003	120	66	40	117	89	49	106	88	37
F	1999-2001	793	80	55	27	69	59	26	55	59	19
All Panels		4259	484	271	149	475	375	181	428	371	144

Figure 3

Comparisons of Classes of Firms Grouped According to Alternative Criteria

Panel A reports firms grouped according to the distribution-based criterion. Panel B reports firms grouped according to their deviations from target levels of leverage and cash holdings-total assets ratio. A firm is classified as LEV if the firm leverage is smaller than the first interior minimum of the leverage distribution for all years of a panel. A firm is classified as CASH if its cash holdings are gretaer than the last interior minimum of the cash holdings distribution for all years of a panel. A firm is classified as CONS if it satisfies both LEV and CASH. Firms are classified as DLEV if they undershoot their target leverage for all years in a panel. Firms are classified as DCASH if they overshoot their target cash holdings for all years in a panel. Firms are classified as DCONS if they satisfy both DLEV and DCASH.

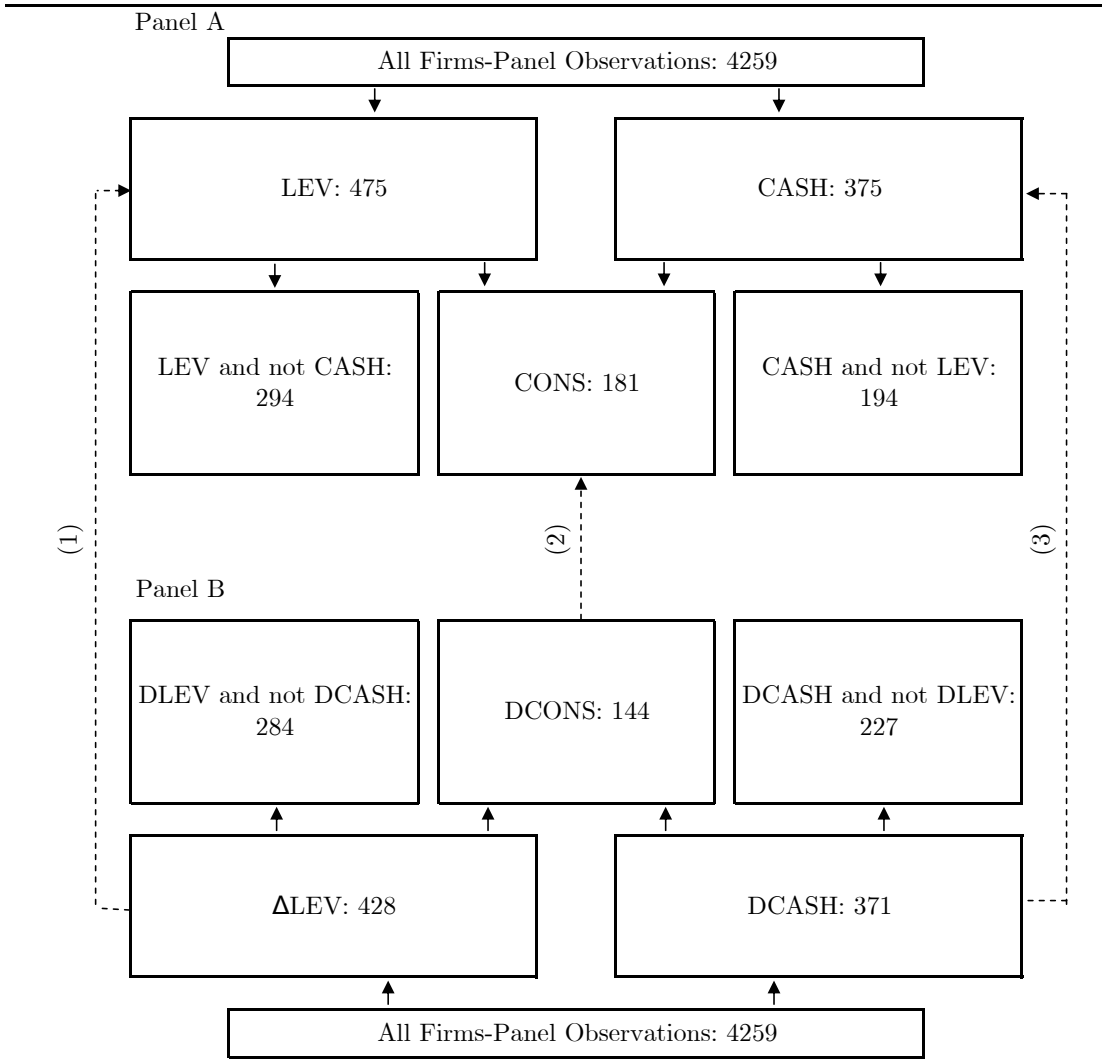


Table 3
Descriptive Statistics

Statistics are presented on the basis of six non-overlapping panels.

	Min	25%	Median	Mean	75%	Max
Cash holdings/Total assets	0.000	0.023	0.069	0.108	0.143	0.943
Leverage	0.000	0.077	0.164	0.179	0.250	1.000
Market-to-book	0.203	1.029	1.328	1.622	1.814	9.894
Cash Flow/Total assets	-2.000	0.046	0.089	0.066	0.127	1.396
Total Assets (log)	3.440	9.510	10.540	10.840	11.960	18.400
Profits/Total assets	-2.000	0.077	0.131	0.111	0.180	0.418
Dividends/Total assets	-2.000	0.090	0.162	0.152	0.233	1.120
Fixed assets/Total assets	0.000	0.193	0.316	0.356	0.477	0.953
Capital Expenditure/Total assets	0.000	0.038	0.064	0.080	0.010	0.679
Non-executive directors in the board (%)	0.000	0.333	0.444	0.445	0.550	1.000
Shares held by executive directors (%)	0.000	0.158	1.619	9.101	11.739	83.434
Shares held by non-executive directors (%)	0.000	0.023	0.017	2.652	1.524	67.225
Shares held by major blockholders (>5%)	0.000	8.725	21.500	24.172	36.235	95.600
Size of the board (log)	0.301	0.778	0.845	0.843	0.929	1.380

Table 4
Correlations among Variables

Correlations are estimated on the basis of six non-overlapping panels. **, * stands for significance at the 1 and 5 percent level respectively.

	Cash holdings/ Total assets	Leverage	Market to book	Cash Flow/ Total assets	Total Assets (log)	Profits/ Total assets	Dividends / Total assets	Fixed assets/ Total assets	Capital Exp./ Total assets
Cash holdings/Total assets	1.00								
Leverage	-0.33**	1.00							
Market-to-book	0.36**	-0.09**	1.00						
Cash Flow/Total assets	-0.09**	-0.19**	-0.08**	1.00					
Total Assets (log)	-0.09**	0.21**	-0.10**	0.19**	1.00				
Profits/Total assets	-0.08**	-0.17**	-0.05**	0.97**	0.21**	1.00			
Dividends/Total assets	0.01	-0.09**	-0.05**	0.17	0.12**	0.18**	1.00		
Fixed assets/Total assets	-0.30**	0.26**	-0.20**	0.12**	0.21**	0.11**	0.01	1.00	
Capital Expenditure/Total assets	-0.11**	0.11**	0.08**	0.16**	0.07**	0.17**	-0.02	0.51**	1.00
Non-executive directors in the board (%)	-0.03	0.19**	0.09**	-0.046*	0.26**	-0.04**	-0.04**	0.11**	0.06**
Shares held by executive directors (%)	0.05*	-0.12**	0.01	0.05*	-0.37**	0.04*	0.01	-0.09**	0.00
Shares held by non-executive directors (%)	0.01	-0.06**	0.06**	-0.03	-0.23**	-0.03	-0.06**	-0.02	0.02
Shares held by major blockholders (>5%)	0.00	0.02	-0.10**	-0.12**	-0.25**	-0.14**	-0.08**	-0.02	-0.08**
Size of the board (log)	-0.01	0.10**	0.11**	0.13**	0.66**	0.15**	0.09**	0.10**	0.06**

Table 4 - Continued

	Non-executive directors in the board (%)	Shares held by executive directors (%)	Shares held by non-executive directors (%)	Shares held by major blockholders (>5%)	Size of the board (log)
Non-executive directors in the board (%)	1				
Shares held by executive directors (%)	-0.40**	1			
Shares held by non-executive directors (%)	0.13**	0.04*	1		
Shares held by major blockholders (>5%)	0.12**	-0.23**	-0.09**	1	
Size of the board (log)	0.14**	-0.24**	-0.06**	-0.18**	1

Table 5

Test for Difference in Means between Leverage, Cash and Financial Conservative Firms and Their Respective Control Group

A firm is classified as Leverage Conservative if the firm leverage is below the first interior minimum of the leverage distribution for three consecutive years and as Control Firms I otherwise. A firms is classified as Cash Conservative if the firm cash holdings is above the last interior minimum of the cash holdings distribution for three consecutive years and as Control Firms II otherwise. A firms is classified as Financial Conservative if the firm leverage is below the first interior minimum of the leverage distribution and if the firm cash holdings is above the last interior minimum of the cash holdings distribution for three consecutive years and as Control Firms III otherwise. *** (**) [*] means that the test for difference in mean rejects the null hypothesis of equality of means at 1% (5%) [10%] significance level.

	Leverage Conservative	Control Firms I	t-stat.	Cash Conservative	Control Firms II	t-stat.	Financial Conservative	Control Firms III	t-stat.
Cash holdings/Total assets	0.26	0.09	18.70***	0.41	0.08	40.61***	0.46	0.09	27.98***
Leverage	0.01	0.20	-90.59***	0.08	0.12	-17.14***	0.00	0.19	-84.23***
Market-to-book	2.14	1.56	8.24***	2.33	1.55	9.131**	2.60	1.58	8.21***
Cash Flow/Total assets	0.09	0.05	1.42	0.22	0.60	0.10	0.08	0.06	0.50
Total Assets (log)	9.72	10.98	-17.75***	10.20	10.90	-6.77***	9.60	10.90	-12.17***
Profits/Total assets	0.14	0.10	1.55	0.11	0.10	0.39	0.13	0.10	0.68
Dividends/Total assets	0.18	0.12	1.24	0.15	0.12	0.92	0.14	0.12	0.22
Fixed assets/Total assets	0.27	0.37	-9.89***	0.22	0.37	-18.62***	0.19	0.36	-17.37***
Capital Expenditure/Total assets	0.07	0.08	-6.45***	0.06	0.08	-10.20	0.05	0.08	-11.19***
Non-ex. direct. in the board (%)	0.38	0.45	6.15***	0.41	0.45	3.03**	0.38	0.45	3.46***
Shares held by ex. direct. (%)	13.99	8.50	4.61***	13.82	8.69	3.39***	16.28	8.78	3.44***
Shares held by non-ex. dir. (%)	4.26	2.45	2.98***	2.94	2.63	0.60	3.24	2.63	0.86
Shar. held by major bloc. (>5%)	25.02	24.07	0.78	25.25	24.08	0.81	26.03	24.09	1.02
Size of the board (log)	0.80	0.85	-5.39**	0.81	0.85	-2.55**	0.78	0.85	-4.25***
Deviation from opt. lev.	-0.10	0.04	-21.44***	-0.01	-0.01	0.44	-0.05	-0.01	-7.70***
Deviation from opt. cash hold.	0.12	0.02	13.51***	0.25	0.01	33.80***	0.27	0.02	21.37***

Table 6
Logit Models for Leverage Conservatism

In model A the dependent variable is 1 if the firm leverage belongs to the first 20% of the leverage distribution for three consecutive years and 0 otherwise; Cash Conservatism is a dummy variable assuming value 1 if the firm cash holdings-total assets ratio is bigger than 25% for three consecutive years. In model B the dependent variable is 1 if the firm leverage is below the first interior minimum of the leverage distribution for three consecutive years and 0 otherwise; Cash Conservatism is a dummy variable assuming value 1 if the firm cash holdings is above the last interior minimum of the cash holdings distribution for three consecutive years. In model C the dependent variable is 1 if the firm leverage is below its target leverage for three consecutive years and 0 otherwise; Cash Conservatism is a dummy variable assuming value 1 if the firm cash holdings is above its target level for three consecutive years. All models include time and sectoral dummies. t-statistics are reported in brackets. ***, **, * stand for significance at 1, 5, and 10 percent levels respectively.

	A	B	C
Constant	2.048	2.261	0.793
	(2.20)**	(2.37)**	(0.83)
Cash Conservatism	2.600	2.436	1.925
	(10.9)***	(11.7)***	(9.42)***
Total Assets (log)	-0.481	-0.492	-0.410
	(-6.50)***	(-6.44)***	(-5.41)***
Profits/Total assets	3.694	3.237	2.700
	(5.88)***	(5.09)***	(4.29)***
Market-to-book	0.315	0.316	0.324
	(4.81)***	(4.66)***	(4.87)***
Fixed assets/Total assets	-1.298	-1.266	-1.118
	(-2.80)***	(-2.60)***	(-2.29)**
Shares held by executive directors (%)	-0.008	-0.009	-0.005
	(-1.42)	(-1.48)	(-0.90)
Shares held by non-executive directors (%)	0.024	0.021	0.017
	(2.47)***	(2.01)**	(1.65)*
Non-executive directors in the board (%)	-2.235	-2.257	-1.881
	(-3.94)***	(-3.85)***	(-3.22)***
Shares held by major blockholders (>5%)	-0.001	-0.001	0.001
	(-0.11)	(-0.184)	(0.21)
Size of the board (log)	0.142	0.111	0.100
	(0.449)	(0.343)	(0.31)
Log-likelihood	-598.1	-564.2	-563.7
Pseudo-R^2	0.258	0.273	0.219

Table 7
Logit Models for Cash Conservatism Firms

In model A the dependent variable is 1 if the firm cash holdings-total assets ratio is bigger than 25% for three consecutive years and 0 otherwise; Leverage Convervatism is a dummy variable assuming value 1 if the firm leverage belongs to the first 20% of the leverage distribution for three consecutive years. In model B the dependent variable is 1 if the firm cash holdings is above the last interior minimum of the cash holdings distribution for three consecutive years and 0 otherwise; Leverage Conservatism is a dummy variable assuming value 1 if the firm leverage is below the first interior minimum of the leverage distribution for three consecutive years. In model C the dependent variable is 1 if the firm cash holdings is above its target level for three consecutive years and 0 otherwise; Leverage Conservatism is a dummy variable assuming value 1 if the firm leverage is below its target leverage for three consecutive years. All models include time and sectoral dummies. t statistics are reported in brackets. ***, **, * stand for significance at 1, 5, and 10 percent levels respectively.

	A	B	C
Constant	-3.448	-4.126	-3.629
	(-2.92)***	(-4.15)***	(-3.42)***
Leverage Conservatism	2.617	2.464	1.975
	(11.1)***	(12.0)***	(9.79)***
Cash Flow/Total assets	-1.613	-0.958	-0.610
	(-2.43)**	(-1.57)	(-1.05)
Total Assets (log)	-0.049	0.028	-0.037
	(-0.51)	(0.35)	(-0.48)
Capital Expenditure/Total assets	-11.105	-10.232	-10.939
	(-3.58)***	(-4.17)***	(-4.52)***
Market-to-book	0.410	0.398	0.419
	(5.35)***	(5.82)***	(6.28)***
Dividends/Total assets	1.056	0.984	1.319
	(1.82)*	(1.94)*	(2.54)**
Shares held by executive directors (%)	0.015	0.016	0.014
	(2.08)**	(2.45)**	(2.31)**
Shares held by non-executive directors (%)	-0.008	-0.004	-0.001
	(-0.524)	(-0.32)	(-0.11)
Non-executive directors in the board (%)	-0.276	-0.256	-0.591
	(-0.361)	(-0.39)	(-0.93)
Shares held by major blockholders (>5%)	0.011	0.009	0.008
	(1.76)*	(1.65)*	(1.68)*
Size of the board (log)	0.026	-0.016	-0.015
	(0.06)	(-0.04)	(-0.04)
Log-likelihood	-336.8	-455.4	-482.9
Pseudo-R^2	0.310	0.268	0.221

Table 8
Logit Models for Financial Conservatism

In model A the dependent variable is 1 if the firm cash holdings-total assets ratio is bigger than 25% and if the firm leverage belongs to the first 20% of the leverage distribution for three consecutive years and 0 otherwise. In model B the dependent variable is 1 if the firm cash holdings is above the last interior minimum of the cash holdings distribution and if the firm leverage is below the first interior minimum of the leverage distribution for three consecutive years and 0 otherwise. In model C the dependent variable is 1 if the firm cash holdings is above its target level *and* if the firm leverage is below its target leverage for three consecutive years and 0 otherwise. All models include time and sectoral dummies. t-statistics are reported in brackets. ***, **, * stand for significance at 1, 5, and 10 percent levels respectively.

	A	B	C
Constant	0.772	-0.083	-3.083
	(0.59)	(-0.07)	(-2.09)**
Total Assets (log)	-0.404	-0.291	-0.233
	(-3.55)***	(-2.83)***	(-2.11)**
Capital Expenditure/Total assets	-11.696	-11.344	-7.827
	(-3.26)***	(-3.62)***	(-2.55)**
Market-to-book	0.535	0.595	0.567
	(6.65)***	(7.82)***	(7.15)***
Shares held by executive directors (%)	0.005	0.012	0.015
	(0.572)	(1.64)	(1.86)*
Shares held by non-executive directors (%)	-0.006	-0.001	-0.004
	(-0.32)	(-0.06)	(-0.21)
Non-executive directors in the board (%)	-1.791	-1.851	-1.171
	(-2.08)**	(-2.36)**	(-1.77)*
Shares held by major blockholders (>5%)	0.009	0.009	0.010
	(1.15)	(1.22)	(1.29)
Size of the board (log)	0.093	-0.246	-0.184
	(0.19)	(-0.55)	(-0.38)
Log-likelihood	-276.8	-316.1	-278.6
Pseudo-R^2	0.198	0.201	0.169