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Does family ownership impact positively on firm value? Empirical evidence from Western Europe

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Abstract

Given the importance of family firms all over the world, our main objective is to study whether ownership concentration in the hands of family owners contributes to increase the market value of the firm. Additionally, we analyze whether family firms outperform non-family corporations. The estimation of our models by using the Generalized Method of Moments provides interesting results. We find that family ownership positively impacts on firm value. Nevertheless, when ownership concentration in the hands of the family is too high, firm value decreases; thus giving rise to a non-linear relation between family ownership concentration and firm value. Moreover, our results show that young family firms perform better than old ones. Finally, we find that family firms are superior performers to non-family ones, even when nonlinearities are taken into account; but the better performance is primarily due to young family corporations. Overall, the empirical evidence provided supports a positive impact of family ownership on firm value, supporting the idea that family control may be beneficial to minority shareholders.

Keywords: family firm, ownership concentration, firm value.

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1. Introduction

The importance of family firms throughout the world has motivated abundant theoretical and empirical literature, as highlighted in recent studies (Miller, Le Breton-Miller, Lester and Cannella, 2007; Martikainen, Nikkinen and Vähämaa, 2008). In this respect, La Porta, Lopez-de-Silanes and Shleifer (1999) document that family control is the most widespread form of organizational structure except in countries with strong protection of minority shareholders. This finding runs contrary to the Berle and Means' (1932) image of the modern corporation, in which ownership is dispersed among minority investors and control is concentrated in the hands of the managers. When theoretically modelling the evolution of family firms, Bhattacharya and Ravikumar (2001) also stress the predominance of family businesses. They argue the importance of family firms in the initial stages of a country's economic development and their still significant role in all countries as capital markets develop. Additionally, Morck, Wolfenzon and Yeung (2005) highlight the pervasiveness of family firms in most economies, paying special attention to the concentration of corporate control in the hands of very wealthy families and the rarity of ownership dispersion.

With respect to the predominance of family firms in particular regions of the world, control by a family appears to be common among large U.S. companies (Bhattacharya and Ravikumar, 2001; Anderson and Reeb, 2003; Gadhoun, Lang and Young, 2005) as well as among corporations that operate in Western European countries (Gallo and García Pont, 1989; Franks and Mayer, 2001; Faccio and Lang, 2002). Additionally, several studies document the importance of family firms in the East Asian region (Mok, Lam and Cheung, 1992; Lam, Mok, Cheung and Yam, 1994; Claessens, Djankov and Lang, 2000). Despite the prevalence of family firms in many countries and despite the influence of family owners throughout the world (even in the most developed economies, such as the Western European or the American), the evidence on the effect of family ownership on corporate performance is still scarce. There are, however, some recent papers that provide empirical evidence on this issue, and others that analyze different aspects related to family firms. Nevertheless, their results are inconclusive as to whether family control is beneficial or detrimental to minority shareholders.

On the one hand, there is a stream of literature that points out to potential benefits of family control and supports a positive effect of this type of organizational structure on corporate performance. Specifically, several papers find a positive relationship between both family control and family ownership, and different measures of corporate performance. In the U.S., McConaughy, Walker, Henderson and Mishra (1998), Anderson and Reeb (2003) and Villalonga and Amit (2006) empirically document that under particular

circumstances family ownership and control have a positive impact on firm performance. According to Martikainen, Nikkinen and Vähämaa (2008) this positive effect of family ownership and control is in part due to the higher productivity of U.S. family firms in relation to non-family ones. In line with these results, Maury (2006) and Barontini and Caprio (2006) find that family-controlled companies perform better as compared to non-family corporations in Western Europe, whereas Chang and Shin (2007) provide empirical results against the possibility of wealth expropriation of minority shareholders by controlling families in Korean conglomerates.

On the other hand, several investigations empirically show a negative impact of family control on minority shareholders' wealth, thus contradicting the conclusions reached in the aforementioned studies and questioning the positive effects of ownership concentration in the hands of the family. For example, Miller, Le Breton-Miller, Lester and Cannella (2007) conclude that only "lone founder businesses" perform better than other U.S. public corporations, while "true family businesses" do not show superior market valuations¹. With respect to Western Europe, Cronqvist and Nilsson (2003) and Barth, Gulbrandsen and Schone (2005) find that family ownership can be detrimental for minority shareholders in Sweden and Norway, respectively. Additionally, Faccio, Lang and Young (2001) conclude that controlling families in East Asian corporations are in a better position to expropriate wealth from minority shareholders than in Western Europe, suggesting that family ownership does not always benefit minority shareholders.

In this scenario of conflicting evidence, it is our main objective to investigate how ownership concentration influences firm value in the particular case of family firms. In addition to studying whether family ownership concentration and firm value are positively or negatively related, we contemplate the possibility of a non-linear relationship between both variables. We then take into account the moderating role of firm age in the ownership-performance relationship, since recent studies suggest that family firms differ in corporate performance depending on this characteristic. Finally, we analyze the relationship between ownership concentration and firm value comparing family firms to non-family ones. Furthermore, we consider the possibility of nonlinearities and the moderating role of firm age when determining whether family firms perform better than non-family corporations.

¹ These authors define "lone founder businesses" as those in which an individual is one of the company's founders and is also a manager or a large owner, with no other family members involved; whereas "true family businesses" are those that include multiple family members as major owners or managers.

To achieve the objectives of our investigation, we have developed three empirical models that are estimated by using data on the family firms in our sample. We then propose three additional models that are estimated by using the whole sample, which allows us to analyze the ownership-performance relationship comparing family firms to non-family ones. To empirically test our hypotheses, we use a unique sample of listed companies from Western Europe for which we were able to obtain valuable data of three different types. First, information related to the market value of the company, needed to calculate the dependent variable of our models. Second, data on the owners of the firm, specifically whether or not they are individuals or families as well as their stake in the company, both essential to analyze the impact of family control on corporate performance. And third, the composition of the firms' financial statements to be able to calculate a set of control variables that will enter the right-hand side of our models.

With respect to the estimation methodology, our choice has been motivated by the importance of taking into account two important problems that arise when studying the impact of the firm's ownership structure on its market valuation, namely the unobservable heterogeneity and the endogeneity problems. In regard to the former, family firms have several individual characteristics that make them different from other organizational structures. Furthermore, every firm (and especially family firms) has its own specificity that gives rise to a particular behaviour closely linked to the culture of the company, which in family firms is imposed by the owner family. Consequently, the firm's unobservable heterogeneity must enter the models since it could impact on firm value. In regard to the latter, several studies highlight the potential endogeneity of ownership concentration, which may seriously affect the ownership-performance relationship. We thus use panel data methodology to eliminate the unobservable heterogeneity, and estimate our models by using the Generalized Method of Moments (GMM) to control for endogeneity.

Our study contributes to the existing finance and management literature in several different ways. First, we provide empirical results on one of the main corporate governance mechanisms that influences firm value (i.e., ownership structure), considering not only the level of ownership concentration but also the identity of the controlling shareholder. Second, we contribute to the existing controversy about the benefits and costs of family control by taking into account the possibility of nonlinearities between family ownership concentration and firm value. Third, we go more deeply into the influence of family control on the ownership-performance relationship by accounting for firm age and by comparing family firms with non-family corporations. Fourth, our estimations are performed using a unique sample representative of the different institutional environments that exist in Western Europe, for which we have obtained valuable

ownership data difficult to get for a large number of corporations. And fifth, our estimation method eliminates unobservable heterogeneity and controls for endogeneity of the explanatory variables in a more efficient way than previous studies that analyze the firm's ownership structure and its impact on corporate performance as well.

By testing our hypotheses, we provide empirical evidence supporting previous literature that argues that family control is beneficial for minority shareholders. Furthermore, we find a non-linear relationship between ownership concentration in the hands of the family and firm value, as pointed out in previous studies. This suggests that there is a level of family ownership concentration at which family control begins to be negative in terms of value creation, due to the risk of expropriation of minority shareholders. Additionally, we can assert that firm age plays an important moderating role in the analyzed relationship given that young family firms seem to perform better than old ones. Finally, with respect to the comparison between family and non-family corporations, our results confirm that family firms are better performers than non-family ones in Western Europe, which is consistent with the potential benefits of having a controlling family in the company. Furthermore, family firms continue to outperform non-family ones after controlling for both nonlinearities and the moderating role of firm age.

The remainder of the paper is organised as follows. The second section reviews previous literature and empirical evidence related to family control, and presents our hypotheses and models. Section 3 describes the data and estimation method used in our analysis. The results are discussed in Section 4 and the last section highlights our conclusions.

2. Theory, hypotheses and empirical models

2.1. Ownership concentration and firm value: the particular case of family firms

Berle and Means (1932) already suggested the importance of ownership concentration as a means to alleviate the agency problems between owners and managers in the modern corporation. They pointed out to the existence of a positive impact of ownership concentration on corporate performance since dispersion of ownership creates free riding problems and hinders managers' monitoring. A few decades later, Shleifer and Vishny (1986) confirmed the positive relationship between ownership concentration and firm value, which implies that the classic owner-manager problem can be in part resolved by monitoring and control activities on the part of large shareholders. Consistent with a positive impact of ownership concentration on firm performance, Holderness and Sheehan (1988) conclude that firms with majority shareholders

do not perform poorly relative to widely held corporations, and show that they survive over time. These findings contradict the hypothesis that ownership concentration in the hands of large shareholders is motivated by wealth expropriation or consumption of corporate resources. In favour of a positive effect of ownership concentration on firm performance, Shleifer and Vishny (1997) mention that large shareholders address the agency problem between owners and managers in that they have a great interest in profit maximization. Moreover, although evidence from all over the world suggests that ownership structure influences firm performance in different ways depending on the country and the blockholder identity, concentrated ownership most often has a positive effect on firm value (Denis and McConnell, 2003). In fact, block ownership helps to mitigate agency costs (Chen and Yur-Austin, 2007), thus contributing to value creation.

In the framework of the aforementioned literature, which suggests that ownership concentration contributes to increase the market value of the firm, our first objective is to empirically analyze whether this positive relationship between ownership concentration and corporate performance also applies to the case of family firms. In this respect, family owners are especially motivated to monitor professional managers, which may help alleviate the free riding problem that exist in widely held corporations (Lee, 2006; Miller and Le Breton-Miller, 2006), and might explain a positive relationship between family ownership concentration and firm performance. Moreover, several arguments in favour of a positive relationship between family ownership concentration and corporate performance have already been proposed by previous theoretical and empirical research.

First, family owners are more interested in firm survival and they often focus on longer horizons than other categories of large shareholders because they worry about the continuity of their company and contemplate it as an asset to bequeath to the next generation (Lee, 2006). The extended horizons of family firms may induce them to invest following criteria that maximize the value of the company, thus benefiting minority shareholders (James, 1999; McVey and Draho, 2005). In line with this argument, the sustained presence of family owners in the company and their longer investment horizons relative to managers of widely held corporations are likely to reduce managerial myopia, thus leading to better firm performance (Anderson and Reeb, 2003). Furthermore, Anderson, Mansi and Reeb (2003) suggest that the survival concern and the lack of diversification of family owners may help to alleviate the agency costs between bondholders and shareholders identified by Jensen and Meckling (1976). Likewise, the long-term presence of family members in the company may increase earnings quality (Wang, 2006) and may facilitate

superior knowledge of the firm's technology improving firm's productivity (Martikainen, Nikkinen and Vähämaa, 2008).

Second, the reputation concern and the intention to preserve the family name are likely to entail a significant commitment on the part of family owners, which may lead to positive economic consequences as already suggested in previous research. Family ties and reputation can limit managerial self-dealing when family members run the company, thus facilitating firm survival (Denis and Denis, 1994). Moreover, family's reputation may facilitate long-term relationships with other stakeholders, such as customers, suppliers and capital providers (Anderson and Reeb, 2003; McVey and Draho, 2005). Specifically, the reputation concern of family owners allows family firms to have a lower cost of debt financing and to reduce the conflicts of interests between shareholders and bondholders (Anderson, Mansi and Reeb, 2003). Additionally, the reputation concern of family firms may also be a possible explanation for the significant association between founding family ownership and higher earnings quality found by Wang (2006) in U.S. corporations.

Third, agency problems due to the separation of ownership and control (Jensen and Meckling, 1976; Fama and Jensen, 1983) may be resolved in family firms run by members of the owner family (McVey and Draho, 2005; Miller and Le Breton-Miller, 2006). In fact, individual large shareholders usually occupy management positions instead of merely monitoring managers (Holderness and Sheehan, 1988). Furthermore, after confirming that firms with majority owners do not underperform, Denis and Denis (1994) conclude that family management seems to be necessary for concentrated ownership. Additionally, an owner-manager with a significant stake in the company, as in the case of family firms managed by members of the family, may be beneficial thanks to the alignment of interests between owners and managers (Han and Suk, 1998 ; Lemmon and Lins, 2003). In short, it is possible to state that owner-managers are frequent in family firms and that they may be beneficial as compared to outside managers due to their superior knowledge of the company and their particular interest in increasing firm value.

Overall, the aforementioned arguments highlight the benefits of ownership concentration as a corporate governance mechanism and indicate that the identity of large shareholders (and more precisely, the differentiation between family and non-family firms) may be of great importance in the study of the ownership-performance relationship (Holderness and Sheehan, 1988). Consequently, we aim to analyze whether family ownership, as a particularly interesting organizational structure, has a significant effect on firm value. Consistent with the potential benefits of family ownership, we posit the following hypothesis:

Hypothesis 1: Family ownership concentration positively impacts on firm value.

To test this hypothesis, we have developed the following model:

$$V_{it} = \beta_0 + \beta_1 FOC_{it} + \phi X_{it} + \varepsilon_{it} \quad (1)$$

where V_{it} and FOC_{it} stand for firm market valuation and family ownership concentration, respectively; whereas X_{it} is a vector of control variables that have been usually considered in the literature on ownership structure. Specifically, vector X_{it} includes debt, investment, dividends, size, intangible assets, cash flow, return on assets, the firm's beta, the stake of the second largest shareholder and firm age as control variables². It is worth noting that we only use data on the family firms in our sample to estimate this model³. We consider a company as being family-controlled if the largest shareholder is an individual or a family with at least 10 percent of the company's voting rights. The idea behind using 10 percent of the votes is that this is usually enough to have effective control of the company. Furthermore, previous papers on ownership structure also use this percentage to determine whether companies have a controlling shareholder or not (Maury, 2006; Dahya, Dimitrov and McConnell, 2008).

Consistent with the monitoring hypothesis and based on the potential benefits of family control, we have initially proposed a positive relationship between ownership concentration and firm value in the case of family firms. Nevertheless, the existence of a large shareholder in the company can give rise to an agency problem different from the classic owner-manager conflict, namely the agency problem between controlling owners and minority shareholders (Shleifer and Vishny, 1997). This agency problem arises when the large shareholder uses its controlling position in the company to extract private benefits at the expense of minority shareholders. Consistent with this argument, several papers find a non-linear relationship between ownership concentration and corporate performance; positive at low levels of ownership concentration as a result of the monitoring hypothesis, and negative afterwards as a consequence of the expropriation hypothesis. This functional form can be found in Gedajlovic and Shapiro (1998), Thomsen and Pedersen (2000) and Miguel, Pindado and de la Torre (2004).

Besides the empirical evidence showing that ownership concentration is non-linearly related to corporate performance, the particular ties of family corporations may explain by themselves this non-linearity in terms of the potential costs of family ownership. The logic behind this reasoning is that the drawbacks of having a family as the largest shareholder of the company are more likely to arise when the stake of the family in the firm is too high,

² For a detailed definition of all variables included in the models, see Appendix A.

³ That is why the main explanatory variable is *family* ownership concentration (FOC_{it}) and not just ownership concentration (OC_{it}).

increasing corporate performance first as family ownership concentration rises and then decreasing after a certain level of family ownership concentration (Miller and Le Breton-Miller, 2006). There are two main potential costs of family ownership which may lead to a negative impact on firm value at certain ownership levels.

The first one is the expropriation of minority shareholders by the controlling family, which is consistent with the results provided in the aforementioned studies that analyze the relationship between ownership concentration and corporate performance. Additionally, Anderson and Reeb (2003) argue that controlling families have both the incentive and the ability to take actions that benefit themselves at the expense of firm performance when their stake in the company is substantial. They also indicate that whereas diversified investors are more likely to invest according to market value rules that maximize shareholders' wealth, large concentrated shareholders (such as families that own a substantial fraction of their company) may tend to pursue other objectives different from the value maximization of the firm, which benefit themselves at the expense of minority shareholders. In fact, family owners may prefer to sacrifice efficiency for equity, thus damaging other investors' interests (Lee, 2006). In line with this argument, high levels of family ownership may be associated with less efficient investment decisions leading to a reduction in the market value of the company (Cronqvist and Nilsson, 2003). The use of control-enhancing mechanisms by large shareholders, such as family owners, is another way to expropriate minority investors, thus reducing the market value of the firm (Miller and Le Breton-Miller, 2006). This type of control structures that separate ownership and control rights may be more detrimental to minority shareholders when returns on firm's investment opportunities are marginal (Lemmon and Lins, 2003).

The second potential cost of family control stems from the fact that high levels of family ownership concentration are generally associated with a significant influence of the controlling family on the management of the company. This situation may be connected with greater managerial entrenchment (Gomez-Mejia, Nunez-Nickel and Gutierrez, 2001; McVey and Draho, 2005). Furthermore, the influence of controlling families on management decisions might lead to suboptimal policies in terms of value creation; say, for instance, empire-building through value-reducing acquisitions that benefit the dominant family (McVey and Draho, 2005). In fact, prior literature suggests that large shareholders, such as families with a great stake in the company, will ensure that management serves the family interests instead of pursuing the value maximization of the company (DeAngelo and DeAngelo, 2000), which is in line with the argument that managerial blockholders enjoy, to some extent, private and personal benefits of corporate control (Holderness, 2003).

Taking into account the abovementioned arguments, we propose that family ownership may be detrimental to the value maximization objective of the company when the stake of the family in the firm is too high. Therefore, as a consequence of nonlinearities between ownership structure and corporate performance and due to the potential costs of family ownership, we posit the following hypothesis:

Hypothesis 2: There is a non-linear relationship between family ownership concentration and firm value; value first increases and then decreases as the stake of the family in the firm rises.

To test this hypothesis, we extend model (1) by including the square of the FOC_{it} variable as an explanatory variable.

$$V_{it} = \beta_0 + \beta_1 FOC_{it} + \beta_2 FOC_{it}^2 + \phi X_{it} + \varepsilon_{it} \quad (2)$$

After analyzing the relationship between family ownership and corporate performance and determining the level of family ownership concentration at which this organizational structure becomes detrimental for minority shareholders, we aim to study whether the impact of family ownership on firm value is different depending on the age of the company. More precisely, we empirically investigate whether young family firms are better performers than old family corporations. The importance of considering this characteristic (i.e., firm age) in the relationship between ownership structure and corporate performance was already suggested by Morck, Shleifer and Vishny (1988). In fact, their empirical evidence supports the idea that firm age may play a significant role when studying the influence of family ownership on corporate performance, and suggests that the positive relationship between both variables may be attributable to young family corporations.

In short, the reasoning to argue that young family firms perform better than old ones is that ownership concentration in the latter is in the hands of family members that are either less motivated to effectively monitor the managers or less skilled to run the company. The reason to classify family firms according to firm age and to argue that young family firms and old ones perform differently also relates to recent theoretical and empirical research. Specifically, the inclusion of firm age as a moderating variable in the relationship between family ownership concentration and corporate performance is associated with two recently investigated issues, i.e. the succession decision inside family corporations and the generation of the family controlling or running the firm.

With respect to the first issue, old family firms are more likely to have faced one of the most controversial decisions inside this type of organizations, i.e. the succession decision. If succession is not properly planned, generational transfer of control can result in squabbles and tension among family members

(Manzano García and Ayala Calvo, 2002; McVey and Draho, 2005), thus affecting negatively firm value. Several studies analyze the impact that the transition to the next generation has on corporate performance of family firms and find significant declines in firm performance surrounding the appointment of family managers as opposed to professional managers (Smith and Amoako-Adu, 1999; Pérez-González, 2006; Bennedsen, Nielsen, Pérez-González and Wolfenzon, 2007; Cucculelli and Micucci, 2008). These results support the idea that young family firms may outperform old ones, in which it is more likely that control has been inherited. The worse performance of old family firms that have gone through family succession may be explained by how managers are appointed in family firms. Management appointments in these firms may be more affected by individual family interests than by other corporate objectives (such as value maximization), leading to a decline in firm value post-succession (Smith and Amoako-Adu, 1999). Therefore, taking into account that family succession may lead to a reduction in the market value of the firm, and considering that inherited control is more likely in old family corporations, it seems reasonable to argue that young family firms are better performers than old family ones.

In relation to the second issue, young and old family firms may perform differently as a result of the generation of the family controlling or managing the company. Family firms controlled or run by the founder may perform differently than those in the hands of second or later generations (Villalonga and Amit, 2006; Barontini and Caprio, 2006). Young family firms are generally founder-run corporations whereas old family firms are more likely to be in the hands of second or later generations (Blanco-Mazagatos, de Quevedo-Puente and Castrillo, 2007). Furthermore, while founders that manage young family firms may possess unique valuable skills and experience, as well as the managerial talent necessary to run the company, succeeding generations in old family corporations may lack such entrepreneurial talent (McVey and Draho, 2005). Consistent with this reasoning, we argue that firm age might play a significant role as a moderating variable in the relationship we are investigating and, more precisely, we propose that young family firms outperform old family corporations.

Overall, the aforementioned arguments and results indicate the importance of taking into account firm age when studying the ownership-performance relationship, particularly in the case of family firms. Therefore, considering the possibility of differences between family firms according to firm age, we formulate the following hypothesis:

Hypothesis 3: The relationship between family ownership concentration and firm value is stronger in young family firms than in old ones.

To test this hypothesis we propose the following model:

$$V_{it} = \beta_0 + (\beta_1 + \delta_1 YD_{it})FOC_{it} + (\beta_2 + \delta_2 YD_{it})FOC_{it}^2 + \phi X_{it} + \varepsilon_{it} \quad (3)$$

where YD_{it} is a dummy variable that equals one if the family firm is young and zero otherwise. We consider a family firm as being young when the firm age is below the mean value of this variable in our sample of family corporations. By using this criterion, we classify a family firm as young when the age of the company does not exceed 26 years⁴. The use of this criterion allow us to argue that the young family firms of our sample are mostly in the hands of the first family generation, since the duration of one generation in the business is about 25 years (Lambrecht, 2005).

2.2. *Ownership concentration and firm value: comparison between family and non-family firms*

In the previous hypotheses we have posited how ownership concentration might influence firm value by focusing on the particular case of family firms. It is now our objective to go a step forward by analyzing whether family firms perform differently to non-family ones. Previous research has already investigated the relationship between ownership structure and corporate performance comparing family firms to non-family ones. Nevertheless, their results are inconclusive and vary depending on the institutional setting, on the definition of family firm or on the methodology applied.

On the one hand, there are several studies that find a better performance of family firms relative to non-family ones. McConaughy, Walker, Henderson and Mishra (1998) are among the first to show that family firms outperform non-family ones in terms of efficiency and market valuation in the U.S. Consistent with this result, Anderson and Reeb (2003) find that companies with continued founding-family presence exhibit significantly better accounting and market performance measures than non-family firms. Additionally, Martikainen, Nikkinen and Vähämaa (2008) find that family firms are more productive than non-family ones. These authors argue that the more efficient use of labour and capital resources of family firms as compare to non-family ones (and not the differences in the production technologies between them) explains in part the higher profitability and valuation of family firms found in previous investigations. Consistent with the empirical evidence provided in the U.S. case, Maury (2006) and Barontini and Caprio (2006) empirically show that family control leads to higher firm valuations and higher profitability in Western European corporations.

⁴ 26 years is equivalent to a value of 3.27 of the variable *AGE* defined in Appendix A. This is the mean value of *AGE* in our sample of family companies, which is not reported in the tables.

On the other hand, there is also evidence that family firms do not perform better than non-family ones. Miller, Le Breton-Miller, Lester and Cannella (2007) classify family firms into what they name “lone founder businesses” and “true family businesses”⁵, and find that whereas U.S. “lone founder businesses” perform better than other public corporations, “true family businesses” do not show superior market valuations. In the same vein but adopting a less restrictive definition of family firm, Cronqvist and Nilsson (2003) and Barth, Gulbrandsen and Schone (2005) conclude that family ownership is negatively related to corporate performance in Sweden and Norway, respectively. The former provides empirical evidence that Swedish family firms are associated with larger agency costs and lower market values relative to other ownership structures, while the latter concludes that family firms are less productive than non-family ones in Norway. Moreover, there is also evidence showing that family ownership may be detrimental to minority shareholders when investors’ protection is weak (Faccio, Lang and Young, 2001; Lins, 2003).

Considering the aforementioned evidence and consistent with the potential benefits of family firms that motivated Hypothesis 1, we intend to contribute to the ongoing debate about the performance of family firms relative to non-family ones by proposing and empirically testing the following hypothesis:

Hypothesis 4: There is a stronger positive relationship between ownership concentration and firm value in family firms than in non-family firms.

To test our fourth hypothesis, we propose a linear specification that will be estimated by using all companies of our sample. Specifically, the resultant model is as follows:

$$V_{it} = \alpha_0 + (\alpha_1 + \gamma_1 FD_{it}) OC_{it} + \phi X_{it} + \varepsilon_{it} \quad (4)$$

where OC_{it} stands for ownership concentration, as measured by the percentage of votes in the hands of the company’s largest shareholder. This variable has been interacted with FD_{it} , a dummy variable that equals one when a company is considered to be family-controlled and zero otherwise⁶.

Although we have just posited that ownership concentration (either in the hands of a controlling family or not) and the market value of the firm are linearly related, several investigations find a quadratic relationship between both variables. In fact, there is previous research, closely related to ours, that predicts a non-monotonic relationship between ownership concentration in the hands of the family and corporate performance when comparing family firms to non-

⁵ For a definition of both terms, see footnote 1.

⁶ Therefore, in the case of family firms OC_{it} takes the same value as FOC_{it} in models (1), (2) and (3).

family ones. In the U.S., Anderson and Reeb (2003) show that there is a breakpoint at which the positive effect of family ownership on corporate performance disappears. According to these authors, the breakpoint is reached when families own about one third of the company. Furthermore, they propose the expropriation hypothesis as a possible explanation for the negative impact of family ownership concentration on corporate performance when families' stake in the company exceeds one third of the firm's outstanding equity. A non-monotonic relationship between family ownership concentration and firm performance is also found by Maury (2006) in the Western European region. This author estimates a piecewise linear regression and finds that firm value increases at moderate family control levels whereas profitability increases when family control over the company is higher. Additionally, Maury (2006) concludes that the positive effect of family control is only present in non-majority-controlled corporations.

Moreover, the proposition that ownership concentration in the hands of the family helps to resolve the owner-manager agency conflict while at the same time creating conflicts of interests between controlling and minority investors suggests that there may be an optimal level of ownership concentration that balances both concerns (McVey and Draho, 2005). This idea points to a non-linear relationship between the fraction of voting rights owned by the largest shareholder and the market value of the firm.

Consistent with previous studies that find a non-linear relationship between ownership concentration and corporate performance and considering the potential benefits of family owners, we aim to analyze whether family firms continue to outperform non-family corporations when nonlinearities are taken into account. Therefore, we propose our fifth hypothesis as follows:

Hypothesis 5: There is a stronger non-linear relationship between ownership concentration and firm value in family firms than in non-family firms.

To test this hypothesis, we incorporate into model (4) the square of the ownership concentration and its interaction with the family dummy variable. We thus obtain the following quadratic specification:

$$V_{it} = \alpha_0 + (\alpha_1 + \gamma_1 FD_{it}) OC_{it} + (\alpha_2 + \gamma_2 FD_{it}) OC_{it}^2 + \phi X_{it} + \varepsilon_{it} \quad (5)$$

In the two previous hypotheses, we have focused on whether family firms really perform better than non-family corporations. We now go a step forward by considering the possibility that the better performance of family firms relative to non-family ones is mainly attributable to young family corporations (Anderson and Reeb, 2003; Miller and Le Breton-Miller, 2006). A possible explanation for this logic is that founders of family businesses bring unique, valuable skills to the firm while as the company continues to age family

members have less to contribute to firm productivity and efficiency. This argument is consistent with empirical evidence showing that family firms controlled by the founder outperform non-family firms, while the same does not hold for descendant-controlled corporations (Villalonga and Amit, 2006; Barontini and Caprio, 2006).

Considering the aforementioned arguments and results, we empirically test whether young family firms are the best performers of our sample, when classifying companies according to their age and to the type of controlling shareholder (i.e., family control versus non-family control). As a result of differences between family firms according to firm age and due to the different performance of family firms relative to non-family ones, we formulate our last hypothesis as follows:

Hypothesis 6: The relationship between ownership concentration and firm value is stronger in young family firms than in other firm categories, namely young non-family firms and old firms.

To test this hypothesis, we extend the previously developed quadratic model, and propose the following specification:

$$V_{it} = \alpha_0 + (\alpha_1 + \lambda_1 YFD_{it} + \varphi_1 YNFD_{it}) OC_{it} + (\alpha_2 + \lambda_2 YFD_{it} + \varphi_2 YNFD_{it}) OC_{it}^2 + \phi X_{it} + \varepsilon_{it} \quad (6)$$

As can be seen, we have included in the model two dummy variables (i.e., YFD_{it} and $YNFD_{it}$) that equal one for young family and young non-family firms, respectively, and zero otherwise. By doing so, we achieve two different objectives at the same time. On the one hand, we empirically test whether family firms continue to outperform non-family corporations that are their counterparts in terms of firm age⁷. On the other hand, we analyze whether the superior performance of family firms as compared to non-family ones is primarily attributable to young family corporations.

3. Data and estimation method

3.1. Data

To test our hypotheses, we need three different types of firm-level data. First, the number of outstanding shares and its market price are needed to calculate the market value of the company (i.e., the dependent variable of our models). Second, we need the distribution of the firm's equity among its shareholders to determine the level of ownership concentration and the identity of the largest shareholder to identify family firms (i.e., ownership data to calculate our main explanatory variables). And third, the firms' financial statements are needed to

⁷ Specifically, we analyze whether young family firms outperform young non-family firms.

calculate a set of control variables that will enter the right-hand side of our models. We have therefore used AMADEUS database as our main source of information. Additionally, some macroeconomic data (such as the growth of capital goods prices, the rate of interest of short term debt and the rate of interest of long term debt) needed to calculate the variables as explained in Appendix A have been extracted from the *Main Economic Indicators* published by the Organisation for Economic Cooperation and Development (OECD).

The main reason for choosing AMADEUS as our main source of information is that it is a database containing comprehensive data on market valuation, shareholding and financial statements of companies that operate in European countries. The AMADEUS database is published by Bureau van Dijk Electronic Publishing (BvDEP), one of the world's leading electronic publishers of business information. BvDEP collects data from over 30 specialized information providers to ensure that AMADEUS contains the best available information. Moreover, BvDEP has developed a uniform format that maximises the availability of financial items across the different countries' filing regulations balanced with a realistic representation of company accounts. The format is applied to all companies, thus allowing our cross-country empirical investigation. In addition to containing standardised annual accounts, AMADEUS provides a unique ownership data set, which we need to test our hypotheses.

Specifically, we have extracted the firm-level information from the "TOP 1.5 million module" of AMADEUS, which comprises the largest 1.5 million corporations that operate in the Eastern and Western European regions. Nevertheless, we have restricted our analysis to Western European corporations. Furthermore, to have a representative sample of listed companies⁸ that operate in Western Europe, we have focused on countries whose institutional environment is classified in La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998). We thus ensure that the different legal systems identified by these authors are represented in our sample. In fact, the corporations included in the study operate in common-law countries (United Kingdom), French-civil-law countries (France, Greece, Netherlands, and Spain), German-civil-law countries (Germany and Switzerland) and Scandinavian countries (Finland and Sweden)⁹. This fact helps

⁸ The reason for focusing only on listed corporations is that, although a great majority of family businesses are small and sole proprietorships, family control can also be found in many large public companies (Lee, 2006); and since our main objective is to analyze how family ownership affects minority shareholders' wealth, which is well measured by the market value of the company, we have restricted our study to Western European listed corporations.

⁹ Owing to our strong information requirements, other countries from Western Europe contemplated in La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) (namely Austria, Belgium, Denmark, Ireland, Italy, Portugal and Norway) are not considered in our analysis.

us to better generalize our research results, as opposed to the weak applicability of the empirical evidence from the U.S. pointed out by Cucculelli and Micucci (2008).

The time period of our study is also restricted by the type of information needed to test the hypotheses proposed in Section 2. Particularly, our study period ranges from 2000 to 2006 since these are the years for which we were able to obtain sufficient ownership data from AMADEUS. Finally, our methodology imposes an additional restriction to control for unobservable heterogeneity and endogeneity; that is, we need information for at least four consecutive years per company in order to test for the absence of second-order serial correlation, as Arellano and Bond (1991) point out. We need to test for the second-order serial correlation because our estimation method, the Generalized Method of Moments (GMM), is based on this assumption. Therefore, our final sample is an unbalanced panel comprising 779 companies (4,333 observations) for which the information is available for at least four consecutive years between 2000 and 2006. It is worth noting that our sample comprises 262 companies (1,415 observations) classified as family firms. Therefore, about one third of the corporations (33.63%) are family controlled. The structure of the total and the family firm samples, by number of companies and number of observations per country, is provided in Table 1. The main summary statistics (mean, standard deviation, minimum and maximum) of the variables included in our models are shown in Table 2.

3.2. Estimation method

We used the panel data methodology to estimate our models. This choice was motivated by the importance of considering two significant problems that arise when studying the impact of a firm's ownership structure on its market valuation, namely the unobservable heterogeneity and the endogeneity problems. First, unlike cross-sectional analysis, panel data allows us to control for individual heterogeneity. This issue is very important in our analysis since every firm, and especially family ones, has its own specificity (Giménez Sánchez, 2002; Lee, 2004; McVey and Draho, 2005) that gives rise to a particular behaviour closely linked to the culture of the company, which in family firms is imposed by the owner family. Therefore, to eliminate the risk of obtaining biased results, we have controlled for such heterogeneity by modelling it as an individual effect, η_i , which is then eliminated by taking first differences of the variables. Consequently, the error term in our models, ε_{it} , has been split into four different components. The first one is the aforementioned individual or firm-specific effect, η_i . The second one, d_t , measures the temporal or time-specific effect with the corresponding time dummy variables, so that we can control for the effect of macroeconomic variables on firm value. The third

component, c_i , consists of country dummy variables included to control for country-specific effects. Finally, v_{it} is the random disturbance.

The second issue motivating the use of our estimation method is the endogeneity problem. The potential endogeneity of our main explanatory variable (i.e., ownership concentration) may seriously affect the ownership-performance relationship. In fact, ownership concentration may have no observable effect on firm performance due to the endogeneity of ownership structure (Demsetz, 1983; Demsetz and Lehn, 1985; Demsetz and Villalonga, 2001). Furthermore, as Anderson and Reeb (2003) indicate, it is not clear whether family ownership improves corporate performance, or if superior performance leads families to maintain their stake in the company. In fact, family owners can anticipate more easily the company's future prospects and retain ties to only those firms with positive outlooks. Consequently, endogeneity may be a problem that has to be controlled for in our models. Hence, to avoid this problem our models have been estimated by using the Generalized Method of Moments (GMM), which allows us to control for problems of endogeneity by using instruments. To be exact, we have used all the right-hand-side variables in the models lagged from t-1 to t-6 as instruments for the equations in differences, and t-1 for the equations in levels as Blundell and Bond (1998) suggest when deriving the system estimator used in our paper.

Finally, we checked for the potential misspecification of the models. First, we used the Hansen J statistic of over-identifying restrictions in order to test for the absence of correlation between the instruments and the error term. The instruments used were valid as can be seen in Tables 3 and 4. Second, we used the m_2 statistic, developed by Arellano and Bond (1991), in order to test for the lack of second-order serial correlation in the first-difference residual. There was not a problem of second-order serial correlation in our models as shown in Tables 3 and 4 (see m_2). Third, Tables 3 and 4 provide good results for the following three Wald tests: z_1 is a test of the joint significance of the reported coefficients; z_2 is a test of the joint significance of the time dummy variables; and z_3 is a test of the joint significance of the country dummy variables.

4. Results

In this section we present the results of our models paying special attention to the impact of ownership concentration in the hands of the family on firm value. We first comment on the evidence obtained from the estimation of the value models specified to study the relationship between family ownership concentration and firm value (i.e., models (1), (2) and (3)). These models have been estimated using only data on companies classified as family-controlled. We then present the results of the proposed extended models to analyze whether ownership concentration in the hand of the family has a stronger impact on firm

value than when there is not a family owner in the company (i.e., models (4), (5) and (6)).

4.1. Ownership concentration and firm value: the particular case of family firms

The results of the models estimated to analyze how family ownership concentration relates to firm value are provided in Table 3. Columns I and II show the results of the linear and quadratic specifications, respectively, whereas Column III provides evidence of the moderating role played by firm age in the ownership-performance relationship. The positive coefficient of family ownership concentration in Column I supports Hypothesis 1. This result is consistent with the positive effect of family ownership concentration on firm performance found by Anderson and Reeb (2003) and Maury (2006). Specifically in family firms, family owners are more motivated to effectively monitor the managers when their stake in the company increases. Alternatively, if members of the controlling family occupy management positions, they appear to be particularly interested in increasing firm value when they own a large fraction of the firm. A positive relationship between family ownership concentration and firm value is also explained by two potential benefits of family ownership suggested in Section 2, namely the extended horizons and the reputation concern of family owners.

Although ownership concentration in the hands of the family appears to be positive in terms of value creation, the estimation of model (2) provided in Column II of Table 3 suggests that family ownership concentration non-linearly impacts on the market value of the company. Particularly, the coefficient on the family ownership variable is positive ($\hat{\beta}_1 > 0$), and the one on its square is negative ($\hat{\beta}_2 < 0$). This result is in line with previous investigations that find a quadratic relationship between ownership concentration and firm performance (Gedajlovic and Shapiro, 1998; Thomsen and Pedersen, 2000; Miguel, Pindado and de la Torre, 2004) and allows us to conclude that this functional form also applies to the case of family firms. The logic behind this result is that family owners whose stake in the firm exceeds certain level benefit more from expropriating minority shareholders than from maximizing the market value of the company, thus destroying firm value.

Finally, Column III of Table 3 shows the estimation results of model (3). The positive and negative coefficients of the interactions between the young dummy variable and the family ownership concentration and its square, respectively (i.e., $\hat{\delta}_1 > 0$ and $\hat{\delta}_2 < 0$) support Hypothesis 3. We can therefore state that the relationship between family ownership concentration and firm value is stronger in young family firms than in old ones. This result suggests that large

owners in young family firms are either more motivated to effectively monitor the managers or more skilled to run the company than large shareholders in old family corporations. Furthermore, the empirical evidence obtained from estimating model (3) confirms the important role of firm age as a moderating variable when analyzing the effect of family ownership on corporate performance.

Concerning the control variables, their coefficients are statistically significant (except beta and the stake of the second largest shareholder in some specifications) and have the same sign and similar size across all the specifications in Table 3. We find that, on the one hand, firm value is negatively related to debt, investment, size, the stake of the second largest owner and firm age. On the other hand, we note a positive association between firm value and dividends, intangible assets, cash flow, return on assets and the firm's beta. Overall, the results of our analysis with respect to the control variables are generally consistent with findings in previous research on the relation between family ownership and corporate performance (see, for instance, Anderson and Reeb, 2003; Cronqvist and Nilsson, 2003; Villalonga and Amit, 2006; Maury, 2006).

4.2. Ownership concentration and firm value: comparison between family and non-family firms

To compare family firms to non-family ones in terms of corporate performance, we have estimated three additional models using all companies of our sample (i.e., models (4), (5) and (6)). The results of the estimations are presented in Table 4. The estimated coefficients of the linear specification shown in Column I provide evidence that family firms are superior performers to non-family corporations. Specifically, the positive estimated coefficient of the interaction between ownership concentration and the family dummy (i.e., $\hat{\gamma}_1 > 0$) indicates that the impact of ownership concentration on firm value is stronger when the largest shareholder is a family than when it is not. This result supports Hypothesis 4 and is consistent with previous empirical evidence from the U.S. (McConaughy, Walker, Henderson and Mishra, 1998; Anderson and Reeb, 2003) and from Western Europe (Maury, 2006; Barontini and Caprio, 2006). Moreover, a stronger effect of ownership concentration on firm value when the largest shareholder is a family may be explained by the potential benefits characteristic of family owners pointed out in Section 2. That is, the extended horizons, the reputation concern and the better knowledge of the company on the part of controlling families are likely explanations for the better performance of family firms relative to non-family ones.

To test whether family firms continue to outperform non-family corporations when nonlinearities are taken into account, we extended model (4)

and obtained the quadratic specification in model (5). The results of estimating this extended model are provided in Column II of Table 4. In line with previous investigations (Gedajlovic and Shapiro, 1998; Thomsen and Pedersen, 2000; Miguel, Pindado and de la Torre, 2004), the estimated coefficients of ownership concentration and its square are positive and negative, respectively. Nonetheless, our interest is in the interaction terms between these two variables and the family dummy, whose estimated coefficients are also positive and negative, respectively (i.e., $\hat{\gamma}_1 > 0$ and $\hat{\gamma}_2 < 0$). These findings confirm the results from estimating model (2) and are consistent with previous empirical evidence (Anderson and Reeb, 2003). Moreover, they allow us to conclude that there is a stronger non-linear relationship between ownership concentration and firm value in family firms than in non-family firms as posited in Hypothesis 5.

Finally, we classified companies according to their age in order to test whether the better performance of family firms relative to non-family ones is mainly attributable to young family corporations. As can be seen in Column III of Table 4, there is a stronger non-linear relation between ownership concentration and firm value in young family firms than in young non-family firms (i.e., $\hat{\lambda}_1 > \hat{\phi}_1$ and $\hat{\lambda}_2 < \hat{\phi}_2$), thus suggesting that the former outperform the latter. This finding has a twofold interpretation. On the one hand, we can assert that family firms continue to outperform non-family firms that are their counterparts in terms of firm age, consistent with the potential benefits of family ownership as opposed to other organizational structures. On the other hand, it seems that the better performance of family firms relative to non-family ones is to a large extent attributable to young family corporations, which is in line with previous empirical results (Anderson and Reeb, 2003; Villalonga and Amit, 2006; Barontini and Caprio, 2006). Consequently, the estimated coefficients of model (6) support Hypothesis 6 and allow us to conclude that family firms perform better than non-family ones when both nonlinearities and the moderating role of firm age are taken into account.

As can be seen in Columns I, II and III of Table 4, the estimated coefficients of the control variables remain practically identical in sign as in the previous three specifications. Therefore, once again we corroborate the results of previous studies that also analyze the relationship between family control and firm performance with regard to the estimated coefficients of the variables used to control for firm-specific characteristics.

5. Conclusions

This paper examines how family control impacts on the market value of a firm in an effort to shed light on the issue of whether family firms are really superior performers to non-family corporations. To achieve this aim, the analysis of the relationship between family ownership concentration and firm value proceeded

in two steps. In the first part of the study, we estimated three value models using only data on the family firms in our sample. In the second part of the paper, we estimated three additional models using the whole sample to determine whether family firms performed differently to non-family corporations. In each part, a linear relationship between ownership concentration and firm value was first proposed; then the possibility of nonlinearities between both variables was contemplated, and finally the quadratic specifications were extended to include firm age as a moderating variable.

Our results show that family ownership impacts positively on firm value, probably because of the potential benefits associated to family owners, such as their long-term horizons and their reputation concern. These characteristics along with a better knowledge of the company are likely to induce family owners to invest following value maximization rules. Nevertheless, a more accurate analysis reveals that when family ownership concentration is too high, firm value decreases. This reduction may stem from the risk of expropriation of minority shareholders by the owner family when it owns a large fraction of the firm. Regarding the age of family firms, it seems that young family corporations perform better than old ones, which may be due to the entrepreneurial talent brought by the founders to the company.

With respect to the different performance of family firms compared to non-family ones, we provide empirical evidence that ownership concentration has a stronger impact on firm value when it is in the hands of a family than when it is not. This result is consistent with the aforementioned potential benefits associated to family ownership. Additionally, we show that the stronger effect of ownership concentration in the hands of a family holds after controlling for nonlinearities. Finally, we find that the better performance of family firms is mainly attributable to young family corporations, which perform better than young non-family firms and old firms. Overall, our results indicate that family firms outperform non-family corporations supporting the idea that family ownership may be beneficial to minority shareholders.

Appendix A

In this appendix we present the definitions and calculations, when necessary, of all variables used in our analysis.

Dependent variable

– *Firm value*: V_{it} is calculated dividing the market value of equity by the replacement value of total assets. That is, $V_{it} = MVE_{it} / K_{it}$

where $MVE_{it} = SO_{it} \times MPS_{it}$ being SO_{it} a measure of the firm shares outstanding and MPS_{it} the market price of shares, and $K_{it} = RF_{it} + (TA_{it} - BF_{it})$ with RF_{it} being the replacement value of tangible fixed assets, TA_{it} the book value of total assets and BF_{it} the book value of tangible fixed assets. The latter two have been obtained from the firm's balance sheet and the first one has been calculated according to the proposal by Perfect and Wiles (1994):

$$RF_{it} = RF_{it-1} \left[\frac{1 + \phi_t}{1 + \delta_{it}} \right] + I_{it}$$

for $t > t_0$ and $RF_{it_0} = BF_{it_0}$, where t_0 is the first year of the chosen period, in our case 2000. On the other hand, $\delta_{it} = BD_{it} / BF_{it}$ and $\phi_t = (GCGP_t - GCGP_{t-1}) / GCGP_{t-1}$, with BD_{it} being the book depreciation expense of the firm in year t and $GCGP_t$ the growth of capital goods prices extracted from the *Main Economic Indicators*, published by the Organization for Economic Cooperation and Development (OECD). This measure of market valuation has already been used as a dependent variable in value models developed in previous studies (see, for instance, Morgado and Pindado, 2003; Miguel, Pindado and de la Torre, 2004).

Ownership variables

- *Family ownership concentration*: FOC_{it} is the percentage of common shares held by the owner family.
- *Young dummy*: YD_{it} is a dummy variable that equals one if the family firm is young and zero otherwise. We consider a family firm as being young when the firm age is below the mean value of this variable in our sample of family corporations.
- *Ownership concentration*: OC_{it} is the percentage of common shares held by the largest shareholder of the firm.
- *Family dummy*: FD_{it} is a dummy variable that equals one if the largest shareholder is an individual or a family with at least 10 percent of the votes and zero otherwise.
- *Young family dummy*: YFD_{it} is a dummy variable that equals one for young family firms and zero otherwise. We use the aforementioned criteria to classify a firm as being young and family at the same time.
- *Young non-family dummy*: $YNFD_{it}$ is a dummy variable that equals one for young non-family firms and zero otherwise. We use the aforementioned criteria to classify a firm as being young and non-family at the same time; the only

difference is that now to determine whether a non-family firm is young or not, we use the mean value of firm age in our sample of non-family corporations.

Control variables

– *Debt ratio*: $DEBT_{it} = \frac{MVLT D_{it}}{MVLT D_{it} + MVE_{it}}$ where $MVLT D_{it}$ is the market value of

long term debt obtained from the following formula:

$$MVLT D_{it} = \left[\frac{1 + l_{it}}{1 + i_l} \right] BVLT D_{it}$$

where $BVLT D_{it}$ is the book value of the long term debt, i_l is the rate of interest of the long term debt reported in the *OECD-Main Economic Indicators* and l_{it} is the average cost of long term debt that is defined as $l_{it} = (IPLT D_{it} / BVLT D_{it})$, where $IPLT D_{it}$ is the interest payable on the long term debt, which has been obtained by distributing the interest payable between the short and long term debt depending on the interest rates. That is:

$$IPLT D_{it} = \frac{i_l BVLT D_{it}}{i_s BVST D_{it} + i_l BVLT D_{it}} IP_{it}$$

where IP_{it} is the interest payable, i_s is the rate of interest of the short term debt, also reported in the *OECD-Main Economic Indicators*, and $BVST D_{it}$ is the book value of the short term debt.

– *Investment*: $INV_{it} = \frac{NF_{it} - NF_{it-1} + BD_{it}}{K_{it}}$ where NF_{it} denotes net fixed assets of

the firm in year t and BD_{it} is the book depreciation expense of the firm corresponding to year t . This variable has been calculated according to the proposal by Lewellen and Badrinath (1997).

– *Dividends*: Since AMADEUS does not provide the value of dividends paid by the company, we compute dividends by using the following formula:

$$DIV_{it} = \frac{NP_{it} - (OSF_{it} - OSF_{it-1})}{K_{it}}$$

where NP_{it} stands for net profit of the firm in year t and OSF_{it} denotes other shareholders funds different from capital corresponding to year t .

– *Size*: $SIZE_{it} = \ln(K_{it})$.

– *Intangible assets*: $IA_{it} = \frac{IFA_{it}}{K_{it}}$ where IFA_{it} is the book value of the intangible fixed assets.

– *Cash flow*: $CF_{it} = \frac{NP_{it} + BD_{it}}{K_{it}}$ where NP_{it} and BD_{it} denote the net profit and the book depreciation expense of the firm corresponding to year t , respectively.

– *Return on assets*: $ROA_{it} = \frac{EBIT_{it}}{TA_{it}}$.

– *Beta*: $BETA_{it}$ is a proxy measure of the market risk of the firm calculated using the stock data provided by AMADEUS. We have calculated this variable according to the standard formula of the beta. That is, $BETA_{it} = \frac{COV(R_{it}, R_{Mt})}{VAR(R_{Mt})}$.

– *Stake of the second largest shareholder*: SOC_{it} is the percentage of common shares held by the second largest shareholder of the firm.

– *Age*: $AGE_{it} = Ln(YEAR_{it} - INC_i)$ where $YEAR_{it}$ is the corresponding period of time and INC_i is the date of incorporation of the firm.

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Table 1. Structure of the total and family firm samples by country

Country	Total sample		Family firm sample					
	No. firms	% firms	No. obs.	% obs.	No. firms	% firms	No. obs.	% obs.
<i>Switzerland</i>	56	7.19	266	6.14	25	9.54	120	8.48
<i>Germany</i>	78	10.01	407	9.39	33	12.60	169	11.94
<i>Spain</i>	60	7.70	332	7.66	15	5.73	85	6.01
<i>Finland</i>	57	7.32	293	6.76	17	6.49	84	5.94
<i>France</i>	19	2.44	89	2.05	12	4.58	57	4.03
<i>U.K.</i>	312	40.05	1,834	42.33	68	25.95	396	27.99
<i>Greece</i>	97	12.45	526	12.14	72	27.48	394	27.84
<i>Netherlands</i>	53	6.80	337	7.78	5	1.91	29	2.05
<i>Sweden</i>	47	6.03	249	5.75	15	5.73	81	5.72
Total	779	100	4,333	100	262	100	1,415	100

Data was extracted for companies for which information was available for at least four consecutive years between 2000 and 2006. The family firm sample was used to estimate models (1), (2) and (3), whereas the total sample was used in the estimation of models (4), (5) and (6). Of the total sample, 33.63 % are family firms. The percentage of family firms by country in our sample is as follows: 44.64 % family firms in Switzerland, 42.31 % family firms in Germany, 25 % family firms in Spain, 29.82 % family firms in Finland, 63.16 % family firms in France, 21.79 % family firms in U.K., 74.23 % family firms in Greece, 9.43 % family firms in Netherlands and 31.91 % family firms in Sweden.

Table 2. Summary statistics

Variable	Mean	Standard deviation	Minimum	Maximum
V_{it}	.7755147	.7667635	.0094477	11.83221
OC_{it}	.2377827	.1861315	.0023	.97
OC_{it}^2	.0911776	.1422904	.0000	.9409
$DEBT_{it}$	.0801155	.096938	.0000	.8206548
INV_{it}	.0514904	.0939043	-.8456203	.8495425
DIV_{it}	.0372883	.0920452	.0000	4.372647
$SIZE_{it}$	13.02269	1.78898	10.14099	19.37096
IA_{it}	.1152815	.1470127	.0000	.9427326
CF_{it}	.0747769	.0869959	-.9124711	.780748
ROA_{it}	.0599775	.0832049	-.459415	.5491031
$BETA_{it}$	.8707274	1.143297	-9.866145	18.13789
SOC_{it}	.1015407	.0737581	.0000	.5
AGE_{it}	3.466118	.9661666	.6931472	6.44254

V_{it} is the firm's value, OC_{it} and OC_{it}^2 denote ownership concentration and its square, respectively (note that FOC_{it} and FOC_{it}^2 totally coincide with OC_{it} and OC_{it}^2 , respectively, in the case of family firms), $DEBT_{it}$ is the debt ratio, INV_{it} denotes investment, DIV_{it} denotes dividends, $SIZE_{it}$ is the firm's size, IA_{it} stands for intangible assets, CF_{it} denotes cash flow, ROA_{it} is the return on assets, $BETA_{it}$ denotes the firm's beta, SOC_{it} is the stake of the second largest shareholder and AGE_{it} is the firm's age.

Table 3. Estimation results of the impact of family ownership concentration

	I	II	III
Constant	1.634153* (.0811307)	1.516923* (.0783396)	1.326217* (.106972)
FOC_{it}	.3845882* (.0322293)	1.583203* (.0807321)	.9491543* (.1118438)
FOC^2_{it}		-1.857989* (.1081484)	-.9354036* (.1315964)
$YD_{it}FOC_{it}$			.5491605* (.1543903)
$YD_{it}FOC^2_{it}$			-.7821273* (.2014814)
$DEBT_{it}$	-1.542076* (.0237833)	-1.556602* (.0330813)	-1.569861* (.0426223)
INV_{it}	-.0618247* (.017695)	-.0768757* (.0158975)	-.0484749** (.0212138)
DIV_{it}	1.705702* (.0418407)	1.712171* (.0431653)	1.748856* (.0549577)
$SIZE_{it}$	-.0593511* (.0064721)	-.0623177* (.0067334)	-.049375* (.006825)
IA_{it}	1.795077* (.061831)	1.717188* (.055132)	1.651672* (.0706588)
CF_{it}	.2812018* (.0286964)	.191761* (.0316405)	.2251425* (.0486188)
ROA_{it}	1.90493* (.0501175)	1.963034* (.0496553)	2.042219* (.0540815)
$BETA_{it}$	.0027575*** (.0015473)	.0021857 (.0013565)	.0016975 (.0017182)
SOC_{it}	-.0327313 (.0401014)	-.2594663* (.0524025)	-.2737104* (.0744188)
AGE_{it}	-.0737107* (.0069313)	-.0564891* (.0075381)	-.0363841* (.0113576)
z_1	1071.64 (11)	1070.80 (12)	495.30 (14)
z_2	552.41 (5)	425.31 (5)	382.86 (5)
z_3	85.19 (9)	77.97 (9)	65.60 (9)
m_1	0.66	0.68	0.61
m_2	-1.21	-1.34	-1.34
Hansen	232.22 (281)	227.09 (306)	228.05 (356)

The regressions are performed by using the family firm sample described in Table 1. YD_{it} equals one for young family firms and zero otherwise. The remaining variables are defined in Table 2. The rest of the information needed to read this table is: i) Heteroskedasticity consistent asymptotic standard error in parentheses. ii) *, ** and *** indicate significance at the 1%, 5% and 10% level, respectively; iii) z_1 is a Wald test of the joint significance of the reported coefficients, asymptotically distributed as χ^2 under the null of no relationship, degrees of freedom in parentheses; z_2 is a Wald test of the joint significance of the time dummies, asymptotically distributed as χ^2 under the null of no relationship, degrees of freedom in parentheses; z_3 is a Wald test of the joint significance of the country dummies, asymptotically distributed as χ^2 under the null of no relationship, degrees of freedom in parentheses; iv) m_i is a serial correlation test of order i using residuals in first differences, asymptotically distributed as $N(0,1)$ under the null of no serial correlation; v) Hansen is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null of no correlation between the instruments and the error term, degrees of freedom in parentheses.

**Table 4. Estimation results of the comparison
between family and non-family firms**

	I	II	III
Constant	1.406166* (.1573348)	1.280823* (.1399103)	1.460603* (.1159462)
OC_{it}	.1385039** (.0573875)	.5368555* (.1203602)	.3863112* (.1166879)
OC_{it}^2		-.5329286* (.1371895)	-.2840058*** (.156605)
$FD_{it}OC_{it}$	.2285537* (.0817257)	.4222315** (.1723319)	
$FD_{it}OC_{it}^2$		-.5902772** (.2911808)	
$YFD_{it}OC_{it}$			1.488836* (.1832658)
$YFD_{it}OC_{it}^2$			-2.493983* (.3212703)
$YNFD_{it}OC_{it}$			.4999708* (.1494894)
$YNFD_{it}OC_{it}^2$			-1.013307* (.2095585)
$DEBT_{it}$	-1.405952* (.0883516)	-1.445823* (.0855031)	-1.549119* (.0647225)
INV_{it}	.002345 (.0306121)	.0060524 (.0281158)	.022583 (.0256242)
DIV_{it}	.244072* (.055465)	.3320697* (.0533478)	.4036312* (.042813)
$SIZE_{it}$	-.041473* (.0116949)	-.031366* (.0104934)	-.0491499* (.0083882)
IA_{it}	.9713419* (.0890483)	.9745719* (.0792315)	.9595516* (.0735871)
CF_{it}	.1141106** (.0533532)	.1321038* (.0486294)	.1764455* (.0429087)
ROA_{it}	1.189676* (.0930583)	1.277377* (.0823571)	1.386108* (.0711723)
$BETA_{it}$	.011396* (.0028788)	.0136574* (.0027057)	.0161849* (.0022535)
SOC_{it}	-.1910059** (.0830821)	-.2663389* (.0708364)	-.3533726* (.065712)
AGE_{it}	-.0785563* (.0113329)	-.0875492* (.0099658)	-.0679848* (.0098741)

Table 4. (continued)

z_1	59.43 (12)	70.62 (14)	118.12 (16)
z_2	101.21 (5)	121.19 (5)	156.35 (5)
z_3	16.55 (9)	16.90 (9)	20.17 (9)
m_1	-0.75	-0.77	-0.81
m_2	-0.59	-0.70	-0.76
Hansen	362.25 (306)	402.09 (356)	457.39 (406)

The regressions are performed by using the total sample described in Table 1. FD_{it} equals one when the largest shareholder is an individual or a family with at least 10 percent of the votes and zero otherwise; YFD_{it} equals one for young family firms and zero otherwise; $YNFD_{it}$ equals one for young non-family firms and zero otherwise. The remaining variables are defined in Table 2. The rest of the information needed to read this table is: i) Heteroskedasticity consistent asymptotic standard error in parentheses. ii) *, ** and *** indicate significance at the 1%, 5% and 10% level, respectively; iii) z_1 is a Wald test of the joint significance of the reported coefficients, asymptotically distributed as χ^2 under the null of no relationship, degrees of freedom in parentheses; z_2 is a Wald test of the joint significance of the time dummies, asymptotically distributed as χ^2 under the null of no relationship, degrees of freedom in parentheses; z_3 is a Wald test of the joint significance of the country dummies, asymptotically distributed as χ^2 under the null of no relationship, degrees of freedom in parentheses; iv) m_i is a serial correlation test of order i using residuals in first differences, asymptotically distributed as $N(0,1)$ under the null of no serial correlation; v) Hansen is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null of no correlation between the instruments and the error term, degrees of freedom in parentheses.