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ARTICLE

The influence of family control on decisions regarding the specialization and diversification of business groups

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Abstract This study analyses the impact of family control on decisions regarding the specialization and diversification of large business groups whose parent companies are listed on Spanish stock exchanges. Using a sample of ninety-nine companies, having identified the companies that constitute the business group, and using both binary logistic models and the Heckman two-step method to eliminate selection bias, the results show how the familial nature of the parent company favours specialization and reduces the level of the business group's diversification. In addition, we see that there are differences among family groups with respect to the concentration of their holdings in that a higher level of concentration increases the level of diversification in the family business group.

Introduction

Among the categories of recent company owners, families stand out as one of the most significant controlling groups (La Porta et al., 1999; Zahra and Sharma, 2004). The family nature of a business has an influence on the company's strategic behaviour and thus on the strategy of diversification, given that family members not only pursue the fulfilment of financial goals but also work for both the survival and continuity of the family business (Arregle et al., 2007) and the preservation of socio-emotional wealth (Gomez-Mejia et al., 2007, 2010).

Most of the literature related to the influence of a business's familial nature on diversification corresponds to studies performed in the United States (Kang, 1999; Anderson and Reeb, 2003; Gomez-Mejia et al., 2010; Miller et al., 2010), with fewer studies in the European (Ducassy and Prevot, 2010; Muñoz-Bullón and Sánchez-Bueno, 2011) and Asian contexts (Chen and Yu, 2011). However, the results obtained in these studies are not consistent (Kang, 1999; Anderson and Reeb, 2003; Ducassy and Prevot, 2010; Gomez-Mejia et al., 2010; Chen and Yu, 2011). These discrepancies are possibly due to differences in how diversification is

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defined in the studies' measures and methodologies (Benito-Osorio et al., 2012) and/or to differences in the influence of the institutional settings of the countries where the studies were conducted (Peng, 2003).

Conversely, there has been considerable analysis of the direct influence of the concentration of holdings on diversification, using agency theory as a point of reference (Amihud and Lev, 1999; Lane et al., 1999). An increase in holdings concentration gives rise to a reduction in the level of diversification by reducing the principal-agent agency problem (Amihud and Lev, 1981; Berger and Ofek, 1995; Goranova et al., 2007). Nevertheless, when the degree of concentration of holdings is high, a principal–principal agency problem can arise (majority stockholder–minority stockholder). This problem can prompt the controlling shareholder to implement a strategy of greater diversification to maximize his or her own profit and/or reduce to his or her personal risk (based on his or her increased participation in the capital of the company) and to decline to participate in diversification intended to maximize the value of the business (seeking synergies in sales, costs, or risks among the various businesses and/or activities resulting from diversification) (Fama and Jensen, 1983; La Porta et al., 1999; Lins and Servaes, 2002). It would be appropriate to translate this evidence to the set of family companies, proposing the following questions: Can concentration of holdings have a moderating effect on the relationship between the familial nature of a business and diversification? In other words, do family businesses with higher levels of concentration of holdings differ from family businesses with lower levels of concentration of holdings with respect to diversification?

This study intends to answer the questions posed above by proposing a double objective: first, to analyse the impact of family control on the diversification[1] of large business groups whose parent company is listed on Spanish stock exchanges; and second, to analyse the moderating effect of the concentration of holdings on the influence of family control on diversification. To establish this study's hypothesis, we begin by discussing the contributions of agency theory (Jensen and Meckling, 1976; Fama and Jensen, 1983) and then complement that discussion with the concept of socio-emotional wealth (Gomez-Mejia et al., 2007, 2010). The nature of the shareholder who controls the group of businesses can affect the diversification strategies that are adopted, both through differences in the goals that are pursued and through agency costs arising out of contracts that seek either to maintain the cohesion of the group or to regulate conflicts. More specifically, the family will adopt strategies that allow it optimize performance, always subject to the restriction of maintaining management control and the allocation of company resources in family hands.

In addition to the considerations presented above, the study is justified for the following reasons. First, and unlike most previous studies that use the company's diversification itself as the unit of analysis,[2] our study of diversification uses the pyramidal group of independent businesses controlled by the same parent company (i.e., a group's head company) as the unit of analysis. This unit of analysis allows for better identification of the corporate strategy adopted by the parent company because it incorporates the activities developed by dependent companies, avoiding the omission of important activities because exclusively considering the parent company's activities can give a distorted vision of the company's corporate strategy.

Second, the study provides new evidence for the case of Spain with respect to the influence of the familial nature of the controlling shareholder on strategies of the specialization and diversification of large business groups whose parent company is listed on an exchange. More specifically, the study compares family and non-family groups of businesses, considering the possible moderating effect of the concentration of holdings.

Third, the study contributes to the literature by analysing a government and regulatory setting distinct from the American institutional context. Spain is characterized by its membership in a legal system based on civil law, which has an institutional and regulatory framework to protect minority stockholders that is weaker than the institutional framework of the United States and the United Kingdom (La Porta et al., 1999), which explains Spain's greater concentration of company holdings in general and its greater concentration of holdings in family businesses in particular.

To achieve this goal, the study is structured as follows. First, a theoretical framework is presented in which the relationship between the level of diversification and the familial nature of the business group is established from the perspective of agency theory, complemented by the concept of socio-emotional wealth, and the hypotheses to be compared are established. Second, we present the database, variables, and methodologies to contrast with previously established hypotheses. Third, the principal results of the study are shown. Finally, the conclusions and implications of the study, its limitations, and future lines of investigation are given.

Theoretical framework: the familial nature of a company and business diversification

The influence of familial nature on diversification strategy

When establishing differences between family and non-family businesses with respect to their levels diversification, the point of departure is established by agency theory. Non-family businesses present a variation in the group of stockholders that is greater than that of family businesses such that their executives are more proactive regarding the use of diversification strategies. An increase in the size of the enterprise through diversification can mean an increase

[1] The concept of diversification used refers to product diversification. Conversely, when speaking of low levels of diversification, the term implicitly refers to the strategy of specialisation of activities (Palich et al., 2000), that is, a strategy in which a company opts to carry out a single activity or alternatively, where a large part of a company's income is derived from a single business (Rumelt, 1982).

[2] Exceptions include the studies by Bertrand et al. (2008) and Bru and Crespi (2006), who contribute significantly to the study of particular aspects of corporate governance, using family business groups in Thailand and Spain, respectively, as the unit of analysis.

in financial compensation and the prestige of executives (Jensen, 1986), a promotion to a higher position within the company (Shleifer and Vishny, 1997), and even a reduction in the personal risk of job loss, guaranteeing one's place in the company (Sayrak and Martin, 2001).

Conversely, family businesses are characterized by family members' participation in the management and direction of the enterprise, reducing the principal-agent problem (Jensen and Meckling, 1976; Fama and Jensen, 1983; Miller and Le Breton-Miller, 2006), and incurring lower agency costs (lower costs for recruiting and supervision of executives) (Amihud and Lev, 1999). Thus, diversification in the family business is not the result of a principal-agent problem, that is, the consequence of executives' greater discretion to satisfy their own interests to the detriment of stockholders' interests and maximizing company value.

Nevertheless, in the case in which most or almost all of a family's wealth or assets are committed to an enterprise, family members assume such an elevated degree of personal risk that it can lead to the appearance of important incentives for minimizing that risk (Demsetz and Lehn, 1985; Faccio et al., 2001). Corporate diversification can be attractive because it allows not only for mitigation of an enterprise's risk (and therefore the risk assumed by the family) but also for reducing the variability of income and expected results (because it redistributes family wealth among various enterprises and businesses).

However, family businesses not only maximize their utility function in accordance with financial results and the reduction of risk but also seek to achieve objections that are either non-financial (Chrisman et al., 2004) or of a socio-emotional nature (Gomez-Mejia et al., 2007, 2010). Socio-emotional wealth describes those non-financial features that influence the utility function of family stockholders (Gomez-Mejia et al., 2007, 2010; Cennamo et al., 2012). As observed by Cennamo et al. (2012), socio-emotional wealth includes: (a) the desire to retain family control of an enterprise; (b) the identification of the family with the enterprise; (c) the establishment of lasting relationships with the various stakeholders; (d) the presence of emotional bonds that not only favour trust, loyalty, and motivation but also increase the degree of commitment on the part of family members and workers; and (e) the desire to assure the enterprise's survival.

In its utility function, the family maximizes both socio-emotional wealth and financial wealth given that it is disposed to renounce a part of the latter to preserve the former (Gomez-Mejia et al., 2010). This fact is evidenced in the study by Gomez-Mejia et al. (2007) in which the fear of losing family control of the business causes olive oil producing family businesses to show a lesser preference for participating in cooperatives, despite the financial advantages and reduction of risk offered by those cooperatives. Berrone et al. (2010) show how family businesses protect the family's public image (a constituent element of socio-emotional wealth) by polluting less than other companies, even though there is no economic compensation for doing so.

More specifically, when establishing the relationship between diversification and socio-emotional wealth, Gomez-Mejia et al. (2010) show that family businesses opt for lower levels of diversification because engaging in new activities involves a loss of socio-emotional wealth caused by the need to incorporate new knowledge through hiring new executives in the various businesses, thus reducing the family's influence on the organization. Similar results are found in the study by Gomez-Mejia et al. (2011) in which family businesses have a lesser desire to technologically diversify, given that the incorporation of new stockholders (usually institutional investors or venture capital) has a negative impact on such businesses' stock of socio-emotional wealth (Gomez-Mejia et al., 2010). In summary, there is empirical evidence for the proposition that family businesses diversify less than non-family businesses (Anderson and Reeb, 2003; Mansi and Reeb, 2002; Jones et al., 2008; Gomez-Mejia et al., 2010, 2011; Muñoz-Bullón and Sánchez-Bueno, 2011), with family businesses participating in fewer corporate acquisitions than non-family businesses (Miller et al., 2010).

To sum up, diversification brings with it the need for financial, human, and material resources because diversification makes it necessary both to identify new sources of financing and to hire new personnel and/or external executives. The entry of new agents can damage socio-emotional wealth (Cennamo et al., 2012) when family independence is seen as reduced (Anderson and Reeb, 2003; Claver et al., 2009; Gomez Mejia et al., 2010), thus negatively impacting the control exercised by family members, reducing the identification of the family with the company, and weakening the emotional bonds that promote trust, loyalty, and commitment to the enterprise due to possible conflicts between the family and new external agents (Cennamo et al., 2012).

An enterprise can manage its fundraising policy to influence the impact of diversification on socio-emotional wealth. If a family business uses debt to finance diversification (Thomsen and Pedersen, 2000), it will experience increased financial risk. However, the use of debt will allow the business to maintain control of its resources in family hands, provided the business fulfils the financial commitments stemming from indebtedness, i.e., the payment of principal and interest. Failing to fulfil these commitments would lead to a loss of control over the company's resources, which would be transferred to the financial entity administering the debt, thus negatively impacting the family's socio-emotional wealth. Alternatively, the enterprise can use its own funds—i.e., by issuing stock—to finance its expansion via diversification. Should the family's wealth be insufficient to finance the investment, some of the stock issued will be purchased by non-family partners, which would require the company to make the family's interests compatible with the interests of the new partners. In this situation, the entry of new partners poses a risk to maintaining a company's holdings and control of its resources in family hands over the long term (Arregle et al., 2007); it can also create the appearance of conflicts between family members and non-family members, thus damaging the social system of interpersonal relationships among family members (Pearson et al., 2008) and reducing socio-emotional wealth.

In addition, as anticipated, diversification implicitly admits the need to possess business-specific skills and knowledge that may be lacking among family members (Schulze et al., 2002; Fernández and Nieto, 2006). Diversification is a complex process that requires new routines and methods in the centre of the family business (Eisenmann, 2002), along

with new models of organization (Bhaumik et al., 2010). Successful diversification requires changes in systems of planning and control and in organizational structure (Zahra, 2005), whereas in general, families tend to preserve their ''status quo'' and are usually hesitant to make such changes (Chang et al., 2010). Thus, if a family business diversifies, it must not only incorporate new workers and/or non-family executives but also change its organizational structure, a fact that can negatively impact the familial relationships that are a part of socio-emotional wealth (Gomez-Mejia et al., 2010).

Given all this, family businesses will opt for lower levels of diversification to preserve their socio-emotional wealth (i.e., to retain control of the enterprise, to preserve familial relations, and to avoid the appearance of conflict with non-family members who become part of the company), although this may implicitly include increasing financial risk or declining new investments that would improve the business's economic position and performance (Gomez-Mejia et al., 2010).

In accordance with the theory presented above, the first hypothesis is established:

H1. The familial nature of the business group has a negative impact on the use of diversification.

The moderating effect of the concentration of holdings on the relationship between familial nature and diversification

Whereas the previous section shows that familial nature has a negative impact on the level of diversification, that is, that family businesses diversify less than non-family businesses, in this section we intend to verify whether there are differences in the level of diversification among family businesses related to the level of concentration of holdings. That is, this section answers the following question: Can a greater concentration of holdings in the family group increase the level of diversification? More specifically, can concentration of stockholdings have a moderating effect on the influence of familial nature on the level of diversification? Some studies corroborate the existence of this relationship, showing that elevated levels of concentration in stockholding in a family business lead to increased diversification (Kang, 1999; Bru and Crespi, 2006; Chen and Yu, 2011; George and Kabir, 2012).

In a family business, when there is an elevated degree of concentration of holdings in family hands, the executive team can make decisions that help reduce family risk, although doing so can imply harm to the interests of the minority stockholders (principal–principal agency problem) (Shleifer and Vishny, 1997). The family business can decide to implement a strategy of diversification, using a holding structure that helps make its financial objectives for risk reduction compatible with non-financial objectives that correspond to socio-emotional wealth. In the business group (holding structure), although the grouped companies retain their own independent legal status, their economic autonomy is reduced because they have ceded numerous entrepreneurial operations to the parent company. This can be the source of benefits when there are synergies among the various dependent companies, but it can also be a potential source of conflicts of interest among the members of the group (Khanna and Palepu, 2000; Almeida and Wolfenzon, 2006).

For the family, based on a positive view on diversification, the use of holding structures helps to optimize finances, reduce risks, and facilitate the sharing of resources and capacities among the companies in the group (generating synergies among the various businesses); it also helps the group's parent company to direct, manage, and control the dependent companies (Almeida and Wolfenzon, 2006; Chen and Yu, 2011). By diversifying into new businesses through a holding structure, the risk assumed by the parent company and the family is reduced, which will have a positive influence on the survival of the family business (and thus on its socio-emotional wealth).

However, diversification can be negative (when it is implemented with objectives that do not support synergies among businesses and/or companies), facilitating the expropriation of the wealth of minority stockholders in favour of family stockholders through the use of ''tunnelling'' practices (Faccio et al., 2001; Bertrand et al., 2002) that are more easily established through business holdings (Morck et al., 2005). These practices consist of the family's expropriation of part of the wealth of minority stockholders, transferring of stocks or profits from dependent companies to the parent company or diverting cash flow from some companies to others (Johnson et al., 2000; Aguiar and Santana, 2008).[3]

From the perspective of socio-emotional wealth, concentration of holdings in the family group can have a dual influence on the level of diversification. First, when the level of concentration of holdings in family hands allows it to exercise effective control over the company and its resources, we see the family's wish to preserve socio-emotional wealth (Berrone et al., 2012). In principle, this fact reflects that to the extent that concentration of family ownership (and the family's effective control over the company) increases, the family's interest in diversifying the business group decreases. However, the concept of socio-emotional wealth encompasses the desire for the company's survival and transmission to later generations. The inclusion of the desire for long-term survival within the family group in the analysis leads us to consider that an increased commitment (investment) of family wealth-assets in the business group (through concentration of holdings) significantly increases family risk, a circumstance that can endanger the business's survival. The executive team of a

[3] ''Tunnelling'' practices are usually associated with family businesses, given that they habitually appear to be linked with the principal–principal agency problem (Faccio et al., 2001), with this problem being characteristic of family businesses (Chrisman et al., 2004; Zahra, 2010). However, these practices are usually found in cases in which there is a significant difference, for the controlling stockholder (last holder) between voting rights and cash-flow rights. However, this situation does not exist in the majority of family businesses, in which in practice, the two rights are paired, given the common situation of a high level of concentration of ownership in family hands, thus allowing family members to exercise either majority or absolute control (Aguiar and Santana, 2008).

family business can opt for diversification as a means of both reducing this (personal and business) risk and improving the odds of the business's survival.

Given this dual effect of structure of ownership on diversification, it is worth asking which of these effects predominates. If the family seeks to avoid losing effective control of the business group, or if control is not assured when diversifying, it seems logical to think that the negative effect of familial nature on diversification will predominate. However, if the family has assured its effective control of the business group, and this control is not endangered by diversifying, the attempt to reduce personal and business risk, along with the search for continuity and survival of the family business in family hands, will lead to the strategy of diversification.

The family business will decide what level of diversification will allow it to optimize its utility function through optimizing its components—i.e., financial outcomes and non-financial outcomes (socio-emotional wealth)—such that it will weigh the costs and benefits of diversification related to its utility function. When the benefits stemming from diversification (including the reduction of risk tolerated) are greater than the costs generated (in terms of loss of socio-emotional wealth), the level of diversification will be higher. Conversely, when the costs arising from diversification are greater than the benefits that it generates, the level of diversification will be lower.

As indicated by Gomez-Mejia et al. (2010), there are circumstances in which family businesses can benefit from the advantages of diversification even when diversification negatively impacts socio-emotional wealth. More specifically, the greater the systematic and non-systematic risks, the higher the level of diversification (Gomez-Mejia et al., 2010).[4]

Given what has been stated above, although familial nature negatively impacts the level of diversification, the relationship between the two can be affected by concentration of holdings. When concentration of holdings is elevated in the family group, family agents can opt to increase the size of the company and the number of activities conducted to reduce the risk taken. Thus, as holdings in the family group become concentrated, the propensity to diversify increases, that is, the influence of familial nature on diversification is moderated by the greater percentage of stock held by family members. Thus, the following hypothesis is suggested:

H2. The concentration of holdings has a positive moderating effect on the relationship between familial nature and diversification, with family business groups showing a greater preference for diversification as the level of concentration of holdings increases.

Methodology

Sample and sources of information

This study begins with a sample of enterprises listed on the Spanish stock markets during the 2000–2005[5] period belonging to various sectors of activity, excluding the financial sector and the energy sector. After requiring that the companies in the sample be listed throughout the entire period, and having eliminated the companies that lacked all of the necessary information, the final sample included 99 companies (for 594 observations). To establish the familial nature of the final owner of the parent company listed and thus of the business group, both the Spanish Securities Market Commission (Comisión Nacional del Mercado de Valores—CNMV) (www.cnmv.es) web page and the Iberian Balance Sheet Information System (SABI-Informa database) were used. We occasionally drew on secondary sources of information such as periodicals, the trade press, and the web pages of companies in the sample. Finally, to determine the use of specialization strategies and to calculate the level of diversification (measured according to the corrected Herfindahl index), we used the information provided by the CNMV, identifying those companies that form part of a pyramidal group headed by the listed parent company and complementing this information with that provided in the SABI-Informa[6] database.

Variables

Dependent variables: specialization and diversification

Most studies only consider those activities conducted at the business level to measure the level of diversification (Kang, 1999; Anderson and Reeb, 2003; Gomez-Mejia et al., 2010; Villalonga and Amit, 2006). However, this study considered it more pertinent to analyse both the activities carried out by the business group's parent company and the pyramidal group of companies dependent on the parent. Consideration of the group's activities allows diversification to be measured in a more objective way. Exclusively studying the activities of a group's parent company results in ignoring the activities of the companies that form part of the parent company's global strategy (Chen and Yu, 2011). The levels of diversification obtained in this study will be greater than those that would be obtained if we had only considered the parent company's activities. Annex I shows an example of the differences in the number of activities considered,

[4] Galve and Salas (1994) find, for a sample of listed Spanish family companies, a very significant relationship between non-diversifiable risk and stock concentration. For these companies, the basic hypotheses seem to be fulfilled regarding determinants of concentration of ownership, showing themselves to be highly affected both by the degree of non-diversifiable risk and by the disutility of this risk as the size of the investment increases. The holding structure is suggested as an opportunity to diversify this risk among the final owners of this holding. The lower weighting of risk also reduces the marginal cost of increasing size (via diversification) for a given level of stock concentration.

[5] This period is taken as reference because of various occurrences that began in 2005 (Zozaya, 2007): (a) an atypical 2006 year with a very high number of company mergers and acquisitions (a 45% increase between 2005 and 2006); and (b) a 2007 law regarding public takeover bids of companies that differed from the law that existed during the 2000–2005 period.

[6] Note that for each business group, national companies were considered, including non-national companies whenever that information was available in the SABI-Informa database.

depending on whether the activities correspond to the parent company or to the total group; when one uses the business group as the unit of measure, these activities are considerably more numerous.

The Spanish General Accounting Plan considers as group businesses those companies over which the (listed) parent company exerts or can exert effective control, whether directly or indirectly. A group's businesses are identified in listed parent companies' annual consolidated financial reports, which are provided on the CNMV's web page. Thus, a company is considered a dependent of the listed parent company either if the latter possesses more than 50% of the stock of the dependent company or if it possesses a lower percentage of stock but still has the ability to exert effective control over the dependent company.

Once the companies of the group have been identified, their accounting reports are analysed using the information provided by the SABI-Informa database when the dependent companies are not listed on the exchange. This information enables identification of the activities conducted by each company, using the CNAE 93 Rev. 1 classification.

For the empirical study, qualitative and quantitative measures of diversification are chosen to demonstrate the robustness of results regardless of the measures employed. Thus, the variables considered are as follows:

(a) Specialization: a qualitative dummy variable (SPE), whose value is one when the listed company and its dependent companies carry out the same/single activity and zero in any other situation (i.e., when the company diversifies its activities).
(b) Total diversification: the corrected Herfindahl index is used as a quantitative variable (Montgomery, 1982); this index is one of the most commonly used measures in the literature (Pérez, 1998). The corrected Herfindahl index (HERF) is estimated using the following expression:

$$1 - \sum_{i=1}^{n} S_i^2,$$

where S_i is the market share of segment/activity i compared to the total sales of the group and n is the number of activities of the group. This index includes a relationship with positive diversification, with values close to 0 when the group opts for greater specialization of activities and approaching 1 when the group produces equally in a large number of segments. Activities are considered distinct when they differ in the four digits of the CNAE 93 Rev. 1 classification. To estimate this index, one identifies the level of sales figures and the main activities carried out by both the group's parent company and its dependent companies.

Independent variables: family group and concentration of holdings

With respect to variables of ownership, a significant variety of definitions are used to characterize an enterprise as a family business (Mazzi, 2011). In this study, a group is considered a family group (FAM) when the family (family members) not only possess the most significant (direct or indirect) stake in shares of the parent company of the group but also one or more of family members occupy key positions both in the company's management and on its board, and the company continues to be a family company throughout the study period (Chua et al., 1999; Miller and Le Breton-Miller, 2006). Family members are considered to be those who share the same surname or who constitute a married couple. This definition of family business coincides with the definition of family business proposed by the European Group of Owner Managed and Family Businesses (GEEF), a European association that includes family associations from various countries.

To confirm the correct classification of the groups, the horizontal and vertical chains of ownership were analysed using the methodology proposed by La Porta et al. (1999) and used in later studies (Claessens et al., 2000; Santana and Aguiar, 2006), which allows one to identify both the final owner of the listed parent company and the parent company of the business group; it also enables one to establish the familial nature of the company. A company is considered to have a final owner when its main stockholder directly or indirectly holds a percentage of participation in voting rights that is equal or superior to 10% (La Porta et al., 1999). Identification of the final owner is performed through chains of command. In this way, when the stock of one company is in the hands of another company, one analyses the ownership of the voting rights of the latter by identifying its principal stockholder, and so on until arriving at the final voting-rights owner (Claessens et al., 2000; Santana and Aguiar, 2006).[7] The classification of groups of companies according to the familial nature of the final owner coincides with the previously established method, which considers the participation of the family in stockholding and management, along with the direction of the parent companies of business groups.

Working from the initial sample of 99 enterprises, 58 of which were family businesses in 2000, one sees that eight of those enterprises came to be controlled by non-family agents (13.79%), with the 50 remaining companies remaining under the control of family agents (86.21%). Thus, for the sample analysed, 50 family groups are identified (50.51%).

As variables of concentration of holdings, the study used the percentage of stocks in the hands of the main stockholder (% 1 STOCK), the three main stockholders (% 3 STOCK) and the five main stockholders (% 5 STOCK) of the parent company of the business group (Kang, 1999).[8] For family groups, the values adopted for these variables show a near match with the level of concentration in the hands of family

[7] For example, a family is the main stockholder for company X, for which it has 40% of the voting rights. In turn, this company is the main stockholder of company Y, having 30% of its voting rights. Thus, the family would be the final owner of company Y, for a level of control of 10%, given that it has 30% of the voting rights of company Y (the weakest link of the chain of command: the minimum of 40% and 30%). If, for example, the family also directly possesses approximately 10% of the voting rights of company Y, the family would be the final owner of company Y, in this case holding 40% of its voting rights (10% directly + the minimum of 40% and 30%).

[8] For family business groups, these variables can be likened to the concentration of family ownership, because in most cases the capital in the hands of the five main stockholders belongs to family members when considering the capital in the hands of the main stockholder and/or the three main stockholders.

agents, especially the first two (% 1 STOCK and % 3 STOCK), in which the main stockholder or the three main stockholders coincide with family agents.[9]

Control variables

In line with previous investigations on the subject (Anderson and Reeb, 2003; Gomez-Mejia et al., 2010; Chen and Yu, 2011), the following control variables were considered for the study of diversification. First, we considered variables related to the achievement of synergetic effects on costs, sales, or risks: ''Size of the parent company'', which is measured through a logarithm of the total assets of the listed company (LN SIZE); ''Age'', that is, the number of years since the creation of the listed company expressed in logarithm form (LN AGE); ''Indebtedness'', measured as the quotient of total debt and the total stock of the listed parent company (DEBT); ''Intensity of capital'', measured as the quotient of the sum of immobilized material and immaterial capital and the number of workers (INT CAPIT); ''Investment in intangibles'', which expresses the investment effort in new technologies made on the part of the listed parent company, as measured through the relation of intangible stocks to total stocks (INTANG). Second, we considered variables related to the use of the strategy of diversification that could lead to harm against minority stockholders: ''Difference existing between the economic profitability of the enterprise in comparison to the average economic profitability per year for companies in the sample'' (PR-PR YEAR),[10] for analysing the incentives for stockholders to supervise the executive team in the decision-making process (a major difference in favour of the enterprise implies lower discontent by the stockholders with their investment and thus, a lower need for the executive team to implement diversification strategies to achieve close-to-average profitability and to avoid conflict, guaranteeing their place in company management)[11]; ''Structural change in the company listed'', which is measured through a dummy variable that takes the value of 1 when some structural change has taken place in the listed company and 0 in any other case (SCD. This final variable allows one to control those listed companies that participated in processes of mergers and/or acquisition during the 2000–2005 period, given that this could represent a significant change in a company's diversification strategy and thus change its levels of diversification.

Econometric techniques

To compare the two hypotheses formulated, and with the purpose of assuring the robustness of the results obtained, we perform a dual analysis as a function of the qualitative and quantitative character of the dependent variable that measures diversification. First, diversification is represented through the dummy variable ''Specialization'', using a binary logistic regression model. In this case, the absence of the existence of multicollinearity (Menard, 2002) and the validity of the models are shown through estimation of the likelihood ratio, Cox and Snell's R^2, Nagelkerke's R^2, and the Hosmer–Lemeshow test, using the program SPSS 15.0.

Second, diversification is measured through the corrected Herfindahl index for quantitative-type variables. In this case, to estimate the impact of family control on diversification, two models are offered: a simpler model of ordinary least squares (OLS) and a second, more advanced Heckman selection model.

When using the Heckman selection model, one implicitly considers that the diversification strategy involves two types of decisions: first, if one opts for diversifying or specializing activities; and second, if one diversifies, the extent to which one diversifies. If one estimates the model by OLS either using all observations or using only the observations in which the group diversifies (does not specialize), it is possible to obtain biased and inconsistent estimators (Heckman, 1979; Maddala, 1983). To correct this bias, one applies a Heckman selection model[12] (1979) for simultaneously addressing the determinants of the decision to diversify and the decision about the level of diversification. The model consists of two steps: in the first step, a Probit model is estimated for maximum likelihood, in which the influence of independent variables on the decision to diversify is analysed; in the second step, based on the estimates provided by the first step, the model analyses the influence of the independent variables on the truncated dependent variable, that is, on the level of diversification.

In this study, the Probit model is estimated in the first step, in which the endogenous variable is the dummy variable Diversification (1 for diversification, 0 for specialization) and the independent variables are those considered in the OLS model together with a new variable, the rate of sales growth for the year.[13] At this step, one calculates the Mills Lambda corresponding to the decision to diversify (λ_{div}), which is incorporated in the second step as one more

[9] Although in analysing the concentration of ownership of the five stockholders (% 5 STOCK) non-family members may be included, as is observed in the results obtained later in the econometric models, their relevance is limited; we arrive at the same conclusions regardless of the variable of concentration of ownership used in the econometric models.

[10] An alternate variable would be Tobin's *q*, a measure of profitability in terms of the market that would reflect the expectations of investors with respect to the business group headed by the parent company listed. However, given that the volume and frequency of stocks contracting in the market for all listed parent companies is low, the use of Tobin's *q* does not express the reality of these companies; it is more appropriate to use the differences in profitability used in this study. It is normal for the literature to include variables that consider a company's profitability (Chen and Yu, 2011; Ducassy and Prevot, 2010; Gomez-Mejia et al., 2010).

[11] Analogously, a greater negative difference would imply the stockholders' greater discontent with the executive team and increase their supervision of the team. The executive team would opt for greater levels of diversification to move company profitability toward the average profitability of the market, thus avoiding demotion or termination.

[12] Given that the values of the dependent variable for the corrected Herfindahl index are between 0 and 1, the use of a Tobit model was also evaluated, although the result for the likelihood ratio statistic comparing the Tobit model with the Heckman model suggests that the latter is more appropriate.

[13] This variable is included to avoid problems of multicollinearity in the application of the two-step Heckman model (Achen, 1986).

Table 1 Percentage of specialized companies and annual average diversification of business groups in the 2000–2005 period related to the familial nature of the final owner.

	2000	2001	2002	2003	2004	2005	Total
Specialization (%)							
Family	34.00%	40.00%	36.00%	38.00%	36.00%	28.00%	35.33%
Non-family	14.29%	10.20%	12.24%	12.24%	14.29%	10.20%	12.24%
Total	24.24%	25.25%	24.24%	25.25%	25.25%	19.19%	23.91%
Corrected Herfindahl index (mean)							
Family	0.219	0.230	0.234	0.234	0.237	0.246	0.233
Non-family	0.339	0.345	0.366	0.381	0.384	0.374	0.365
Total	0.278	0.287	0.299	0.306	0.310	0.309	0.298

Source: Author.
$N = 99$ listed parent companies.

Table 2 Differences in means of the main variables of the study related to the familial nature of the final owner.

	Family ($n = 300$) Mean	Non-family ($n = 294$) Mean	*T*-Student	*U*-Mann Whitney
Corrected Herfindahl index	0.233	0.365	−5.765***	−6.552***
% 1 STOCK	41.74%	27.97%	6.904***	−8.672***
% 3 STOCK	59.47%	43.03%	8.608***	−8.259***
% 5 STOCK	65.96%	48.36%	9.217***	−8.252***
LN SIZE	11.46	12.45	−8.071***	−7.790***
LN AGE	3.59	3.66	−1.192	−2.545**
DEBT	0.37	0.39	−1.244	−1.244
INTANG	0.025	0.034	−1.252	−3.011***
PR-PR YEAR	−0.006	0.006	−2.025**	−0.836
INT CAPIT	4.56	4.84	−1.763*	−0.671
SCD	18%	27%	−2.506**	−2.498**

* $p < .10$.
** $p < .05$.
*** $p < .01$.

variable for the model and helps correct possible selection bias due to diversification (Greene, 1999). We also propose a second possible selection bias, which arises from considering companies' family or non-familial holdings as an exogenous datum (Demsetz and Lehn, 1985). Thus, in prior models calculated at the second step (determination of the level of diversification) one includes the lambda λ_{fam} as the explicative variable. This variable is estimated using a Probit model whose dependent variable is the familial nature of the group; the independent variables are the dichotomous variables of the sector, the size of the business, and the cost of the debt as a measure of risk (Galve and Salas, 2011). The econometric program STATA 10.1 (provided by StataCorp LP) was used to estimate the models.

Although there is a panel of 99 companies over 6 years, any unobservable heterogeneity has been corrected, and the company effect has been considered, panel data methodologies were not used for two reasons: (a) a panel data logistic regression only considers those business groups that vary in diversification strategy during the period and cannot estimate the effect of the invariant variables over time (familial nature); and (b) because the values of the corrected Herfindahl index vary between 0 and 1, the use of panel data Tobit models would be necessary, although these models cannot be estimated in the presence of fixed effects.[14]

Results and discussion

Table 1 shows that approximately 24% of the groups analysed opt to specialize their activities, although there are clear differences according to whether the final owner is a family agent. Thirty-five point thirty-three percent of family groups opt for specialization, compared to 12.24% of non-family groups. In general terms, the percentage of specialized enterprises remains constant during the 2001–2004 period, with the percentage of specialized enterprises diminishing in 2005. Table 1 also shows the annual means of the corrected Herfindahl index for the familial nature of the final owner. It can be seen that family groups present lower values, both for the entire period and for each of the years

[14] STATA does not allow for estimating Tobit panel data models with fixed effects. Although one could make an approximation using semi-parametric estimations (Honore and Kyriazidou, 2000), this methodology is still being developed.

analysed, in agreement with the results obtained regarding specialization.

Table 2 shows the mean values of the variables of the model, along with the existence of differences between the groups under family control compared to the other groups. First, the differences in the level of diversification observed in Table 1 are significant, supporting lower diversification of groups under family control. We also see a greater concentration of holdings in the listed parent companies under family control for all of the measures employed (i.e., the percentage of stock in the hands of the main, three main, and five main stockholders). With respect to the rest of the variables, the parent companies of family groups are less intensive in productive capital, are smaller in size, and participated in fewer merger-and-acquisition processes. However, one can also see the absence of significant differences in age, in investment in intangibles, and in indebtedness among family parent companies and non-family parent companies (Anderson and Reeb, 2003; Ducassy and Prevot, 2010; Chen and Yu, 2011). Conversely, and with respect to the mean scatter of the results, ''profitability of company investment compared to the average profitability of companies from the sample'', significant differences were observed between family and non-family groups (with the difference in value being minimal) such that family parent companies obtained worse results. This finding can confirm that in some cases, family groups are ready to sacrifice financial performance for preservation of their socio-emotional wealth.

Table 3 shows the existing correlations among the different variables of the model along with their mean, minimum, and maximum values. Family groups show a positive correlation with specialization and a negative relationship with the level of diversification, corroborating previous results. Moreover, familial nature shows a positive relationship with the variables of concentration of holdings and a negative relationship with the size of the listed company, age, investment in intangibles, and participation in merger-and-acquisition processes. In turn, the variables that express concentration of holdings have a positive relationship with the use of strategies of specialization and a negative relationship with the corrected Herfindahl index. Regarding the variables for specialization and the corrected Herfindahl index, the correlation data reflect that specialization has an inverse relationship with size, indebtedness, investment in intangibles, and participation in merger-and-acquisition processes. However, for the corrected Herfindahl index, there is a positive relationship with size, indebtedness, and participation in merger-and-acquisition processes; there is a negative relationship with the spread of the company's economic profitability compared to the mean of the sample for the year and the intensity of capital.

As noted in 'Econometric techniques' section, in analysing the influence of family control on diversification—and to guarantee the robustness of the results obtained regardless of the measure of diversification used—a binary logistic regression is chosen when the qualitative dependent variable is ''Specialization'' (Table 4), and OLS (Table 5) and the Heckman selection method (Table 6) are chosen when the quantitative dependent variable corresponds with the corrected Herfindahl index.

Table 3 Correlations between the variables of the study.

	Mean	Minimum	Maximum	SPE	HERF	FAM	% 1 STOCK	% 3 STOCK	% 5 STOCK	LN SIZE	LN AGE	DEBT	INTANG	PR-PR YEAR	INT CAPIT	SCD
SPE	0.239	0	1	1												
HERF	0.298	0	0.901	−0.744**	1											
FAM	0.505	0	1	0.271**	−0.269**	1										
% 1 STOCK	0.349	0.006	0.993	0.113**	−0.157**	0.356**	1									
% 3 STOCK	0.513	0.006	0.993	0.194**	−0.244**	0.339**	0.889**	1								
% 5 STOCK	0.572	0.006	1	0.234**	−0.256**	0.339**	0.788**	0.967**	1							
LN SIZE	11.954	7.977	15.751	−0.524**	0.397**	−0.320**	−0.120*	−0.104*	−0.132**	1						
LN AGE	3.625	0.693	4.863	−0.008	0.015	−0.105*	0.005	0.035	0.071	−0.014	1					
DEBT	0.379	0.001	0.958	−0.086*	0.106*	−0.052	0.031	0.067	0.068	0.467**	0.118**	1				
INTANG	0.029	0.000	0.662	−0.245**	0.027	−0.124**	−0.051	−0.026	−0.028	0.023	−0.027	0.104*	1			
PR-PR YEAR	0.000	−0.354	0.367	0.019	−0.300**	−0.035	0.008	0.065	0.110**	0.029	0.101*	−0.111**	0.123**	1		
INT CAPIT	4.698	0.287	11.385	0.105*	−0.095*	−0.028	0.232**	0.219**	0.164**	0.175**	0.005	0.119**	0.105*	0.012	1	
SCD	0.223	0	1	−0.290**	0.356**	−0.103*	0.145**	0.092*	0.038	0.580**	−0.034	0.203**	0.044	0.003	0.099*	1

Note: Quantitative variables: Pearson correlation index. Qualitative variables: Spearman correlation index.
* The correlation is significant at the 0.05 level (bilateral).
** The correlation is significant at the 0.01 level (bilateral).

Table 4 Logit regression: the influence of family control on specialization.

	Specialization						
	(1) β-coef (Wald)	(2) β-coef (Wald)	(3) β-coef (Wald)	(4) β-coef (Wald)	(5) β-coef (Wald)	(6) β-coef (Wald)	(7) β-coef (Wald)
FAM	0.508*	0.360	0.291	0.280	0.969**	1.804**	1.768**
	(3.152)	(1.467)	(0.935)	(0.852)	(4.250)	(6.362)	(4.445)
% 1 STOCK		1.121*			2.220**		
		(3.216)			(6.494)		
% 3 STOCK			1.607**			2.918***	
			(6.019)			(11.381)	
% 5 STOCK				1.606**			2.703***
				(6.066)			(9.635)
% 1 STOCK * FAM					−1.846*		
					(2.924)		
% 3 STOCK * FAM						−2.870**	
						(5.505)	
% 5 STOCK * FAM							−2.519*
							(3.635)
LN SIZE	−1.371***	−1.376***	−1.347***	−1.337***	−1.400***	−1.397***	−1.392***
	(80.391)	(78.844)	(75.660)	(74.935)	(81.383)	(79.908)	(77.754)
LN AGE	0.415*	0.433*	0.440*	0.420*	0.457**	0.449*	0.418*
	(3.375)	(3.597)	(3.713)	(3.392)	(3.906)	(3.714)	(3.249)
DEBT	3.364***	3.501***	3.379***	3.300***	3.489***	3.343***	3.354***
	(22.922)	(21.851)	(19.700)	(18.522)	(21.796)	(19.833)	(19.681)
INTANG	0.970	1.471	1.778	1.817	1.836	2.603	2.662
	(0.370)	(0.812)	(1.088)	(1.093)	(1.190)	(2.203)	(2.183)
PR-PR YEAR	1.448	1.780	1.487	1.177	1.579	1.121	0.857
	(0.726)	(1.802)	(0.758)	(0.474)	(0.836)	(0.422)	(0.247)
INT CAPIT	0.218***	0.160**	0.143*	0.162**	0.153**	0.130*	0.143**
	(10.187)	(4.575)	(3.726)	(5.194)	(4.199)	(3.019)	(3.882)
SCD	−1.838*	−2.076*	−2.181**	−2.154**	−2.057*	−2.042*	−1.988*
	(3.084)	(3.829)	(4.244)	(4.163)	(3.782)	(3.743)	(3.556)
CONSTANT	10.258***	10.259***	9.615***	9.422***	10.117***	9.552***	9.498***
	(33.934)	(32.922)	(28.556)	(27.210)	(32.073)	(27.940)	(27.228)
Hosmer Lemeshow	10.642	13.837	11.499	5.778	13.558	10.288	8.313
Likelihood ratio	375.002	371.790	368.883	368.792	368.909	363.309	365.097
Chi-square	238.760***	241.972***	244.879***	244.696***	244.852***	250.452***	248.665***
R^2 Cox and Snell	0.345	0.349	0.352	0.352	0.352	0.359	0.357
R^2 Nagelkerske	0.520	0.256	0.531	0.531	0.531	0.541	0.538
Correctly classified	85.6%	86.9%	85.8%	86.0%	86.3%	85.5%	85.6%

* $p < .10$.
** $p < .05$.
*** $p < .01$.

Table 4 presents the results of the various binary logistic models that explain the influence of a group's familial nature on specialization without considering the variables for concentration of holdings (model 1), considering the variables of concentration of holdings (models 2–4), and considering the moderating effect of the concentration of holdings in the relationship between familial nature and diversification (models 5–7). In all of these models, the nonexistence of multicollinearity between the independent variables of the models is shown (the Variance Inflation Factor, VIF, is lower than 10).

In model 1, the positive influence of familial nature on specialization is confirmed. However, in including the variables for the concentration of holdings in the model (models 2–4), the positive effect of concentration of holdings acquires a greater importance in the adoption of specialization strategies than does the family nature of the group itself. Finally, in considering the moderating effect of the concentration of holdings in the relationship between familial nature and diversification (models 5–7), the results show that familial nature and concentration of holdings favour specialization (fulfils H1). Furthermore,

Table 5 The influence of family control on diversification (Herfindahl): Ordinary Least Squares.

	Diversification						
	(1) β-coef	(2) β-coef	(3) β-coef	(4) β-coef	(5) β-coef	(6) β-coef	(7) β-coef
FAM	−0.063***	−0.048**	−1.80*	−0.432*	−0.172***	−0.275***	−0.198***
	(−2.81)	(−2.10)	(−1.72)	(−1.90)	(−4.97)	(−5.60)	(−2.86)
% 1 STOCK		−0.113**			−0.288***		
		(−2.56)			(−5.12)		
% 3 STOCK			−0.158***			−0.319***	
			(−3.47)			(−6.07)	
% 5 STOCK				−0.141***			−0.234***
				(−3.10)			(−4.37)
% 1 STOCK * FAM					0.362***		
					(4.65)		
% 3 STOCK * FAM						0.449***	
						(5.29)	
% 5 STOCK * FAM							0.269**
							(2.43)
LN SIZE	0.064***	0.061***	0.058***	0.058***	0.065***	0.065***	0.063***
	(7.85)	(7.32)	(6.73)	(6.67)	(8.00)	(7.71)	(7.09)
LN AGE	0.035**	0.035**	0.036***	0.038***	0.036***	0.043***	0.044***
	(2.54)	(2.57)	(2.65)	(2.71)	(2.76)	(3.22)	(3.14)
DEBT	−0.148***	−0.142***	−0.123**	−0.120**	−0.144***	−0.127**	−0.129**
	(−2.98)	(−2.88)	(−2.47)	(−2.38)	(−2.94)	(−2.59)	(−2.56)
INTANG	−0.397***	−0.418***	−0.425***	−0.425***	−0.467***	−0.523***	−0.490***
	(−5.07)	(−5.02)	(−5.05)	(−5.12)	(−6.00)	(−6.02)	(−5.44)
PR-PR YEAR	−1.130***	−1.111***	−1.078***	−1.061***	−1.048***	−1.011***	−1.023***
	(−8.37)	(−8.30)	(−8.06)	(−7.92)	(−7.77)	(−7.55)	(−7.65)
INT CAPIT	−0.027***	−0.023***	−0.022***	−0.023***	−0.022***	−0.020***	−0.023***
	(−5.36)	(−4.28)	(4.14)	(−4.58)	(−4.31)	(−4.01)	(−4.38)
SCD	0.116***	0.132***	0.137***	0.132***	0.118***	0.116***	0.118***
	(3.71)	(4.16)	(4.24)	(4.09)	(3.86)	(3.77)	(3.77)
CONSTANT	−0.423***	−0.379***	−0.318***	−0.320***	−0.383***	−0.367***	−0.355***
	(−3.72)	(−3.26)	(−2.66)	(−2.64)	(−3.37)	(−3.08)	(−2.88)
F-Value	36.83***	34.98***	35.87***	35.20***	36.71***	36.76***	32.96***
R^2	0.3600	0.3685	0.3745	0.3716	0.3921	0.4035	0.3828
R^2-adjusted	0.3448	0.3524	0.3585	0.3555	0.3755	0.3871	0.3659
N	564	564	564	564	564	564	564

* $p < .10$.
** $p < .05$.
*** $p < .01$.

different behaviour within the collective of family businesses is shown: those family parent companies with more concentrated holdings specialize less than those with less concentrated holdings. The results are consistent regardless of the measure of holdings concentration used: capital in the hands of the group's main stockholder (model 5), the three main stockholders (model 6), and/or the five main stockholders (model 7). The existence of a moderating effect of the concentration of holdings on the relationship between specialization and familial nature is confirmed (i.e., it fulfils H2), showing that family control favours the specialization of activities in a business group (Anderson and Reeb, 2003; Gomez-Mejia et al., 2010).

In conclusion, the size of the company and the participation of the company in merger-and-acquisition processes have a negative relationship with the strategy of specialization (results similar to those obtained by Anderson and Reeb (2003), Gomez-Mejia et al. (2010) and Miller et al. (2010)). The variables from the models explain between 35 and 53% (approximately) of the variability of the model, correctly classifying approximately 85.6% of the cases. All of the regressions pass the Hosmer–Lemeshow test, confirming the validity of the models.

Tables 5 and 6 show the results corresponding to the regressions of OLS and the two-step Heckman method for the corrected Herfindahl index. In the two-step Heckman

Table 6 The influence of family control on diversification (Herfindahl): two-step Heckman.

	Diversification Heckman (second stage)						
	(1) β-coef	(2) β-coef	(3) β-coef	(4) β-coef	(5) β-coef	(6) β-coef	(7) β-coef
FAM	−0.024	−0.001	0.006	−0.004	−0.182***	−0.326***	−0.265**
	(−0.82)	(−0.01)	(0.21)	(−0.12)	(−3.77)	(−4.58)	(−2.20)
% 1 STOCK		−0.131**			−0.363***		
		(−2.18)			(−4.78)		
% 3 STOCK			−0.166***			−0.404***	
			(2.62)			(−5.24)	
% 5 STOCK				−0.115**			−0.288**
				(−2.05)			(−1.98)
% 1 STOCK * FAM					0.552***		
					(−4.75)		
% 3 STOCK * FAM						0.667***	
						(5.14)	
% 5 STOCK * FAM							0.467**
							(2.40)
λ_{div}	−0.225***	−0.303***	−0.296***	−0.283***	−0.293***	−0.287***	−0.265***
	(−2.77)	(−3.24)	(3.10)	(−3.07)	(−3.30)	(−3.26)	(−2.94)
λ_{fam}	−0.092*	−0.090*	−0.097*	−0.100	−0.037	−0.032	−0.061
	(−1.87)	(−1.65)	(−1.80)	(−1.83)	(−0.77)	(−0.67)	(−1.26)
LN SIZE	−0.019	−0.027	−0.026	−0.022	−0.032	−0.028	−0.019
	(−0.72)	(−1.04)	(−1.06)	(−0.92)	(−1.28)	(−1.15)	(−0.77)
LN AGE	0.067***	0.067***	0.068***	0.070***	0.065***	0.075***	0.079***
	(3.73)	(3.80)	(3.62)	(3.62)	(3.79)	(4.43)	(4.49)
DEBT	0.125	0.131	0.131	0.124	0.078	0.058	0.058
	(1.36)	(1.45)	(1.38)	(1.32)	(0.89)	(0.67)	(0.66)
INTANG	−1.388***	−1.319***	−1.241***	−0.125***	−1.268***	−1.159***	−1.208***
	(−4.44)	(−4.25)	(−4.20)	(−4.19)	(−4.23)	(−3.88)	(−3.94)
PR-PR YEAR	−1.376***	−1.314***	−1.293***	−1.312***	−1.266***	−1.267***	−1.293***
	(−8.00)	(−7.65)	(−7.21)	(−7.10)	(−7.55)	(−7.68)	(−7.59)
INT CAPIT	−0.013	−0.009	−0.009	−0.012	−0.003	−0.004	−0.010
	(−1.55)	(−1.09)	(−1.17)	(−1.46)	(−0.37)	(−0.52)	(−1.29)
SCD	0.084**	0.106***	0.106***	0.096***	0.093***	0.094***	0.086**
	(2.37)	(2.89)	(2.92)	(2.66)	(2.62)	(2.69)	(2.43)
CONSTANT	0.529*	0.636**	0.668**	0.616**	0.716***	0.698***	0.599**
	(1.90)	(2.31)	(2.41)	(2.30)	(2.69)	(2.68)	(2.26)
F-Value	10.85***	10.83***	12.38***	11.19***	12.26***	12.92***	11.43***
R^2	0.3517	0.3669	0.3734	0.361	0.4115	0.4243	0.3946
R^2-adjusted	0.3193	0.330	0.3398	0.330	0.3780	0.3915	0.3601
N	316	316	316	316	316	316	316

* $p < .10$.
** $p < .05$.
*** $p < .01$.

model, the results of the second step are presented along with the Mills Lambda values; this is done both for possible selection bias due to diversification (λ_{div}) and for the endogeneity of family control (λ_{fam}).[15]

First, the conclusions derived from the OLS regressions (see Table 5) coincide with those obtained when employing binary logistic regression (see Table 4). The familial nature of the company reduces the level of diversification of the group, with a positive moderating effect of concentration of holdings on the influence of familial nature on diversification. In the family group, a greater proportion of capital in the hands of the main, three main, and five main stockholders increases the level of diversification.

However, there may exist a possible selection bias for two reasons: (1) one first decides whether to specialize or diversify; and (2) later on, the company adopts a particular level of diversification. Thus, Table 6 shows the

[15] It was decided not to present the Probit model from the first step of the Heckman model because the results obtained are analogous to the results of the Logit model presented in Table 4.

two-stage Heckman model, also taking into account the possible endogenous nature of family ownership and thus guaranteeing the robustness of the results obtained previously. The first relevant finding is that the Mills Lambda corresponding to diversification (λ_{div}) is significant, indicating the existence of bias and justifying the use of the Heckman model. The Mills Lambda corresponding to familial nature (λ_{fam}) is not significant (in models 1–3, their significance is weak) and therefore the familial nature group is not affected by problems of endogeneity.

Model 1 shows that familial nature does not initially influence the level of the group's diversification, a result that is maintained upon introducing the variables corresponding to concentration of holdings (models 2–4). If one considers the moderating effect of the concentration of holdings (models 5–7), family groups opt for lower levels of diversification (i.e., H1 is fulfilled), also verifying that the greater the concentration of holdings in the family group (in the three variables analysed), the greater the levels of diversification (i.e., H2 is fulfilled). In other words, there is a positive moderating effect of concentration of holdings on the influence of familial nature on diversification. These results coincide with those obtained previously in Table 5 and are analogous to those shown in Table 4, which showed a negative moderating effect of familial nature on specialization. With respect to the control variables, the age of the listed parent company and its participation in merger-and-acquisition processes increases the diversification of the business group. Meanwhile, greater investment in intangible assets and greater differences between the economic profitability of the parent company and the economic profitability for the year reduce the level of diversification. In short, the hypotheses established in the study are fulfilled regardless of the methodology utilized (binary logistic regression, OLS, and two-step Heckman), and the robustness of the results obtained is guaranteed.

In conclusion, the results of the econometric models show that familial nature favours the adoption of specialization strategies, presenting lower levels of diversification than for non-family groups[16]; the concentration of holdings existing in the family group has a relevant impact. The participation of the family in stockholding, management, and direction of the parent company reduces the principal-agent agency problem (Fama and Jensen, 1983), thus reducing the level of diversification compared to those groups in which the concentration of holdings is lower and executives possess greater decision-making power (Goranova et al., 2007). As proposed by Gomez-Mejia et al. (2007, 2010, 2011), diversification can damage socio-emotional wealth in bringing with it the need for new resources (human, financial, and material), thus leading to hiring personnel and agents from outside the family and reducing family independence. Diversification can also require skills, knowledge, and intangibles that the family lacks (Schulze et al., 2002; Fernández and Nieto, 2006), leading to lower levels of diversification.

[16] It is worth noting that the authors conducted the same study using the Entropy index as a measure of the degree of diversification (Jacquemin and Berry, 1979; Palepu, 1985) and arrived at the same conclusions as those derived from Table 5.

However, the existence of a positive moderating effect of the concentration of holdings on the influence of familial nature on diversification is shown, given that a greater concentration of holdings in the family group favours diversification. When the degree of concentration of holdings is large (and thus the risk tolerated by the company is also large), the family will opt for a higher level of diversification both to reduce family and business risk and to guarantee the survival of the business group, a constitutive element of socio-emotional wealth. This fact can create an agency problem between the family and minority stockholders (Morck, 2005), in which case diversification may be more responsive to the majority stockholder's interests than to the search for synergies among the various businesses and companies that form part of the family holdings. Opportunism and expropriation of minority stockholder assets will be more likely when there is a significant divergence between cash-flow rights and the voting rights of the stockholder–final owner (Shleifer and Vishny, 1997). This situation is not very common among the set of Spanish family companies (Aguiar and Santana, 2008) as it is among the family companies of the sample studied (see Table 2).

The results coincide not only with those obtained by Muñoz-Bullón and Sánchez-Bueno (2011) for a sample of companies from countries from the European Union with which Spain shares institutional framework aspects but also with those from the study by Chen and Yu (2011) for Taiwan, a country characterized by a weak institutional framework. However, the lower level of diversification of family groups and the positive influence of the concentration of family ownership on diversification also appear in the United States (Anderson and Reeb, 2003; Gomez-Mejia et al., 2010; Miller et al., 2010). It appears that the effect of family control on diversification is retained in various contexts, including institutional settings with greater protection of stockholders in which conflict between majority and minority stockholders is less relevant (Peng, 2003). However, one must remember that this study uses the business group—not the business itself—as its unit of analysis, and it does not include any institutional variables in the models.

That notwithstanding, in those cases in which the ownership of the business group is almost entirely controlled by family members, the greater degree of diversification could not be explained by ''tunnelling'' practices but instead by the search for the preservation of socio-emotional wealth over the long term by reducing business and family risk through diversification (Gomez-Mejia et al., 2010).

Conclusions

The study is a new contribution to understanding the relationship between structure of ownership and diversification from the perspective of agency theory, complemented by the concept of socio-emotional wealth. This study analyses the influence of familial nature as a determinant of diversification in large business groups in Spain whose parent companies are listed on the stock exchange, along with the moderating effect of the concentration of holdings in family businesses with respect to level of diversification.

The results confirm the major presence of family groups within Spanish stock markets. With respect to the

relationship between ownership structure and level of diversification, the study shows how the familial nature of a business group reduces the level of diversification, with a positive influence on specialization of activities; however, concentration of holdings plays an important role. One can note the moderating effect of the concentration of holdings that is manifested in a greater preference for diversification in those family groups that have a higher degree of concentration of holdings.

The academic implications of this research are varied. First, the use of the business group as the unit of analysis of the level of diversification allows for measures of diversification to more adequately reflect the corporate strategy of the parent company and facilitates the identification of strategies adopted by family agents. In Spain, groups of family companies are quite common (Aguiar and Santana, 2008), although they have not been sufficiently analysed from the family-business perspective. Families that are inclined to use business holdings structures make decisions about companies together and not individually, evaluating the consequences of those decisions on the group in which they have invested their assets. For the family, the business group can be established as a substitute for the market, principally in those countries characterized by weak institutions and poorly developed civil law and markets, such that the business group can allow the family to satisfy its need to obtain financing and to overcome the inefficiencies of the market (Guillén, 2000). For this reason, if one wishes to understand and better analyse the behaviour of family agents and the strategies that they use, one should analyse the group of companies and not simply the parent company because to do otherwise would be to ignore a large portion of the activities of business holdings.

Second, and unlike previous research focused on the relationship between stockholder spread and diversification, this study contributes new evidence for the case of Spain with respect to the effect of the familial nature of a controlling shareholder on diversification strategies. Finally, this study adds new findings for Spain, a country whose legal system is based on civil law and that has a weaker institutional framework and regulatory structure (in terms of protection for minority stockholders) compared to English-speaking countries. In this context, where the concentration of holdings is greater, it is likely that conflicts may arise between majority stockholders (i.e., families) and minority stockholders when diversification strategies are implemented that are more responsive to the controlling shareholder's needs than to the search for synergies among the businesses and/or companies that form part of the holding structure.

Academic and practical implications

This study has implications not only for academics but also for business practice in general and in the area of family business in particular. The results show that families participate significantly in stock markets, a fact that can be evaluated by market investors given that the familial nature of the group in which they participate has a dual effect on diversification strategies and affects business outcomes.

Standing alone, the familial nature of a business can result in its avoidance of investment and activities within the business group that can harm minority stockholders, as can occur in enterprises in which ownership is spread out and managerial discretion is greater. Likewise, a family's preservation of socio-emotional wealth can lead to a renunciation of new activities that could endanger the business group's survival. Both aspects would be evaluated positively in stock markets, creating a positive image of both the business group and the family. However, an elevated concentration of holdings in a family business can lead to conflicts between majority and minority stockholders, leading to an effort to satisfy the family's needs to the detriment of the minority stockholders (placement of unqualified family members, inefficient investments, expropriation of the wealth of minority stockholders, etc.), such that the family group transmits a negative public image. In addition, the desire to maintain socio-emotional wealth can lead to the rejection of new projects and/or investments that would lead to improved group results.

In light of the above observations, this study also makes contributions relevant to family group executives. When managing a business, the family must incorporate independent external executives that will help them in the diversification process though the selection of projects and the realization of new activities that provide a legitimate contribution to value creation for the family group, not as a consequence of opportunistic behaviour. The establishment of a code or set of guidelines in the family protocol that avoid opportunistic behaviours on the part of the family will prevent investments that are harmful to the survival of the family business. In both cases, this will contribute not only to the creation of a brand image for both the business group and the family but also to obtaining the trust of the market.

Limitations and future lines of investigation

Obviously, this study has a series of limitations that could give rise to future lines of investigation. Given that this study presents the variable for specialization and the corrected Herfindahl index, it would be worth using other measures of diversification such as indices of entropy of related and non-related diversification (Jacquemin and Berry, 1979; Palepu, 1985). An in-depth study of types of diversification (related and non-related) would provide a better view of the global strategy of business groups and of the possible differences between family groups and non-family groups. Family groups will adopt strategies that allow them to optimize their performance while maintaining socio-emotional wealth (Gomez-Mejia et al., 2010; Berrone et al., 2012). In the literature, one can see family businesses' preference for adopting strategies of related diversification (Kang, 1999; Bru and Crespi, 2006; Gomez-Mejia et al., 2010), given that non-related diversification results in higher costs, greater uncertainty, and a greater need for financial resources. Family businesses are more likely to opt for this growth strategy to avoid the loss of family control (Miller and Le Breton-Miller, 2009) and the consequent harm to their socio-emotional wealth. Given the above, a line of research could arise to provide a deeper exploration of the relationship between family control and type of diversification.

One also sees the importance of analysing the nature of the non-family final owner, or whether there has been

a change in the nature of the final owner. One could distinguish among various groups—family, foreigners, a controlling financial institution, investment funds, and wide dispersion in ownership—and analyse whether family groups are differentiated from all non-family groups or whether the two could share certain characteristics.

In future research, it will be necessary to conduct a further exploration of the relationship between measures of performance and productivity according to ownership structure and diversification strategy, looking at the nature of the final owner, whether it is a family business or a non-family owner. The existing studies are very few (Kang, 1999; Anderson and Reeb, 2003; Gomez-Mejia et al., 2010) and more research is needed.

Another limitation of this study is that its results are applicable to large business groups whose parent companies are listed on the market, and it cannot be generalized to those groups or family companies that are not listed and/or that are smaller in size. Thus, another line of research would explore what happens to smaller enterprises and business groups with a higher degree of concentration of holdings and the possible differences between family and non-family companies and groups.

It would be interesting to analyse the influence of the presence of the founder and/or the current generation in the family group upon the adoption of diversification strategies or specialization. As noted by Gomez-Mejia et al. (2007), the desire to preserve socio-emotional wealth varies according the generation directing the company: if the founder directs the company, the desire to preserve socio-emotional wealth will be greater than in those companies whose ownership is spread among family members of later generations, such as children and groups of cousins. Thus, depending on the spread of family ownership to children and groups of cousins, one could foresee an increase in the adoption of diversification strategies compared to those groups in which the founder is present. Those latter groups will be more reluctant to adopt diversification strategies that could endanger their survival.

Finally, it would be interesting to conduct a more detailed analysis of the ownership structure of family groups, studying the presence of other stockholders participating in the family group with important participation in capital, with the aim of analysing their influence on strategic decision making (Jara-Bertin et al., 2008; Sacristán-Navarro et al., 2011) that affects both the degree of diversification and company performance. The characteristics of the board of directors and company executives, the presence of external independent executives, and the greater or lesser presence of family member on boards (Minichilli et al., 2010) are factors that could affect diversification strategies, all of which would need to be controlled in future studies.

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Annex I.

Table 6 Example of differences in the number of activities to be considered according to the analysis of the listed parent company or business group (2005).

	CNAE 93 Rev.1 Codes (parent company)	Number of firms in business group	CNAE 93 Rev. 1 Codes (business group)
Altadis	1600, 5135	32	1600, 2953, 5117, 5135, 5147, 5170, 5211, 5226, 5262, 6024, 6311, 6321, 7011, 7220, 7414, 7415, 7484, 9261
Amper S.A.	6420, 7310	10	3220, 6420, 6712, 7220, 7415, 7310, 7420
Campofrío	1513	8	0130, 1513, 4010, 7134, 7484
Cartemar	7011	9	0125, 5510, 7011, 7414

Source: Author.

If only the parent company is considered, the head company of a business group and the number of activities used to estimate the level of diversification is much smaller. If one considers the business group, the number of activities increases notably, providing a better perspective on global strategy and on the degree of the relationships among the various activities.

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