Founding family ownership and payout policy of Greek listed firms

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I hereby declare that the work submitted is mine and that where I have made use of another’s work, I have attributed the source(s) according to the Regulations set in the Student’s Handbook.

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Abstract

The dissertation examines the influence of founding family ownership on payout policy of Greek listed firms for the period 2008-2014. This examination is based on the hypotheses that the relationship between founding family ownership and dividend payments is not linear and that families receive higher dividends than prescribed by law in order to satisfy their income needs. The results of the analysis demonstrate that founding family ownership is predominant with more than 50% of the companies having as controlling shareholder the founder or the heirs. It is, also, shown that firms controlled by the founding family, on average, pay less dividends than other firms which are controlled by another type of shareholder. The nonlinear relation of family ownership and dividends is confirmed by the results, but founding families’ higher taste for dividend payments is not. On the contrary, higher family ownership seems to be related to lower dividends than those required by law.

Keywords: founding families, dividends, entrenchment hypothesis

Eirini Palaiologou

December 23, 2016
Preface

This dissertation was written as part of the MSc in International Accounting, Auditing and Financial Management at the International Hellenic University. I, also, hold a bachelor’s degree in Accounting and Finance. All the knowledge I gained during my studies, along with the evolution of corporate governance and its interactions with other aspects of corporations, motivated me to write my dissertation.

There are several people that contributed to the completion of this dissertation. I would, firstly, like to thank my head supervisor Professor Stergios Leventis and co-supervisor Professor Alexandros Sikalidis for their time, encouragement and support during the entire master period.

Furthermore, I would like to thank all the professors for their knowledge and enthusiasm, as well as, the supporting departments of the International Hellenic University for their help whenever needed. Thanks, also, to my fellow students for the excellent cooperation during the semesters.

Last but not least, I am grateful to my family and friends for supporting and encouraging me to do my best.
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1. Introduction


Apart from these theories, the free cash flow hypothesis (Jensen M. C., 1986) as well as the development of behavioral models (Lintner J., 1956; Feldstein M. and Green J., 1983; Baker K. H., Farrelly G. E. and Edelman R. B., 1985), which try to explain investor behavior, are alternative methods used to explain any queries about dividends paid to the shareholders by corporations.

In the recent years, there is an attempt by professionals and academics to combine all the existing theories with ownership characteristics, in order to give further answers to questions relating to corporate dividend policy. There are researches, though, focusing on the control that large shareholders can exercise in publicly traded firms as they have an incentive to monitor management due to their concentrated power (Shleifer A. and Vishny R. W., 1986). However, if large investors get more control rights than cash flow rights, there is a chance that minority shareholders will be expropriated (Faccio M. and Lang L. H. P., 2002).

Jensen M. and Meckling W. (1976), in their attempt to develop a theory which would deal with the ownership structure of the corporations, define the agency relationship as a contract by which the one party called the agent is entitled by the other party called the principal to act on their behalf and make some decisions. However, there is a possibility, according to the authors, that the agent does not act in the interest of the principal, but tries to maximize their own wealth. In other words, separation of ownership and control may cause problems known as agency problem. In some countries, the agency problem may not be the result of a conflict between managers, who are usually the decision makers, and the shareholders, who are the owners of the corporations,
according to Shleifer A. and Vishny R. W. (1997). In their paper they support that a conflict, between controlling shareholders and minority shareholders may, also, create agency problem, especially when the ownership of a corporation is concentrated. Villalonga B. and Amit R. (2006), in their paper, refer to these problems as Agency Problem I and Agency Problem II, respectively.

Furthermore, the identity of large shareholders (family, bank, institutional investor, government etc) can determine the corporate strategy concerning profit targets, dividends, capital structure and growth rates, as well as affect the firm’s performance (Thomsen S and Pedersen T., 2000). Andres C. (2008) suggests that families as large shareholders can be considered as a remedy to the two agency problems that minority shareholders have to face. According to the author, though, this type of ownership is not always suitable for corporations and only under certain conditions can improve firm’s performance.

Greek listed firms belong to a special category compared to many other listed firms all over the world, because they operate under such a legal regime that they have the obligation to pay a minimum dividend to their shareholders when they report profits. Another characteristic of Greek firms is that they have a high degree of ownership concentration, as many other European countries, with founding families being often in control (Spanos L. J., 2005).

The purpose of the current analysis is to investigate how controlling shareholders may influence a Greek listed firm’s decision to pay more or less than the minimum dividend required by law. The focus is set on the influence of the founding families which, in many cases, hold significant proportion of the company’s shares and the linearity of the relation between this ownership and the dividend payments. The results demonstrate that founding family shareholding of up to 57.2449% is negatively related to dividend payments, but beyond this level it increases dividend payments, meaning that the existing relationship is not linear. Furthermore, increases in the stake that the founding family holds in a company are related to higher probability that the company pays lower dividends than what it is required to pay by law when it reports profits.
The remainder of this work is organized as follows. **Section 2** outlines the Greek legislative framework with respect to dividend payments. **Section 3** presents prior literature related to dividend policy and ownership structure and develops the hypotheses tested in order to identify potential impacts of family ownership on dividend policies. **Section 4** describes the data and the model designed. **Section 5** provides a discussion on the results of the empirical analysis. Finally, **section 6** summarises and concludes the dissertation.

2. **Legal background**

Martins T. C. and Novaes W. (2010) suggest that, there are only five civil-law countries, including Greece, where mandatory dividend legislation applies. This legislation sets the framework for the payment of dividends to the shareholders of profitable Greek corporations.

2.1 **Law 2190/1920**

The basis for the legislation relating to corporations with the legal form of a Société Anonyme (S.A.) is the Greek law 2190/1920. The importance of this law is evidenced by the fact that many of its articles apply for many years almost unchangeable. Law 2190/1920 was codified in a single text by the Royal Decree 174/1963 (Official Government Gazette Issue A No. 37 – 30/03/1963) divided into ten chapters. Chapter five describes how earnings can be distributed. Article 45 of this chapter in the first paragraph defines net income as the gross income minus any expenses, losses, depreciation and other burdens imposed on corporations. The second paragraph of this article refers to the distribution of this net income, where one part of it is retained as statutory reserve and another part as first dividend. This first dividend has to be at least 6% of the money that the corporation receives from its shareholders in exchange for shares. The remaining amount is distributed based on the articles of incorporation.
2.2 Law 148/197

On October 9, 1967 a law relating to measures for the strengthening of capital markets was published. Law 148/1967 (Official Government Gazette Issue A No. 173 – 09/10/1967) comprises 13 articles. Article 3 of the aforesaid law refers to the distribution of earnings to the shareholders of corporations. In particular, it defines that all corporations with the legal form of a S.A. are obliged to pay every year to their shareholders part of the net income (not less than 30%) as dividends after extracting the amount of reserves that has to be retained by law. This provision applies in cases when the distributable earnings of article 3 are higher than those mentioned in Law 2190/1920 article 45 paragraph 2. The corporation can decide to pay shareholders either in cash or by new shares (in whole or in part) which will increase their share capital.

The law, also, provides that the general meeting of the shareholders, by a majority of 3/4 of votes, has the right to decide whether paragraph 1 of the law will not be applied. In any other occasion, absolute majority is required for the decision of the general meeting on the distribution of earnings.

The minimum dividend required by law gives outside investors, such as minority shareholders the right to receive same dividends as the controlling shareholders, to vote on issues of great importance and sue the company in case of damage (La Porta R., Lopez-des-Silanes F., Shleifer A. and Vishny R.W., 2000). In other words, it acts as a cure to agency problems helping minority shareholders to safeguard their interests which may be threatened by insiders and helps capital market become stronger.

2.3 Amendments

During the prior years, many articles of Law 2190/1920 and Law 148/1967 have been amended or changed completely. Article 3 of Law 148/1967 was replaced by article 1 of Law 876/1979 (Official Government Gazette Issue A No. 48 – 12/03/1979) which states that the amount distributed in cash to shareholders has to be at least 35% of net income free of any statutory reserves. This provision applies in the same cases as provided for by law 148/1967, but there is no application if this is decided by a majority of 80% of
paid-up capital in the annual general meeting of shareholders. In this case the undistributed dividends (at least the amount prescribed by law) will be capitalised. All provisions shall not apply if the annual general meeting of shareholders by a majority of paid-up capital of 95% decides so.

Another change occurred in 1999, when Law 2753 (Official Government Gazette Issue A No. 249 – 17/11/1999) was published. More specifically, the provisions of article 3 paragraph 18 Law 2753/1999 replaced paragraphs 2 and 3 of article 1 Law 876/1979. This paragraph states that a majority of shareholders controlling at least 65% of the subscribed capital is able to decide not to apply the provisions of paragraph 1 of article 1 Law 876/1979. In this case, the undistributed dividends until the minimum dividend requirement as described by law (35% of net income) can be transferred to special reserve account for capitalisation. A majority of shareholders controlling 70% of the subscribed capital can decide in the general meeting of shareholders not to apply the provisions of paragraph 1 and paragraph 2 as amended by Law 2753.

Some years after the replacement of paragraphs 2 and 3 of article 1 Law 876/1979, article 25 of Law 2789/2000 (Official Government Gazette Issue A No. 21 – 11/12/2000) replaced paragraph 1, as well, resulting to the final shaping of the article. Article 25 mentions that corporations shall distribute to the shareholders at least 35% of net income in cash after deducting only the amount retained as statutory reserve and any profits deriving from the sale of shares which are held for at least ten years and represent more than 20% participation in the subscribed capital of a subsidiary. Again this provision applies when the resulting distributable profits are higher than those determined in paragraph 2 of article 45 Law 2190/1920 as codified by the Royal Decree 174/1963.

As mentioned at the beginning of this section, the role of Law 2190/1920 is important for the proper functioning of corporations, because it lays the foundations for the proper distribution of earnings which has further implications to the relationship between shareholders and the functioning of capital markets. However, a new law published on August 8, 2007 reformed 2190/1920 in order to incorporate the Directive 2006/68/EC of the European Parliament and of the Council of 6 September 2006 amending Council Directive 77/91/EEC, as regards the formation of public limited liability companies and
the maintenance and alteration of their capital and, in part, the Directive 2003/58/EC of the European Parliament and of the Council of 15 July 2003 amending Council Directive 68/151/EEC, as regards disclosure requirements in respect of certain types of companies. The new Law 3604/2007 (Official Government Gazette Issue A No. 189 – 08/08/2007) consists of fifteen chapters with a total of eighty two articles. Article 54 replaced article 45 of Law 2190/1920 and states that the point of paragraph 2 article 45, which refers to the amount of net income that shall be distributed to shareholders, is replaced by a new provision that defines as the necessary amount retained for dividend payments the amount established by article 3 Law 148/1967.
3. Literature review and hypotheses

There is much interest expressed by researchers the previous years, regarding founding families, their characteristics as owners of a company and their influence on its operations and performance. Keeping or not an active role, the founders or their heirs many times have the control of the company and can play a key role regarding some important decisions for the company’s future.

3.1 Literature review

Family control characterizes a number of listed firms all over the world (La Porta R., Lopez-des-Silanes F. and Shleifer A., 1999; Burkart M., Panunzi F. and Shleifer A., 2003). Anderson R. C. and Reeb D. M. (2003) investigated the existence of family ownership in the S&P 500 in the U.S. which reaches, according to their findings, about the one-third of the firms. A study regarding Canada, which have the same common-law system with the U.S., reports less widely held firms for the former country and more family controlled (King M. R. and Santor E., 2008). The figures of the Canadian firms appear in the study closer to those Asian and European.

Claessens S., Djankov S. and Lang L. H. P. (2000) who examined a sample of 2,980 corporations in nine countries of East Asia, noticed that in most of the developing countries under scrutiny few families collect an important amount of corporate wealth, but family-controlled firms are mainly those established in the earliest years indicating a change in the ownership structure. Other researchers focused their study on specific Asian countries. More specifically, Saito T. (2008), using data from 1818 listed Japanese firms, concluded that founding families are a common and significant category of shareholders and top-level managers with almost 38% of the sample firms being family firms. The same applies in Korea, where the dominant structure is chaebol, which is family based (Chang S. J., 2003). According to Solomon J., Solomon A. and Park C.Y. (2002), family ownership and control have been characteristics of the Korean corporate sector.
for many years. Taiwanese listed firms are, also, typical examples of this as families remain powerful and have active participation in the decision-making process even after the firms become public (Yeh Y. H., Lee T. S. and Woidtke T., 2001).

Regarding large European corporations, more important appear to be those with a more dispersed ownership, whereas for small corporations families play a great role (Faccio M. and Lang L. H. P., 2002). Especially in Western Europe, families and business groups controlled by families are almost equally important as in Asia (Faccio M., Lang L. H. P. and Young L., 2001).

There is clear evidence that family based structures represent a significant proportion all over the world and influence a corporation’s decisions due to their power. But in what extent is a corporation’s dividend policy determined by the fact that it is controlled by the founding family? Do founding families increase dividend payments in order to control management and agency costs of free cash flow (Shleifer A. and Vishny R., 1986) or they choose to get private benefits and lower dividends because dividends enhance minority shareholders wealth as well (Faccio M., Lang L. and Young L., 2001; Harada K. and Nguyen P., 2011)?

These questions raise the interest of many analysts. Dewnter K. L. and Warther V. A. (1998) compare the payout policy of Japanese and U.S. firms based on the hypothesis that Japanese firms face less information asymmetry and agency conflicts than U.S firms as they are more concentrated and family-controlled and that these two can affect the payout policy. Maury C. B. and Pajuste A. (2002) analyzed a sample of 133 Finnish listed firms and concluded that payout ratios have a negative relation to the control stake of the controlling shareholder who, in about 65% of the sample firms, is a family or an unlisted firm. Their results, also, showed that each owner type affects in a different way the dividend policy of the firms and that the most powerful shareholders may try to achieve economic gains through collusion at the expense of small shareholders. In their study about Hong Kong firms, Chen Z., Cheung Y. L., Stouraitis A. and Wong A. (2005) found little relationship between family ownership and payout policy but, only for small firms there is a negative relationship of up to 10% of the firm’s stock and a positive between 10% and 35%. This may imply that, in smaller corporations, families as controlling
shareholders use dividends in order to take advantage of the firm’s resources or owners-
managers are more concerned about dividends than their salary which is on average
lower or investors anticipate the potential expropriation by asking for higher dividends
as some firms are more prone to agency conflicts.

A common example of a country with corporations that have highly concentrated
ownership is Italy. Mancinelli L. and Ozkan A. (2006) examined a sample of 139 Italian
listed firms and the results revealed that there is a negative effect of the voting rights of
the largest shareholder on the dividend payments meaning that an increase in voting
rights contributes to lower payments. The impact of the largest shareholder on the div-
idend policy of a corporation is, also, evident in the study of Truong N. and Heaney R.
(2007) on 8,279 listed firms from 37 countries which demonstrate that the largest share-
holder may appear as a substitute for dividend payouts and reduce agency costs. An-
other country with a big number of corporations characterized by a concentrated own-
ership structure, is Malaysia. According to Ramli N. M. (2010), the Malaysian corpora-
tions which are controlled by a large shareholder, either a family or the Government,
pay out more dividends, meaning that in this country emphasis is given on the avoidance
of conflicts between the owner and the management. The same conclusion appears in
the study of Adjaoud F. and Ben-Amar W. (2010) about firms listed on the Toronto stock
exchange.

Detailed examination on founding firms was performed by Isakov D. and Weisskopf
J. P. (2015) who analysed a number of Swiss firms. Based on some hypotheses, they
noticed that dividend payments have a positive relationship to the size of the stake the
founding family owns and that the family firms that pay out higher dividends are the
older firms at the descendant stage with no family members in the Board of Directors
or the management team and no second blockholder. In addition to that, they find rela-
tionship between the dividend policy and any concerns the family may have about the
reputation of the firm, as well as, the fact that the family invested much of its wealth in
the firm. The rate that family firms pay out as dividends, according to the study, is 37.5%
of earnings, whereas non-family firms 13% less.
The preferences of families, the benefits they extract and the limited ability of their claims to be traded make this ownership structure seem less effective, as reported by Anderson R. and Reeb D. (2003). On the other hand, the same researchers consider the long term perspective, the family loyalty and the reputation concerns as characteristics of the families that influence a firm positively.

Although the legal system in many countries does not protect minority shareholders against agency problems, large shareholders can pledge themselves not to expropriate this category of shareholders (Gomes A., 2000). DeAngelo H. and DeAngelo L. (2000) in their analysis indicate that the preferences of the controlling family can have a significant impact on the dividend policy. But, according to Anderson R. C., Mansi S. A. and Reeb D. M. (2003), family shareholders have greater chances to adhere to maximization of the corporation’s wealth for its survival because not only they invest a large proportion of their wealth in the corporation, but they, also, want to pass the firm to their descendants and, at the same time, feel anxious for maintaining a good family and corporate reputation. In the same paper, Anderson R., Mansi S. and Reeb D. support that the long-term ownership of the family in a corporation and the way it affects third parties cause reputation concerns. The desire of family owners to control a firm that will survive for a long period at all costs and take decisions that keep stable the nature of the business, makes them be risk averse (Audretsch D., Hülsbeck M. and Lehmann E., 2013). Many Greek firms and especially some which are very successful are family owned, founded and still managed by the founder (Voudouris I., Lioukas S., Makridakis S. and Spanos Y., 2000).

The central question of this work is the relation between founding families and dividend policy of corporations in Greece. The current investigation provides an analysis of this relation using firm level data on Greek firms listed in the Athens Stock Exchange. In general, the Greek stock market is described by low dispersion of shares and strict family control, which is evidenced by the fact that 65% of the top 20 listed firms are controlled by a family (Konstantaras K. and Siriopoulos C., 2011).
3.2 Hypotheses development

There is no doubt that, the agency theory has influenced many analysts worldwide during their examination of the dividend policy helping them draw the attention to specific issues regarding ownership characteristics and peculiarities. Taken from the agency literature, the entrenchment hypothesis tries to explain the opportunistic behaviour of large blockholders who, due to their power may try to extract control benefits at the expense of minority shareholders and, consequently, prevent investments and external intervention which would, otherwise, affect firm’s value positively (Chahine S., 2007; Yeh L. J. and Kuo H. C., 2015; Claessens S., Djankov S., Fan J. and Lang L., 2002). They can achieve this, by disclosing limited or misleading information and restricting firm transparency, so that outsiders will not be able to oversee their activities (Anderson R. C., Duru A. and Reeb D. M., 2009).

As far as the dividend policy of a company is concerned, Farinha J. (2003) suggests that below a certain level called “entrenchment level” insider ownership and dividend policy can be handled as being substitute techniques of corporate governance with a negative relationship. After this level any increase in ownership is expected to increase agency costs (Schooley D. K. and Barney Jr L. D., 1994). At the same time, dividend policy may work as a monitoring mechanism and any increase in ownership will tend to increase dividend pay-outs, creating, in the end, a U-shaped relationship between ownership and dividend policy (Farinha J., 2003; Da Silva L. C., Goergen M. and Renneboog L., 2004). Based on this, the first hypothesis is formed as follows:

- Hypothesis 1 (H1). The dividend payments are negatively related to founding family ownership below an entrenchment level and positively related above that level.

Dividends may represent a great part of the income large shareholders receive from corporations they control (Chen Z., Cheung Y. L., Stouraitis A. and Wong A., 2005). Statistically the family stake in a corporation does not change significantly through the years and from one generation to another which means that in order to finance private consumption family members, who are not managers and do not have a salary, prefer
receiving dividends instead of selling shares and, consequently, losing control (Andres C., 2008). Hence, the second hypothesis is the following:

- Hypothesis 2 (H2). Family firms meet the income needs of family owners by paying more dividends than the Minimum Dividend Requirement.

4. Data description and methodology

Based on prior literature, the current analysis tries to give answers to questions regarding the decisions of Greek listed firms to pay a certain amount of earnings as dividend and the influence that founding families have on these decisions. This can be achieved through the development of statistical models and procedures, along with the collection of the necessary data which helps form these models. The type of data gathered and the methods used to analyse this data are explained in this section.

4.1 Sample

The sample tested consists of 210 entities listed on the Athens Stock Exchange between the years 2008 and 2014. The selected sample period begins with 2008, which was the year the economic crisis erupted in Greece. Due to the crisis, the numbers before and after 2008 may vary to a great extent. In order to keep the latest data and produce reliable results, data from prior years were omitted. The total firm-year observations are 1353.

The ownership structure data play a key role because the analysis is based on founding families and the stake they hold in their companies. For the collection of these data Athens Stock Exchange’s database is mainly used, along with each company’s official website where much information can be found regarding the people that founded the company, participate in governing bodies, work as directors or just hold some of its shares. This information is necessary for matching the stakes with the right category of holders which can be 1) the founding family, 2) private investor(s), 3) the State, 4) an industrial corporation, 5) a financial corporation and 6) miscellaneous. The Athens Stock
Exchange database provides information for the shareholders that possess more than 5% of a company’s shares. When there are many shareholders owning less than 5% of shares each, they are not expected to exercise considerable influence individually.

Accounting data and data of the financial performance of each entity are, also, gathered from the annual reports through hand collection, as well as the Hellastat database for the years 2008-2014, in order to complete this process. All the numbers used to perform the tests refer to the single entity and not the group accounts.

4.2 Shareholders categories

According to Thomsen S. and Pedersen T. (2000), ownership structure can be measured well enough in European companies by the share and identity of the largest shareholder because European companies are generally characterised as concentrated. Founding families may have one or more family members holding a certain amount of shares in the companies they have founded. A private investor is an individual that has not founded the company, but holds a proportion of its shares. Industrial corporations are companies participating in other companies, but their main shareholders are not dominant shareholders in the companies that industrial corporations have a stake. Financial corporations is a category that includes banks. Other types of shareholders, such as foundations and funds, fall into the miscellaneous category.

In order to determine which shareholders exercise control, Claessens S. Djankov S and Lang L. (2000), set as cutoff point the 20% voting rights. Table 1 shows how many of the sample firms have as controlling shareholder one or more individuals or entities falling into the categories analysed above taking as cutoff point the 20% voting rights. The companies that have more than one controlling shareholder with more than 20% voting rights are reported in the category of the controlling shareholder with the higher stake, while there are companies which have no controlling shareholder. The companies with no controlling shareholder are characterized as widely held.

Even though, the total number of companies in the sample is 210, some of them went public after 2008 or were delisted before 2014. For this reason, the total number of companies for each year is lower than 210, as is demonstrated in Table 1.
Table 1: Firms with controlling shareholders

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Founding Family</th>
<th>Private Investor</th>
<th>State</th>
<th>Industrial Corporation</th>
<th>Financial Corporation</th>
<th>Miscellaneous</th>
<th>Widely held</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>115</td>
<td>26</td>
<td>8</td>
<td>22</td>
<td>8</td>
<td>13</td>
<td>11</td>
<td>203</td>
</tr>
<tr>
<td>2009</td>
<td>116</td>
<td>25</td>
<td>7</td>
<td>20</td>
<td>9</td>
<td>15</td>
<td>13</td>
<td>205</td>
</tr>
<tr>
<td>2010</td>
<td>114</td>
<td>27</td>
<td>7</td>
<td>21</td>
<td>9</td>
<td>16</td>
<td>12</td>
<td>206</td>
</tr>
<tr>
<td>2011</td>
<td>115</td>
<td>28</td>
<td>7</td>
<td>20</td>
<td>9</td>
<td>17</td>
<td>12</td>
<td>208</td>
</tr>
<tr>
<td>2012</td>
<td>113</td>
<td>30</td>
<td>7</td>
<td>19</td>
<td>9</td>
<td>16</td>
<td>13</td>
<td>207</td>
</tr>
<tr>
<td>2013</td>
<td>114</td>
<td>31</td>
<td>6</td>
<td>19</td>
<td>3</td>
<td>28</td>
<td>7</td>
<td>208</td>
</tr>
<tr>
<td>2014</td>
<td>115</td>
<td>31</td>
<td>6</td>
<td>18</td>
<td>4</td>
<td>28</td>
<td>6</td>
<td>208</td>
</tr>
<tr>
<td>Total</td>
<td>802</td>
<td>198</td>
<td>48</td>
<td>139</td>
<td>51</td>
<td>133</td>
<td>74</td>
<td>1445</td>
</tr>
</tbody>
</table>

Notes: The sample consists of 210 firms for the period 2008-2014. There are six categories of controlling shareholders for the same period. Controlling shareholders own more than 20% voting rights. Widely held companies do not have a controlling shareholder.

Based on the numbers demonstrated in the above table, almost 55% of the sample companies are owned by the founding families during the period 2008-2014. Regarding the rest categories, 13% have one or more private investors holding large amounts of shares, almost 3% are owned by the State and 9% by an industrial corporation. Furthermore, 3% have as large shareholder a financial corporation and 9% do not fall in any of the previous categories, but have other types of large shareholders. Changes in the numbers from one year to another are not very significant for most of the categories.

Moreover, in 2008 there are 22 entities out of the 203 that have controlling shareholders of two different categories. This number becomes 24 out of 205 in 2009 and 26 out of 206 in 2010. There is a further increase in 2011 to 30 entities out of 208 and this number remains stable in 2012. Finally, in 2013 there is another increase from 30 to 32 out of 208 and in 2014 they decrease to 31 out of 208. It is worth mentioning that during the whole period there is no entity with controlling shareholders that fall into more than two different categories.
4.3 Model

The main concern of this work is to explain whether any deviations from the Minimum Dividend Requirement a Greek listed company should pay, may be the result of the participation of its founders in the shareholder composition. In order to achieve this, data is collected in the form of an unbalanced panel of 210 companies and 1353 firm-year observations for the years 2008-2014.

4.3.1 Entrenchment hypothesis model

As noted above, large shareholders have sometimes a tendency to use their power in such a way that they can extract a control premium at the expense of minority shareholders (Chahine S., 2007) and that, after an entrenchment level, ownership and dividend pay-outs will be positively related. In other words, entrenchment occurs when the sign of the partial derivative of ownership changes from negative to positive (Schooley D. K. and Barney Jr L. D., 1994).

The model used to test the entrenchment hypothesis is a basic model applied by many researchers in their analysis (Sciascia S. and Mazzola P., 2008; Navissi F and Naiker V., 2006; Farihna J, 2003). As the relation between ownership and dividend pay-outs is assumed not to be linear, but U-shaped, the general form of the model used for the purpose of this analysis will be the following polynomial of degree 2:

\[
\text{Dividend to assets} = \alpha + \delta_1 \text{family stake}_{i,t} + \delta_2 \text{family stake}_{i,t}^2 + \sum \text{control variables} + \sum \text{industry dummy variables} + \sum \text{year dummy variables} \tag{1}
\]

where \(i\) is a company dimension and \(t\) is a time dimension. Dividend to assets is the dependent variable of the model expressing the dividend payments of the company as a percentage of its assets. The family stake is an explanatory variable of ownership that represents the proportion of shares the founding family owns to the company. The control variables of the model are all the categories of controlling shareholders apart from the founding family, the Return on Asset (ROA), the natural logarithm of the company’s age (\(\ln(\text{age})\)), the natural logarithm of the company’s assets (\(\ln(\text{size})\)), the leverage as it is described by the debt ratio, the sales growth and the family name dummy which
equals 1 when the family name is used as company name and 0 otherwise. There are, also, industry and year dummy variables that equal 1 when the company falls into the corresponding industry or year and 0 otherwise. The industry categorization used is the one proposed by the Athens Stock Exchange.

As proposed by Da Silva L. C., Goergen M. and Renneboog L. (2004), in order to find out the entrenchment level, there is a need to discover what the minimum of the function described above is. For this purpose, we differentiate dividend to assets with respect to the proportion of shares held by the founding family, considering all other variables as constants, and set the partial derivative equal to 0. The mathematical formulation is the following:

\[
\frac{\partial (\text{dividend to assets})}{\partial (\text{family stake})} = 0
\]  

By solving the equation, the result obtained shows which is the entrenchment level for the current analysis.

4.3.2 Ownership structure model

Another issue presented in section 3 is that founding family members many times keep high amounts of shares without selling them in order to satisfy their income needs through the dividends they receive and not lose control of the company. The model used to test this assertion is influenced by the research of Isakov D. and Weisskopf J. P (2015).

The two researchers, who analysed the influence that founding families exercise to the dividend policy of the Swiss listed firms for the period 2003-2010, used a random-effect Tobit model of the form:

\[
\text{Dividend pay - out}_{j,t} = a + \varphi \text{family firm}_{j,t} + n\text{control variables}_{j,t} + \delta \text{industry } j,t + \gamma \text{year } j,t + \varepsilon_{j,t}
\]  

where \( j \) is a company dimension and \( t \) is a time dimension. The family firm variable they use is a dummy variable that takes into account various characteristics of the founding family firms. The control variables they use are wedge, Tobin’s Q, ROIC, firm age, firm
size, leverage, sales growth and beta. Apart from the control variables, their model includes industry and year dummy variables that equal 1 when the company falls into the corresponding industry or year and 0 otherwise.

Following the work of these researchers, the model used for the analysis is a random-effect probit model as the depend variable is a dummy variable which takes the values 1 or 0 based on whether the dividend paid is lower or higher than the prescribed Minimum Dividend Requirement. Its general form is the following:

\[ DMDR_{i,t} = a + \beta_1 \text{family stake}_{i,t} + \beta_2 \text{ROA}_{i,t} + \beta_3 \ln(\text{age})_{i,t} + \beta_4 \ln(\text{size})_{i,t} + \beta_5 \text{leverage}_{i,t} + \beta_6 \text{sales growth}_{i,t} + \beta_7 \text{family name}_{i,t} + \sum \text{industry dummy variables} + \sum \text{year dummy variables} + \epsilon_{i,t} \]  

(4)

where \( i \) is the company dimension and \( t \) is the time dimension, similarly to the model of Isakov D. and Weisskopf J. P.. DMDR is the dependent dummy variable mentioned above which indicates the decision of the company to pay to shareholders more or less than the Minimum Dividend Requirement. The family stake represents again the proportion of shares that the founding family owns to the company. The control variables, as well as the industry and year dummy variables of the model are the same as the ones used in the entrenchment hypothesis model.

A limitation of the model applied can be considered the fact that there are no clusters for standard errors at the firm level. Clusters could indicate that there is some kind of relation among the standard errors of each firm (Thompson S. B., 2011). This grouping process can be done as a sensitivity analysis in future research.
5. Empirical results

In the previous section, there is a description of the methodology used in the current analysis, as well as a presentation of the models applied. This is the section that deals with the results of the analysis and explains the relations arising. The statistical software used for this purpose is the Stata/IC 13.1.

5.1 Descriptive statistics

The summary of some descriptive statistics for the variables used in the analysis appears in Table 2. The average dividend payment is 0.61% of the assets. The companies of the sample have an average age of 37 years and average size of €2,034,281,400. Furthermore, the average Return on Asset is -4.6%, the average leverage 58% and the average sales growth -7%.

Table 2: Descriptive statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
<th>St.dev.</th>
<th>p25</th>
<th>p75</th>
<th>Observ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dividend/assets</td>
<td>0.0061</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.5235</td>
<td>0.0278</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1,425</td>
</tr>
<tr>
<td>Minimum Dividend Requirement dummy</td>
<td>0.2582</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1.0000</td>
<td>0.4378</td>
<td>0.0000</td>
<td>1.0000</td>
<td>1,425</td>
</tr>
<tr>
<td>Founding family</td>
<td>0.3319</td>
<td>0.3266</td>
<td>0.0000</td>
<td>0.8734</td>
<td>0.3092</td>
<td>0.0000</td>
<td>0.6365</td>
<td>1,445</td>
</tr>
<tr>
<td>Private investor</td>
<td>0.0960</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.9438</td>
<td>0.1906</td>
<td>0.0000</td>
<td>0.0982</td>
<td>1,445</td>
</tr>
<tr>
<td>State</td>
<td>0.0220</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.7500</td>
<td>0.1130</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1,445</td>
</tr>
<tr>
<td>Industrial corporation</td>
<td>0.0632</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.9436</td>
<td>0.1716</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1,445</td>
</tr>
<tr>
<td>Financial corporation</td>
<td>0.0345</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.9840</td>
<td>0.1380</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1,445</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>0.0856</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.9727</td>
<td>0.1965</td>
<td>0.0000</td>
<td>0.0556</td>
<td>1,445</td>
</tr>
<tr>
<td>Return on Asset</td>
<td>-0.0461 -0.01107 -2.41513 0.56382 0.0278 -0.0665 0.0161</td>
<td>1,422</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm age (in years)</td>
<td>36.7286 32.0000 6.0000 173.0000 21.6329 22.0000 44.0000</td>
<td>1,425</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm size (in million euros)</td>
<td>2,034,281,400 86.1525 0.9474 99,856,000 1,070,000 36,4005 247,6226</td>
<td>1,425</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm age (ln)</td>
<td>3.4612 3.4657 1.7918 5.1533 0.5160 3.0910 3.7842</td>
<td>1,425</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm size (ln)</td>
<td>18.5171 18.2705 8.1620 25.3270 1.7886 17.4101 19.3274</td>
<td>1,425</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>0.5758 0.5600 0.0000 3.97234 0.3501 0.3657 0.7303</td>
<td>1,417</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales growth</td>
<td>-0.0687 -0.0520 -3.4896 4.1483 0.4006 -0.1976 0.0660</td>
<td>1,368</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family name</td>
<td>0.2571 0.0000 0.0000 1.0000 0.4372 0.0000 1.0000</td>
<td>1,445</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: The table includes the descriptive statistics of the sample which consists of 210 firms for the period 2008-2014. The pay-out variables are dividend/assets and the Minimum Dividend Requirement dummy. Ownership variables are labelled based on the identity of the controlling shareholder of the companies. The control variables are Return on Asset, the firm age and its natural logarithm, the firm size (total assets) and its natural logarithm, the leverage (total debt/total assets), sales growth and family name which is related to the company’s reputation.
Table 2 shows the overall picture, as it refers to all the firms of the sample. Even more interesting are the statistics if we divide the companies in two groups, those which are controlled by the founding families and those which are not. The results are presented in Table 3.

Table 3: Family and non-family firms’ statistics

Panel A: Family firms descriptive statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
<th>St. dev.</th>
<th>p25</th>
<th>p75</th>
<th>Observ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dividend to assets</td>
<td>0.0030</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0735</td>
<td>0.0099</td>
<td>0.0000</td>
<td>0.0000</td>
<td>839</td>
</tr>
<tr>
<td>Minimum Dividend</td>
<td>0.2837</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1.0000</td>
<td>0.4510</td>
<td>0.0000</td>
<td>1.0000</td>
<td>839</td>
</tr>
<tr>
<td>Requirement dummy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return on Asset</td>
<td>-0.0551</td>
<td>-0.0170</td>
<td>-2.4151</td>
<td>0.5347</td>
<td>0.1769</td>
<td>-0.0792</td>
<td>0.0142</td>
<td>837</td>
</tr>
<tr>
<td>Firm age (in years)</td>
<td>30.9344</td>
<td>28.0000</td>
<td>7.0000</td>
<td>87.0000</td>
<td>12.6382</td>
<td>22.0000</td>
<td>37.0000</td>
<td>839</td>
</tr>
<tr>
<td>Firm size (in million</td>
<td>136.1665</td>
<td>59.2048</td>
<td>0.0000</td>
<td>1,407.9460</td>
<td>0.4510</td>
<td>0.0000</td>
<td>1.0000</td>
<td>839</td>
</tr>
<tr>
<td>euros)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm age (ln)</td>
<td>17.9808</td>
<td>17.8973</td>
<td>8.1620</td>
<td>21.0654</td>
<td>1.2881</td>
<td>17.1907</td>
<td>18.7991</td>
<td>839</td>
</tr>
<tr>
<td>Firm size (ln)</td>
<td>0.6069</td>
<td>0.5719</td>
<td>0.0197</td>
<td>3.0818</td>
<td>0.3454</td>
<td>0.0000</td>
<td>0.7262</td>
<td>834</td>
</tr>
<tr>
<td>Leverage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales growth</td>
<td>-0.0777</td>
<td>-0.0608</td>
<td>-1.0575</td>
<td>3.1896</td>
<td>0.3297</td>
<td>-0.1976</td>
<td>0.0553</td>
<td>817</td>
</tr>
<tr>
<td>Family name</td>
<td>0.4103</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1.0000</td>
<td>0.4922</td>
<td>0.0000</td>
<td>1.0000</td>
<td>848</td>
</tr>
</tbody>
</table>

Panel B: Non-family firms descriptive statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
<th>St. dev.</th>
<th>p25</th>
<th>p75</th>
<th>Observ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dividend to assets</td>
<td>0.0106</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.5235</td>
<td>0.0414</td>
<td>0.0000</td>
<td>0.0000</td>
<td>586</td>
</tr>
<tr>
<td>Minimum Dividend</td>
<td>0.2205</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1.0000</td>
<td>0.4149</td>
<td>0.0000</td>
<td>0.0000</td>
<td>586</td>
</tr>
<tr>
<td>Requirement dummy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return on Asset</td>
<td>-0.0334</td>
<td>-0.0070</td>
<td>-2.0691</td>
<td>0.5638</td>
<td>0.1654</td>
<td>-0.0457</td>
<td>0.0174</td>
<td>585</td>
</tr>
<tr>
<td>Firm age (in years)</td>
<td>44.7614</td>
<td>40.0000</td>
<td>6.0000</td>
<td>173.0000</td>
<td>28.0187</td>
<td>22.0000</td>
<td>55.0000</td>
<td>585</td>
</tr>
<tr>
<td>Firm size (in million</td>
<td>4,752.8250</td>
<td>149.0833</td>
<td>0.9473</td>
<td>99,856.0000</td>
<td>56.7730</td>
<td>502.6530</td>
<td>585</td>
<td></td>
</tr>
<tr>
<td>euros)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm age (ln)</td>
<td>19.2898</td>
<td>18.8200</td>
<td>13.7614</td>
<td>25.3270</td>
<td>2.0979</td>
<td>17.8546</td>
<td>20.0354</td>
<td>585</td>
</tr>
<tr>
<td>Firm size (ln)</td>
<td>0.5324</td>
<td>0.5509</td>
<td>0.0000</td>
<td>3.9723</td>
<td>0.3524</td>
<td>0.2653</td>
<td>0.7359</td>
<td>583</td>
</tr>
<tr>
<td>Leverage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales growth</td>
<td>-0.0555</td>
<td>-0.0395</td>
<td>-3.4896</td>
<td>4.1483</td>
<td>0.4876</td>
<td>-0.2013</td>
<td>0.0789</td>
<td>551</td>
</tr>
<tr>
<td>Family name</td>
<td>0.0455</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1.0000</td>
<td>0.2085</td>
<td>0.0000</td>
<td>0.0000</td>
<td>597</td>
</tr>
</tbody>
</table>

Notes: The table includes the descriptive statistics of family controlled firms (Panel A) and firms not controlled by the founding family (Panel B). The pay-out variables are dividend/assets and the Minimum Dividend Requirement dummy. The control variables are Return on Asset, the firm age and its natural logarithm, the firm size (total assets) and its natural logarithm, the leverage (total debt/total assets), sales growth and family name which is related to the company’s reputation.
On average the entities which are under the founding family control pay slightly lower dividends than the entities which are controlled by other types of shareholders. The latter are older in age with higher Return on Asset, much higher size and more sales growth. On the other hand, founding family firms have higher leverage showing their preference for borrowing than equity financing. This comes in contrast with the opinion that families want to reduce risk and choose to finance their activities in such a way that will not cause them concerns about their ability to fulfill their obligation, like equity financing which is a safer choice (Anderson R. C. and Reeb D. M., 2003).

In addition, at least 75% of the number of observations regarding dividend to assets variable of family firms equals to zero showing that few companies decided to pay dividends during the period of examination. This percentage seems to be lower for non-family firms compared to family firms, but significant as it reaches at least 50%.

5.2 Dividend and family participation

This part of the analysis attempts to specify the type of relationship between dividend payments and founding family ownership by applying model (1). The regression results obtained from Stata are shown in Table 4. In columns A, B and C the numbers represent the coefficients of each variable in the model and the numbers in parentheses are the values of the test statistic. The significance at 1%, 5% and 10% level is demonstrated by ***, ** and *, respectively.

In column A, the coefficient of the founding family stake variable is negative and statistically insignificant, while in column B it is negative, but statistically significant at the 1% level. Statistically significant at the 1% level is, also, the square of family stake. In column C, some more control variables are added compared to column B. The founding family stake variable and its square are statistically significant at 1% level in this case as well and the model that is formed seems to be more accurate than the one with less control variables. This is easily understood due to the fact that the Adjusted R² in column C is higher than the one in column B.

The number of observations remains unchanged in all three case. Industry and year dummies were, also, used in all three regressions.
Table 4: Regression results for the entrenchment hypothesis model

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dividend/Assets</td>
<td>-0.0047</td>
<td>-0.0295***</td>
<td>-0.0561***</td>
</tr>
<tr>
<td></td>
<td>(-1.5900)</td>
<td>(-2.9900)</td>
<td>(-4.3600)</td>
</tr>
<tr>
<td>Explanatory variables:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Founding family stake</td>
<td>0.0335***</td>
<td>0.0490***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.6400)</td>
<td>(3.6300)</td>
<td></td>
</tr>
<tr>
<td>(Founding family stake)^2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private investor</td>
<td>-0.0262**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-4.0500)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>0.0758***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(8.0900)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial corporation</td>
<td>-0.0213***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-3.5100)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial corporation</td>
<td>-0.0128*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-1.9400)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>-0.0161***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-2.9100)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>0.0425***</td>
<td>0.0422***</td>
<td>0.0408***</td>
</tr>
<tr>
<td></td>
<td>(8.7900)</td>
<td>(8.7500)</td>
<td>(8.8500)</td>
</tr>
<tr>
<td>Ln(age)</td>
<td>-0.0015</td>
<td>-0.0019</td>
<td>-0.0007</td>
</tr>
<tr>
<td></td>
<td>(-0.9000)</td>
<td>(-1.1500)</td>
<td>(-0.4500)</td>
</tr>
<tr>
<td>Ln(size)</td>
<td>0.0019***</td>
<td>0.0020***</td>
<td>0.0008</td>
</tr>
<tr>
<td></td>
<td>(2.9100)</td>
<td>(2.9700)</td>
<td>(1.1400)</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.0033*</td>
<td>0.0035**</td>
<td>0.0041**</td>
</tr>
<tr>
<td></td>
<td>(1.8500)</td>
<td>(2.0000)</td>
<td>(2.4100)</td>
</tr>
<tr>
<td>Sales growth</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>(-0.4500)</td>
<td>(-0.4900)</td>
<td>(-0.4700)</td>
</tr>
<tr>
<td>Family name</td>
<td>-0.0009</td>
<td>-0.0011</td>
<td>-0.0005</td>
</tr>
<tr>
<td></td>
<td>(-0.4500)</td>
<td>(-0.5300)</td>
<td>(-0.2800)</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.0264</td>
<td>-0.0218</td>
<td>0.0111</td>
</tr>
<tr>
<td></td>
<td>(-1.4900)</td>
<td>(-1.2200)</td>
<td>(0.6100)</td>
</tr>
<tr>
<td>Industry dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>0.1180</td>
<td>0.1220</td>
<td>0.1991</td>
</tr>
<tr>
<td>Observations</td>
<td>1353</td>
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<td>1353</td>
</tr>
</tbody>
</table>

Notes: This table reports the results of the regressions using dividend/assets as the dependent variable for firm-year observations from the years 2008-2014. The sample consists of 1353 firm-year observations. The models estimated are, for all specifications: Dividend/assets = f(x), where x are the variables related to each specification. The numbers in parenthesis are the values of the test statistic. ***, ** and * show the significance at 1%, 5% and 10% levels respectively. All numbers are rounded up to the forth decimal place.
The results above support the entrenchment hypothesis, indicating that there is a level after which founding family ownership and dividend pay-outs are positively related. This level can be now easily estimated for the sample firms.

Considering the coefficients of column B (Table 4), model (1) becomes:

\[
\text{Dividend to assets} = -0.0295 \times \text{family stake} + 0.0335 \times (\text{family stake})^2 + 0.0422 \times \text{ROA} + 0.0020 \ln(\text{size}) + 0.0035 \times \text{leverage}
\]

\[(5)\]

The next step is to set the partial derivative equal to zero in order to estimate what the entrenchment level is. Model (2) becomes:

\[
\frac{\partial \text{(dividend to assets)}}{\partial (\text{family stake})} = -0.0295 + 2 \times 0.0335 \times \text{family stake} = 0
\]

\[(6)\]

After solving the equation, the result obtained is 44.0299%. This is the ownership cutoff point after which agency costs are expected to be higher as the family stake increases and this causes further increases in dividends which work as monitoring mechanism.

If we use the coefficients of column C (Table 4), the model we get is:

\[
\text{Dividend to assets} = -0.0561 \times \text{family stake} + 0.0490 \times (\text{family stake})^2 - 0.0262 \times \text{private investor} + 0.0758 \times \text{state} - 0.0213 \times \text{industrial corp} - 0.0128 \times \text{financial corp} - 0.0161 \times \text{miscellaneous} + 0.0408 \times \text{ROA} + 0.0041 \times \text{leverage}
\]

\[(7)\]

and setting the partial derivative equal to zero, the entrenchment level is 57.2449%. This is a more accurate estimation because, as mentioned before, the Adjusted R² is higher in this case.

5.3 Dividend and ownership structure

One of the issues under scrutiny is the relation between higher or lower dividend payments than the Minimum Dividend Requirement and ownership structure of the companies listed in the Athens Stock Exchange. The results of the regression appear in Table 5. As this is a probit model, when the coefficients are positive, an increase in the explanatory variable is expected to increase the probability that the dependent variable will equal 1, indicating that dividend payments are lower than the minimum required.
In columns A, B and C the numbers represent the coefficients of each variable in the model and the numbers in parentheses are the values of the test statistic. The significance at 1%, 5% and 10% level is demonstrated by ***, ** and *, respectively.

Table 5: Regression results for the ownership structure model

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Dividend Requirement</td>
<td>0.6602***</td>
<td>1.0366***</td>
<td>1.0525***</td>
</tr>
<tr>
<td>Founding family</td>
<td>(3.7100)</td>
<td>(4.0100)</td>
<td>(3.3000)</td>
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<tr>
<td>Private investor</td>
<td>0.2395</td>
<td>0.2730</td>
<td></td>
</tr>
<tr>
<td>State</td>
<td></td>
<td>-2.0749***</td>
<td>(-3.0500)</td>
</tr>
<tr>
<td>Industrial corporation</td>
<td>0.7948**</td>
<td>0.7850**</td>
<td></td>
</tr>
<tr>
<td>Financial corporation</td>
<td>0.7747**</td>
<td></td>
<td>(2.0400)</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>0.5364*</td>
<td>0.5816*</td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>9.3740***</td>
<td>9.4961***</td>
<td>10.1760***</td>
</tr>
<tr>
<td>Ln(age)</td>
<td>0.3111***</td>
<td>0.2901***</td>
<td>0.2649**</td>
</tr>
<tr>
<td>Ln(size)</td>
<td>-0.1249***</td>
<td>-0.1255***</td>
<td>-0.1117***</td>
</tr>
<tr>
<td>Leverage</td>
<td>-0.1388</td>
<td>-0.1834</td>
<td>-0.1563</td>
</tr>
<tr>
<td>Sales growth</td>
<td>-0.0101</td>
<td>-0.0113</td>
<td>-0.0114</td>
</tr>
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<td>Family name</td>
<td>-0.2672**</td>
<td>-0.2852**</td>
<td>-0.2946**</td>
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<tr>
<td>Intercept</td>
<td>0.6829</td>
<td>0.4107</td>
<td>0.2121</td>
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<tr>
<td>Industry dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>R²</td>
<td>0.1210</td>
<td>0.1259</td>
<td>0.1758</td>
</tr>
<tr>
<td>Observations</td>
<td>1353</td>
<td>1353</td>
<td>1353</td>
</tr>
</tbody>
</table>

Notes: This table reports the results of the regressions using the Minimum Dividend Requirement dummy as the depend variable for firm-year observations from the years 2008-2014. The sample consists of 1353 firm-year observations. The models estimated are, for all specifications: Minimum Dividend Requirement dummy = f(x), where x are the variables related to each specification. The numbers in parenthesis are the values of the test statistic. ***, ** and * show the significance at 1%, 5% and 10% levels respectively. All numbers are rounded up to the forth decimal place.
Column A shows that the control a founding family exercises in the company has significant influence in the decision of the company to pay higher or lower dividends than the amount required by law. The more power the family has (higher stake which means that the explanatory variable increases), the higher the probability that the dividends paid will be lower than the minimum required (dependent variable equals 1 when the company pays lower dividends than the Minimum Dividend Requirement). This finding does not support the hypothesis that founding families receive higher dividends from the companies they control in order to meet their income needs.

In column B founding family participation is tested along with private investor, industrial corporation participation and the miscellaneous category because based on the information of the previous section, these three categories are mostly encountered during the period as controlling shareholders. It seems that only the private investor variable is not statistically significant at any level. When founding family ownership, industrial corporation ownership and other types of ownership included in the miscellaneous category increase, they cause an increase in the probability of dividends to be lower than the Minimum Dividend Requirement as indicated by the positive coefficients.

The last column includes all ownership categories. Apart from private investor, all the other categories are statistically significant and most of them positively related to the dependent variable. Only, the State is negatively related meaning that when the State’s stake increases, the probability of dividends to be lower than the Minimum Dividend Requirement decreases. This last model has higher $R^2$ than the other two models, meaning that it is more accurate.
6. Conclusions

This work examines the influence of controlling shareholders on the dividend policy of Greek listed firms, especially of founding families, and their incentives. Using data for a seven year period (2008-2014) and a sample that consists of 210 firms, it is shown that family firms pay, on average, 0.3% of assets as dividends, whereas non-family firms 1.06% which is higher.

Regarding founding family firms, it is tested, first, the hypothesis that family ownership has an impact on dividend policy which derives from the entrenchment hypothesis. Evidence is found that, the negative relation between family ownership and dividends becomes positive after a certain entrenchment level which is estimated to be 57.2449%.

The hypothesis that family firms pay more dividends than required by law in order to satisfy the income needs of the family is, also, tested. However, it is rejected because the analysis concluded that, when family ownership increases, there is higher probability for lower dividends than the Minimum Dividend Requirement.

The main results of these analysis have as basis for their interpretation the agency theory. As mentioned in previous sections, when a company controlled by a large shareholder pays more dividends, it tries to eliminate conflicts between owners and management (Ramli N. M., 2010; Adjaoud F. and Ben-Amar W., 2010). This is not the case for Greek listed firms as most of the founding family members that exercise control in a company are, also, active members of the management team or the Board of Directors. So, the main concern regards the conflicts between large and minority shareholders. This type of agency problem can be related to lower dividend payments as large shareholders want for themselves exclusive benefits and are not willing to pay dividends which will benefit minority shareholders as well (Isakov D. and Weisskopf J. P., 2015).

This analysis have some limitations which should be taken into consideration. First, the economic crisis and the intense recession affect significantly the financial position of all companies which due to accumulated loses and reduced turnover are not able to pay dividends to shareholders. The second limitation is that the analysis uses only data
for Greek listed firms and Greece is a small country that does not represent a large proportion of the world market.

In conclusion, further research is needed which will be based on the results and limitations of this study in order to establish a better understanding and contribute more to the payout literature.
Bibliography


Appendix

No information is included in the Appendix section. All tables are included in the main body of the dissertation.