Influences of Family Ownership on Dividend Policy Under Mandatory Dividend Rules

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ABSTRACT

We explore the relationship between family ownership and dividend policy in an insider financial system under mandatory dividend rules. In a civil law insider institutional setting like ours, the concentration of management control in the hands of family members in combination with poor corporate governance makes the expropriation of minorities more likely for high levels of family ownership leading potentially to lower dividend payouts. We theorize on the competing effects of the *alignment* and *entrenchment* hypotheses of family control and how the dividend *supply* and *demand* mechanisms explain dividend payout decisions. We empirically demonstrate a U-shaped relationship between dividends and family ownership- akin to previously documented dividend patterns across Anglo-American firms- in line with the alignment effects on the *supply* of dividends and the entrenchment effects on the *demand* of dividends. Meanwhile, high levels of family ownership increase the likelihood that the mandatory (minimum) dividend requirement is waived. Investment opportunities and the firm's risk profile moderate the shape and strength of the above relationships.

Keywords: Family firms, Dividends, Payout policy, Mandatory dividend

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1. Introduction

Firm payout policies have been a principal issue in theoretical and empirical corporate finance research. Since the early 1960s and the seminal studies of Lintner (1956) and Miller and Modigliani (1961), an extensive debate on the MM assumptions has spurred the development of numerous dividend payout theories. Yet, despite the rich empirical work in the field, there is a relevant scarcity of evidence on how dividend policy varies across mandatory and non-mandatory dividend payment environments. Meanwhile, the family firm– a very common, yet so unique organizational structure–has been at the heart of academic inquiry over the years (indicatively Claessens et al. (2000) for Asia, Faccio and Lang (2002) for USA and Isakov and Weisskopf (2015) for Western Europe). However, with just a few notable exceptions, accounting research on family firms has principally focused on performance and disclosure practices (e.g., Achleitner et al. 2014; Anderson and Reeb 2003; Wang 2006), while "[t]he different financial decisions made by family firms have hardly received academic attention to date" (Isakov and Weisskopf 2015, p. 331).

The aim of this paper is to shed new light on the link between family ownership and a firm's dividend policy and explore empirically whether this relationship is non-linear. We follow the framework of La Porta et al. (2000) as well as the signalling and investment opportunity set theory by Fama and French (2001). We focus on the version of the agency theory of dividends, according to which investor protection as well as the level of a firm's reinvestment opportunities and borrowing capacity are significant factors of a firm's earnings' distribution. Our empirical laboratory is Greece, a civil law, mandatory-dividend regulatory setting, where legal protection is weak (Florou and Galarniotis 2007; Sikalidis and Leventis 2017) and the minimum dividend requirement is based on net distributable earnings. In most non-Anglo-Saxon settings, like ours, large blockholders, such as the founding family, control a significant portion of the voting and cash flow rights (La Porta et al. 1999). Hence, this novel framework characterised by lower

investor protection, mandatory dividend payouts and a substantial number of family companies, allows us to gain new insights on the influences of family ownership on dividend payouts and on the decision to waive the minimum dividend, by exploiting the loopholes of the mandatory dividend rules.

We focus on Greece for the following reasons: First, Greek firms (akin to other European counterparts) operate in a civil law, relationship-based or "insider" system, where ownership is concentrated in the hands of large block-holders and/or their families (Kapopoulos and Lazaretou 2009; La Porta et al. 1999; Sikalidis and Leventis 2017). This represents a significant departure from prior studies which almost exclusively examined firms of widespread shareholder base (i.e. the Anglo-Saxon model). Across the Greek corporate landscape family ownership is in fact widely observed. Second, the Greek regulatory setting (in particular Law 148/1967) mandates the distribution of a minimum cash dividend by profitable firms, similar to other jurisdictions such as Germany, Russia and Brazil (Goncharov and van Triest 2014; Martins and Novaes 2012; Sikalidis and Leventis 2017) while share repurchases are not particularly significant[5]. This minimum dividend requirement (MDR) is based on reported earnings and dividends can only be waived by means of a special resolution (voted for by over 70% of shareholders), something easier achieved at high levels of family ownership concentration. Hence, the Greek setting offers an excellent domain for examining how family ownership influences MDR waiver decisions and under which conditions firms choose to make that decision using the loopholes of the legal setting and risk a potentially negative market reaction. Third, in Greece, unlike in other settings with weaker investor protection (Alzahrani and Lasfer 2012) dividends are taxed at a flat rate, which is significantly lower than the top income tax rate.

[5] The total value of shares repurchased in the Greek market from August 2005 to December 2010 was less than 1.9 billion euros (Drousia et al. 2019).

As such, dividend tax is far more appealing for major family shareholders, who very often also participate in the management. Finally, our sample period covers both an era of significant growth for the national economy and a prolonged recession following the Greek debt crisis. This permits us to test the sensitivity of the family ownership - dividend policy relationship under two very contrasting macroeconomic paradigms.

We put forward two competing arguments to explain the dividend *supply* and *demand* for family-controlled firms: the *alignment effect* and the *entrenchment effect*. While the *alignment effect* encourages family firms to increase the *supply* of dividends - thus reducing free cash flows and associated agency conflicts, it can also cut the *demand* for high dividends by contracting parties. On the other hand, the *entrenchment effect* of family ownership - predicting a lower *supply* of dividends and expropriation of corporate wealth by family insiders- could be met by market pressures and a greater *demand* for dividends by market participants. To empirically explore the influence of family control on dividend policy we employ a model similar to Isakov and Weisskopf (2015) for an extensive sample of 2,202 firm-year observations spanning the period 2005-2016. We reveal a *ceteris paribus* U-shaped association between family ownership and the level of dividends paid. We also find that family control decreases the likelihood of a MDR waiver up to a particular level of family ownership, while it increases over that level. These findings support a non-linear link between family control and dividends, with the latter acting as an agency cost mitigation mechanism above a certain level of family control.

We make two key contributions to the existing literature. First, we expand the literature on the effect of family ownership on dividend policy. Contrary to widely examined Anglo-Saxon institutional settings this is one of the few comprehensive studies on the dividend policy of family firms in a Civil Law country, where levels of family control are particularly high. By revealing a U-shape relationship we inform the theory and related literature that the family ownership - dividend policy relationship is not monotonic, but instead varies by ownership

levels. Our results are qualitatively similar to those on insider ownership by Farinha (2003) in the UK and Correia da Silva et al. (2004) in Germany. Second, this study enhances our understanding on the decision practices of family firms. To date, research on family-controlled firms has mainly focused on accounting and market performance (e.g., Achleitner et al. 2014; Anderson and Reeb 2003; Wang 2006), largely ignoring the financial policies of family firms. This study contributes to this gap by examining an important corporate decision which directly affects investors' returns. By investigating the mechanisms which drive dividend policy decisions of family firms, we draw valuable conclusions about the nature of agency costs arising from minority and controlling shareholders' conflicts in a setting where dividends are mandatory.

2. Institutional framework and the minimum dividend requirement legal setting

2.1 Institutional framework

The Greek financial system is a "relationship-based" or "insider" system (Sikalidis and Leventis 2017) while its legal setting is of Civil Law tradition and resembles the French commercial code. In a setting like this, the ultimate ownership of firms is typically concentrated in the hands of the family, members of which also hold important management positions (family capitalism). This concentration of control is favorable for earnings management (Peasnell et al. 2005, 2006) and allows privileged internal information to firm insiders. Meanwhile, corporate governance is not particularly strong (Florou and Galarniotis 2007; Sikalidis and Leventis 2017), while the protection of minority shareholders' rights (La Porta et al. 1998) is also poor. The privileges of corporate insiders become even more pronounced when accounting is linked to internal corporate governance- rather than market governance- since internal sources (retained earnings) and debt (loans from banks) are the main sources of financing. Such an environment favors the creation of private channels, such as those between corporate insiders and banks, because the quality of publicly available information is not particularly high. According to La Porta et al. (1998) civil law countries provide moderate levels of investor protection while Correia da Silva et

al. (2004) claim that investor protection is even lower in South Europe, due to the existence of large block-holders.

2.2 Minimum dividend requirement legal setting

Greece is among the few countries in the world[6] that has introduced a regulation for the distribution of a minimum dividend out of corporate profits to shareholders. More specifically, Greek statute (namely 148/1967, as amended by 2753/1999, 2789/2000 and 3460/2006) requires the distribution of at least 35% of corporate profits to shareholders as minimum dividend. Firms today according to law 3604/2007 may waive the minimum distribution, following approval by 70% of the shareholders at the Annual General Assembly. Instead, until 2007 the firm could pay a potentially much smaller amount, but no smaller than 6% of the paid-up share capital[7] (after taxes, regular reserves[8] and company pledges, article 45, par. 2, part. B'. Law 2190/1920). Therefore, for a large block-holder the waiver of MDR can be easier to achieve, due to the non-participation of smaller shareholders in the General Assembly.

In addition, firms are under no obligation to pay dividend if they report losses, while they are also not allowed to pay over a maximum dividend as: Maximum dividend < (Net earnings + Retained earnings - any tax obligations– statutory reserves).

To illustrate the MDR and the dividend constraints we use the following formulas:

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[6] Goncharov and van Triest (2011) report that firms in Germany and Russia are required to make minimum dividend distributions, while Martins and Novaes (2012) claim that this list also includes Chile, Venezuela and Colombia.

[7] With Law 3604/2007 applicable from 8/8/2007 the 6% of share capital as a minimum limit of the minimum dividend requirement was abolished.

[8] A firm has to create statutory reserves according to § 1 and 2 of articles 44a and 45 of Law 2190/1920. Firms have an obligation to use 5% of annual net profits towards the formation of a statutory reserve. If the statutory reserve equals 1/3 of the share capital the firm has no obligation to continue the aforementioned 5% annual allocation.

$$D_t^1 \leq D_t \leq D_t^2 \quad \text{Eq 1}$$

where:

$$D_t^1 = max(0.06 * SC_t\ , 0.35 * NDE_t) \quad \text{Eq 2}^{9}$$

$$D_t^2 = NDE_t + RE_{t-1} \quad \text{Eq 3}$$

where:

$$NDE_t = NE_t - Losses_{t-1} - TaxContrDif_t - TAX_t - STRES_t \quad \text{Eq 4}$$

In the above equations, SC= share capital; NE=net earnings; TaxContrdDif= any tax obligations from previous years; TAX= current tax obligation; STRES= statutory reserves; RE=retained earnings; NDE=net distributable earnings. Equations Eq 3 and Eq 4, which set the maximum dividend payment are also common in some other regimes (Leuz et al. 1998).

3. Theoretical background and hypothesis development

Theory and existing empirical evidence (Farinha 2003; Farinha and López-de-Foronda 2009) suggests that the relationship between controlling families and dividend payouts can vary across different levels of ownership concentration: on one hand family firms have been known to be less efficient, since controlling family members can expropriate wealth from minority shareholders by exploiting their role as insiders and by leveraging information asymmetry to their favor (Fama and Jensen 1983; Morck et al. 1988; Wang 2006). On the other hand, in order to preserve their position in the equity market controlling shareholders may wish to mitigate agency issues, ensuring that external investors are not totally expropriated. In that case, dividends can operate as a substitute for shareholder legal protection (La Porta et al. 2000) and have a positive

[9] After 2007 the $0.06*SC_t$ is not part of the minimum dividend calculation anymore.

relationship with the levels of controlling ownership. As such, existing theory offers two competing predictions about the link between founding family ownership and the *demand* and *supply* of dividends: the *entrenchment* and the *alignment hypotheses*.

3.1 Entrenchment and alignment effects

When ownership is highly concentrated with little or no separation of ownership from control – a condition often observed in family firms– dominant shareholders may have incentives to expropriate minority interests, leading the so called *entrenchment* effect (Fama and Jensen 1983; Morck et al. 1988; Shleifer and Vishny 1997; Wang 2006). As Dyck and Zingales (2004) argue, this expropriation phenomenon is more pronounced across environments with less-developed capital markets, higher concentration of ownership, more privately negotiated transactions and consequently, significant private benefits. According to this perspective, agency costs should be higher for high levels of family ownership due to relatively lower dividend distributions and higher free cash flows (Jensen 1986). Specifically, families have incentives to be involved in activities like asset expropriation or earnings manipulation, since they can benefit at the expense of minority shareholders (Chen et al. 2020). Accounting manipulation (e.g. earnings management) further decreases the quality of financial reporting, allowing family insiders to camouflage their entrenchment actions and make it harder for outsiders to detect. According to Anderson et al. (2009) family owners' dominant role derives from their concentrated ownership, the fact that most executive positions are occupied by family members and the long history of family ownership in the firm.

Contrary to the above view, the *alignment* hypothesis posits that family firms may in fact be characterized by less conflict of interest between family owners and minority investors. Specifically, under the *alignment* argument, family members can be considered long-term investors with highly concentrated portfolios, whose aim is to increase firm value as much as possible, in a sustainable manner (e.g., Anderson and Reeb 2003; Chen et al. 2013; Wang 2006). In a

framework like this, the expropriation of minority shareholders is less probable, leaving the management with two options: investment in positive NPV projects or distribution of all earnings. Hence, family owners and/or family managers are less motivated to expropriate minority shareholders and engage in expropriating activities when compared to the managers of nonfamily firms (Chen et al. 2020).

3.2 The dividend supply perspective

Under the *entrenchment* effect, family-controlled entities should favor the *supply* of lower dividend payouts, leaving more resources at the discretion of controlling family shareholders and effectively allowing the expropriation of minority interests. As such, the conflict of interest between family shareholders and minority shareholders results in a negative association between dividend levels and the level of family ownership: lower dividends imply more free cash flows, which enhance both the motive and opportunity of family insiders to expropriate minority shareholders.

Inversely, high levels of family ownership could also favor the *supply* of higher dividends. Under the *alignment* effect, concentrated ownership in the hands of the founding is associated with stronger corporate governance (Wang 2006), as it can promote more effective monitoring (Demsetz and Lehn 1985; Shleifer and Vishny 1997) and lower indirect agency costs. As firm resources are not committed to negative net present value (NPV) projects and other opportunity costs, firms achieve higher levels of net distributable earnings and dividends. Furthermore, in line with the socio-emotional wealth perspective, families have a long-term view of the business and aim to conserve the family reputation, particularly compared to outside professional managers (Achleitner et al. 2014; Wang 2006). A higher *supply* of dividends can therefore further alleviate expropriation concerns by minority shareholders of family firms (Pindado et al. 2012).

3.3 The dividend demand perspective

With respect to the *demand* for dividends, the *entrenchment* effect of family ownership, predicts an increase in the *demand* for higher dividends by potential outside investors[10]. Indicatively, Farinha (2003) argues that market demand increases the level of dividends for higher levels of insider ownership concentration, to compensate for entrenchment-related agency costs. Thus, despite the *supply* of dividends being lower, interested market participants or minority shareholders will demand higher dividends from family firms if they perceive family ownership to compromise corporate governance quality. To safeguard their holdings and interests, shareholders and other users of financial statements could further require contracting terms, which are related to a family firms' dividend policy. As a consequence, the relevant entrenchment effect of family ownership may result increased *demand* for dividends by shareholders and potential investors which in turn might motivate family firms to pay higher dividends to pursue better contracting terms (e.g. lower cost of capital).

Under the *alignment* hypothesis, *demand* for high dividends by contracting parties could decrease. If dividends operate as a competitive corporate governance mechanism to family ownership, then outside shareholders may rely less on dividends as a governance mechanism as the alignment of interests between insiders and outsiders increases. Furthermore, as Farinha (2003) and Schooley and Barney (1994) argue, when insider ownership is low, any increase in the ownership level decreases agency costs, since concentrated ownership - even at low levels- operates as a governance mechanism. As agency costs reduce, dividends tend to become in general less desirable. As such, if minority shareholders and other contracting parties consider family ownership as an efficient corporate governance mechanism, they may depend less on

[10] We use a similar argument to that of Wang (2006), adjusted for dividends where family ownership affects both demand and supply of dividends.

dividends to mitigate the opportunities and temptation for expropriating activities by family insiders. Effectively, contracting terms family firms will not be as strongly associated with dividend policies when compared to nonfamily companies, and *demand* for dividends will be lower.

3.4 Family ownership and dividend payouts

In general, the above competing theories about the influence of family ownership on dividend payments, imply that their relationship remains an empirical matter. Prior evidence from different institutional settings suggests that family firms are generally more likely to pay higher dividends. For instance Setia-Atmaja et al. (2009) documented that in Australia, a financial setting close to the Anglo-Saxon model, family firms present higher payout ratios than non-family firms. Yoshikawa and Rasheed (2010) also reported higher dividend payouts for Japanese family firms while Chen et al. (2005) found a weak relationship between family ownership and dividend decisions in Hong Kong. In their analysis of the German market Schmid et al. (2010) found that family firms make larger payouts and also have a higher propensity to pay dividends. Isakov and Weisskopf (2015) reported that Swiss family firms display increased dividend payouts compared to firms with different ownership structures. They also examined a potential non-linear relationship between family ownership and dividends, but did not find evidence to support it. Pindado et al. (2012) investigated a sample of Eurozone countries over a ten-year period and found that firms tend to offer higher and more stable dividends, to alleviate expropriation concerns by minority shareholders. Finally, Duqi et al. (2020) reported a negative relationship between dividends and family ownership for conventional financial institutions.

With the exception of Isakov and Weisskopf (2015) none of the above studies have examined the potential for a non-linear association between family ownership and dividend payouts. This non-linear relationship should be expected if family members' incentives vary across different levels of ownership. On one hand, when dividend *demand* is considered, family members can

operate as a corporate governance mechanism, which influences the decisions of managers. As such they may either mitigate potential management control problems, or exploit their dominant position in the firm to secure private benefits at the expense of minority shareholders (La Porta et al. 2000). In either case, lower dividends are expected. On the other hand, if family shareholders aim to receive high rents on their less diversified investments or raise funds from external capital markets with more favorable terms, they must establish that potential agency conflicts are mitigated, especially in countries with weak legal protection of minority shareholders (La Porta et al. 2000). Both Farinha (2003) and Correia da Silva et al. (2004) reported a U-shape relationship between the level of concentrated ownership and dividends in the UK and Germany respectively. In a civil law context, family ownership up to a certain (entrenchment) level could have a negative impact on dividend payments[11]. In other words, in an "insider" system of Civil Law tradition, family control beyond a certain level can be accompanied by strong alignment effects, expressed by a positive association between family ownership and dividends.

In sum, whether family firms are more associated with *entrenchment* activities, or their interests are *aligned* with those of minority shareholders and how they ultimately configure their dividend policy constitutes an empirical question. We therefore formulate our nondirectional hypothesis as follows:

Hypothesis 1: Dividend payouts are systematically associated to family ownership

[11] Farinha and López-de-Foronda (2009) argue for an inverse U-shape relationship between insider ownership and dividend payouts for firms which operate in Civil Law tradition countries. However, the consideration of many Civil Law countries ignores the individual idiosyncrasies like the MDR which is present in countries like Germany and Greece.

3.5 Family ownership and MDR waiver

Martins and Novaes (2012) argue that mandatory dividend rules prevent dominant shareholders from shifting corporate assets, but also limit internal funds available for investments. Hence, the MDR operates as a governance provision, protecting minority shareholders (La Porta et al. 1998). Meanwhile, the MDR can be waived if controlling shareholders decide to do so, while unprofitable firms are under no obligation whatsoever to pay dividends. Following our prediction for a systematic association between family ownership and dividends, we further argue that the relationship between family ownership and the likelihood to waive MDR will follow a non-linear pattern, improving the quality of corporate governance.

Specifically, up to a critical level of ownership there should be a negative relationship between family control and the likelihood to waive the MDR. At low levels of family control, the MDR is an effective governance mechanism as it secures minimum dividend payouts, thus protecting minority interests. Above that critical family control level, the need to protect minorities becomes lower as the alignment effect acts as a substitute governance mechanism towards mitigating agency costs; meanwhile the MDR ensures that a minimum dividend will dividend *demand*. Hence, firms with high levels of family voting power will either pay higher dividends (as discussed above in the dividend *supply* argument) or opt to waive the MDR rule to retain funds for investments, especially if they consider the distributable earnings under the MDR to be too high (as discussed above in the dividend *demand* argument). While firms with high levels of family ownership, still have external capital considerations -as every public entity- they can also be effectively characterized as quasi-private with extreme ownership concentration, where informational asymmetry and agency costs are immaterial (Michaely and Roberts 2012). In firms like these, dividends are expected to be more sensitive to profitability and investment opportunities (Michaely and Roberts 2012). Therefore, while high family ownership concentration makes the MDR waiver easier to attain, such decisions will probably not be viewed

as entrenchment-driven: the promotion of a MDR waiver by a few family members for the wrong reasons would most probably transmit a negative signal to outside investors and would be followed by negative market reactions. Consequently, the legal benchmark of 70% of the votes[12] for a MDR waiver ascertains that only decisions which maximize collective shareholder wealth are promoted. Thus, we expect that the relationship between the likelihood of the MDR waiver decision and family ownership is non-linear and follows a U-shaped pattern. Therefore, we posit that:

> *Hypothesis 2*: *There is a negative (positive) association between family ownership and the likelihood of a MDR waiver decision below (above) a critical level of ownership.*

4. Research design

4.1 Models

4.1.1 Benchmark equation

In order to test our hypotheses, we employ a multivariate regression model drawing upon prior empirical work (e.g., Correia da Silva et al. 2004; Farinha 2003; Gugler and Yurtoglu 2003; Isakov and Weisskopf 2015):

$$\begin{aligned} DIVEARN_{i,t} = {} & \alpha_0 + \beta_1 FAMILY\_OWN_{i,t} + \beta_2 FAMILY\_OWN_{i,t}^2 + \beta_3 INST\_OWN_{i,t} \\ & + \beta_4 GOV\_OWN_{i,t} + \beta_5 PRIV\_OWN_{i,t} + \beta_6 ROA_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 DEBT_{i,t} \\ & + \beta_9 CASH_{i,t} + \beta_{10} GROWTH_{i,t} + \beta_{11} NANALYSTS_{i,t} + \beta_{12} LNAGE_{i,t} \\ & + \sum YEAR + \sum INDUSTRY + e_{i,t} \end{aligned} \quad (1)$$

[12] The typical 'family' firm presents on average much lower family ownership; thus a significant consensus is required between family shareholders, minority investors and other blockholders.

In this model, for a given firm i in year t DIVEARN is the total dividends over earnings before interests and taxes. Following Belo et al. (2015) we expect that this ratio -being more stationary over long horizons- better captures a dividend policy rationale avoiding erratic changes in dividend decisions (Lintner 1956). As such, DIVEARN best proxies for the payments out of the unleveraged cash flows of a firm (EBIT) in a year, focusing on the dividends paid out of core operating performance without cost of capital considerations. FAMILY_OWN stands for the percentage of shares that a family holds in the company. A squared term of family ownership is included (FAMILY_OWN^2) to account for a non-linear association between family ownership and dividend payouts. We further include a fixed set of factors with a demonstrable influence on dividend payouts to control for firm characteristics (see Appendix for variable definitions). As such, we control for institutional ownership (INST_OWN), governmental ownership (GOV_OWN) and the percentage of shares individual investors hold in the company (PRIV_OWN). We also include ROA, firm size (SIZE) and financial leverage (DEBT). Following Isakov and Weisskopf (2015), we also augment the model for CASH, growth opportunities (GROWTH) and firm age (LNAGE). We further include the natural logarithm of one plus the number of analysts (LANALYSTS) following a particular firm, as previous studies suggest that financial analysts may constitute a source of managerial monitoring and thus restrict the governance role of dividends (e.g., Chung and Jo 1996; Farinha 2003). Finally, we control for year and industry effects and winsorize all continuous variables at the 1st and 99th percentiles.

Following hypothesis H1, we expect the coefficient (β_2) of the squared family ownership term in model 1 to be significant (i.e., non-zero)[13] when the dependent variable is DIVEARN. To detect the critical turning point of *entrenchment/alignment* we assume all control variables to be constant,

[13] Essentially, we expect that: $\frac{\partial^2 f}{\partial x^2} \neq 0$.

we differentiate the equation in model 1 *(f)* with respect to variable FAMILY_OWN *(x)*, letting $\partial f/\partial x = 0$ and solving for x as follows:

$$\frac{\partial(DIVEARN)}{\partial(FAMILY\_OWN)} = 2 \cdot \beta_2 F_{cr} + \beta_1 = 0 \Leftrightarrow F_{cr} = \frac{-\beta_1}{2\beta_2} \quad \text{Eq 5}$$

where F_{cr} is the critical level of family ownership.

4.1.2 Waiving the MDR

For our second hypothesis (H2) we use an alternative form of the Benchmark equation model (1). We advocate the use of a probit censored model where the dependent variable is a censored variable (WAIVEMDR) that takes the value of 1 when a firm waives the MDR, and 0 otherwise.

$$log[prob(WAIVEMDR_{i,t})/(1 - prob(WAIVEMDR_{i,t}))] \quad (2)$$
$$= \alpha_0 + \beta_1 FAMILY\_OWN_{i,t} + \beta_2 FAMILY\_OWN_{i,t}^2 + \beta_3 INST\_OWN_{i,t}$$
$$+ \beta_4 GOV\_OWN_{i,t} + \beta_5 PRIV\_OWN_{i,t} + \beta_6 ROA_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 DEBT_{i,t}$$
$$+ \beta_9 CASH_{i,t} + \beta_{10} GROWTH_{i,t} + \beta_{11} NANALYSTS_{i,t} + \beta_{12} LNAGE_{i,t}$$
$$+ \sum YEAR + \sum INDUSTRY + e_{i,t}$$

Nevertheless, in order to capture potential non-linearities in the family ownership - MDR waiver relationship we follow a two-phase procedure, similar to Hillier et al. (2011): first, we predict a new continuous MDR waiver variable (CWAIVERMDR) for each year of our sample period (2005-2016), excluding the main variables of interest (FAMILY_OWN and $FAMILY\_OWN^2$) using the following Tobit model:

$$WAIVEMDR_{i,t} = \alpha_0 + \beta_1 INST\_OWN_{i,t} + \beta_2 GOV\_OWN_{i,t} + \beta_3 PRIV\_OWN_{i,t} + \beta_4 ROA_{i,t} \quad (3)$$
$$+ \beta_5 SIZE_{i,t} + \beta_6 DEBT_{i,t} + \beta_7 CASH_{i,t} + \beta_8 GROWTH_{i,t} + \beta_9 NANALYSTS_{i,t}$$
$$+ \beta_{10} LNAGE_{i,t} + \sum INDUSTRY + e_{i,t}$$

For every firm-year, CWAIVEMDR is the residual of the above model (3) when the residual is between 0 and 1, since CWAIVEMDR is a latent variable only observable between 0 and 1. If the residual is above 1 or negative, we set CWAIVEMDR equal to 1 and 0 respectively. Table 1 provides summary statistics (i.e., mean, standard deviation, minimum, and maximum) of the fitted MDR variable (CWAIVEMDR) obtained by the above Tobit model (3). We also estimate a Probit model of the same explanatory variables, to check the predictive ability of the model (3). In the last column of Table 1 we present the significance of the coefficients obtained.

[Insert Table 1 about here]

Second, we test *H2* by estimating the coefficients of family ownership and its squared term in the following model (4) by using the fitted MDR variable, CWAIVEMDR as a dependent variable.

$$CWAIVEMDR_{i,t} = \alpha_0 + \beta_1 FAMILY\_OWN_{i,t} + \beta_2 FAMILY\_OWN_{i,t}^2 + \sum YEAR + \sum INDUSTRY + e_{i,t} \quad (4)$$

4.2 Sample and data

Our sample covers firms listed on the Athens Stock Exchange over the period 2005-2016 which starts with the adoption of IFRS and covers both a period of economic growth as well as an economic recession[14]. To ensure survivorship bias does not affect our sample selection, we begin with all companies listed in the ASE (784 firms) from Thomson Reuters Eikon (our primary

[14] From 2010 and onwards the financial crisis affected firm growth.

source for financial information and ownership structure data[15]). We exclude 295 firms with missing data from Thomson Reuters Eikon. Since Thomson Reuters Eikon does not identify which ownership stakes belong to family members, we retrieve all names of the owners who control more than 5% of the voting rights in a firm from the Athens Exchange register and perform a manual match: we define family ownership, similar to Achleitner et al. (2014), as the aggregate percentage of voting rights owned by family members, who are related to the founder by either blood or marriage[16]. To classify owners as family members, we cross-checked founder information from various sources such as company websites, annual reports, annual general meetings' records and the financial press. Our data requirements on control variables drop a further 51 firms due to missing data. Our final sample includes a total of 438 firms (2,202 firm-year observations – see Table 2), of which 245 are classified as family firms (1,060 firm-year observations – see Table 3). Data on the conditional variables were taken from Bloomberg, while data related to the calculation of minimum dividend requirement were also hand-collected from company accounts.

[Insert Table 2 about here]

5. Empirical results

5.1 Univariate analysis

Table 3 summarizes the financial characteristics of our entire sample and the two sub-samples of family and non-family firms respectively, while we also provide a comparison of the differences

[15] We have cross-checked ownership data using the relevant section of Athens Stock Exchange website, where shares ownership is reported.
[16] We operationalize family ownership cumulatively. The dominant case for family firms, in the Greek context, is for their voting rights to be controlled by members of a single family. In the few cases where firms are controlled by more than one family, we use the cumulative ownership of all members of founding families.

in mean values of each variable across the two sub-groups. We consider family firms those in which at least 25% of the voting rights are controlled by family members (Achleitner et al. 2014). The mean (0.135 vs. 0.151) payout ratio (DIVEARN) is not statistically different between family and non-family firms. The means of the two proxies for the likelihood of the dividend waiver decision (WAIVEMDR and CWAIVEMDR) are statistically different between family (0.255 and 0.291) and non-family firms (0.327 and 0.381), suggesting that non-family firms are more likely to waive the MDR. As expected, mean and median institutional and private ownership (INST_OWN, PRIV_OWN) are lower in family-controlled firms while mean and median leverage (DEBT) are significantly higher. Finally, non-family firms have higher sales growth on average (0.068) in comparison to family firms (0.033). Unreported correlation coefficients and mean-variance inflation factors (VIFs) across all model variables do not raise collinearity concerns, as in general they do not exceed 0.6 and 10 respectively (e.g., Kutner et al. 2004)

[Insert Table 3 about here]

5.2 Multivariate analysis

5.2.1 Critical entrenchment/alignment levels and dividend policy

Results from the estimation of the main models for DIVEARN, CWWAIVEMDR and WAIVEMDR are reported in Table 4.

[Insert Table 4 about here]

The specifications in Table 4, indicate a non-linear (U-shape) relationship between the level of family ownership and dividend policy. In model 2, the coefficient of FAMILY_OWN is negative (β_1= -0.839) and that of FAMILY_OWN^2 is positive (β_2= 0.974) both significant at 1% level, while in model 4, family ownership has also a U-shape non-linear association with the censored variable CWAIVEMDR. More specifically, together the coefficient of FAMILY_OWN which is negative (-0.327) and that of FAMILY_OWN^2 which is positive (0.302) are significant at 1% and

5% level, respectively. Based on model 2 the critical level of family ownership, where *entrenchment/alignment* is observed is calculated as follows:

$$\frac{\partial(DIVEARN)}{\partial(FAMILY\_OWN)} = 2 * 0.974F_{cr} - 0.839 = 0 \Leftrightarrow 1.948F_{cr} - 0.839 = 0 \Leftrightarrow F_{cr} = 43.07\%^{17} \quad \text{Eq 6}$$

On the other hand, according to model 4, the critical level of family ownership as the turning point of the relationship between family ownership and the likelihood of the dividend payment above MDR equals:

$$\frac{\partial(CWAIVEMDR)}{\partial(FAMILY\_OWN)} = 2 * 0.302F_{cr} - 0.327 = 0 \Leftrightarrow 0.604F_{cr} - 0.327 = 0 \Leftrightarrow F_{cr} = 54.14\%^{18} \quad \text{Eq 7}$$

Hence, the findings support hypotheses *H1* and *H2*, since there is a negative relationship between dividends (or our censored CWAIVEMDR variable) with family ownership up to a certain level of ownership, which becomes positive when family ownership exceeds that level. Overall, the results support that for lower levels of ownership dividends act as competitive corporate governance mechanism, while for higher levels of ownership dividends reduce potential agency costs deriving from conflicts between entrenched families and minority shareholders.

As a further sensitivity procedure, we illustrate all results in Figures 1 and 2, by means of response and marginal effects plots of the (quadratic) effects. In Figure 1, the graph on the left plots the non-linear prediction of DIVEARN, for all levels of FAMILY_OWN, according to the estimates of Model 2 in Table 4. The graph on the right illustrates the marginal effects ($\partial y/\partial x$) of FAMILY_OWN on DIVEARN evaluated across all levels of family ownership, along with 95%

[17] U-test t-value (3.000) suggests that this U-shape relationship between FAMILY_OWN and DIVEARN is statistically significant at 1% significance level.
[18] U-test t-value (3.500) suggests that this U-shape relationship between FAMILY_OWN and CWAIVEMDR is statistically significant at 1% significance level.

confidence intervals. The marginal effects plot clearly supports that the effect (slope) of family ownership on DIVEARN is:

- negative and significant for low levels of family ownership, especially up to around 35%.
- positive and significant for high levels of support, especially over around 55%.
- inconclusive for intermediate levels. When family ownership is between 35% and 55% confidence lines cross both sides of the (zero) reference line, therefore caution is to be exercised when interpreting the effects of such intermediate levels of FAMILY_OWN on DIVEARN.

The results are rather similar in Figure 2, which illustrates non-linear predictions and marginal effects ($\partial y/\partial x$) of the likelihood of dividend waiver (CWAIVEMDR), as estimated in model 4 of Table 4. However, while the effect (slope) of FAMILY_OWN on CWAIVEMDR is less significant for higher levels of FAMILY_OWN, in line with the 'weaker' coefficient of $FAMILY\_OWN^2$ (0.302) in specification 4 of Table 4. Therefore, this very fine-grained analysis of conditional effect sizes, offers full support to *H1* and also partial support to *H2*.

In terms of economic significance, these results (e.g. Table 4, model 2) suggest that for an average firm, a 10% increase of family ownership (from 0.297 to 0.397 or 33.67%) would imply a simultaneous decrease in DIVEARN by 0.0839 due to the coefficient of FAMILY_OWN and an increase of $(0.397^2-0.297^2)*0.974$, or 0.0676. That would suggest an impact of 11.40% to average DIVEARN levels [(0.0839-0.0676)/0.143), an effect which is also economically significant.

[Insert Figure 1 about here]

[Insert Figure 2 about here]

6. Robustness and Sensitivity analysis

6.1 Propensity score matching (PSM) with non-family firms

To ensure that our results remain robust to alternative matching methodologies, we employ a one-to-one without replacement nearest-neighbor propensity score matching (PSM) (Shipman et al. 2017) and employ an alternative matched sample of firms with similar firm characteristics. The PSM technique enables us to alleviate concerns that our results are driven by self-selection and structural disparities between non-family and family firms (e.g., Rosenbaum and Rubin 1985). In the first stage, we run a probit regression to estimate propensity scores for family and non-family firms, controlling for firm size, leverage, profitability, liquidity, asset tangibility, firm age, and ownership concentration similar to prior literature (e.g., Achleitner et al. 2014; Jain and Shao 2015). We further control for industry and year fixed effects. Next, we employ a nearest-neighbor matching approach without replacement to match family and non-family firms, based on proximity to the predicted value from the first step, but with the restriction that matching pairs belong to the same year and two-digit industry. This process yields 507 matching pairs (or 1,014 firm-years)[19]. Using this new sample, we repeat our analyses, which are presented in Table 5.

[Insert Table 5 about here]

In models 2 and 4 of Table 5 the coefficient of FAMILY_OWN is negative (-0.766 and -0.615) and significant at 1%, while the coefficient of its square term FAMILY_OWN^2 is positive (0.922 and 0.694) and significant at 5% and 1% respectively. These results support that the U-shaped

[19] None of the standardized differences exceed the threshold of ±20 for the post PSM sample, indicating that the matching was successful in achieving balance across all covariates. Details are available in the online supplementary material.

relationship between the family ownership and the level of dividends (MDR waiver likelihood) - established in the main analysis- is robust, with a turning point at 41.54% (44.31%) of family ownership.

6.2 Alternative model specifications and control for omitted variables

We also employ an alternative sample construct and restrict our sample to profitable firms only (positive ROA), since firms with negative financial performance (negative ROA) are not required to provide dividends. We further add alternative measures as control proxies for investment growth opportunities and likelihood of financial distress to assess the sensitivity of our results against the impact of specific firm characteristics on the relationship between family ownership and dividend policy, while controlling for omitted variables as well. Specifically, we use managers' overoptimism defined as the residual from the excess investment regression less the industry median residual (e.g., Sikalidis and Leventis 2017), capital expenses to total assets (e.g., Setia-Atmaja et al. 2009), research and development to assets (e.g., Smith and Watts 1992), a five-year company probability of default as provided by Bloomberg and coverage ratio (e.g., Whited 1992). We also use an indicator for the presence of a big four auditor as a proxy for better governance.

We further consider two potential channels through which families might affect a firm's dividend policy, namely corporate governance and earnings management (e.g., Achleitner et al. 2014; Pindado et al. 2012). We capture family involvement in the governance of the firm using an indicator variable that is equal to 1 if a family member acts as a CEO of the firm (FAMILY_CEO)[20], and zero otherwise. Additionally, we augment our model with a control

[20] Data on the identity of the CEO for our sample firm is culled from the Hellenic Observatory of Corporate Governance (HOCG).

variable capturing the quality of earnings of the firms in our sample. Following Abdelsalam et al. (2021), we measure earnings quality (EARNQUAL) through StarMine database, a division of Thomson Reuters.[21] Finally we repeat our analyses using alternative constructs of the dependent variable, namely a) the dividend per share (DPS); b) the dividends paid over total assets (DIVASS); and c) the dividends paid over total sales (DIVSALES). We observe that our main inferences do not change when using these alternative measures. Additionally, we affirm our results are robust when replacing ROA with ROE (measured as net income over total equity). Our results for all the above tests (available in the online supplementary material) are qualitatively similar.

6.3 The role of the Greek debt crisis

We perform some additional econometric procedures to test the sensitivity of our results. First, as the sample spans both a period of economic growth and a prolonged period of the so called 'Greek debt crisis', we assess our main findings under two very different general macroeconomic conditions. As such, we estimate our Benchmark equation and equation (4) in both a pre-crisis period[22] (2005-2009) and a post-financial crisis period and report the results in Table 6:

[Insert Table 6 about here]

During both the pre and post crisis periods (models 1 and 3), the coefficients of FAMILY_OWN are negative (-0.656 and -1.257) and significant at 1% and the square terms $FAMILY\_OWN^2$ are positive (0.517 and 1.361) and significant at 10% and 1% respectively.

[21] EARNQUAL is a percentile rank (0-100; with higher values representing higher rank) that is assigned to each security after compared to all other securities trading in the same region. For a detailed description of this measure see Abdelsalam et al. (in press).

[22] We mark the period of financial crisis after May 2010, when a €110bn bailout loan was agreed between Greece and the EC/IMF/ECB joint mission, conditional upon the introduction of fiscal austerity, structural reforms, and privatizations.

Those results therefore support the U-shape relationship *(H1)* between family control and dividend payouts across both periods, with the key difference being the critical *entrenchment/alignment* point, which is 63.44% prior to the recession and drops to 46.18% after 2010. The results for the MDR waiver hypothesis *(H2)* are more nuanced: while the effects of FAMILY_OWN and FAMILY_OWN^2 are as expected and statistically significant for the post-crisis period (model 4), in the pre-crisis sample the relationship between family ownership and the likelihood of a MDR waiver decision is not significant, despite the coefficients carrying the expected sign. Our interpretation is that during the period of economic growth, where firms have in general more investment opportunities, easier access to external capital and investors earn higher capital gains, dividend payouts are less efficient as a governance mechanism. Therefore, family members become entrenched at higher levels, while the likelihood of MDR waivers is generally higher, as suggested the high intercept (0.224) in model 2. However, during the crisis, the increased information asymmetries brought about by the prolonged uncertainty and economic decline, force family interests to become aligned at lower levels of control and the effectiveness of the MDR rule is strengthened. Our results are somehow different from those of Attig et al. (2016), who provide empirical evidence of family ownership being negatively associated with dividend payouts, concluding that the financial crisis intensified agency problems of family firms in East Asia.

6.4 The role of asset growth and cost of capital

Lastly, we test how the relationship between family ownership and payout policy is influenced by a firm's investment opportunities and risk profile, since both the level of dividend retention and payout levels change over time with shifts in investment growth, liquidity and risk (Lintner 1956). Following Martins and Novaes (2012), we posit that high levels of investments suggest a higher degree of investment opportunities and managerial optimism about growth prospects. We therefore modify equations (1) and (4), by interacting our family ownership variables with

ASSETGROWTH, a proxy for investment growth prospects and WACC, the weighted cost of capital, as a proxy for higher likelihood of financial distress. The results are reported in Table 7.

[Insert Table 7 about here]

In models 2 and 4 of Table 7, the estimates of the interaction term FAMILY_OWN × ASSETGROWTH are positive (2.966 and 0.716) and these of FAMILY_OWN^2 × ASSETGROWTH are negative (-3.093 and -0.767). These results imply that the relationship between dividend payouts (and MDR waiver) and family ownership is inverse U-shaped for firms with higher asset growth. In model 6, the coefficient for FAMILY_OWN × WACC is positive (0.258) and statistically significant at 1%, while that of FAMILY_OWN^2× WACC is negative. Hence, for firms facing higher cost of capital and probability of financial distress the family ownership – dividend relationship also becomes inverse U-shaped. The results are qualitatively similar in model 8, where the MDR waiver (CWAIVEMDR) is considered, but not statistically significant. Figures 3 and 4 illustrate how the relationship between dividend policy and family ownership is shaped across low and high levels of ASSET_GROWTH and WACC.

[Insert Figure 3 about here]

[Insert Figure 4 about here]

The above analysis in general supports that when asset growth or cost of capital is low, increases in family control must be accompanied by higher dividend payouts to signal that the firm in fact is well-managed and undertakes only profitable (positive NPV) investment opportunities (Watanabe et al. 2013). Therefore, the *alignment* effect (over a certain critical level of family

ownership) ensures that dividend payments increase to mitigate agency costs, decrease free cash flows and convey strong signals to outside investors that agency costs are insignificant[23].

On the contrary, firms with high asset growth or increased cost of capital have incentives to hoard cash to fund capital investments. While at relatively low levels of family control (as above) this would normally lead to increased dividend payouts, once family control reaches a critical level, further family ownership strengthens *alignment* effects, since family members not only hold principal claims to the firm's cash flows, but also carry most of the residual risk. If future investment growth prospects are high the management- in accordance with controlling-family interests - will most likely cut dividends in light of rising investment requirements (Ben-David et al. 2007) and plow back profits to fuel asset growth. On the other hand, for firms with high cost of capital, external financing may be too expensive and can increase the likelihood of financial distress; hence the higher the control of the family, the more likely it becomes that the firm will seek to exploit internal resources, therefore limiting dividend payouts.

7. Conclusion

In this study, we set out to explore the relationship between the level of family ownership and dividend policy decisions in the Greek setting, a civil law compulsory-dividend regulatory regime. We contrast two competing theoretical arguments, to explain the dividend *supply* and *demand* of family firms: the *alignment effect* and the *entrenchment effect*. On one hand, the supply side of the alignment effect (and the demand side of the entrenchment effect) implies that family firms should pay a higher dividend: family concentrated ownership leads to more efficient monitoring

[23] This is particularly important in a Civil Law tradition environment, since minority shareholders would have reduced legal protection (Farinha and López-de-Foronda 2009) while family ownership is mostly related to influential shareholders who also have significant controlling power via corporate networks or family linkes (Faccio and Lang 2002).

by controlling shareholders (Demsetz and Lehn 1985; Shleifer and Vishny 1997; Wang 2006), who also maintain a long-term perspective in order to preserve the family name. As family members hold less diversified portfolios (Anderson and Reeb 2003), they are less likely to pursue short-term private benefits from the expropriation of minority shareholders and less likely to engage in opportunistic dividend policy since a family's reputation, income and sustainable performance are on the line (Ali et al. 2007; Wang 2006). On the other hand, the supply side of the entrenchment effect, consistent with the view that family firms are less efficient and favor the interests of controlling shareholders (Fama and Jensen 1983; Fan and Wong 2002; Morck et al. 1988; Shleifer and Vishny 1997; Wang 2006) prompts lower dividends and expropriation of minority and other contracting parties. Similarly, dividend demand will be lower under the alignment effect, where minority shareholders and other contracting parties recognize family control as aligned and depend less on dividends.

Using a sample of 2,202 firm-year observations of Greek listed firms for the period 2005-2016 and an empirical model similar to Isakov and Weisskopf (2015) we examine the influence of family ownership on both the level of dividend payouts and the likelihood of a decision to waive the MDR. Our results reveal a U-shaped association between the level of family ownership and dividend payouts. In addition, the level of family ownership decreases the likelihood of a MDR waiver up to a particular level of family ownership while it decreases after that level. We therefore surmise that a combination of governance signaling and family revenue needs drive to a large extend the payout policies of our sample of firms. We further show that under firm specific conditions – such as a firm's investment growth and probability of financial distress – dividend policy may be affected and can deviate significantly from standard dividend patterns demonstrating an inverse U shape relationship between firms' dividend payouts or the likelihood of a payment below MDR and their family ownership levels.

Our findings support the conceptual combination of the agency view with signalling theory, which have been argued to be consistent with each other (Morris 1987) and capable to jointly yield predictions in areas of accounting research, such as lobbying, voluntary auditor selection, and accounting choices and disclosures (Toms 2002) among others. Our sensitivity analyses also give support to the investment opportunity set theory by Fama and French (2001) promoting the idea of a trade-off between retention and payout, which evolves over time depending on earnings and investment opportunities and is dynamic during the lifetime of a firm. Specifically, at lower levels of family concentration, dividends operate as a discipline signalling mechanism when asset investments and a firm's cost of capital are high. On the other hand, for higher levels of concentration, the entrenchment effect can dominate and decrease dividends, so that controlling shareholders can exploit undistributed freed-up resources to fund pet projects and use internal resources rather than choose expensive external funds.

In summary, our evidence suggests that family ownership is associated with higher dividends, a finding consistent with the *alignment* effect of family ownership on the *supply* of dividends, or differently, the entrenchment effect on the *demand* of dividends. Nevertheless, we show that the increase of dividends is followed by an increase of the likelihood of a MDR waiver decision even in the case of firms with high cost of capital, suggesting that the conflicts between debtholders and shareholders remain strong. Finally, our study's main limitation could be an avenue for future research: specifically, in our study it is not certain whether higher distribution of family firms is an outcome of the demand or the supply for higher dividends. The assessment, identification and separation of the two effects is beyond the scope of this study, which aims to document an empirical relationship between a well-observed ownership structure and dividend policy.

Appendix - Variable Definitions

Variable	Definition
Dependent variables:	
DIVEARN	Dividends over earnings before interest and taxes.
WAIVEMDR	1 if the company pays less than the Minimum Dividend Requirement, and 0 otherwise.
CWAIVEMDR	Represents the predicted values of WAIVEMDR for each year of our sample, between 2005to 2016, by using a Tobit model.
Main independent variables:	
FAMILY_OWN	The percentage of shares (stake) held by the family members, who are related to the founder by either blood or marriage.
FAMILY_OWN^2	The square of the percentage of shares (stake) held by the family members, who are related to the founder by either blood or marriage.
Control variables:	
INST_OWN	The percentage of shares (stake) institutional investors hold in the company.
GOV_OWN	The percentage of shares (stake) the government or governmental institutions hold in the company.
PRIV_OWN	The percentage of shares (stake) individual investors hold in the company.
ROA	Is earnings before interest and taxes over total assets.
SIZE	Is the logarithm of book value of assets.
DEBT	Is the book value of total debt scaled by total assets.
CASH	Is the cash and cash equivalents deflated by total assets.
GROWTH	Is the annual growth rate of sales.
NANALYSTS	Is the natural logarithm of the number of analysts (ANALYSTS + 1) following each firm.
LNAGE	Is the natural logarithm of (firm age + 1), and is measured since the company's interception.
Other variables:	
ASSETGROWTH	Is the annual growth rate of total assets.
WACC	Is the company's weighted average cost of capital.

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Tables

Table 1. Summary statistics of predicted WAIVEMDR values assuming a censored model.

Variable	Min	25th	Mean	Median	75th	Max	StDev	Correct Classification
CWAIVEMDR2005	0.000	0.178	0.283	0.253	0.353	0.761	0.138	92.06
CWAIVEMDR2006	0.000	0.357	0.508	0.535	0.660	0.985	0.262	88.43
CWAIVEMDR2007	0.000	0.331	0.550	0.583	0.774	1.000	0.280	81.20
CWAIVEMDR2008	0.000	0.161	0.387	0.352	0.562	0.987	0.270	91.76
CWAIVEMDR2009	0.000	0.197	0.387	0.374	0.595	1.000	0.276	91.47
CWAIVEMDR2010	0.000	0.000	0.247	0.143	0.366	1.000	0.300	90.00
CWAIVEMDR2011	0.000	0.000	0.192	0.106	0.245	1.000	0.253	88.24
CWAIVEMDR2012	0.000	0.000	0.227	0.126	0.375	0.961	0.259	89.27
CWAIVEMDR2013	0.000	0.000	0.198	0.134	0.313	0.994	0.224	94.48
CWAIVEMDR2014	0.000	0.000	0.187	0.063	0.285	1.000	0.254	94.44
CWAIVEMDR2015	0.000	0.000	0.279	0.158	0.403	1.000	0.318	78.08
CWAIVEMDR2016	0.000	0.077	0.343	0.249	0.574	1.000	0.310	85.19
CWAIVEMDR	0.000	0.072	0.338	0.285	0.556	1.000	0.294	.

Table 2. Sample selection.

Sample selection stages	Number of firms	Number of firm years
Greek firms in Thomson Reuters Eikon database (2005 - 2016).	784	4,118
Omit: Firms without ownership structure data in Thomson Reuters Eikon database.	295	1,562
Omit: Observations lacking control variables for our main model.	51	354
Final sample	438	2,202

Table 3. Descriptive statistics of firms with and without family ownership.

Variable	Entire Sample (N = 2,202)							Family firms (N = 1,060)							Non-Family firms (N = 1,142)							Mean difference
	Min	25th	Mean	Median	75th	Max	StDev	Min	25th	Mean	Median	75th	Max	StDev	Min	25th	Mean	Median	75th	Max	StDev	(2-1)
DIVEARN	-3.607	0	0.143	0.096	0.269	3.15	0.647	-3.607	0	0.135	0.076	0.269	3.15	0.709	-3.607	0	0.151	0.109	0.272	3.15	0.583	0.016
WAIVEMDR	0	0	0.292	0	1	1	0.455	0	0	0.255	0	1	1	0.436	0	0	0.327	0	1	1	0.469	0.072***
CWAIVEMDR	0	0.072	0.338	0.285	0.556	1	0.294	0	0.022	0.291	0.206	0.502	1	0.292	0	0.125	0.381	0.342	0.608	1	0.29	0.090***
FAMILY_OWN	0	0	0.297	0.225	0.586	0.96	0.298	0.25	0.437	0.574	0.589	0.715	0.96	0.175	0	0	0.04	0	0	0.249	0.075	-0.533***
FAMILY_OWN^2	0	0	0.177	0.051	0.343	0.922	0.222	0.063	0.191	0.36	0.347	0.511	0.922	0.195	0	0	0.007	0	0	0.062	0.015	-0.352***
INST_OWN	0	0.01	0.203	0.091	0.294	1	0.26	0	0.001	0.099	0.042	0.156	0.681	0.13	0	0.034	0.299	0.153	0.561	1	0.308	0.201***
GOV_OWN	0	0	0.013	0	0	0.745	0.071	0	0	0.014	0	0	0.493	0.063	0	0	0.012	0	0	0.745	0.079	-0.002
PRIV_OWN	0	0	0.046	0	0	1	0.141	0	0	0.016	0	0	0.427	0.048	0	0	0.075	0	0	1	0.186	0.059***
ROA	-0.334	-0.022	0.013	0.021	0.057	0.299	0.09	-0.334	-0.03	0.01	0.017	0.047	0.299	0.091	-0.334	-0.013	0.015	0.027	0.062	0.299	0.089	0.004
SIZE	16.052	18.371	19.477	19.36	20.573	23.057	1.544	16.052	18.123	19.14	19.02	20.055	23.057	1.524	16.052	18.727	19.79	19.789	20.88	23.057	1.497	0.650***
DEBT	0	0.221	0.355	0.354	0.464	1.092	0.216	0	0.239	0.381	0.366	0.502	1.092	0.217	0	0.185	0.331	0.347	0.45	1.092	0.213	-0.050***
CASH	0.003	0.022	0.099	0.059	0.127	0.688	0.118	0.003	0.018	0.089	0.051	0.111	0.688	0.117	0.003	0.025	0.108	0.07	0.147	0.688	0.117	0.019***
GROWTH	-1	-0.085	0.051	0.028	0.169	1.788	0.377	-1	-0.097	0.033	0.033	0.148	1.788	0.368	-1	-0.07	0.068	0.025	0.179	1.788	0.385	0.035*
NANALYSTS	0	0	0.881	0	1.792	3.135	1.061	0	0	0.72	0	1.386	3.135	1.046	0	0	1.03	0.693	1.946	3.135	1.054	0.310***
LNAGE	2.079	3.219	3.553	3.584	3.871	4.644	0.528	2.079	3.178	3.47	3.481	3.738	4.564	0.46	2.079	3.296	3.63	3.689	3.951	4.644	0.573	0.160***

Notes: The table shows descriptive statistics for all main variables of the analysis. As family firms are defined those with 25% or more family ownership (Achleitner et al., 2014). The last column compares the differences in mean values of each variable across groups and statistical significance of differences reported are based on t-tests for continuous variables and chi-square tests for dummy variables.

***, ** and * indicate significance at the 1%, 5% and 10% levels respectively (2-tailed). Variable definitions are shown in the Appendix.

Table 4. Dividend policy analysis and family ownership.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	DIVEARN	DIVEARN	CWAIVEMDR	CWAIVEMDR	WAIVEMDR	WAIVEMDR
FAMILY_OWN	-0.121*	-0.839***	-0.111***	-0.327***	-0.684***	-1.751***
	(-1.78)	(-3.98)	(-4.17)	(-3.29)	(-3.31)	(-2.75)
FAMILY_OWN^2	.	0.974***	.	0.302**	.	1.498*
		(3.48)		(2.21)		(1.72)
INST_OWN	-0.150*	-0.202**	.	.	0.397*	0.360
	(-1.67)	(-2.20)			(1.79)	(1.62)
GOV_OWN	0.336*	0.362*	.	.	0.728	0.778
	(1.82)	(1.71)			(0.62)	(0.690)
PRIV_OWN	0.137	0.083	.	.	-0.267	-0.278
	(0.67)	(0.41)			(-0.43)	(-0.45)
ROA	1.377***	1.306***	.	.	9.321***	9.333***
	(5.16)	(5.08)			(8.26)	(8.27)
SIZE	-0.082***	-0.078***	.	.	-0.043	-0.030
	(-4.04)	(-3.85)			(-0.70)	(-0.48)
DEBT	-0.133	-0.114	.	.	-0.473	-0.441
	(-1.10)	(-0.95)			(-1.40)	(-1.31)
CASH	-0.624	-0.587	.	.	1.837***	1.875***
	(-1.64)	(-1.56)			(3.26)	(3.28)
GROWTH	0.106**	0.102**	.	.	-0.269**	-0.275**
	(2.36)	(2.33)			(-2.26)	(-2.30)
NANALYSTS	0.024	0.030	.	.	0.196**	0.199**
	(1.07)	(1.43)			(2.39)	(2.41)
LNAGE	0.067*	0.066*	.	.	-0.137	-0.142
	(1.69)	(1.67)			(-1.11)	(-1.16)
Intercept	1.584***	1.537***	0.155***	0.161***	-0.461	-0.685
	(4.76)	(4.64)	(5.04)	(5.06)	(-0.37)	(-0.55)
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.148	0.154	0.446	0.449	.	.
Adj R^2	0.120	0.125	0.431	0.433	.	.
Pseudo R^2	.	.	.	.	0.394	0.395
Hosmer-Lemeshow x^2	.	.	.	.	31.726	22.316
Area under the ROC curve	.	.	.	.	0.892	0.892
Mean VIF	1.636	3.795	1.032	9.742	1.677	3.827
Observations	2,202	2,202	2,202	2,202	2,202	2,202

Notes: This table examines the effect of family ownership on dividend policy and documents the results of the relevant OLS (specifications 1-4) and probit (specifications 5-6) regressions. The sample consists of 2,202 firm-year observations from fiscal years 2005-2016. In specifications 1-2, the dependent variable is dividends over earnings (DIVEARN). In specifications 3-4 the dependent variable is the censored variable CWAIVEMDR. Finally, in specifications 5-6 the dependent variable is a categorical variable which takes the value 1 when a firm waiver MDR and 0 otherwise (WAIVEMDR). Robust standard errors are clustered at the firm level and t- statistics are displayed in parentheses (z-statistics for specifications 5 and 6).

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Variable definitions are shown in the Appendix.

Table 5. Dividend policy analysis using the propensity score matched (PSM) sample.

Variables	(1) DIVEARN	(2) DIVEARN	(3) CWAIVEMDR	(4) CWAIVEMDR
FAMILY_OWN	-0.092	-0.766***	-0.133***	-0.615***
	(-1.42)	(-2.79)	(-4.16)	(-4.99)
FAMILY_OWN^2	.	0.922**	.	0.694***
		(2.46)		(4.17)
CONTROL VARIABLES	✓	✓	.	.
Intercept	0.795**	0.737**	0.398***	0.433***
	(2.34)	(2.15)	(10.40)	(9.31)
Industry Effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
R^2	0.156	0.162	0.419	0.436
Adj R^2	0.112	0.117	0.395	0.412
Mean VIF	1.643	3.871	1.024	9.406
Observations	1,014	1,014	1,014	1,014

Notes: This table reports the results of the panel data regressions using dividend payout ratio (DIVEARN) or a censored variable (CWAIVEMDR) as the dependent variable for firm-year observations from fiscal years 2005-2016. The sample in specifications 1-4 consists of 1,014 firm-year observations after the propensity score matching where each family firm is matched with an non-family firm. Robust standard errors are clustered at the firm level and t-statistics are displayed in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Control variables are as in Table 4; Variable definitions are shown in the Appendix.

Table 6. Dividend policy analysis and financial crisis.

Variables	Pre-Crisis (2005-2009)		Post-Crisis (2010-2016)	
	(1) DIVEARN	(2) CWAIVEMDR	(3) DIVEARN	(4) CWAIVEMDR
FAMILY_OWN	-0.656***	-0.159	-1.257***	-0.421***
	(-3.13)	(-1.46)	(-2.94)	(-2.63)
FAMILY_OWN^2	0.517*	0.180	1.361***	0.349
	(1.96)	(1.15)	(2.82)	(1.63)
CONTROL VARIABLES	✓	.	✓	.
Intercept	1.946***	0.224***	1.509***	0.122***
	(4.26)	(4.33)	(2.80)	(5.30)
Industry Effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
R^2	0.316	0.345	0.169	0.523
Adj R^2	0.274	0.311	0.124	0.501
Mean VIF	3.677	9.795	5.588	9.836
Observations	1,086	1,086	1,116	1,116

Notes: This table reports the results of panel data regressions using dividend payout ratio (DIVEARN) or a censored variable (CWAIVEMDR) as the dependent variable for firm-year observations from fiscal years 2005-2016. The sample from specifications 1-4 consists of 1,086 firm-year observations and includes observations for a pre financial crisis period (2005-2009). The sample from specifications 4-8 consists of 1,116 firm-year observations and includes observations for a post financial crisis period (2010-2016). Robust standard errors are clustered at the firm level and t-statistics are displayed in parentheses.
***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Control variables are as in Table 4; Variable definitions are shown in the Appendix.

Table 7. Dividend policy analysis and interaction of family ownership with asset growth and WACC.

Variables	Asset Growth				WACC			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	DIVEARN	DIVEARN	CWAIVEMDR	CWAIVEMDR	DIVEARN	DIVEARN	CWAIVEMDR	CWAIVEMDR
FAMILY_OWN	-0.174**	-0.959***	-0.122***	-0.344***	-0.659***	-2.209***	-0.160***	-0.422**
	(-2.31)	(-4.46)	(-4.39)	(-3.48)	(-2.71)	(-3.24)	(-2.67)	(-2.31)
FAMILY_OWN^2	.	1.050***	.	0.311**	.	1.947***	.	0.348
		(3.74)		(2.29)		(2.70)		(1.46)
ASSETGROWTH	-0.576***	-0.653***	0.196***	0.176***	.	.	.	.
	(-3.06)	(-3.36)	(4.90)	(4.27)				
FAMILY_OWN × ASSETGROWTH	0.768***	2.966***	0.178*	0.716**	.	.	.	.
	(2.90)	(3.80)	(1.81)	(2.33)				
FAMILY_OWN^2× ASSETGROWTH	.	-3.093***	.	-0.767*	.	.	.	.
		(-3.29)		(-1.73)				
WACC	.	.	.	.	-0.001	-0.011	0.031***	0.030***
					(-0.03)	(-0.77)	(6.18)	(5.67)
FAMILY_OWN × WACC	.	.	.	.	0.097***	0.258***	0.015	0.030
					(2.63)	(2.66)	(1.49)	(0.94)
FAMILY_OWN^2 × WACC	.	.	.	.		-0.205**	.	-0.020
						(-1.97)		(-0.46)
CONTROL VARIABLES	✓	✓	.	.	✓	✓	.	.
Intercept	1.642***	1.610***	0.091***	0.101***	2.179***	2.314***	0.126**	0.146***
	(4.97)	(4.88)	(2.97)	(3.37)	(4.36)	(4.35)	(2.54)	(2.91)
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.163	0.172	0.472	0.475	0.207	0.212	0.542	0.544
Adj R^2	0.135	0.143	0.457	0.460	0.176	0.180	0.527	0.528
Mean VIF	1.744	7.210	1.495	15.385	2.687	21.413	3.916	48.741
Observations	2,202	2,202	2,202	2,202	1,616	1,616	1,616	1,616

Notes: This table reports the results of the panel data regressions using dividend payout ratio (DIVEARN) or a censored variable (CWAIVEMDR) as the dependent variable for firm-year observations from fiscal years 2005-2016. The sample in specifications 1-4 consists of 2,202 firm-year observations while the sample in specifications 5-8 consists of 1,616 firm-year observations. Robust standard errors are clustered at the firm level and t-statistics are displayed in parentheses.

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Control variables are as in Table 4; Variable definitions are shown in the Appendix.

Figures

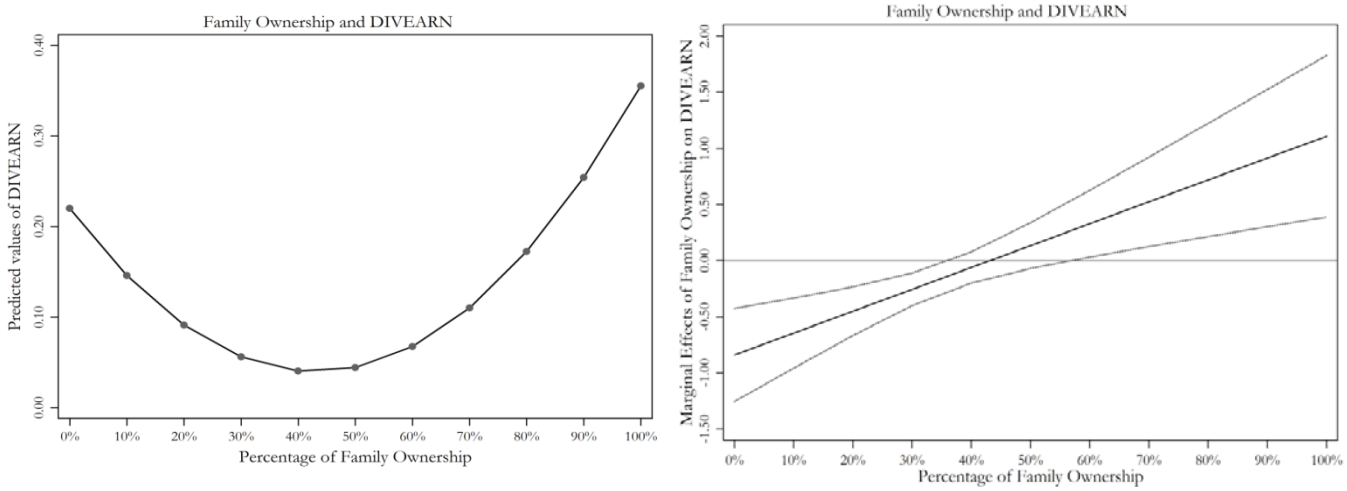

Figure 1 Family Ownership and Dividends over Earnings

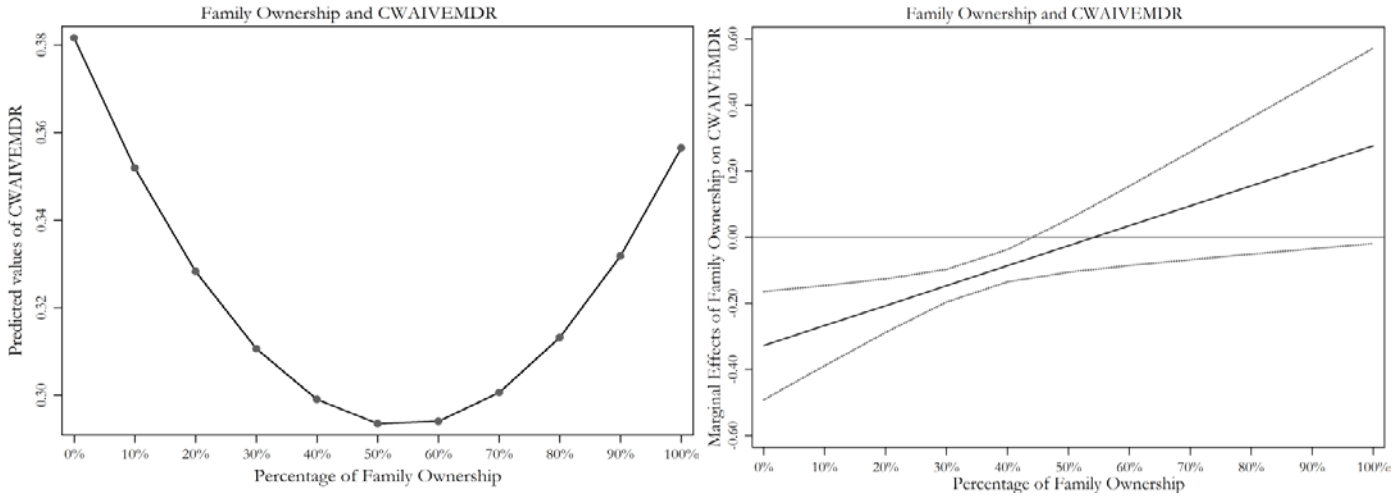

Figure 2 Family Ownership and MDR Waiver Likelihood

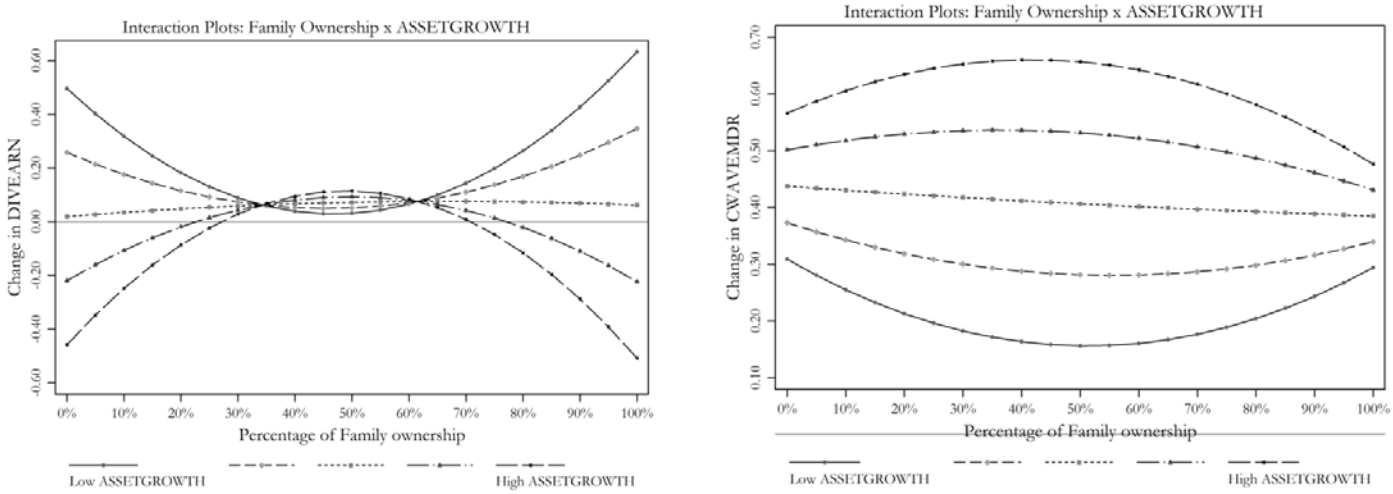

Figure 3 Interaction effects of family ownership and asset growth

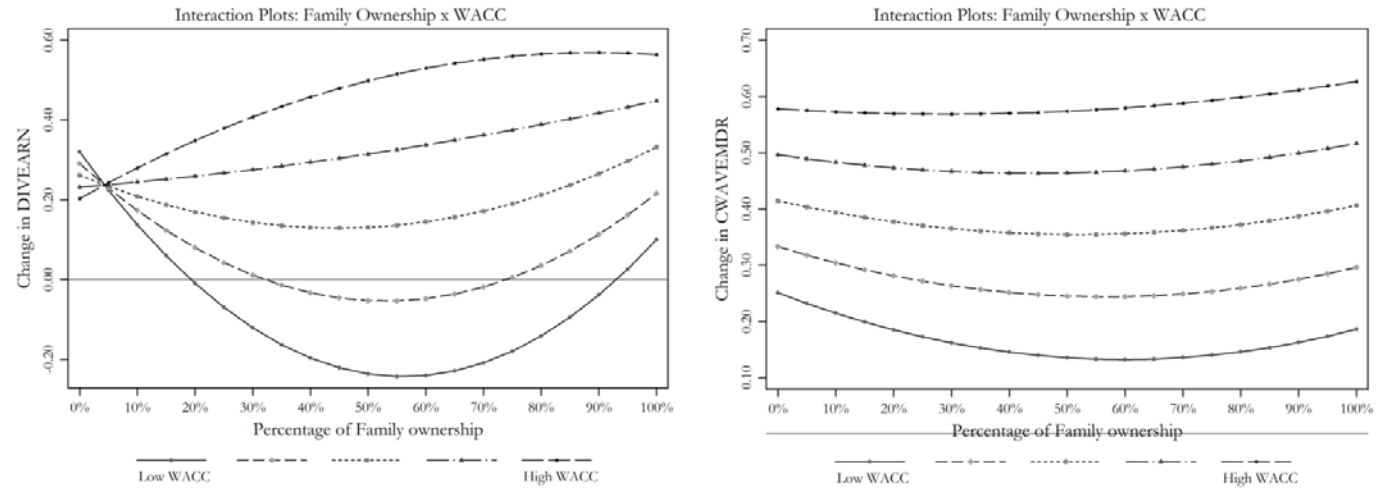

Figure 4 Interaction effects of family ownership and WACC