The Family Firm Profitability Premium: Governance and Financial Constraints

by*

Janis Berzins Øyvind Bøhren Bogdan Stacescu

Abstract

We find that the difference between the mean return on assets of all Norwegian family and nonfamily firms is 1.4 percentage points and positive every year over twenty years. The premium increases when the family holds a higher equity stake, has fewer owners, and participates more actively in the firm's governance. It also increases when the family has less personal wealth, less diversified wealth, and less liquid shares. This evidence suggests that family firms have unique governance advantages and financial disadvantages. Both increase the profitability premium, and both depend on the personal characteristics of the controlling family.

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1. Introduction

Family firms have special owners. The controlling family is a tightly related group of individuals, the investment in the firm may represent most of the family's wealth, and the family may take positions in the firm as directors, managers, and other employees. This situation suggests that characteristics of the family may be unusually important for family firm outcomes. Nevertheless, Bennedsen, Perez-Gonzalez, and Wolfenzon (2010) state: "Direct tests of the effect of family characteristics on performance are rare in the literature, yet they provide the distinguishing mark and the future of this area of research". Because the family firm is the world's most widespread organizational form for economic activity, this lack of insight into the fundamentals of family firms seems unfortunate (La Porta, Lopez-De-Silanes, and Shleifer, 1999; Claessens, Djankov, and Lang, 2000; Astrachan and Shanker, 2003; Franks, Mayer, and Rossi, 2009; Masulis, Pham, and Zein, 2011; Mehrotra et al., 2013).

In this paper, we address this gap in our knowledge. We show that the significant and persistent difference in profitability between family and nonfamily firms is closely related to basic characteristics of the family firm's controlling family. Specifically, we find that the profitability premium of family firms increases with lower agency conflicts rooted in the family firm's controlling family, but also with stronger financial constraints caused by limited or undiversified family wealth, and low liquidity of the family firm's equity. Our results indicate that the higher profitability of family firms, often documented in the literature, may be the result of both advantages and disadvantages associated with family ownership. The correct interpretation of family firm profitability therefore requires accounting for family characteristics.

Analyzing all limited-liability firms in the Norwegian economy in 2000–2019, our starting point is to show that family firms, defined as firms where more than half of the equity belongs to individuals related by blood or marriage, constitute 72% of all firms, and that the average (median) book return on assets (ROA) is 1.4 (1.1) percentage points higher per year in family firms than in nonfamily firms. This family firm premium is stable across the business cycle, and it persists when we account for firm characteristics commonly used in the literature, such as risk, size, leverage, growth, age, and industry.

We build on this initial setup and show that the premium significantly varies with properties of the controlling family. This determinant of the family firm premium has barely

been analyzed, probably because family characteristics are much harder to observe than firm characteristics, and because existing research has almost exclusively studied just large and listed firms, which are much less often actively governed by a family than the typical firm in the economy.

Our main result suggests that family control produces governance advantages and financial disadvantages, and that both increase the family firm premium. Governance advantages can increase both the total firm value and firm value per unit invested, while financial disadvantages only increase the latter. Thus, the premium does not just increase with better governance, but also with underinvestment due to a higher required return on investment. The required return is higher because the family lacks financial resources, holds a concentrated portfolio, and owns shares that are unusually costly to trade.

The governance advantages occur when the firm has *lower agency conflicts*. The vertical agency problem between shareholders and managers is likely to be low in most family firms (Roe, 1994; Villalonga et al., 2015). The controlling owners are unusually tightly knit both economically and socially, and a family member is often the firm's chair as well as its CEO (Bøhren et al., 2019). Therefore, the separation between ownership and control and the resulting need to monitor the CEO is generally modest (Edmans and Holderness, 2017). Nevertheless, there is considerable variation in governance across family firms. For instance, some family firms in our sample have a nonfamily CEO, and some have mostly nonfamily directors. This variation allows us to explore how the profitability premium relates to the seriousness of the vertical agency problem across different family firms.

Consistent with the logic of the vertical agency problem, we find a higher premium when the family firm has a family CEO, when the family CEO holds a larger equity stake, and when the proportion of family directors is high.

The horizontal agency problem between large and small shareholders may be more important in family firms than elsewhere if the family uses its majority stake to exploit minority shareholders. Because the minority shareholders have more to lose the larger their equity stake, the horizontal agency problem is more serious the smaller the controlling family's stake (Gomes, 2000; Faccio, Lang, and Young. 2001; Berzins, Bøhren, and Stacescu, 2018).

In line with this logic, we find that the family firm premium is higher when the family owns a larger equity stake and when minority shareholders are on the board. On the other hand,

we also find that the controlling stake is 94% on average and 100% in 69% of the cases. Therefore, the family's incentive to expropriate co-investors is normally very low.

There may be both agency problems and coordination problems inside the family. The agency problem concerns potential conflicts between active and passive family owners (Villalonga et al., 2015). We find, however, that the family firm premium is unrelated to having both passive and active family owners in the same firm, suggesting that agency problems within the family seldom threatens profitability.[1] The coordination problem stems from disagreements between multiple family owners (Jacob and Michaely, 2017). We find that the profitability premium is higher when the family has only one owning member, when this owner is also the CEO, and when more employees are from the family. Thus, easier family coordination increases the merits of family control.

A related, indirect source of the family's governance advantages is high family skills, which benefit the firm when family members are actively involved. At least in the founder's generation, the family may know the industry and the firm better than other owners do. Consistent with this view, large public firms in the United States with an active founder outperform firms controlled or managed by heirs (Villalonga and Amit, 2006; Anderson and Reeb, 2003). This result suggests that founders have skills that later generations do not inherit.

We find a similar result in our sample of private firms because younger family firms have the larger premium. However, we also find a premium for older family firms, particularly when the CEO is from the family and is young. Thus, family governance is positively associated with superior profitability also after the founder stage, possibly due to persistent family skills.

In sum, our agency results suggest that lower conflicts of interest in family firms are associated with a higher family firm premium. This finding supports the notion that lower agency problems is a competitive advantage of family firms. Moreover, the premium is also positively associated with easier coordination and persists in later generations.

Stronger financial constraints in the controlling family is our second main determinant of the family firm premium and is also a potential disadvantage of family firms. The fact that most of the equity is held by the controlling family means that the firm's funding pool may depend strongly on the family's resources. The family may not just have insufficient means to finance all profitable investments in the firm, but may also be reluctant to give up control by raising

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[1] Recent research relates multiple family relationships among insiders to superior performance (Parise, 2022) and to resilience after negative shocks (Salvato et al., 2020).

funds from outsiders. This setting increases the required rate of return, making the family firm reject projects that firms with less constrained owners would accept. Accordingly, the observed return on assets will be higher in family firms than elsewhere..

Our evidence supports this idea. We find that the family premium is larger the less wealthy the controlling family, if the family has few liquid assets, owns few assets outside the firm, has high personal leverage, or if the family is small. This evidence suggests that limited personal wealth reduces the family's funding capacity and increases the required return.

This tight financial link between the firm and the family can also be understood from the fact that most of the family's wealth is usually concentrated. This lack of diversification and low attention paid to the firm by potential outside investors may make the family require a higher return when evaluating the firm's projects (Merton, 1987). Our evidence supports this hypothesis, as the premium is larger the fewer firms the family controls, the fewer industries the family firm is involved in, and the more the firm's assets dominates the family's wealth.[2]

Finally, illiquid shares may be a financial disadvantage of family control, as shareholders may require higher returns to compensate for the greater cost of trading the shares (Moskowitz and Vissing-Jørgensen, 2002). We find evidence consistent with this prediction, as the premium is larger the lower the number of minority owners, the lower the number of individual owners, and when the family firm is private rather than public.[3]

Overall, we show that the profitability premium of family firms reported in the existing literature is associated with the family firm's agency advantages and financial disadvantages, which both increase the family firm premium.[4] This evidence makes *three contributions* to the literature.

First, by looking at a wide range of family characteristics, we shed new light on the potential sources of the family firm premium, which are not well understood. The existing literature focuses on a single particular feature at a time – such as whether the CEO is from the family (Bennedsen et al. 2007), or whether the owners are founders or heirs (Anderson and

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[2] Owner diversification is also found to be important for firm behavior by Faccio, Murchica, and Mura (2011).
[3] The performance premium may also be due to measurement error. Assets like reputation and good relationships to employees and customers may not be captured by the book values on the balance sheet (Sraer and Thesmar, 2007). Therefore, the ROA may overestimate true performance if the gap between the true capital invested and its book value is higher in family firms than elsewhere. Moreover, we find that family firms have the lower capital intensity, which may inflate their ROA as well. Therefore, we control for capital intensity in all regressions.
[4] There may be correlation between the two features because single-owner family firms may have both particularly low agency conflicts and particularly strong financial constraints. However, our results hold when we account for both features in the same model, and when we keep one of the two features constant while varying the other.

Reeb, 2003; Villalonga and Amit, 2006; Bertrand et al., 2008). The overall range of family characteristics explored in the literature is also relatively short.

In contrast, we look at a wide array of family properties, and find that in spite of their diversity they point in similar directions: higher family firm profitability is associated with lower agency conflicts and stronger financial constraints. We therefore provide a novel and comprehensive picture of new potential drivers of family firm profitability that can be useful in explaining the role and preponderance of family firms in the economy (Bertrand and Schoar 2006). We are also able to analyze aspects that have been suggested, but not explored empirically in the literature, such as the potential conflict between active and passive family owners (Villalonga and Amit 2015).

Our set of key variables includes family primitives that may drive the family's behavior, such as family size and the family CEO's age. The family's wealth may also be considered a primitive, particularly when the family owns considerably more than the firm analyzed. Therefore, we relate profitability to family characteristics that reflect not just the governance roles the family takes, but also the family's incentives and ability to take them. This approach may mitigate to some extent the problem that the family's governance activity may not just drive profitability, but may also be driven by it. Because the list of family primitives is limited, however, and there may be some remaining endogeneity issues even in their case, we do not claim that our estimated relationships between profitability and family characteristics are causal. We do however provide a selection of key variables that can be explored in further detail as drivers of firm performance in further studies.

Our second contribution is to use an unusually comprehensive and representative data set. This feature is important, considering the fact that the family firm premium estimated in the literature varies widely. Even the sign is ambiguous, being sometimes positive (Anderson and Reeb, 2003), sometimes negative (Bennedsen et al., 2007), and sometimes insignificant (Miller et al., 2007). This ambiguity exists in both private and public family firms and across different countries (O'Boyle, Pollack, and Rutherford, 2012; Amit and Villalonga, 2014). One possible reason is that the samples are not representative of the population. This problem occurs because most family firms are nonlisted, because high-quality data on such firms are seldom available, and because data on family characteristics are even harder to obtain. According to Amit and Villalonga (2014): "…it is typically very difficult, when not impossible, to determine who the ultimate owners of a firm are – let alone whether those owners are family related".

We handle this challenge by using proprietary data on all ultimate owners and every family relationship between them to construct a sample of all active nonfinancial firms with limited liability in Norway over twenty years. We are also able to group firms in business groups[5]. This sample has about 86,000 firms on average per year. Family firms account for 73% of all firms in the economy, 43% of employment, 24% of sales, and 15% of assets. Accordingly, family firms constitute the dominating organizational form and generate a large portion of aggregate economic activity. The only existing family firm study we know that uses population data strengthens this impression. Analyzing Swedish limited liability firms in 2010, Anderson et al. (2017) find that family-controlled firms constitute 62% of all firms and 35% of aggregate employment.[6]

Our third contribution is to define the family firm in a way that captures the uniqueness of family control from a sociological and governance perspective. We define the family firm as being majority-owned by individuals related by blood or marriage, regardless of whether they have chosen to be active as directors or officers. This definition has the advantage of reflecting both the unusually tight social ties between the owners and their option to self-handedly choose their preferred participation in governance, such as recruiting a family member as the CEO.

There are about 90 definitions of a family firm in the literature (European Commission, 2009), usually driven by data limitations: for instance, working with listed firms may require a lower ownership threshold (Maury, 2006), or incomplete ownership data may limit the focus on just the relationship between successive CEOs (Bennedsen et al. 2007). Our data allows us to identify all limited liability firms in the economy where the family clearly has majority control. To complete the picture, we also present the relative profitability of firms with various levels of family ownership. We also look at additional dimensions, such as the family's involvement on the board and in the firm's management, the firm's and the CEO's age, and whether the family is the only owner. Such characteristics can also be used to define subtypes of family firms and compare profitability across subtypes. These results contribute to the emerging literature on the taxonomy of family firms (Buchanan et al., 2022; Parise, 2022).

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[5] Details about our sample and variable construction can be found in the data appendix.

[6] Studies of public firms in the United States surveyed by Amit and Villalonga (2014) find that the proportion of family firms ranges from 17% to 71%, depending on the family firm definition and the sample period used. Internationally, the estimated proportion among public firms ranges from 44% in 13 Western European countries (Faccio and Lang, 2002) through 53% in the world's 27 richest economies (La Porta, Lopez-De-Silanes, and Shleifer, 1999) to 67% in nine East Asian countries (Claessens, Djankov, and Lang, 2000). An indirect estimate based on the number of tax returns from all public and private firms in the United States suggests that 60% of the partnerships and corporations are family businesses in year 2000 (Astrachan and Shanker, 2003).

We provide summary statistics in Section 2 and estimate the relationship between firm profitability, family control, and firm characteristics in Section 3. We use family characteristics to show how the family firm premium relates to governance advantages in Section, to financial disadvantages in Section 5, and to both in Section 6. We conclude in Section 7.

2. Summary Statistics

In this section, we select the sample, define the family firm, and show descriptive statistics on firm characteristics (for both family firms and nonfamily firms), on characteristics of the controlling family in family firms, and on the family firm profitability premium by year, firm size, and industry.

Starting with all limited liability firms in Norway from 2000 to 2019, we construct the sample by excluding financials and firms with no activity. We construct business groups and use consolidated data for one entity in the group.[7]

We define a family firm as one where more than half the equity belongs to individuals related by blood or marriage up to the fourth degree of kinship.[8] We use this definition to capture governance and sociology dimensions that jointly make family firms unique. Regarding the governance dimension, controlling the firm's decision-making is the fundamental mechanism (Tirole, 2001). Because the owners elect the board, owners with a majority stake can control every formal governance position without other shareholders' consent.[9] These owners can single-handedly choose their governance intensity, such as whether to be on the board, be the chair, or be the CEO. Regarding the sociology dimension, we consider only firms where the controlling owners constitute a particularly tight entity. We ensure this coherence by requiring that the controlling owners are related by family ties.

Table 1 shows in Panel A that, compared to nonfamily firms, family firms have higher mean and median returns on assets, equity, and on capital invested. For instance, median return

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[7] We use chains of controlling owners to build the ownership variables for groups. We single out the firm in the group with largest board at or above the level with the largest consolidated assets. The Data Appendix provides details.

[8] https://sdsos.gov/elections-voting/assets/Kinship%20Chart.pdf. See our Data Appendix for details.

[9] Our ownership data are based on cash flow rights. Only 3.8% of the sample firms have multiple share classes, which is mostly used in large groups to allocate control within the family rather than protect the family from nonfamily owners. Because we treat the whole family as one owner, the separation between ownership and control among the majority owners is irrelevant in our setting.

on assets (ROA) per year is 7.4% in family firms and 6.3% in nonfamily firms, producing a premium of 1.1 percentage points.[10]

Table 1

In the following, we analyze the profitability premium using ROA, which is the most common performance measure in this literature (Anderson and Reeb, 2003; Amit and Villalonga, 2014; Parise, 2022). Unlike return on equity, ROA has the benefit of reflecting the returns to all capital providers, and it is not directly influenced by financial leverage. Unlike return on invested capital, ROA reflects all capital used and not just noncash assets financed with equity and interest-bearing debt.

The premium may vary across the business cycle. We explore this possibility by comparing the profitability of family firms and nonfamily firms in each sample year. Our time period 2000–2019 is sufficiently long to cover several business cycles, capturing the end of the dot-com bubble and the low oil prices in the early 2000s, the financial crisis around 2008, and the low oil price around 2014. Figure 1 shows in Panel A that the mean family firm premium is quite stable and always positive across the business cycle. Panel B uses medians to show a similar pattern.

Figure 1

Panel A of Table 1 also documents that family firms are smaller, grow less, and are less capital intensive than nonfamily firms are. For instance, the median family firm is about 60% the size of the median nonfamily firm as measured by sales, employs 3 vs. 6 people, and sells for NOK 3.4 mill. vs. 8.5 mill. Therefore, accounting for size is important when examining the family firm premium. In contrast, family control barely matters for the typical firm's age, risk, and leverage. For instance, median risk as measured by sales volatility per unit of average sales is 0.15 in both firm types.

Panel B of Table 1 shows distributional properties of several characteristics of the controlling family. The average controlling family owns 94% of the equity and has 27 members, but just 1.5 of them own shares in the firm. The average family has wealth of NOK 35 mill. (about 3.5 mill. Euros), and one fifth of this wealth is liquid assets such as bank deposits and listed securities.[11] The family has on average invested NOK 16 mill. outside the firm, but

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[10] Our median premium for 2000-2019 is lower than the premium of 2 (no decimals reported) estimated by Andersson et al. (2017) in the population of Swedish firms in 2010.

[11] Because the data on the family's private wealth only covers the 2000-2016 period, regressions with wealth-based variables have fewer observations than the other regressions.

the distribution is highly skewed. Personal leverage (the ratio between the tax value of the family's liabilities and assets) has a mean of 2.15 and a median of 0.84. [12]

The family controls on average 1.4 firms that mostly operate in just one industry. On average, 81% of the board members are from the family, and 93% of the family firms have a family CEO, who is the majority owner in 72% of the cases. The average family CEO is less than 30 years old ("young") in 3% of the cases and more than 50 ("old") in 51%, being 51 years old on average. 40% of the family firm's employees are from the controlling family, while 45% of the family firms have non-family employees.

The table also shows that many family characteristics vary considerably across firms. For instance, 5% of the families have more than 75 members and wealth above NOK 95 mill., while 90% of the family CEOs are between 41 and 68 years old.

Panel C shows the family premium across years (also visualized in Figure 1), across deciles of firm size as measured by sales, and across industries. The premium tends to be greater the smaller the firm, and there is large variation across industries. For instance, the mean premium in the 10% largest firms is 1.7, being 6.5 in the 10% smallest firms. The mean premium ranges from -1.8 percentage points in construction and -0.9 in agriculture (the only industries with a negative family firm premium) to 2.0 in services and 7.3 in public services, such as private kindergartens and dentists. Generally, the premium seems larger the smaller the firm and the less capital-intensive the industry. Thus, it is important to account for both size and industry to understand the family firm premium. We use sales as the firm's size measure to avoid measures that also capture differences in technology and capital intensity, such as assets. We also control for capital intensity, measured as the ratio of fixed assets to employees, and use industry and year fixed effects.

Summarizing, the mean and median family firm premium is consistently positive and persistent over time. Family firms tend to be smaller, grow less, and use less capital than nonfamily firms. The average controlling family has about ten times more members than owners and fills most board seats. The most common practice by far is to have the majority-owning family member as the CEO, and 5% of them are older than the official retirement age of 67 years. There is large variation across family firms regarding characteristics that may influence the advantages and disadvantages of family control.

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[12] The ratio is often above one because the assets are in book value while the debt is close to market value.

3. The Baseline Relationship

We have shown that many firm characteristics differ between family firms and nonfamily firms, and that there are large variations in family characteristics across family firms. That allows us to examine the link between family characteristics and profitability while controlling for firm characteristics. Therefore, the general structure of the profitability regressions in this paper is:

$$ROA_{it} = f(\textit{Family characteristics}_{it}, \textit{Firm characteristics}_{it}, \textit{Fixed effects})$$

ROA_{it} is firm i's return on assets (operating earnings net of taxes divided by total assets) in year t. *Family characteristics* are the properties of the family that reflect potential agency conflicts or personal financial constraints, while *Firm characteristics* are properties of the firm that may matter for profitability, regardless of family firm status. We use year *Fixed effects* to account for the business cycle and industry fixed effects to account for time-invariant properties of the firm's industry.[13]

In this section we first check whether the family firm premium persists when we account for the heterogeneity of firm characteristics by estimating the model:

$$
\begin{aligned}
ROA_{it} = \beta_o \; + \; & \beta_1 * \textit{Family firm}_{it} \\
+ \; & \beta_2 * \textit{Age}_{it} + \beta_3 * \textit{Size}_{it} + \beta_4 * \textit{Risk}_{it} + \beta_5 * \textit{Growth opportunities}_{it} \\
+ \; & \beta_6 * \textit{Asset liquidity}_{it} + \beta_7 * \textit{Leverage}_{it} + \beta_8 * \textit{Capital intensity}_{it} \\
+ \; & f_t + f_{Ii} + \varepsilon_{it}
\end{aligned}
$$

(1)

Family firm is 1 if the family controls more than 50% of the firm's equity and 0 otherwise. Thus, β_1 reflects the profitability premium of family firms when we account for differences in firm characteristics between family firms and non-family firms.

The firm's age and size can influence its financial constraints (Hadlock and Pierce, 2010). We measure *Age* as the log of the firm's age in years, and *Size* is the log of the inflation-adjusted sales in million 2019 NOK. *Risk* is the volatility of sales, measured as the coefficient of variation over the previous three years. *Growth opportunities* is the ratio of sales to assets, the logic being that firms with larger sales per unit of assets are more likely to expand their future asset base. *Asset liquidity* is the ratio between the firm's cash holdings and total assets, *Leverage* is debt less cash to total assets less cash. Finally, *Capital intensity*, which we

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[13] Because most family characteristics are very persistent, we do not include firm fixed effects to avoid inconsistent estimates. However, firm fixed effects may reduce endogeneity bias by focusing only on within-firm changes (Sraer and Thesmar, 2007). Results available upon request show that our models are quite insensitive to including firm fixed effects.

operationalize as the log of assets per employee, accounts for possible measurement error in ROA due to unusually large intangible assets and small physical assets. Both features boost the ratio between earnings and the book value of assets, and family firms tend to have fewer tangible assets than other firms have.

The next step is to augment (1) by the controlling family's possible participation as a CEO, which is a common way in the literature to address family involvement. In fact, family firms are often defined by family management rather than family ownership (Fahlenbrach, 2009):

$$
\begin{aligned}
ROA_{it} = \beta_o &+ \beta_1 * \textit{Family firm}_{it} + \beta_2 * \textit{Family firm}_{it} * \textit{Family CEO}_{it} \\
&+ \beta_3 * Age_{it} + \beta_4 * Size_{it} + \beta_5 * Risk_{it} + \beta_6 * \textit{Growth opportunities}_{it} \\
&+ \beta_7 * \textit{Asset liquidity}_{it} + \beta_8 * Leverage_{it} + \beta_9 * \textit{Capital intensity}_{it} \\
&+ f_t + f_{Ii} + \varepsilon_{it}
\end{aligned}
\tag{2}
$$

Family CEO$_{it}$ is 1 if the CEO comes from the family and 0 otherwise. This is the only family characteristic we consider in this Section, while Sections 4–6 consider the full set of family characteristics, using the firm characteristics as control variables.

We estimate models (1) and (2) in Section 3.1 and use alternative ownership thresholds to define a family firm in these two models in Section 3.2.

3.1 Firm Characteristics and Family CEO

The estimates of model (1) in Table 2 show that when we account for firm characteristics as well as year and industry fixed effects, the family firm premium is much higher than its unconditional value from Table 1 (4.7 vs. 1.4 percentage points). Thus, differences in firm characteristics between family firms and nonfamily firms cannot explain the superior profitability of family firms.

Table 2

The estimates of model (2) show that the expected family firm premium is 4.2 percentage points with a family CEO and 1.8 without. Thus, controlling for firm characteristics, industry effects, and the business cycle, about 60% of the premium is associated with a family CEO.

In both models, the coefficient estimates show that returns on assets are higher the younger and larger the firm, the smaller the risk, the lower the future growth, the higher the asset liquidity, the lower the leverage, and the higher the capital intensity. The latter relationship suggests that the family firm premium cannot be explained by an overestimated ROA due to

large intangibles or high labor intensity in family firms. Finally, about 13% of the variation in profitability is associated with the variation in the characteristics included in Table 2.

3.2 The Control Threshold

The family firms in our sample have concentrated ownership because we require the family's ultimate equity stake to exceed 50%. Therefore, it is not clear whether the observed premium is due to family ownership or just controlling ownership. Part 1 of Table 3 addresses this question by considering only firms with a controlling owner, whether family or nonfamily. The estimates show that family-controlled firms outperform firms controlled by other owner types by 11.8 or 11.0 percentage points, depending on whether the family firm has the CEO or not. About one fifth of the family firm premium in this sample is associated with having a family CEO. Accordingly, the family firm premium is not associated with the benefits of majority ownership, but with having owners of a special type. This result suggests the family is indeed a particularly valuable blockholder (Isakov and Weiskopf, 2014).

Table 3

In Part 2 we drop the requirement of majority control and define family firms as those where the largest family stake exceeds just 20%. This low threshold is common in the literature (Amit and Villalonga, 2014; Bennedsen et al., 2020). The estimates show that when the 20% threshold is passed, expected profitability increases by 3.4 percentage points if the family does not have the CEO and by 7.9 otherwise. Accordingly, the beneficial effect of family ownership occurs even below the majority threshold.

Part 3 takes the results in Part 2 further by looking more closely at different concentration levels of family ownership. The benchmark is firms where no family owns more than 20%. We add dummies for every 10-percentage point increase in the largest family stake and for single-owner family firms. The family firm premium gets large at around 40% concentration and is highest when the family owns around 2/3 or all the equity. Overall, the family firm premium tends to increase with the size of the controlling family's stake.

Summarizing this section, the family firm premium remains unaffected when we account for firm characteristics. In contrast, about 60% of the premium is associated with firms where the CEO comes from the family. The positive relationship between the premium and family

ownership starts already at a 20% equity stake, but the premium is larger when the family has majority control.[14] Single-owner family firms earn the highest premium of all family firms.

These baseline findings suggest that families provide more valuable governance roles than do other owners. As we discussed in Section 1, however, the story about the merits of family ownership is more complicated than this because family owners may be more financially constrained than are other owners, which brings financial disadvantages. The next two sections clarify how governance advantages (Section 4) and financial disadvantages (Section 5) of family control feed into the family firm premium.

4. Governance Advantages of Family Ownership

We argued in Section 1 that characteristics of the controlling family may be important for the family firm premium, and we showed in Section 3 that the family's governance effort as a CEO accounts for a large part of the premium. In this section we relate the premium directly to basic family characteristics rather than the family's chosen governance effort. We address family characteristics that may reduce agency conflicts in Section 4.1 and the role of family skills in Section 4.2. These properties may matter for the family's incentives and ability to govern the firm, be it as officers, directors, informal monitors and advisors, and as mediators at the shareholder meeting.

4.1 Low Agency Conflicts

We start with single-owner family firms as a benchmark. Such firms have very low agency conflicts because the owner can easily monitor management, and because there are no minority shareholders. These family firms may be different because the ownership functions are carried out exclusively by the family, and because there are no non-family shareholders.

Single-owner firms constitute 62% of our sample, and 91% of them are family firms. Model 1 in Table 4 uses a dummy variable for family firms where the family controls all of the firm's equity. The estimates show that single-owner family firms are more profitable than other firms.

Model 2 includes an additional dummy variable for all single-owner family firms, whether family or nonfamily. In line with the idea that families may be special owners, we find higher profitability for family-single-owner firms, but not for single-owner firms in general. Thus, the

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[14] This result is consistent with studies using thresholds below 50% for family control, such as Maury (2006).

positive single-owner effect in Model 1 is not due to single-owner firms in general, but to single-owner family firms – firms where the family owns all of the equity.

Table 4

The vertical agency problem between shareholders and managers is likely to be lower in family firms due to concentrated ownership. This agency problem may be particularly low if the CEO belongs to the controlling family, thus reducing the distance between shareholders and management, and if this CEO owns a large share in the firm, which increase the incentive to improve profitability. Also, having family members on the board may improve the monitoring and reduce moral hazard.

The horizontal agency problem between majority and minority shareholders may be important in family firms because of the controlling shareholder. However, it is less of a concern if the controlling family owns a larger share of the equity, thus internalizing more of the losses generated by the extraction of private benefits, , and if minority shareholders are on the board, being able to monitor the firm and to have a voice in firm decisions.[15]

The expected relationship between the family firm premium and our empirical measures of the two agency conflicts are summarized in columns A and B of Table 5.

Table 5

The estimates of models 2–7 in Table 4 show that the premium increases when the family firm's CEO is from the family, when the family CEO holds more equity, with the family's equity holding and board participation, and when minority shareholders are on the board.[16] These results are consistent with the notion that the family firm premium is larger the smaller the vertical and horizontal agency costs.

Coordination within the controlling family may influence the family's ability to reduce agency conflicts, (Bertrand et al., 2008; Villalonga et al., 2015). Column C of Table 5 shows the predicted relationships between ROA and our proxies for coordination problems. We expect that coordination is easier when there are few family owners, when family members

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[15] The family could be seen as a controlling coalition of shareholders, as in Bennedsen and Wolfenzon (2000). As modelled by Gomes (2000), a larger share incentivizes the family to internalize the effect of its actions.

[16] The result about family board participation is consistent with Andres (2008), where family board participation is a prerequisite for family firm outperformance. Because the family is on the board in 97% of family firms in our sample (in 95% of the firms the family has at least 20% of the board seats), our results show that the family firm premium is negative for a very small group of family firms where the family is not involved. This importance of active family control is also emphasized by Maury (2006).

work in the firm or sit on the board, and when the family CEO is also the majority owner. The estimates in Table 6 are generally consistent with these predictions. The family firm premium decreases with the number of family shareholders, while it increases when the family's ownership share is more concentrated, when there is only one owning member in the family, when the family CEO is the controlling shareholder, and when more employees are also family members.[17] Having family owners who are not active as board members or CEOs (i.e., not insiders) is not associated with a lower premium, suggesting that the combination of active and passive owners in the family is seldom a threat to profitability.

Table 6

These results support the idea that while vertical and horizontal agency problems are important for the family firm premium, coordination problems within the family are not.

4.2 High Family Skills

Table 2 shows that the family firm premium increases when there is a family CEO, while Table 6 shows that the premium increases when family members are employees. This result may reflect that family control does not just reduce agency costs because of strong incentives to do so, but may also come with unique skills at mitigating agency conflicts and at operating the firm. Moreover, the literature suggests that the founder's skills may be particularly important. Large public firms in the United States with an active founder outperform other firms, while heirs seem unable to maintain this quality (Villalonga and Amit, 2006). Thus, families that start firms may have business skills and industry knowledge that later generations miss.

We analyze the role of family skills by comparing first-generation (young) firms to later-generations (old) firms. We define a young firm as being less than 10 years old, while old firms are more than 20. To distinguish between firm generations and family generations, we classify family CEOs as young if they are less than 30 years old and as old if they are more than 50. We assume that a young firm with a young family CEO is a founder firm, while an old firm with a young family CEO is a nonfounder firm. Column D of Table 5 shows our empirical proxies and predictions, which are that young family firms with young CEOs have a higher family premium than other family firms, while old family firms with young CEOs have lower.

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[17] Miller et al. (2007) also find that single-owner family firms outperform multiple-owner. In contrast, Salvato (2020) and Parise (2022) find that multiple family relationships among owners and insiders are beneficial. However, their analysis does not consider coordination or control, but rather the firm's resources.

The estimates in Panel A of Table 7 show that the expected family firm premium is 0.8 percentage points larger in young family firms than in family firms as a whole (Table 2). The premium is larger with a young family CEO, while smaller when the family CEO is old.

Table 7

Panel B considers old firms. The family premium is considerably smaller than for the young firms in Panel A (1.9 vs. 5.5), but still positive and significant. Moreover, the premium is larger with a young family CEO. Thus, old family CEOs in old family firms are associated with the smallest premium. This means the family firm premium and the family CEO premium both survive when moving from young to old family firms.

These results do not support Villalonga and Amit (2006), who find that the family firm premium switches from positive to negative if founder-led firms are excluded from the sample. In contrast, we find that mature family firms are still more profitable than mature nonfamily firms, especially when they have young family CEOs. Therefore, the family's governance seems to benefit the firm also after the founder stage, suggesting that controlling families have unique skills that survive beyond the first generation.

The finding that the family firm premium disappears with the founder is common in developed capital markets, while studies from developing capital markets tend to find that the premium survives to later generations (Villalonga and Amit, 2020). We think the key in our setting may be that while the results from the United States are from large, listed firms, our results are dominated by small, private firms. Compared to the former, the firms we study have access to a much smaller pool of governance and management skills outside the family, particularly in rural areas (Bøhren et al., 2019). The advantage of family control in such settings may be higher than the disadvantage (Bennedsen et al., 2015). Our results are also in line with the finding from European countries that dynastic control is not necessarily detrimental to high profitability (Sraer and Thesmar, 2007; Bach, 2016).

Our results may reflect that firms that remain family controlled for several generations are those where the controlling family has the skills to take serious part in governance. For instance, Table 1 documents that the CEO comes from the family in 93% of the family firms and is the majority shareholder in 72% of them. This possible self-selection may be a reason why the family firm premium we find is not just a founder phenomenon. Moreover, 62% of our sample firms have no minority shareholders. This fact means that most controlling families

cannot extract private benefits at other shareholders' expense. Rather, the family has incentives to maximize the returns on the firm as a whole rather than just the family's part.

Summarizing, the findings in this section are consistent with the hypothesis that the family firm premium is larger the smaller the agency problems. Unlike for large, listed family firms in the United States, the smaller, the controlling owner of nonlisted family firms we analyze seem to have governance and operational skills that survive beyond the firm's founder stage, making the family firm premium persist over multiple generations.

5. Financial Disadvantages of Family Firms

Family firms may find it harder than nonfamily firms to fund value-creating projects (Masulis et al., 2011; Lins, Volpin, and Wagner, 2013). This financial disadvantage may increase the required ROA, the observed ROA of accepted projects, and hence the family firm premium. We consider how the premium relates to financial disadvantages due to the controlling family's limited wealth (Section 5.1), the family portfolio's risk (Section 5.2), and the illiquidity of the family firm's shares (Section 5.3).

5.1 Limited Family Wealth

The controlling owners of family firms may have less wealth to invest than nonfamily owners of similar firms. This importance of the family's limited personal wealth for the family firm of is strengthened by the fact that almost all family firms are private and that the pool of minority investors may be very small.

To analyze this mechanism, we relate the ROA to alternative measures of wealth limitations for the controlling family. As summarized by column E of Table 5, these measures are the family's wealth in absolute terms, the rank of the family's wealth among all controlling families in the economy, the family's assets relative to the mean assets per firm in the industry, the family's liquid assets relative to the firm's equity, the assets of all firms under the family's control, and the number of family members, whether involved with the firm or not.

The larger these measures, the less constrained the family's wealth. Wealthier families may find it easier to raise additional capital. Because the typical firm size varies across industries, we also consider family wealth relative to firm size. For instance, mining and oil or heavy industry require more capital than do service firms. If the family controls multiple firms, it may be easier to finance any firm in the portfolio. We consider the family's liquidity and personal leverage, which may restrict the family's ability to invest in the firm or to pledge

collateral for its loans (Schmalz, Sraer, and Thesmar, 2017). Finally, having a large family may mean that more potential investors know the firm.

Table 8 shows that the profitability premium is higher the less wealthy the family, both in absolute terms, relative to the wealth of other controlling families, and relative to the typical firm size in the industry. The premium is also larger the higher the family's leverage, the lower the family's liquid assets outside the firm, the smaller the assets of the firms the family controls, and the larger the family. This evidence supports the notion that more limited personal wealth for the controlling owner increases the family firm's ROA.

<div align="center">Table 8</div>

5.2 Undiversified Family Wealth

The family firm usually represents the family's main financial investment, and the firm may also be an important source of the family's labor income. Such concentrated wealth and income may influence the family's decisions as a controlling owner (Faccio et al., 2011), and it may make the family require higher expected returns than other owners would. As specified in column F of Table 5, we measure diversification of the family's wealth by the existence of nonfamily owners in the firm, the number of firms the family controls, the number of industries in the controlled firms and in the firm's group, the family's equity in the firm relative to family wealth, and by the firm's assets relative to the corporate assets under family control.[18]

All these variables reflect how much of the family's financial and human resources are concentrated in the family firm. Having minority shareholders means the family can sell some of its equity and diversify. If the firm represents a smaller part of the family's portfolio, its idiosyncratic risk will be less important. Owning a portfolio of multiple firms, especially if they are active in multiple industries, makes the family more diversified.

Table 9 shows that the observed family firm premium is larger when the family is the only owner, the fewer firms and industries the family controls, the larger the proportion of the family's wealth invested in the firm, and the larger the proportion the firm represents in the

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[18] The family's wealth is the value of the family's assets as specified in the tax returns. The wealth figure includes cash, bank accounts, listed and nonlisted securities, real estate, and other tangible assets. To capture the wealth of the entire family, we include all its members, regardless of whether the member is involved in the firm as a shareholder, board member, or CEO. The number of family members (family size) is the number of individuals in the controlling family, regardless of whether the individual is involved in the firm or not.

family's wealth. These findings are consistent with the hypothesis that the less diversified the family's financial and human capital, the higher the controlled firm's ROA.

Table 9

5.3 Illiquid Shares

Shareholders may require higher expected returns the greater the cost of trading the share (Moskowitz and Vissing-Jørgensen, 2002). We test the existence of such an illiquidity premium by relating the ROA to three liquidity proxies shown in column G of Table 5, which are the number of minority owners, the number of separate owners (counting each owning family member as an owner), and that the firm is listed. The shares are less liquid if there are fewer investors willing to buy them and if there is no formal market for trading them. Thus, we expect an inverse relationship between ROA and these three liquidity proxies.

The estimates in Table 10 support these predictions. The family premium is larger the less liquid the family firm's shares, regardless of how liquidity is measured.

Table 10

Summarizing Section 5, we have related the family firm premium to select properties of the controlling family's wealth, finding that the premium increases with the financial disadvantages of family ownership. This is true regardless of whether we measure the family's financial disadvantages by limited wealth, undiversified wealth, or illiquid wealth.

6. Governance Advantages and Financial Disadvantages

We have used a wide range of empirical proxies to estimate how family control over the firm produces governance advantages in Section 4 and financial disadvantages in Section 5, presenting the results in altogether seven tables. It may be useful to bring these separate relationships together into just one model and make sure each relationship captures unique rather than overlapping family characteristics behind the premium. The latter concern may be particularly relevant in single-owner firms, which may have both low agency problems and owners with strong financial constraints, which both increase the family firm premium.

Table 11 addresses these concerns, where the proxies and expected relationships are in the rightmost column of Table 5. We have chosen one empirical proxy for each main family characteristic. If the family firm has a family CEO, then the vertical agency problem is minimal. The larger the family's ownership share, the lower the potential horizontal agency problem.

The larger the number of family owners, the higher the potential for coordination problems. The larger the family's gross wealth, the lower the financial constraints. The larger the proportion of the family's wealth invested in the firm, the lower the family's diversification and the larger its exposure to the idiosyncratic risk of the firm. The larger the number of minority shareholders, the easier it is to transact shares in the firm and hence the higher the liquidity of the shares.

Model 1 captures both components of the family firm premium and also allows for the possibility that the two are correlated. The estimated signs of the coefficients correspond to those of the component models in Section 4 and 5. Moreover, the family firm dummy is significant only at the 5% level and the premium is just 0.8 percentage points, as opposed to a typical significance level of 1% and a coefficient of 2 – 5 percentage points in the preceding tables. These results show that both governance advantages and financial disadvantages are important for the superior asset returns of family-controlled firms, and that the two jointly account for the bulk of the family firm premium.

Table 11

An alternative way to verify that governance advantages and financial disadvantages as distinct components of the family premium is to keep one component constant while varying the other. We select a sample that keeps constant the governance component in Model 2 and the financial component in Model 3, estimating the effect of changing the other component.

The sample for Model 2 is firms where the controlling family owns all the equity. This means the vertical and horizontal agency problems as well as the coordination problem are at their lowest. The estimates show that lower and less diversified wealth is associated with higher profitability.[19] This result is consistent with the relationship observed in Section 4.

Model 3 uses a sample of firms where the controlling family is in the top quartile of the wealth distribution, which means family wealth exceeds 10 million NOK (about 1 million euros). This wealth level may ensure the family's financial constraints are low, while the governance advantages may vary with family characteristics that are unrelated to wealth. Like in Section 5, the estimates are consistent with a positive relationship between ROA and having low agency costs due to a family CEO, a large family stake, and a small family.

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[19] We do not include a share illiquidity measures in this model because they are always at their maximum in this sample of single-owner firms. Models 2 and 3 have no family firm dummy because the samples only include family firms.

Overall, the integrated models estimated is this section confirm the findings from the piecewise models in the preceding sections. Moreover, the integrated models show that most of the family firm premium can be associated with better governance of the firm and stronger financial constraints for the controlling family.

7. Conclusion

This paper is the first to analyze the relationship between the profitability premium of family firms and a wide set of basic characteristics of the controlling family in the universe of all firms. Our main contribution is to decompose the family firm premium into separate components that reflect the advantages and disadvantages of family control.

We show that the family firm premium increases with family characteristics that may produce lower conflicts of interest, easier coordination, and better family skills. These governance advantages may be sources of value creation that other owner types cannot easily provide. We also find that the profitability premium of family firms increases because family firms tend to underinvest. This financial disadvantage of family control happens because the controlling family's wealth is limited, undiversified, and illiquid. The return on assets, a measure often used in the literature as a proxy for firm performance, is therefore ambiguous: it can reflect a competitive advantage in terms of lower agency costs, or a disadvantage in terms of a higher discount rate and underinvestment. The political challenge is to provide regulatory environments where the family firm premium is not driven by the disadvantages of family control, but rather by its advantages.

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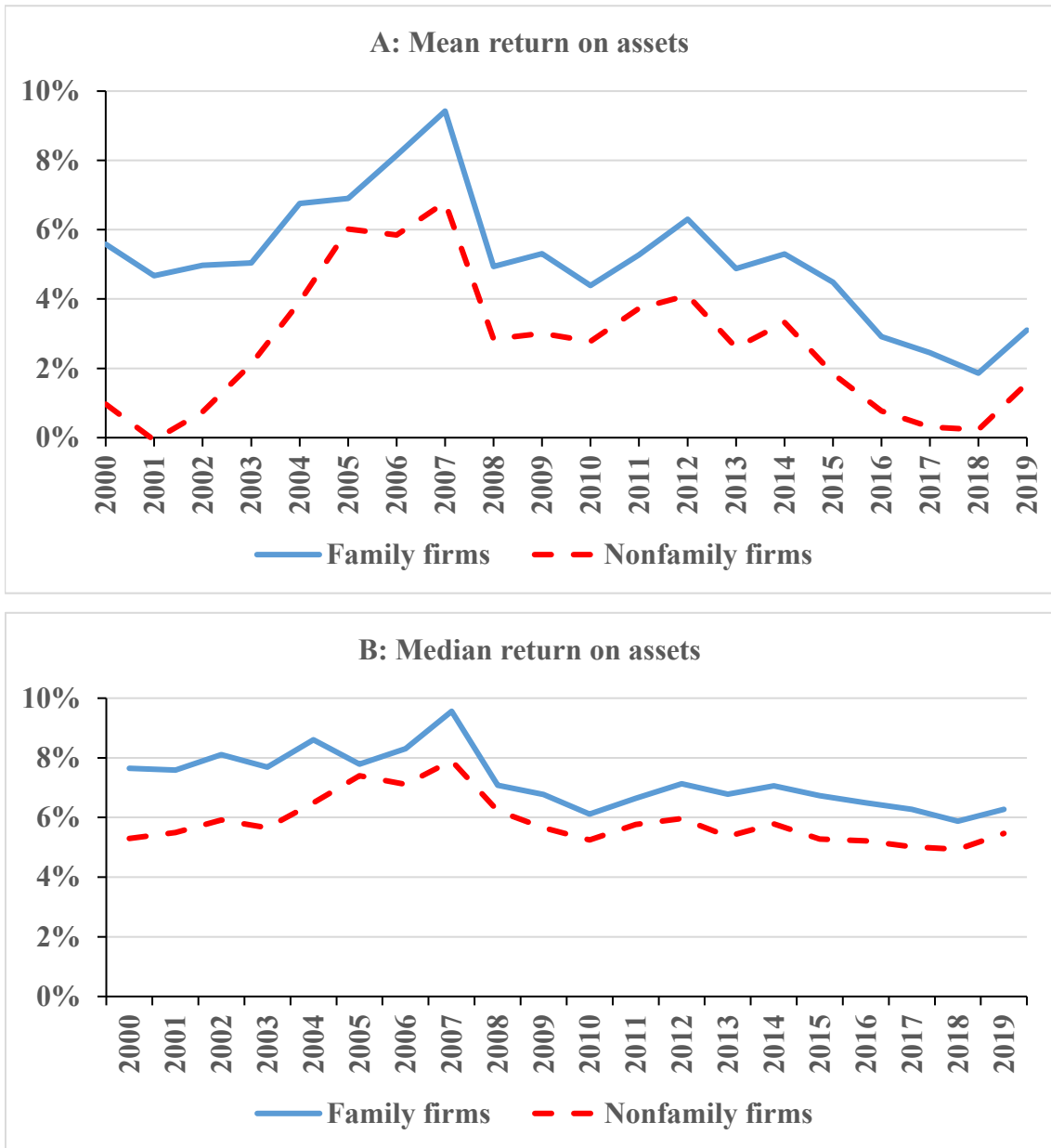
Figure 1: The family firm premium over the business cycle

This table shows the mean ((Panel A) and median (Panel B) return on assets over the sample period for family firms and nonfamily firms. A family firm is majority-owned by individuals related by blood or marriage up to the fourth degree of kinship. Nonfamily firms are all other firms. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, and the family is counted as one owner. Return on assets (ROA) is operating earnings after taxes divided by assets. The sample includes the population of Norwegian limited liability firms, except financial firms and firms with no sales, employees, or assets.

Table 1: Descriptive statistics

This table shows summary statistics for variables used in the empirical tests. The population is all Norwegian firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. A family firm is majority-owned by individuals related by blood or marriage up to the fourth degree of kinship. All other firms are nonfamily firms. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, and the family is counted as one owner. "ROA" is operating earnings after taxes divided by assets, "ROIC" is operating earnings after taxes divided by assets net of cash and current debt, and "ROE" is net earnings after taxes divided by the book value of equity. "Sales" and "Assets" are in million 2019 NOK. "Employees" is the number of employed labor. "Age" is the number of years since the firm was founded, "Risk" is the coefficient of variation of the firm's sales over the previous three years, "Growth opportunities" is the ratio of sales to assets, "Asset liquidity" is cash to assets, "Leverage" is the ratio of liabilities less cash to total assets less cash, and "Capital intensity" is the ratio of assets (in million 2019 NOK) to employees. ROA, ROE, ROIC, Growth opportunities, and Leverage are winsorized at 2.5% and 97.55%, while Age and Capital intensity are wizorized at 97.5%.

Panel A. Firm characteristics in all firms, family firms, and nonfamily firms

Variables	All firms		Family firms		Nonfamily firms		Family firms-Nonfamily firms			
	Mean	Median	Mean	Median	Mean	Median	Mean	t test	Median	Wilcoxon test
ROA	0.050	0.070	0.054	0.074	0.040	0.063	0.014	<.0001	0.011	<.0001
ROE	0.307	0.195	0.312	0.200	0.294	0.179	0.017	<.0001	0.021	<.0001
ROIC	0.283	0.134	0.286	0.137	0.275	0.125	0.011	<.0001	0.012	<.0001
Sales	63.649	4.311	20.979	3.414	175.898	8.501	-154.918	<.0001	-5.087	<.0001
Assets	112.176	2.828	23.729	2.322	345.303	5.199	-321.574	<.0001	-2.877	<.0001
Employees	18.778	4.000	9.576	3.000	43.034	6.000	-33.458	<.0001	-3.000	<.0001
Age	15.519	12.000	15.308	12.000	16.074	12.000	-0.766	<.0001	0.000	0.042
Risk	0.293	0.157	0.298	0.159	0.280	0.153	0.018	<.0001	0.007	<.0001
Growth opportunities	2.313	1.928	2.306	1.881	2.333	2.041	-0.027	<.0001	-0.160	<.0001
Asset liquidity	0.292	0.216	0.298	0.221	0.276	0.203	0.022	<.0001	0.018	<.0001
Leverage	0.382	0.609	0.346	0.600	0.478	0.630	-0.132	<.0001	-0.030	<.0001
Capital intensity	4.754	0.661	3.016	0.623	9.336	0.778	-6.320	<.0001	-0.155	<.0001
Number of observations	1 447 882	.	1 049 663	.	398 173	.	1 447 882	.	.	

Table 1–*Continued*

Panel B. Family characteristics in family firms

This panel shows summary statistics for variables describing the controlling family. The population is all Norwegian family firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. A family firm is majority-owned by individuals related by blood or marriage up to the fourth degree of kinship. "Family size" is the number of owning and nonowning family members, "Ownership share in the firm" is the family's proportion of the firm's equity, measuring ownership as the sum of the owner's direct and indirect equity holdings in the firm, with the family counted as one owner. "Number of family owners" is the number of family members that own shares in the firm either directly or indirectly, "Wealth" is the family's gross assets, "Rank by wealth" is the family's percentile in the wealth distribution, "Liquid assets" is cash, bank accounts, and marketable securities, "Personal leverage" is the family's debt divided by the family's gross assets. "Assets outside the firm" is the family's total assets minus its holding in the firm, "Number of investments with control" is the number of firms in which the family owns a majority stake, "Number of industries in family-controlled firms" is number of industries in all operating firms the family controls, "Number of industries in the group" is the number of industries in the family firm's group, "Number of family owners who are not insiders" is the number of shareholders who are members of the controlling family but do not serve as CEOs or directors, "Family share on board" is the proportion of directors who are family members, "Family CEO" is 1 if the CEO comes from the family and 0 otherwise, "Age of family CEO" is the number of years since the family CEO was born, "Family CEO is majority owner" is 1 if the family CEO owns at least 50% of the firm's equity and 0 otherwise, "Young family CEO" is 1 if the family CEO is less than 30 years old and 0 otherwise, while "Old family CEO" is 1 if the family CEO is more than 50 years old and 0 otherwise. "Proportion of employees belonging to family" is the proportion of the firm's employees who are related to the controlling family. "StdDev" is standard deviation.

Characteristic	Mean	P5	P25	Median	P75	P95	StdDev	N
Family size	27.072	4.000	12.000	20.000	33.000	75.000	24.020	945 263
Ownership share in the firm	0.937	0.600	1.000	1.000	1.000	1.000	0.135	1 037 346
Number of family owners	1.488	1.000	1.000	1.000	2.000	3.000	0.868	945 125
Wealth (mill. NOK)	35.076	2.118	7.642	16.016	32.384	95.191	172.652	944 805
Rank by wealth	49.981	5.000	26.000	50.000	74.000	94.000	28.248	909 261
Liquid assets (mill. NOK)	7.190	0.275	1.687	3.945	8.140	21.187	26.974	944 639
Relative liquid assets	18.322	0.190	1.323	4.362	13.947	78.249	49.361	807 825
Personal leverage	2.151	0.119	0.488	0.844	1.278	2.247	439.288	944 690
Assets outside the firm (mill. NOK)	16.271	0.000	0.000	0.000	0.051	15.675	1 840.589	945 262
Number of investments with control	1.383	1.000	1.000	1.000	1.000	3.000	0.939	910 355
Number of industries in family-controlled firms	1.180	1.000	1.000	1.000	1.000	2.000	0.570	907 560
Number of industries in the group	1.067	1.000	1.000	1.000	1.000	1.000	0.356	1 005 285
Number of family owners who are not insiders	0.547	0.000	0.000	0.000	1.000	2.000	0.637	1 049 593
Family share on board	0.812	0.333	0.600	1.000	1.000	1.000	0.273	945 092
Family CEO	0.932	0.000	1.000	1.000	1.000	1.000	0.252	1 022 637
Age of family CEO (years)	50.695	33.000	43.000	51.000	58.000	68.000	10.841	875 634
Family CEO is majority owner	0.717	0.000	0.000	1.000	1.000	1.000	0.451	1 049 754
Young family CEO	0.027	0.000	0.000	0.000	0.000	0.000	0.162	875 634
Old family CEO	0.508	0.000	0.000	1.000	1.000	1.000	0.500	875 634
Proportion of employees belonging to family	0.408	0.000	0.000	0.333	0.750	1.000	0.390	624 170

Table 1–*Continued*

Panel C. The family firm premium by year, firm size, and industry

This panel shows summary statistics for family and nonfamily firms. The population is all Norwegian firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. A family firm is majority-owned by individuals related by blood or marriage up to the fourth degree of kinship. All other firms are nonfamily firms. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, and the family is counted as one owner. The family firm premium is the difference between the mean (median) of the ROA of family and nonfamily firms in a given year, size decile, or industry. where ROA is operating earnings after taxes divided by assets. The firm size deciles are based on sales expressed in 2019 NOK.

	Year																			
Family firm premium	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mean	0.030	0.028	0.033	0.024	0.022	0.003	0.013	0.015	0.011	0.016	0.008	0.008	0.015	0.018	0.014	0.020	0.017	0.015	0.007	0.014
Median	0.019	0.016	0.018	0.018	0.019	0.003	0.009	0.012	0.006	0.010	0.007	0.007	0.009	0.012	0.011	0.011	0.012	0.010	0.007	0.009

	Firm size decile									
Family firm premium	1 (smallest)	2	3	4	5	6	7	8	9	10 (largest)
Mean	0.065	0.064	0.077	0.071	0.048	0.035	0.022	0.015	0.010	0.017
Median	0.014	0.017	0.038	0.038	0.027	0.020	0.012	0.008	0.005	0.014

Family firm premium	Agriculture	Forestry	Fishing	Mining and oil	Light industry	Heavy industry	Utilities	Construction	Retail and wholesale	Transport	Publishing, media, IT	Real estate	Services	Public services	Multisector
Mean	-0.009	0.022	0.040	0.066	0.018	0.024	0.034	-0.018	0.003	0.010	0.042	0.002	0.020	0.073	0.023
Median	-0.002	0.027	0.000	0.036	0.010	0.008	0.032	-0.009	0.001	0.014	0.027	0.002	0.022	0.084	0.014

Table 2: The baseline relationship

This table shows the results of regressing firm profitability on a family firm dummy (model 1) and also a family CEO dummy (model 2) while also accounting for firm characteristics. The population is all Norwegian firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. A family consists of individuals related by blood or marriage up to the fourth degree of kinship. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, and the family is counted as one owner. "Family firm" is 1 if the family holds more than 50% of the equity and 0 otherwise, while "Family CEO" is 1 if the controlling family has the CEO position and 0 otherwise. "Return on assets (ROA)" is operating earnings after taxes divided by assets, winsorized at the 2.5% and 97.5% tails. "Age" is the log of the number of years since the firm was founded. "Size" is the log of the firm's sales in million 2019 NOK. "Risk" is the coefficient of variation of the firm's sales over the previous three years. "Growth opportunities" is the ratio of sales to assets, "Asset liquidity" is the ratio of cash to assets, "Leverage" is the ratio of liabilities less cash to total assets less cash, and "Capital intensity" is the log of the ratio of assets (in million 2019 NOK) to employees. Statistical significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable: Return on assets (ROA)	1		2	
Independent variable	Coefficient	Standard error	Coefficient	Standard error
Family firm	0.047 ***	*0.001*	0.018 ***	*0.002*
Family firm*Family CEO			0.024 ***	*0.001*
Age	-0.014 ***	*0.001*	-0.015 ***	*0.001*
Size	0.033 ***	*0.000*	0.034 ***	*0.000*
Risk	-0.025 ***	*0.006*	-0.022 ***	*0.006*
Growth opportunities	-0.014 ***	*0.000*	-0.015 ***	*0.000*
Asset liquidity	0.092 ***	*0.002*	0.095 ***	*0.002*
Leverage	-0.035 ***	*0.001*	-0.034 ***	*0.001*
Capital intensity	0.018 ***	*0.000*	0.020 ***	*0.000*
Year fixed effects	Yes		Yes	
Industry fixed effects	Yes		Yes	
R^2	0.129		0.133	
Number of observations	1 427 604		1 321 513	
Number of firms	211 811		204 566	

Table 3: The family firm premium under alternative definitions of the family firm

This table shows the results of regressing firm profitability on a family firm dummy, a dummy for family CEO in family firm, and firm characteristics,using alternative definitions of the family firm. The population is all Norwegian firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. "Family firm" is 1 if individuals related by blood or marriage up to the fourth degree of kinship own at least the proportion of the firm's equity as specified by the family firm definition used in the models, and 0 otherwise. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, and the family is counted as one owner. "Return on assets (ROA)" is operating earnings after taxes divided by assets, winsorized at the 2.5% and 97.5% tails. "Family CEO" is 1 if the controlling family has the CEO position and 0 otherwise. "Age" is the log of the number of years since the firm was founded. "Size" is the log of the firm's sales in million 2019 NOK. "Risk" is the coefficient of variation of the firm's sales over the previous three years. "Growth opportunities" is the ratio of sales to assets, "Asset liquidity" is the ratio of cash to assets, "Leverage" is the ratio of liabilities less cash to total assets less cash, and "Capital intensity" is the log of the ratio of assets (in million 2019 NOK) to employees. The sample in Part 1 includes only majority-held firms, which are firms where a family or nonfamily entity owns more than 50% of the equity. Part 2 defines family firms as firms where a family owns more than 20% of the equity. Part 3 distinguishes between firms with different levels of family ownership, where the benchmark group has no family owner with more than 20%. "SE" is standard error. Statistical significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable: Return on assets (ROA)

Independent variable	Part 1: Only majority-controlled firms; family firm if largest family stake exceeds 50%				Part 2: All firms; family firm if largest family stake exceeds 20%				Part 3: All firms; alternative thresholds for largest family stake	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Family firm	0.110 ***	0.002	0.092 ***	0.002	0.083 ***	0.003	0.034 ***	0.003		
Family firm*Family CEO			0.026 ***	0.001			0.045 ***	0.001		
Family share 20-30%									0.036 ***	0.003
Family share 30-40%									0.066 ***	0.003
Family share 40-50%									0.088 ***	0.003
Family share 50-60%									0.079 ***	0.003
Family share 60-70%									0.091 ***	0.003
Family share 70-80%									0.074 ***	0.003
Family share 80-90%									0.076 ***	0.003
Family share 90-99%									0.067 ***	0.003
Family share above 99%									0.091 ***	0.003
Age	-0.016 ***	0.001	-0.016 ***	0.001	-0.012 ***	0.001	-0.014 ***	0.001	-0.012 ***	0.001
Size	0.035 ***	0.000	0.036 ***	0.000	0.030 ***	0.000	0.034 ***	0.000	0.031 ***	0.000
Risk	-0.022 ***	0.004	-0.021 ***	0.004	-0.026 ***	0.007	-0.022 ***	0.006	-0.026 ***	0.007
Growth opportunities	-0.015 ***	0.000	-0.015 ***	0.000	-0.013 ***	0.000	-0.015 ***	0.000	-0.013 ***	0.000
Asset liquidity	0.086 ***	0.002	0.086 ***	0.002	0.090 ***	0.002	0.094 ***	0.002	0.090 ***	0.002
Leverage	-0.033 ***	0.001	-0.032 ***	0.001	-0.035 ***	0.001	-0.034 ***	0.001	-0.035 ***	0.001
Capital intensity	0.022 ***	0.000	0.022 ***	0.000	0.019 ***	0.000	0.020 ***	0.000	0.018 ***	0.000
Year fixed effects	Yes		Yes		Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes		Yes		Yes	
R^2	0.138		0.139		0.126		0.134		0.127	
Number of observations	1 130 130		1 081 894		1 427 604		1 321 513		1 427 267	
Number of firms	179 924		174 836		211 811		204 566		211 711	

Table 4: The family firm premium and agency conflicts

This table shows the results of regressing profitability on a family firm dummy, measures of agency conflicts, and firm characteristics. The population is all Norwegian firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. The sample for model 7 excludes single-owner firms. "Return on assets (ROA)" is operating earnings after taxes divided by assets, winsorized at 2.5% and 97.5%."Family firm" is 1 if the firm is majority-owned by individuals related by blood or marriage up to the fourth degree of kinship and 0 otherwise. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, counting the family as one owner. "Single-owner firm" equals one if one family or nonfamily entity owns all the shares in the firm and 0 otherwise. "Family CEO" equals 1 if the controlling family has the CEO position and 0 otherwise. "Holding of CEO" is the equity stake in the firm held by the CEO. "Holding of family CEO" is the equity stake in the firm held by the family CEO. "Family seats on board" is the percentage of directors who belong to the controlling family. "Holding of largest owner" is the highest percentage equity stake in the firm. "Minority on board" is 1 if minority shareholders sit on the board and 0 otherwise. "Age" is the log of the number of years since the firm was founded. "Size" is the log of the firm's sales in million 2019 NOK. "Risk" is the coefficient of variation of the firm's sales over the previous three years. "Growth opportunities" is the ratio of sales to assets, "Asset liquidity" is cash to assets, "Leverage" is the ratio of liabilities less cash to total assets less cash, and "Capital intensity" is the log of the ratio of assets (in million 2019 NOK) to employees. "SE" is standard error. Statistical significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable: Return on assets	1		2		3		4		5		6		7	
Independent variable	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Family firm	0.037 ***	0.001	0.024 ***	0.001	0.018 *	0.002	0.001	0.001	-0.004 ***	0.001	0.031 ***	0.002	0.018 ***	0.001
Family firm*Single-owner firm	0.014 ***	0.001	0.085 ***	0.002										
Single-owner firm			-0.070 ***	0.002										
Family firm*Family CEO					0.024 ***	0.001								
Family firm*Holding of family CEO							0.020 ***	0.001						
Family firm*Family seats on board									0.033 ***	0.001				
Family firm*Holding of largest owner											0.017 ***	0.002		
Family firm*Minority on board													0.006 ***	0.001
Age	-0.013 ***	0.001	-0.013 ***	0.001	-0.015 ***	0.001	-0.016 ***	0.001	-0.015 ***	0.001	-0.014 ***	0.001	-0.009 ***	0.001
Size	0.033 ***	0.000	0.034 ***	0.000	0.034 *	0.000	0.040 ***	0.000	0.039 ***	0.000	0.033 ***	0.000	0.032 ***	0.001
Risk	-0.025 ***	0.006	-0.024 ***	0.006	-0.022 ***	0.006	-0.016 ***	0.005	-0.019 ***	0.005	-0.025 ***	0.006	-0.029 **	0.015
Growth opportunities	-0.014 ***	0.000	-0.014 ***	0.000	-0.015 ***	0.000	-0.017 ***	0.000	-0.016 ***	0.000	-0.014 ***	0.000	-0.011 ***	0.000
Asset liquidity	0.091 ***	0.002	0.092 ***	0.002	0.095 *	0.002	0.103 ***	0.002	0.105 ***	0.002	0.092 ***	0.002	0.110 ***	0.003
Leverage	-0.034 ***	0.001	-0.034 ***	0.001	-0.034 *	0.001	-0.030 ***	0.001	-0.031 ***	0.001	-0.035 ***	0.001	-0.043 ***	0.001
Capital intensity	0.018 ***	0.000	0.019 ***	0.000	0.020 *	0.000	0.022 ***	0.000	0.021 ***	0.000	0.018 ***	0.000	0.013 ***	0.001
Year fixed effects	Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes		Yes		Yes		Yes		Yes	
R^2	0.130		0.132		0.133		0.142		0.141		0.129		0.131	
Number of observations	1 427 604		1 427 604		1 321 513		1 098 325		1 169 342		1 427 465		561 958	
Number of firms	211 811		211 811		204 566		177 847		182 020		211 795		103 437	

Table 5: Empirical proxies and predicted relationships   *Alternative to this table: Add column with predicted signs in every regression table*

This table summarizes the hypothesized relationship between the family firm's return on assets, agency costs, and the family's financial constraints. The variables are defined in the table referred to in the leftmost column.

Dependent variable: Return on assets (ROA)	The family firm's agency costs				The controlling family's financial constraints			*Table 11:*
Variable	A: Vertical agency problem	B: Horizontal agency problem	C: Coordination problem	D: Family skills	E: Limited family wealth	F: Undiversified family wealth	G: Illiquid shares	**Integrated models**
Table 4:								
Family firm*Family CEO	+							+
Family firm*Holding of family CEO	+							
Family firm*Family seats on board	+							
Family firm*Holding of largest owner		+						+
Family firm*Minority on board		+						
Family firm*Single-owner firm		+						
Table 6:								
Family firm*Number of family owners			-					+
Family firm*Concentration of family ownership			+					
Family firm*Single family owner			+					
Family firm*Family CEO is majority owner			+					
Family firm*Proportion of employees belonging to family			+					
Family firm*Number of family owners who are not insiders			-					
Table 7:								
Family firm*Young family CEO in family firm				+ in young firms				
Family firm*Young family CEO in family firm				- in old firms				
Table 8:								
Family firm*Controlling family wealth					-			-
Family firm*Controlling family rank by wealth					-			
Family firm*Controlling family assets relative to industry					-			
Family firm*Controlling family liquidity relative to firm					-			
Family firm*Personal family leverage					+			
Family firm*Assets of firms controlled by the family					-			
Family firm*Controlling family size					-			
Table 9:								
Family firm*Multiple-owner firm						-		
Family firm*Number of firms the largest family controls						-		
Family firm*Number of industries in family-controlled firms						-		
Family firm*Number of industries in the firm's group						-		
Family firm*Equity investment to family wealth						+		+
Family firm*Proportion of family-controlled assets						+		
Table 10:								
Family firm*Number of minority owners							-	-
Family firm*Number of separate owners							-	
Family firm*Listed							-	

Table 6: The family firm premium and in-family coordination

This table shows the results of regressing profitability on a family firm dummy and measures of family coordination issues. The population is all Norwegian firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. "Return on assets (ROA)" is operating earnings after taxes divided by assets, winsorized at 2.5% and 97.5%. "Family firm" is 1 if the firm is majority-owned by individuals related by blood or marriage up to the fourth degree of kinship and 0 otherwise. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, counting the family as one owner. "Number of family owners" is the number of family members with shares in the firm. "Single family owner" is equal to 1 if there is only one owner in the controlling family and 0 otherwise. "Family CEO is majority owner" is equal to 1 if the CEO belongs to the family and holds more than 50% of the firm's equity, and 0 otherwise. "Concentration of family ownership" is the Herfindahl index of the family members' individual equity stakes. "Proportion of employees belonging to family" is the proportion of the firm's employees who are also family members. "Number of family owners who are not insiders" is the number of shareholders who belong to the controlling family, but do not serve as CEOs or directors. "Age" is the log of the number of years since the firm was founded. "Size" is the log of the firm's sales in million 2019 NOK. "Risk" is the coefficient of variation of the firm's sales over the previous three years. "Growth opportunities" is the ratio of sales to assets, "Asset liquidity" is cash to assets, "Leverage" is the ratio of liabilities less cash to total assets less cash, and "Capital intensity" is the log of the ratio of assets (in million 2019 NOK) to employees. "SE" is standard error. Statistical significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable: Return on assets (ROA)

	1		2		3		4		5		6	
Independent variable	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Family firm	0.035 ***	0.001	0.046 ***	0.001	0.013 ***	0.001	0.007 ***	0.001	0.018 ***	0.001	0.044 ***	0.001
Family firm*Number of family owners	-0.008 ***	0.000										
Family firm*Single family owner			0.030 ***	0.001								
Family firm*Family CEO is majority owner					0.013 ***	0.001						
Family firm*Concentration of family ownership							0.020 ***	0.001				
Family firm*Proportion of employees belonging to family									0.002 *	0.001		
Family firm*Number of family owners who are not insiders											0.006 ***	0.001
Age	-0.014 ***	0.001	-0.012 ***	0.001	-0.015 ***	0.001	-0.015 ***	0.001	-0.013 ***	0.001	-0.014 ***	0.001
Size	0.038 ***	0.000	0.034 ***	0.000	0.038 ***	0.000	0.038 ***	0.000	0.036 ***	0.001	0.033 ***	0.000
Risk	-0.019 ***	0.006	-0.025 ***	0.006	-0.019 ***	0.005	-0.019 ***	0.006	-0.014 ***	0.005	-0.025 ***	0.006
Growth opportunities	-0.016 ***	0.000	-0.014 ***	0.000	-0.016 ***	0.000	-0.016 ***	0.000	-0.013 ***	0.000	-0.014 ***	0.000
Asset liquidity	0.106 ***	0.002	0.091 ***	0.002	0.102 ***	0.002	0.106 ***	0.002	0.112 ***	0.002	0.091 ***	0.002
Leverage	-0.031 ***	0.001	-0.034 ***	0.001	-0.032 ***	0.001	-0.031 ***	0.001	-0.032 ***	0.001	-0.034 ***	0.001
Capital intensity	0.022 ***	0.000	0.018 ***	0.000	0.021 ***	0.000	0.021 ***	0.000	0.021 ***	0.001	0.018 ***	0.000
Year fixed effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes		Yes		Yes		Yes	
R^2	0.141		0.132		0.140		0.141		0.141		0.130	
Number of observations	1 170 042		1 427 604		1 245 274		1 169 973		790 110		1 427 406	
Number of firms	182 017		211 811		194 434		182 009		144 156		211 727	

Table 7: Family skills in firm and family generations

This table shows the results of regressing the profitability of young firms (Panel A) and old firms (Panel B) on firm characteristics and on generations of family participation in governance. The population is all Norwegian firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. The firms in Panel A (young firms) are less than 10 years old, while the firms in Panel B (old firms) are more than 20 years old. "Return on assets (ROA)" is operating earnings after taxes divided by assets in real terms, winsorized at the 2.5% and 97.5% tails. "Family firm" is 1 if the firm is majority-owned by individuals related by blood or marriage up to the fourth degree of kinship, and 0 otherwise. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, and the family is counted as one owner. "Family CEO" equals 1 if the controlling family in the firm also has the CEO position, and 0 otherwise. "Young family CEO" equals 1 if the family CEO is less than 30 years old, and 0 otherwise. "Old family CEO" equals 1 if the family CEO is more than 50 years old, and 0 otherwise. "Age" is the log of the number of years since the firm was founded. "Size" is the log of the firm's sales in million 2019 NOK. "Risk" is the coefficient of variation of the firm's sales over the previous three years. "Growth opportunities" is the ratio of sales to assets, "Asset liquidity" is cash to assets, "Leverage" is the ratio of liabilities less cash to total assets less cash, and "Capital intensity" is the log of the ratio of assets (in million 2019 NOK) to employees. "SE" is standard error. Statistical significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A. Young firms

Dependent variable: Return on assets (ROA)

Independent variable	1 Coefficient	SE	2 Coefficient	SE	3 Coefficient	SE	4 Coefficient	SE
Family firm	0.055 ***	0.001	0.029 ***	0.002	0.055 ***	0.001	0.058 ***	0.001
Family firm*Family CEO in family firm			0.028 ***	0.002				
Family firm*Young family CEO in family firm					0.010 ***	0.002		
Family firm*Old family CEO in family firm							-0.010 ***	0.001
Age	-0.003	0.002	-0.003	0.002	-0.003	0.002	-0.002	0.002
Size	0.051 ***	0.001	0.051 ***	0.001	0.051 ***	0.001	0.051 ***	0.001
Risk	-0.035 ***	0.008	-0.034 ***	0.008	-0.034 ***	0.008	-0.034 ***	0.008
Growth opportunities	-0.019 ***	0.000	-0.019 ***	0.000	-0.019 ***	0.000	-0.019 ***	0.000
Asset liquidity	0.091 ***	0.003	0.091 ***	0.003	0.093 ***	0.003	0.094 ***	0.003
Leverage	-0.046 ***	0.001	-0.046 ***	0.001	-0.045 ***	0.001	-0.045 ***	0.001
Capital intensity	0.024 ***	0.001	0.024 ***	0.001	0.025 ***	0.001	0.025 ***	0.001
Year fixed effects	Yes		Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes		Yes	
R^2	0.187		0.188		0.165		0.187	
Number of observations	523 265		523 265		510 862		510 862	
Number of firms	113 927		113 927		103 800		113 927	

Table 7–*Continued*

Panel B. Old firms

Dependent variable: Return on assets (ROA)

Independent variable	1 Coefficient	SE	2 Coefficient	SE	3 Coefficient	SE	4 Coefficient	SE
Family firm	0.019 ***	0.001	0.007 ***	0.002	0.020 ***	0.001	0.022 ***	0.001
Family firm*Family CEO in family firm			0.013 ***	0.002				
Family firm*Young CEO in family firm					0.014 ***	0.004		
Family firm*Old CEO in family firm							-0.003 ***	0.001
Age	-0.031 ***	0.002	-0.031 ***	0.002	-0.031 ***	0.002	-0.031 ***	0.002
Size	0.020 ***	0.000	0.020 ***	0.000	0.020 ***	0.000	0.020 ***	0.000
Risk	-0.008 *	0.004	-0.008 *	0.004	-0.008 *	0.004	-0.008 *	0.004
Growth opportunities	-0.009 ***	0.001	-0.009 ***	0.001	-0.009 ***	0.001	-0.009 ***	0.001
Asset liquidity	0.102 ***	0.004	0.102 ***	0.004	0.103 ***	0.004	0.103 ***	0.004
Leverage	-0.015 ***	0.001	-0.015 ***	0.001	-0.015 ***	0.001	-0.015 ***	0.001
Capital intensity	0.013 ***	0.001	0.013 ***	0.001	0.013 ***	0.001	0.013 ***	0.001
Year fixed effects	Yes		Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes		Yes	
R^2	0.081		0.081		0.081		0.081	
Number of observations	342 792		342 792		333 305		333 305	
Number of firms	54 517		54 517		52 794		52 794	

Table 8: The family firm premium and the controlling family's limited wealth

This table shows the results of regressing profitability on a family firm dummy, the controlling family's wealth constraints, and firm characteristics. The population is all Norwegian firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. "Family firm" is 1 if the firm is majority-owned by individuals related by blood or marriage up to the fourth degree of kinship and 0 otherwise. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, and the family is counted as one owner. "Return on assets (ROA)" is operating earnings after taxes divided by assets, winsorized at 2.5% and 97.5%. "Controlling family wealth" is the log of family's total gross assets in million 2019 NOK. "Controlling family rank by wealth" is the rank of the family among all controlling families in a given year in terms of gross assets. "Controlling family assets relative to industy" is the family's gross assets to the mean total assets of firms in the same industry and year. "Controlling family liquidity relative to firm" is the ratio between the family's bank deposits and the firm's equity. "Personal family leverage" is the family's debt divided by the family's gross assets. "Assets of firms controlled by the family" is the log of the total assets of all firms controlled by the family. "Controlling family size" is the log of the number of members in the extended family. "Age" is the log of the number of years since the firm was founded. "Size" is the log of the firm's sales in million 2019 NOK. "Risk" is the coefficient of variation of the firm's sales over the previous three years. "Growth opportunities" is the ratio of sales to assets, "Asset liquidity" is cash to assets, "Leverage" is the ratio of liabilities less cash to total assets less cash, and "Capital intensity" is the log of the ratio of assets (in million 2019 NOK) to employees. "SE" is standard error. Statistical significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable: Return on assets (ROA)

Independent variable	1 Coefficient	SE	2 Coefficient	SE	3 Coefficient	SE	4 Coefficient	SE	5 Coefficient	SE	6 Coefficient	SE	7 Coefficient	SE
Family firm	0.054 ***	0.001	0.034 ***	0.001	0.024 ***	0.001	0.021 ***	0.001	0.007 ***	0.001	0.063 ***	0.001	0.008 ***	0.002
Family firm*Controlling family wealth	-0.012 ***	0.000												
Family firm*Controlling family rank by wealth			-0.027 ***	0.001										
Family firm*Controlling family assets relative to industry					-0.012 ***	0.000								
Family firm*Controlling family liquidity relative to firm							-0.003 ***	0.000						
Family firm*Personal family leverage									0.020 ***	0.001				
Family firm*Assets of firms controlled by the family											-0.023 ***	0.001		
Family firm*Controlling family size													0.004 ***	0.000
Age	-0.012 ***	0.001	-0.013 ***	0.001	-0.012 ***	0.001	-0.019 ***	0.000	-0.012 ***	0.001	-0.011 ***	0.001	-0.015 ***	0.001
Size	0.037 ***	0.000	0.036 ***	0.000	0.036 ***	0.000	0.020 ***	0.000	0.036 ***	0.000	0.045 ***	0.001	0.038 ***	0.000
Risk	-0.016 ***	0.005	-0.016 ***	0.005	-0.016 ***	0.005	-0.003 **	0.001	-0.017 ***	0.006	-0.016 ***	0.005	-0.019 ***	0.006
Growth opportunities	-0.013 ***	0.000	-0.013 ***	0.000	-0.013 ***	0.000	-0.004 ***	0.000	-0.013 ***	0.000	-0.018 ***	0.000	-0.016 ***	0.000
Asset liquidity	0.110 ***	0.002	0.110 ***	0.002	0.112 ***	0.002	0.197 ***	0.002	0.113 ***	0.002	0.100 ***	0.002	0.107 ***	0.002
Leverage	-0.034 ***	0.001	-0.034 ***	0.001	-0.034 ***	0.001	0.015 ***	0.000	-0.034 ***	0.001	-0.031 ***	0.001	-0.031 ***	0.001
Capital intensity	0.022 ***	0.000	0.022 ***	0.000	0.023 ***	0.000	0.017 ***	0.000	0.022 ***	0.000	0.027 ***	0.000	0.022 ***	0.000
Year fixed effects	Yes		Yes		Yes		Yes		Yes				Yes	
Industry fixed effects	Yes		Yes		Yes		Yes		Yes				Yes	
R^2	0.143		0.143		0.142		0.100		0.142		0.145		0.141	
Number of observations	941 524		941 524		941 551		811 996		941 347		1 169 486		1 170 042	
Number of firms	154 541		154 810		154 806		137 452		154 155		182 091		182 016	

Table 9: The family firm premium and the controlling family's undiversified wealth

This table shows the results of regressing profitability on a family firm dummy, the degree of diversification in the controlling family's wealth, and firm characteristics. The population is all Norwegian firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. "Return on assets (ROA)" is operating earnings after taxes divided by assets, winsorized at the 2.5% and 97.5% tails. "Family firm" is 1 if the firm is majority-owned by individuals related by blood or marriage up to the fourth degree of kinship and 0 otherwise. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, and the family is counted as one owner. "Multiple-owner firm" is a firm with more owners than just a family. "Number of firms cthe largest family controls" is the number of firms where the firm's largest family by ownership holds a majority stake, "Number of industries in family-controlled firms" is number of industries in all operating firms the family controls. "Number of industries in the firm's group" is the number of industries in the operating firm's group. "Equity investment to family wealth" is the family's equity investment in the firm divided by the family's nonresidential wealth. "Proportion of family-controlled assets" is share of the firm's assets of all corporate assets controlled by the family. "Age" is the log of the number of years since the firm was founded, "Size" is the log of the firm's sales in million 2019 NOK, "Risk" is the coefficient of variation of the firm's sales over the previous three years, "Growth opportunities" is the ratio of sales to assets, "Asset liquidity" is cash to assets, "Leverage" is the ratio of liabilities less cash to total assets less cash, and "Capital intensity" is the log of the ratio of assets (in million 2019 NOK) to employees. "SE" is standard error. Statistical significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable: Return on assets (ROA)

	1		2		3		4		5		6		7	
Independent variable	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Family firm	0.051 ***	0.001	0.041 ***	0.001	0.045 ***	0.001	0.066 ***	0.002	0.007 ***	0.001	0.028 ***	0.002	0.031 ***	0.002
Family firm*Multiple-owner firm	-0.014 ***	0.001												
Family firm*Number of firms the largest family controls			-0.013 ***	0.000										
Family firm*Number of industries in family-controlled firms					-0.018 ***	0.001								
Family firm*Number of industries in the firm's group							-0.014 ***	0.001						
Family firm*Equity investment to family wealth									0.030 ***	0.000				
Family firm*Proportion of family-controlled assets											0.024 ***	0.002		
Age	-0.013 ***	0.001	-0.014 ***	0.001	-0.012 ***	0.001	-0.013 ***	0.001	-0.013 ***	0.001	-0.012 ***	0.001	-0.012 ***	0.001
Size	0.033 ***	0.000	0.039 ***	0.000	0.038 ***	0.000	0.041 ***	0.000	0.035 ***	0.001	0.032 ***	0.000	0.033 ***	0.001
Risk	-0.025 ***	0.006	-0.018 ***	0.005	-0.015 ***	0.005	-0.017 ***	0.005	-0.024 ***	0.006	-0.017 ***	0.006	-0.028 ***	0.009
Growth opportunities	-0.014 ***	0.000	-0.016 ***	0.000	-0.013 ***	0.000	-0.017 ***	0.000	-0.014 ***	0.000	-0.011 ***	0.000	-0.014 ***	0.000
Asset liquidity	0.091 ***	0.002	0.104 ***	0.002	0.107 ***	0.002	0.102 ***	0.002	0.089 ***	0.002	0.125 ***	0.002	0.090 ***	0.002
Leverage	-0.034 ***	0.001	-0.031 ***	0.001	-0.033 ***	0.001	-0.030 ***	0.001	-0.034 ***	0.001	-0.028 ***	0.001	-0.035 ***	0.001
Capital intensity	0.018 ***	0.000	0.022 ***	0.000	0.021 ***	0.000	0.022 ***	0.000	0.018 ***	0.000	0.020 ***	0.000	0.018 ***	0.001
Year fixed effects	Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes		Yes		Yes		Yes		Yes	
R^2	0.130		0.142		0.144		0.131		0.149		0.129		0.129	
Number of observations	1 427 604		1 169 534		1 116 204		1 361 425		900 923		1 164 028		1 159 134	
Number of firms	211 810		182 097		176 361		205 970		148 338		195 841		195 788	

Table 10: The family firm premium and the share's illiquidity

This table shows the results of regressing profitability on a family firm dummy, measures of share illiquidity, and firm characteristics. The population is all Norwegian firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. "Return on assets (ROA)" is operating earnings after taxes divided by assets, winsorized at the 2.5% and 97.5% tails. "Family firm" is 1 if the firm is majority-owned by individuals related by blood or marriage up to the fourth degree of kinship and 0 otherwise. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, and the family is counted as one owner. "Number of minority owners" is the number of shareholders except the largest, "Number of separate owners" is the number of ultimate owners in the firm, counting each family member as one owner, while "Listed" is 1 if the firm is public and 0 otherwise. "Age" is the log of the number of years since the firm was founded. "Size" is the log of the firm's sales in million 2019 NOK. "Risk" is the coefficient of variation of the firm's sales over the previous three years. "Growth opportunities" is the ratio of sales to assets, "Asset liquidity" is cash to assets, "Leverage" is the ratio of liabilities less cash to total assets less cash, and "Capital intensity" is the log of the ratio of assets (in million 2019 NOK) to employees. "SE" is standard error. Statistical significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable: Return on assets (ROA)

Independent variable	1 Coefficient	SE	2 Coefficient	SE	3 Coefficient	SE
Family firm	0.048 ***	0.001	0.049 ***	0.001	0.047 ***	0.001
Family firm*Number of minority owners	-0.001 ***	0.000				
Family firm*Number of separate owners			-0.001 ***	0.000		
Family firm*Listed					-0.254 ***	0.010
Age	-0.014 ***	0.001	-0.014 ***	0.001	-0.013 ***	0.001
Size	0.033 ***	0.000	0.033 ***	0.000	0.034 ***	0.000
Risk	-0.025 ***	0.006	-0.025 ***	0.006	-0.024 ***	0.006
Growth opportunities	-0.014 ***	0.000	-0.014 ***	0.000	-0.014 ***	0.000
Asset liquidity	0.092 ***	0.002	0.092 ***	0.002	0.092 ***	0.002
Leverage	-0.034 ***	0.001	-0.034 ***	0.001	-0.035 ***	0.001
Capital intensity	0.018 ***	0.000	0.018 ***	0.000	0.018 ***	0.000
Year fixed effects	Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes	
R^2	0.129		0.130		0.131	
Number of observations	1 426 427		1 426 427		1 427 604	
Number of firms	205 733		205 733		211 810	

Table 11: The family firm premium, agency advantages, and financial disadvantages

This table shows the results of regressing profitability on a family firm dummy, governance advantages of family control, financial disadvantages of family control, and firm characteristics. The population is all Norwegian firms with limited liability in 2000–2019. The sample excludes financial firms and firms with no sales, employees, or assets. Model 2 includes only single-owner family firms, and Model 3 includes only family firms where the gross wealth of the family is in the top quartile. "Return on assets (ROA)" is operating earnings after taxes divided by assets, winsorized at the 2.5% and 97.5% tails. "Family firm" is 1 if the firm is majority-owned by individuals related by blood or marriage up to the fourth degree of kinship and 0 otherwise. Ownership is measured as the sum of the owner's direct and indirect equity holdings in the firm, and the family is counted as one owner. "Family CEO" is 1 if the controlling family has the CEO position and 0 otherwise. "Holding of largest owner" is the highest percentage equity stake in the firm. "Number of family owners" is the number of family members with shares in the firm. "Controlling family wealth" is the log of family's gross assets in million 2019 NOK. "Equity investment to family wealth" is the family's ownership stake in the firm divided by the family's nonresidential assets. "Number of minority owners" is the number of shareholders except the largest. "Age" is the log of the number of years since the firm was founded. "Size" is the log of the firm's sales in million 2019 NOK. "Risk" is the coefficient of variation of the firm's sales over the previous three years. "Growth opportunities" is the ratio of sales to assets, "Asset liquidity" is cash to assets, "Leverage" is the ratio of liabilities less cash to total assets less cash, and "Capital intensity" is the log of the ratio of assets (in million 2019 NOK) to employees. "SE" is standard error. Statistical significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable: Return on assets (ROA)

	1		2		3	
Independent variable	Coefficient	SE	Coefficient	SE	Coefficient	SE
Family firm	0.008 **	0.004				
Governance advantages						
Vertical agency problem: Family firm*Family CEO	0.020 ***	0.002			0.026 ***	0.002
Horizontal agency problem: Family firm*Holding of largest owner	0.013 ***	0.003			0.014 ***	0.003
Coordination problem: Family firm*Number of family owners	-0.003 ***	0.000			-0.005 ***	0.001
Financial disadvantages						
Wealth constraints: Family firm*Controlling family wealth	-0.009 ***	0.001	-0.009 ***	0.001		
Undiversified wealth: Family firm*Equity investment to family wealth	0.029 ***	0.000	0.031 ***	0.001		
Illiquid shares : Family firm*Number of minority owners	-0.002 ***	0.000				
Control variables						
Age	-0.011 ***	0.001	-0.012 ***	0.001	-0.013 ***	0.001
Size	0.034 ***	0.001	0.034 ***	0.001	0.026 ***	0.001
Risk	-0.016 ***	0.005	-0.013 ***	0.004	-0.009	0.006
Growth opportunities	-0.012 ***	0.000	-0.012 ***	0.000	-0.008 ***	0.001
Asset liquidity	0.125 ***	0.002	0.114 ***	0.003	0.139 ***	0.005
Leverage	-0.028 ***	0.001	-0.023 ***	0.001	-0.016 ***	0.001
Capital intensity	0.020 ***	0.000	0.022 ***	0.001	0.017 ***	0.001
Year fixed effects	Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes	
R^2	0.151		0.155		0.113	
Number of observations	900 456		548 849		220 031	
Number of firms	148 218		100 296		54 633	

Appendix

Data sources and sample construction

In our baseline analysis we start with the population of Norwegian limited-liability firms during 2000–2019 that are economically active and non-financial. The data base includes complete accounting, ownership, and board membership data from Experian (www.experian.com). The accounting data filing is mandatory in Norway and all limited liability firms had to have audited accounts until May 1, 2011 or were subject to liquidation by the court within 17 months from the end of the fiscal year. After 2011 compliance with tax and accounting regulations does not decrease for those who hire a licensed accountant – a common practice in Norway (Downing and Langli, 2019).

We use minimal activity filters for inclusion in the sample, requiring the firm to have positive assets, positive sales, and not belong to the financial sector at the operating firm level. We exclude firms that report less than three years of data to measure sales volatility.

We add detailed income and wealth tax data from tax returns to the family data. Both data sets come from the Norwegian Tax Authority (www.skattedirektoratet.no).

Construction of business groups and the largest family

Business groups

Using the ownership data for all limited liability firms in Norway we construct detailed group structures by following majority ownership chains between firms and work out special cases such as cross ownerships. The algorithm allows us to identify the ultimate ownership of the group: family (a family owns at least 50% of the equity) or nonfamily (usually dispersed ownership, but also financial, state, and foreign controlling ownership). We validate the algorithm by using the publicly available ownership data to hand check the family/nonfamily classification generated by the algorithm for the largest 5000 business groups.

We examine the structure for each of the business groups to choose one key firm within the group for the key corporate finance and governance measures. This entity is the one that reports consolidated accounts for the group, and that has a board and a CEO that is representative for the group[1]. We define ownership concentration as the ownership share of the largest family or single owner at the governance entity level.

Family identification

The family relationship data spans four vertical degrees of kinship, both upwards as for parents, grandparents, great grandparents, great-great grandparents, and downwards as for children, grandchildren, great grandchildren, and great grandchildren. We include four lateral degrees of kinship, i.e., siblings, cousins, second- and third-degree cousins. We treat marriages and civil partnerships equally.

We have developed an algorithm to construct a family affiliated with the firm. Our algorithm uses both the list of ultimate shareholders and family relationships to identify the largest firm-centric family for each firm.

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[1] The key firm is usually at the top of the group structure, except in cases where individual owners or groups of owners control their shares through holding companies without economic activity.

The data for constructing a family, abstracting from the ownership, has the following building blocks:

- Marriages,
- Domestic partnerships,
- Key relatives: children, parents, grandparents, great grandparents, and great great grand parents.

First, we construct a deep relationship map between any two persons which have even remote kinship. The building blocks here are the marriages (domestic partnerships), direct key relatives, mirrored key relatives. To that we add *distant relatives* from the following algorithm: We consider two relationship tables: person_1a—person_2a—role_a and join it with person_2b—person_1b—role_b table on person_2a=person2b. The output is person_1a—person_1b—role_new. The role_new is a combination of the role_a and role_b. Note that the algorithm may identify person_1a—person_1b role through several indirect relationships resulting in multiple alternative relationships between two persons. We use ranking of the relationships to eliminate duplicate roles between two persons. We clean up the resulting role matrix by eliminating duplicate mirroring relationships and keep resulting 37 family roles. These roles are up to 8 level apart vertically and 4 levels apart horizontally.

We then use the following approach in *a firm-centric family identification*:
- For each owner we find a spouse (domestic partner).
- We add year indicator to this family relationship structure by checking that the marriage/partnership is active in the year and that the persons are already born and mark whether anyone has died by using death register from the Population Register.
- We add the deep set of relatives for the two spouses/partners.
- We combine the resulting deep relationship set with the firm ownership data to for firm-centric family set with a delineation of family members involved in firm and ones that are not involved with the firm.
- We rank the families based on their ownership stake and proceed with the largest family.

Note that we use the complete ownership data to estimate each owner's ultimate ownership stake in each firm (direct + indirect). We use the ultimate ownership stake in all our analysis.

Variable names and variable definitions

Variable name	Definition
Family variables	
Family CEO	1 if the controlling family has the CEO position and 0 otherwise
Family firm	1 if individuals related by blood or marriage up to the fourth degree of kinship own at least 50% of the firm's equity and 0 otherwise.
Minority on board	1 if minority shareholders sit on the board and 0 otherwise
Single-owner firm	1 if one family or nonfamily owns all the shares in the firm and 0 otherwise

Family CEO is majority owner	1 if the CEO belongs to the family and holds more than 50% of the firm's equity, and 0 otherwise
Young family CEO	1 if the family CEO is less than 30 years old, and 0 otherwise
Old family CEO	1 if the family CEO is more than 50 years old, and 0 otherwise
Multiple-owner firm	1 if the firm with more owners than just a family, 0 otherwise
Single family owner	1 if there is only one owner in the controlling family and 0 otherwise
Holding of CEO	The equity stake in the firm held by the CEO
Holding of family CEO	The equity stake in the firm held by the family CEO
Personal family leverage	The family's debt divided by the family's gross assets
Equity investment to family gross wealth	The family's equity investment in the firm divided by the family's nonresidential wealth
Controlling family assets relative to industry	The family's gross assets to the mean total assets of firms in the same industry and year
Concentration of family holdings	The Herfindahl index of the family members' individual equity stakes
Concentration of all holdings	The Herfindahl index of the individual equity stakes of both family and nonfamily shareholders
Holding of largest owner	The highest percentage equity stake in the firm
Controlling family wealth	The log of family's total gross assets in million 2019 NOK
Controlling family assets outside the firm	The log of the family's total gross wealth excluding the family's equity stake in the firm
Largest family size	The log of the number of members in the extended family
Assets of firms controlled by the family	The log of the total assets of all firms controlled by the family
Sales of firms controlled by the family	The log of the total sales of all firms controlled by the family
Number of minority owners	The number of shareholders except the largest
Number of family owners	The number of family members in the controlling family with shares in the firm
Number of firms the largest family controls	The number of firms where the firm's largest family by ownership holds a majority stake
Number of industries in family-controlled firms	The number of industries in all operating firms the family controls
Number of industries in the firm's group	The number of industries in the operating firm's group
Number of family owners who are not insiders	The number of shareholders who belong to the controlling family, but do not serve as CEOs or directors

Number of separate owners	The number of ultimate owners in the firm, counting each family member as one owner
Family seats on board	The percentage of directors who belong to the controlling family
Proportion of employees belonging to family	The proportion of the firm's employees who are also related to the controlling family
Controlling family rank by wealth	The rank of the family among all controlling families in a given year in terms of gross assets
Controlling family relative liquidity	The ratio between the family's bank deposits and the firm's equity
Proportion of family-controlled assets	The share of the firm's assets of all corporate assets controlled by the family
Proportion of family-controlled revenues	The share of the firm's revenues in all corporate revenues controlled by the family

Firm Variables

Age	The log of the number of years since the firm was founded
Asset liquidity	The ratio of cash to assets
Capital intensity	The log of the ratio of assets (in million 2019 NOK) to employees
Growth opportunities	The ratio of sales to assets
Leverage	The ratio of liabilities less cash to total assets less cash
Listed	1 if the firm is public and 0 otherwise
Risk	The coefficient of variation of the firm's sales over the previous three years
ROA	The operating earnings after taxes divided by assets, winsorized at the 2.5% and 97.5% tails
ROE	The operating earnings after taxes divided by assets net of cash and current debt, winsorized at the 2.5% and 97.5% tails
ROIC	The net earnings after taxes divided by the book value of equity, winsorized at the 2.5% and 97.5% tails
Size	The log of the firm's sales in million 2019 NOK