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Multiple owners and productivity: evidence from family firms

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ABSTRACT

We investigate the productivity of family owned small- and medium-sized enterprises (SMEs). Specifically, we examine whether productivity is influenced by the number of family owners and by family member involvement in daily operations. We find that the productivity of family firms is non-monotonically associated with the number of family owners and with the number of family members who work in the firm. Although prior empirical research has often been associated with positive effects, we identify problematic cases, especially when a few owners are involved. We document a negative effect on productivity if the firm has few but more than one family owner, and if the firm has two or three owners who are involved in daily business operations. In these cases, an external (non-family) Chair (CEO) might mitigate these effects stemming from the family ownership (family working in the firm). The results of our study have practical relevance and policy implications when it comes to questions concerning optimal governance.

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1. Introduction

SMEs play a key role in national economies around the world, generating employment and value added.

OECD Report (2017)

Is there a significant link between concentrated family ownership and firm performance? How does family involvement in daily business operations impact firm performance? Despite many studies, there is no consensus in the literature on these two issues. In this paper, we apply total factor productivity as a measure for performance and document that family ownership and family involvement have a non-trivial influence on firm performance.

Most firms around the world are family controlled, including over half of all public corporations in the US, Europe, three-quarters in Latin America and more than two-thirds in Asia (La Porta, López De Silanes, and Shleifer 1999; Claessens, Djankov, and Lang 2000; Faccio and Lang 2002; Masulis, Pham, and Zein 2011). Yet the existing literature remains inconclusive about the effect of family ownership on firm performance. Families consider ownership as an asset to bequeath to future generations (Casson 1999) and thus have longer investment horizons (James 1999). Anderson and Reeb (2003) find that founding families tend to reduce agency conflicts and family ownership benefits minority shareholders. Family owned businesses may be incentived to produce high quality earnings to prevent family reputational damage and improve long-term firm performance. Strong empirical support for the positive impact of family ownership is provided by Palia and Lichtenberg (1999), Anderson and Reeb (2003), Andres (2008), Lee (2006), Barontini and Caprio (2006), Villalonga and Amit (2006), Maury (2006), Martikainen, Nikkinen, and Vähämaa (2006) and Sraer and Thesmar (2007). On the other hand, negative effects of family ownership have been discussed by Holderness and Sheehan (2000) and Barth, Gulbrandsen, and Schønea (2005). Castillo and Wakefield (2006), Westhead and Howorth (2006) and Sciascia and Mazzola (2008) find no association between family ownership and performance.

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Family involvement mirrors the family's strategic decision-making participation (Sciascia and Mazzola 2008) and is a relatively less explored area of the literature (Barbera and Moores 2013). Anderson and Reeb (2003), Chrisman, Chua, and Litz (2004) and Lee (2006) find that family involvement in management increases firm performance. Reliance upon family members instead of professional managers could potentially lead to decision making inefficiencies (Bertrand and Schoar 2006). Controlling families are more inclined to hire loyal managers (DeAngelo and DeAngelo 2000). Barth, Gulbrandsen, and Schønea (2005) find family founding firms that are family owner managed are significantly less productive than non-family firms. In a study of Israeli firms, Lauterbach and Vaninsky (1999) find that family manager-owner firms are relatively less efficient that non-family firms. Cucculelli et al. (2014) find that family-managed firms are between 3.5% and 5% less productive than non-family managed firms. Alternatively, Daily and Dollinger (1992) and Sciascia and Mazzola (2008) do not find any association between family involvement in management and performance.

There are several challenges in the family business literature. First, there are numerous definitions of 'family business'. Secondly, there is the issue of measuring family ownership. In several studies, members from the same family who are individual blockholders are often aggregated and considered to represent one single blockholder (for example, Maury and Pajuste 2005). This does not allow for a study of governance within a family. There are also challenges with different performance measures used (ROA, sales growth, ROI or ROE). Another limitation of the existing literature is the focus on large public firms. A much less explored research area is productivity and nonlisted family firms, particularly small and medium sized enterprises (hereafter denoted SMEs). This is surprising, considering that in many countries, SMEs are primarily responsible for wealth, economic growth, innovation and research and development. In the US private sector, SMEs account for a net total of 85% of new jobs. In the European Union, more than 20 million SMEs provide around 75 million jobs across the 28-member nations (European Commission 2015).

We address these challenges as follows. We study the effects of multiple large owners (either from within the same family or other owners) on firm productivity. We classify family ownership into several categories, ranging from none to more than five owners. Following Palia and Lichtenberg (1999), Barth, Gulbrandsen, and Schønea (2005) and Beveren (2012), we use total factor productivity (TFP) to measure corporate performance. Since our sample comprises non-listed firms, market-based performance measures are not feasible. In addition, we regard productivity as a more reliable measure of performance than other financial measures, because unlike return on assets (ROA) or operating profits, productivity is less subject to earnings manipulation.

We also study the effects of family involvement in firm governance. Specifically, we investigate cases with multiple family members as owners and/or engaged in the firm day-to-day operations and firm governance (or family commitment). Based on a random sample of Finnish non-listed family firms, we document a negative effect on productivity if the firm has few but more than one family owner, and if the firm has two or three owners that are involved in the day-to-day business operations. Moreover, we find that a non-family (external) CEO or Chair can mitigate (reduce) these negative effects. Specifically, we find that the productivity is significantly higher from the base-case with a family Chair, if there is a non-family (external) Chair in firms that have two or three owners. Furthermore, our results suggest that a non-family CEO significantly mitigates the negative effects of two or three owners actively involved in the day-to-day business. Collectively, our results indicate that although family presence has been found to have many positive effects per se, there are in some cases negative effects from a few owners/family members working in the firm, but a non-family CEO or Chair can mitigate (reduce) these effects. Our results are robust to a variety of model specifications.

We make several contributions to the literature. First, we contribute to the literature on corporate governance in family firms by studying the effects of multiple but few large owners (either from within the same family or other owners) on firm productivity. Concentrated ownership is a distinguishing feature of the Nordic corporate governance model (Lekvall et al. 2014), and is clearly present among the SMEs as well. Second, we extend the literature beyond that of single-family CEOs and the literature on management maintenance within the family firm. To this end, we use a sample of unlisted Finnish SMEs, which we believe are representative of the Finnish economy. Connecting family ownership and involvement is especially important in a Finnish context, where ownership and company control are highly concentrated with families and individuals. SMEs are a cornerstone of the Finnish economy, where 98.8% of SMEs employ less than 50 people (Eurostat 2018). Our paper helps

shed light on the role of family ownership and management as a possible explanatory factor of overall economic performance.

Our study is related to several papers like Barth, Gulbrandsen, and Schønea (2005) and Cucculelli et al. (2014). Both papers examine productivity measures and analyze family managers and outside managers. Different to Barth et al. (2005) we have a complete sample of non-listed firms, whereas not all their sample is based on non-listed firms. We also consider various levels of family ownership. Different to both papers, we focus exclusively on SMEs. Most family firms in the literature are based on large listed companies.

Mustakallio, Autio, and Zahra (2002) recognize that the family firm does not comply with most traditional assumptions of corporate governance theory. Like Mustakallio, Autio, and Zahra (2002), we investigate Finnish firms, and we find proper governance makes a difference to a family business. But different to Mustakallio, Autio, and Zahra (2002), we utilize a larger sample size (801 firm-years), and test exclusively non-listed firms. Also, our paper is different to theirs because we consider multiple owners and governance within a family firm.

Different from many studies that focus on large firms, we focus on small, non-listed firms. After all, this represents most companies in many economies. Our sample is designed to be representative of the Finnish economy and comprises non-listed SMEs. The significant presence of family run businesses in Finland indicates the country is well suited for such an empirical analysis.

Our paper also has potential policy implications. In Europe, the Small Business Act has highlighted the role of family businesses and the necessity to exploit their full potential. An OECD (2017) report states that no less than two-thirds of the EU's non-financial business workforce was active in a SME in 2014. The European Commission is encouraging initiatives in favor of family businesses, especially SMEs.

The rest of the paper is structured as follows. In the next section, we provide a brief survey of the literature relevant for our study concerning family firms and multiple owners and derive testable hypotheses. Following this, we model the relationship between firm productivity and the number of owners in section three. The data and variables are presented in section four. In section five, we report the results of our empirical tests on the effects of additional owners, and the impact of owner involvement, in family firms. We discuss robustness issues in section six. Conclusions are offered in section seven.

2. Prior research and hypothesis development

Multiple large shareholders (MLS) are a common phenomenon across the globe (La Porta, López De Silanes, and Shleifer 1999; Faccio and Lang 2002). However, theoretical developments in multiple large shareholders do not provide unequivocal support for their governing role. Investors might on one hand connect the presence of MLS as evidence of efficient monitoring (Pagano and Roell 1998). On the other hand, MLS might collude to extract private benefits from other owners (Bennedsen and Wolfenzon 2000). The empirical evidence on MLS, especially in the connection with family firms, gives some support for both views. Maury and Pajuste (2005), Laeven and Levine (2008) and Boubaker, Nguyen, and Rouatbi (2016) find evidence on the benefits of MLS, thus supporting a monitoring view. On the other hand, the results by Maury and Pajuste (2005) as well as of Attig, Guedhami, and Mishra (2008) indicate that family firms are more prone to the extraction of private benefits, unless monitored by another large owner of a different type. Moreover, Cucculelli and Micucci (2008) highlight that the maintenance of family management within family firms has a negative impact on firm performance. This may be due to the costs and time involved in the management activities.

Our data set covers unlisted small Finnish firms, which are representative of the country. Our data classifies the ownership based on the number of owners, whether that being one, 2–3, 4–5, or more. We do not have information on their relative ownership stake. We expect that corporate governance conflicts may most likely exist in the case of 2–3 owners, since in the larger groups of 4 or more owners, the relative power of an individual owner is likely to be smaller. Therefore, the alternative voting combinations that can be formed to create winning coalitions which enhance decision making possibilities are more numerous. Assuming equal ownership stakes, the Shapley-Shubik power index (Shapley and Shubik 1954) used in cooperative game theory would be higher for the individual owners in the case of 2–3 equally large owners as compared to the cases with more owners (and, naturally, peaking at 1 owner, a case which, however, cannot be associated with conflicts among owners). If decision making is harder, and stalemate situations more likely for 2–3 owners as compared to the

alternatives, we expect that firm productivity may be lower. A reasonable small amount such as 2–3 owners may also, alternatively, find it easier to collude and jointly extract private benefits, which also would be harmful for firm productivity. Thus, we expect the following:

Hypothesis 1: Firm productivity is lower in the case of 2–3 owners relative to other ownership distribution alternatives.

If a lower productivity in the case of a smaller number of owners is due to either owner conflicts or management maintenance within the family, both of which may harm firm performance, or the collusion of owners to extract benefits out of the firm in a way that affects the firm's performance, an outside Chairman of the Board or CEO might mitigate such problems. In a study of total factor productivity of Italian firms, Cucculelli et al. (2014) find that family-managed firms are less productive than firms run by outside managers. As the Chairman works with the board, where strategic views between owners in the board may divert, we expect that an external Chairman is beneficial in reducing conflicts between a few owners. We thus expect the following:

Hypothesis 2: An outside Chair improves firm productivity in family owned firms.

To examine family commitment, we test whether family involvement in the daily operations of the firm is associated with performance effects. Potential agency problems in family firms may arise from altruism (Chrisman, Chua, and Litz 2004). Schulze, Lubatkin, and Dino (2003) find[1] that altruism may generate free-rider type problems and (especially when the firm's resources are at the control of a family CEO) lead to altruistic transfers to family members (for example, in the form of employment). Drawing on agency theory and the resource-based view, Levie and Lerner (2009) suggest that family altruism and opportunism may demonstrate themselves in the way human capital is mobilized in the firm. Family firms may have a greater tendency to draw from the family gene pool when employing, which, given a random distribution of abilities, is more restricted than the overall one, which would lead to lower levels of human capital being employed. There is some indirect evidence for this in terms of educational qualities of family employees (Reid and Adams 2001; Smith 2006; Levie and Lerner 2009) but there are also studies that do not find educational differences between family- and non-family firm employees (Cromie, Stephenson, and Monteith 1995). Levie and Lerner (2009) also find, among the employees of the firm, support for family opportunism indicated by a positive relationship between family membership and low working hours (when salaries are controlled for). Chirico and Bau (2014) find support for an inverted U-shaped relationship between the percentage of family members on the top management team and firm performance.[2] They also find that when environmental dynamics (the amount of uncertainty, complexity, and change spreading from the external environment) is high, the relationship is a positive one. As the role of the CEO is to run the operative business, including the making of hiring and firing decisions, we expect that operative concerns with family members working in the firm would above all be mitigated by an external CEO. Based on the potential agency problems arising from family involvement, and the prior findings, we thus propose the following hypothesis:

Hypothesis 3: Increasing family involvement (more family members employed by the firm) has a negative effect on firm productivity, unless monitored by a non-family CEO.

3. Modeling the effects of the number of owners and their role on firm productivity

To model the effects of the number of owners and their role on the productivity of a firm, total factor productivity (TFP) is applied as the measure of firm productivity (Palia and Lichtenberg 1999; Barth, Gulbrandsen, and Schønea 2005; Martikainen, Nikkinen, and Vähämaa 2006). Since our sample comprises non-listed firms, market-based performance measures are not feasible. In addition, we regard productivity as a more reliable measure of performance than other financial measures, because unlike return on assets (ROA) or operating profits, productivity is less subject to earnings manipulation.

It is common to define productivity in terms of the production of goods and services, representing the production output, and labor and capital, representing the production inputs. When doing so, TFP can be defined as the ratio of output per a weighted sum of the inputs as follows:

$$\gamma_T = Y/f(L,K), \tag{1}$$

where γ_T is TFP, Y represents production output, $f(\cdot)$ denotes total input, and L and K are labor and capital inputs, respectively. While there are many alternative production function specifications such as generalized Leontief, homogenous translog, and homogenous quadratic production functions, Palia and Lichtenberg (1999) explain that the selection among these specifications leads only to negligible differences in multi-factor productivity measurement and suggest using the Cobb–Douglas production function, for which the linearized form represents a first-order logarithmic approximation of the alternative functional forms. Thus, we define that the total input $f(L,K) = L^{\alpha}K^{\beta}$, where α and β are the output elasticities of input parameters. Equation (1) then becomes

$$Y = \gamma_T L^{\alpha} K^{\beta}, \tag{2}$$

which can be linearized:

$$\ln(Y) = \alpha \ln(L) + \beta \ln(K) + \ln(\gamma_T). \tag{3}$$

Our dataset consists of output and input data $Y_i, L_i, K_i, i = 1 \ldots, N$, for N family firms. With invariant parameters α and β, unobservable TFP, and $\ln(\gamma_i)$, is estimated for a firm i via a linear regression model.

To model the effects of the number of owners and the role of the owners as a Chair/CEO on productivity, a binary variable approach is applied. In this case, TFP for firm i, $\ln(\gamma_i)$, is assumed to be in a linear relation to a vector characterizing various combinations of the family ownership dispersion and owner involvement. Thus, where and (n × 1) vectors of coefficients and attributes respectively, and e_i is an i.i.d. error term. Consequently, Equation (3) can be expressed as:

$$\ln(Y_i) = \alpha \ln(L_i) + \beta \ln(K_i) + \theta \mathrm{FamFirm_i} + e_i \tag{4}$$

Within this setting, we hypothesize that $\theta j > 0$ if the jth attribute contributes positively to the firm productivity.

4. Data

To empirically examine whether the firm productivity is driven by enhanced team performance or conflicts among family members, data for a random sample of Finnish family SMEs is used. The effects of the ownership and owner involvement variables are the focus of this paper. These variables are based on survey data obtained using a structured web-based questionnaire.[3] There is no single definition of a family firm in the literature (Cucculelli et al. 2014). We define a firm as family owned if it is controlled or owned by an individual or a family. The survey identified family firms through specific questions and asked more detailed questions on board composition and family participation from those firms who had identified themselves as family firms.

A web-based electronic questionnaire was sent to a random sample of the Finnish SMEs of which 982 firms responded. The survey was conducted during the first months of the year 2009. Our total response rate is 9.7%, which is very comparable to survey-based papers in the literature (Trahan and Gitman 1995; Graham and Harvey 2001; Sciascia and Mazzola 2008). Of these firms, we include manufacturing family firms that are limited companies according to their legal type. We then match our survey data with official and audited financial reporting data of Finnish SMEs containing the information such as sales, number of employees and total assets information during 2005–2013. We include firms that have at least six employees (micro SMEs and single entrepreneurs are excluded). Our final sample consists of 801 firm-year observations for manufacturing family firms from 2005 to 2013.

Table 1 presents the primary firm ownership and involvement variables. We include cases in which the chief executive officer (CEO) of the company is a family member (78% of the firms) and the chair/president of company's board is a family member (88%). However, our focus of interest are the different owner roles, and their different combinations. In our final sample, 30% of the companies have 2–3 owners, and out of these, an owner is the CEO or Chair in most cases (26% and 28% of the total sample, respectively). 21% of the firms in our sample have 4–5 owners, and given that the company has 4–5 owners, the owner is the CEO or Chair in 19% or 21% of the cases. Additionally, we include cases in which the only owner is also the chair or CEO, together with the cases where the company has more than 5 owners.

Table 1. Description of main variables.

Variable	Description	# of obs.	Percent
Fam CEO	The chief executive officer (CEO) of the company is a family member	627	78%
Fam Chair	The chair / president of company's board is a family member	706	88%
External CEO	The chief executive officer (CEO) of the company is not a family member	174	22%
External Chair	The chair / president of company's board is not a family member	95	12%
1 owner	The company has 1 owner	276	35%
2–3 owners	The company has 2–3 owners	236	30%
4–5 owners	The company has 4–5 owners	171	21%
$>$ 5 owners	The company has more than 5 owners	109	14%
1 owner works	One family member works in the company	137	17%
2–3 owners work	2–3 family members work in the company	450	56%
$>$ 4 owners work	More than 4 family members work in the company	162	20%
Only outsiders work	Family members do not work in the company	52	7%
Board 1owner	One family member serves on the company's board	193	24%
Board 2–3 owners	2–3 family members serve on the company's board	420	52%
Board 4–5 owners	4–5 family members serve on the company's board	161	20%
Board $>$ 5 owners	More than 5 family members serve on the company's board	27	3%

Notes: Sample consists of 801 observations for manufacturing family firms during the years 2005–2013. The companies are limited companies by their legal type and are fully owned by families. They employ at least six persons.

We also address the impact of owner involvement in the day-to-day operations of the firms. Variables characterizing this type of involvement include cases in which 2–3 family members work in the company (56%) and given that 2–3 owners work in the company and one of the owners is the CEO or Chair (47% or 52%, respectively). Similarly, the cases in which more than 4 family members work in the company (20%); when family members do not work in the company (7%); when 2–3 family members serve on the company's board (52%); when 4–5 family members serve on the company's board (20%); and when more than 5 family members serve on the company's board (3%), are identified and included in the empirical analyses.

Table 2 presents data used in the core production function estimations. Panel A provides descriptive statistics for the key variables used in the estimation, namely the output variable, *Sales* (Y), and the input variables, the number of *Employees* (L), and *Total Assets* (K). We find considerable variation between the minimum and maximum values for all variables, showing that our sample of unlisted firms include both very small but also reasonably big firms.

Table 2, Panel B presents the estimates from the core production functions estimations. The first column reports the estimates from the specification that allows annual variation, but no industry variation, whereas the second column reports the results allowing industry variation, but not the yearly variation. The last column allows both yearly and industry variation. As indicated, the coefficient estimates in all cases are approximately 0.49 and 0.59 for labor and capital, respectively. In our final modeling, we control for both effects. All results are with heteroscedasticity consistent standard errors.

Table 3 presents the correlation matrix for the variables used in our analysis. Correlations are rather low amongst independent variables, confirming that these variables capture distinct characteristics of firms and that multicollinearity is not a major issue. This is later also seen as rather low VIF factors for our models. The variables that entail multiple owners are negatively correlated with performance (lnY), suggesting family ownership has a negative impact on performance.

5. Empirical results

Table 4 presents empirical results based on the impact of the numbers of owners on the productivity in family firms. Column (1) reports the results in which the number of owners (2–3 owners, 4–5 owners, $>$ 5 owners), and the number of owners involved in day-to-day business (2–3 owners work, $>$ 3 owners work, only outsiders work) are all jointly used to explain productivity. The coefficient estimates for both '2–3 owners' and for '4–5 owners' are negative and statistically significant, indicating a negative impact compared to the base case of only one owner. Similarly, the estimate for '2–3 owners work' is negative and statistically significant. Columns (2) and (3) report the results from including either only ownership variables, or variables related to owners involved in

Table 2. Summary statistics.

Panel A. Variables Variable	Mean	Std Dev	Minimum	Maximum		
Sales (Y)	15,189	63,424	21	832,400		
Employees (L)	46	64	6	651		
Total assets (K)	10,984	37290	14	386,407		
lnY	8.338	1.360	3.045	13.632		
lnL	3.367	0.868	1.792	6.479		
lnK	7.867	1.494	2.639	12.865		
Obs	801	801	801	801		
Panel B. Production function						
Variable	**Estimate**	**Estimate**	**Estimate**			
Intercept	2.115	***	1.931	***	1.952	***
	(14.10)		(13.15)		(12.04)	
lnL	0.486	***	0.490	***	0.488	***
	(12.31)		(11.24)		(11.22)	
lnK	0.587	***	0.596	***	0.597	***
	(19.87)		(20.20)		(19.88)	
Yearly dummies	Yes		No		Yes	
Industry dummies	No		Yes		Yes	
Adj. R2	0.77		0.78		0.78	
F-value	297.60	***	308.89	***	172.94	***
Obs	801		801		801	

Notes: Our sample consists of 801 observations for Finnish manufacturing family firms during the years 2005–2013. The estimation results reported in the table are based on the following regression equation:$\ln(Y_{i,y}) = \omega_0 + \sum_{y=2005}^{2013} \delta_y \mathrm{Year}_i^{(y)} + \sum_{j=1}^{7} \gamma_j \mathrm{SIC}_i^{(j)} + \alpha \ln(L_{i,y}) + \beta \ln(K_{i,y}) + u_{i,y}$, where $\ln(Y_{i,y})$ = logarithm of net annual sales for firm *i* in year *y*, SIC represents industry classification, $\ln(L_{i,y})$ = logarithm of number of employees, and $\ln(K_{i,y})$ = logarithm of total assets.

the day-to-day business. The coefficient estimates from these models are very similar to those reported for the base-case, that is the model in column (1) with all the variables jointly included.

To check for whether there exists a similar effect from multiple owner engagement in the SME boards, we include the number of owners acting as board members ('Board 2–3 owners', 'Board 4–5 owners' and 'Board > 5 owners' respectively) in the model, first alone (i.e. without the ownership and owner engagement variables). These results are reported in column (4) of Table 4. The results of this regression indicate that 'Board 2–3 owners' is statistically significant, at the 5% level, implying a negative effect when there are 2–3 owners are acting as board members.

Column (5) of Table 4 includes all previous variables and two additional variables indicating that the CEO (Chair) is an external one. Of these new coefficient estimates, 'ExtCEO' is positive, but not statistically significant. The board variables are also no longer statistically significant. The final column (6) excludes the insignificant board variables. In sum, all our results from the different model specifications reported in Table 4 carry consistent evidence of a negative impact on firm productivity for both multiple owners (especially from 2–3 owners), and for multiple owner engagement in the daily operations (especially if 2–3 owners are involved in the day-to-day work).

In summary, the results in Table 4 provide support for hypothesis 1 and indicate a negative effect on productivity from few but more than one owner, and if the firm has two or three owners that are involved in daily business. The results suggest that with the combination of '2–3 owners' decision making is harder and stalemate situations are more likely for 2–3 owners compared to the alternatives and therefore is causing more maintenance management costs among family owners.

Table 5 provides further evidence of whether negative effects are balanced by an outside CEO or Chair. Our main focus, in line with hypotheses 2 and 3, is on the combinations of ExtChair interacting with 2–3 owners, and ExtCEO interacting with 2–3 owners working in the firm (columns 4 and 2), but for the sake of completeness, we report results for all 4 interactions of ExtCEO or ExtChair with either the ownership or work variable for 2–3 family members.

Table 3. Correlation matrix for main variables.

	lnY	lnL	lnK	1 owner	2–3 owners	4–5 owners	> 5 owners	Board 1 owner	Board 2–3 owners	Board 4–5 owners	Board > 5 owners	1 owner works	2–3 owners work	> 4 owners work	Only outsiders	CEO	Chair
lnY	**1**																
lnL	0.73	1.00															
lnK	0.85	0.65	1.00														
1 owner	0.21	0.14	0.16	1.00													
2–3 owners	−0.19	−0.10	−0.16	−0.47	1.00												
4–5 owners	−0.02	−0.05	0.02	−0.38	−0.34	1.00											
> 5 owners	−0.02	0.00	−0.04	−0.29	−0.26	−0.21	1.00										
Board 1 owner	0.11	0.10	0.08	0.43	−0.09	−0.19	−0.22	1.00									
Board 2–3 owners	−0.16	−0.11	−0.12	−0.15	0.35	−0.07	−0.14	−0.59	1.00								
Board 4–5 owners	0.05	−0.01	0.05	−0.27	−0.28	0.33	0.29	−0.28	−0.53	1.00							
Board > 5 owners	0.06	0.10	0.04	0.01	−0.12	−0.10	0.27	−0.11	−0.20	−0.09	1.00						
1 owner works	0.05	−0.06	0.06	0.14	0.00	−0.04	−0.12	0.24	−0.07	−0.14	−0.08	1.00					
2–3 owners work	−0.08	0.01	−0.05	−0.04	0.13	−0.08	−0.06	−0.10	0.11	0.01	−0.10	−0.51	1.00				
> 4 owners work	−0.05	−0.09	−0.06	−0.15	−0.12	0.18	0.17	−0.22	0.06	0.20	−0.09	−0.23	−0.57	1.00			
Only outsiders	0.14	0.21	0.12	0.11	−0.07	−0.06	0.03	0.18	−0.23	−0.13	0.48	−0.12	−0.30	−0.13	1.00		
External CEO	0.11	0.10	0.09	0.17	−0.15	−0.10	0.12	0.10	−0.11	−0.07	0.22	0.00	−0.17	−0.10	0.50	1.00	
External Chair	0.01	0.01	−0.02	0.19	−0.10	−0.14	0.06	0.06	−0.08	−0.02	0.15	0.20	−0.17	−0.07	0.14	0.16	1.00

Table 4. Impact of number of owners on productivity in family firms.

Intercept	2.226	***	2.143	***	2.058	***	2.051	***	2.260	***	2.234	***
	(12.50)		(12.80)		(12.14)		(11.36)		(11.68)		(11.90)	
2–3 owners	−0.224	***	−0.238	***					−0.207	***	−0.221	***
	(−4.05)		(−4.21)						(−3.32)		(−3.71)	
4–5 owners	−0.153	***	−0.140	**					−0.183	**	−0.152	**
	(−2.67)		(−2.38)						(−2.51)		(−2.50)	
> 5 owners	−0.084		−0.079						−0.134		−0.091	
	(−1.20)		(−1.10)						(−1.51)		(−1.33)	
2–3 owners work	−0.180	**			−0.202	***			−0.191	**	−0.188	**
	(−2.46)				(−2.70)				(−2.17)		(−2.38)	
> 3 owners work	−0.036				−0.060				−0.040		−0.042	
	(−0.44)				(−0.72)				(−0.40)		(−0.48)	
Only outsiders	−0.135				−0.130				−0.220	**	−0.200	**
	(−1.52)				(−1.48)				(−2.25)		(−1.97)	
Board 2–3 owners							−0.112	**	−0.026			
							(−2.02)		(−0.38)			
Board 4–5 owners							−0.013		0.075			
							(−0.24)		(0.88)			
Board > 5 owners							−0.030		0.062			
							(−0.31)		(0.52)			
ExtCEO									0.091		0.086	
									(1.28)		(1.21)	
ExtChair									−0.076		−0.069	
									(−0.87)		-(0.81)	
lnL	0.498	***	0.483	***	0.504	***	0.484	***	0.499	***	0.500	***
	(11.48)		(11.01)		(11.68)		(11.15)		(11.51)		(11.42)	
lnK	0.581	***	0.586	***	0.590	***	0.594	***	0.578	***	0.580	***
	(19.53)		(19.51)		(20.00)		(19.27)		(19.00)		(19.22)	
Sector dummies	yes		yes		yes		yes		yes		yes	
Year dummies	yes		yes		yes		yes		yes		yes	
Adj. R^2	0.79		0.78		0.78		0.78		0.79		0.79	
F-value	156.55	***	161.89	***	153.97	***	161.52	***	137.88	***	148.10	***
Obs	801		801		801		801		801		801	

Notes: The estimation results reported in the table are based on the following regression equation: $\ln(Y_{i,y}) = \omega_0 + \sum_{y=2005}^{2013} \delta_y Year_i^y + \sum_{j=1}^{7} \gamma_j SIC_i^{(j)} + \gamma_j(j \text{ owner involvement variables}) + \alpha \ln(L_{i,y}) + \beta \ln(K_{i,y}) + u_{i,y}$ where $\ln(Y_{i,y}) =$ logarithm of net annual sales for firm *i* in year *y*, SIC represents industry classification, $\ln(L_{i,y}) =$ logarithm of number of employees, and $\ln(K_{i,y}) =$ logarithm of total assets. The variables measuring the involvement of owners are dummy variables indicating the number of owners ('2–3 owners', '4–5 owners', ' > 5 owners'), the number of owners involved in day-to-day business ('2–3 owners work', ' > 3 owners work', and 'Only outsiders'), and the number owners as acting as board members ('Board 2–3 owners', 'Board 4–5' and 'Board > 5 owners', meaning that 2–3, 4–5 owners, or more than 5 owners work as board members, respectively. 'ExtCEO' and 'ExtChair' are dummy variables indicating the presence of an external CEO or Chairman of the Board, respectively. *t*-values are reported in parentheses and based on robust standard errors. Data is for 2005–2013. ∗denotes significant at the 10% level, ∗∗significant at the 5% level, and ∗∗∗significant at the 1% level, double-sided tests.

The results in Table 5 are in line with those in Table 4 when it comes to the 2–3 owners and 2–3 owners work variables, both of which are negative and significant through all models. That is, we also here obtain support for hypothesis 1.

Columns (1) and (2) of Table 5 represent the same model as column (1) in Table 4, with the exception that we now have added ExtCEO or ExtChair interactions with ownership. That is, the models either include the ExtCEO dummy as well as the interaction variable with 2–3 owners (ExtCEO| 2–3 owners; in column 1) or the ExtChair dummy and the interaction variable (ExtChair| 2–3 owners; in column 2). That is, the 'base-case' is that of a family CEO or Chair, under the prominent part of our data where the ExtCEO or ExtChair dummies take the values of zero.[4]

For the ownership interaction terms, ExtCEO| 2–3 owners is insignificant whereas ExtChair| 2–3 owners is positive and significant at the 1% level, indicating that under an external Chair, 2–3 owners contribute significantly different on firm productivity than under the base-case of a family Chair. The total effect for 2–3 owners under an external Chair is the sum of two coefficients,in column (2), i.e. the one for 2–3 owners (a negative coefficient of −0.282) and the significantly positive interaction term with ExtChair (0.560), i.e. a positive total effect

Table 5. Owner vs. outsider as a CEO / chair.

Intercept	2.207	***	2.225	***	2.370	***	2.302	***
	(12.09)		(12.14)		(13.53)		(11.78)	
2–3 owners	−0.203	***	−0.282	***	−0.212	***	−0.222	***
	(−3.09)		(−4.57)		(−3.85)		(−3.84)	
4–5 owners	−0.140	**	−0.177	***	−0.072		−0.170	***
	(−2.36)		(−2.96)		(−1.25)		(−2.85)	
> 5 owners	−0.091		−0.088		−0.027		−0.092	
	(−1.35)		(−1.25)		(−0.41)		(−1.32)	
ExtCEO	0.095				−0.444			
	(1.16)				(−3.67)	***		
ExtCEO| 2–3 owners	−0.067							
	(−0.47)							
ExtChair			−0.160				−0.171	
			(−1.75)	*			(−1.40)	
ExtChair| 2–3 owners			0.560					
			(3.12)	***				
2–3 owners work	−0.173	**	−0.149	*	−0.325	***	−0.235	***
	(−2.30)		(−1.89)		(−4.10)		(−2.70)	
> 3 owners work	−0.031		−0.019		−0.095		−0.067	
	(−0.38)		(−0.22)		(−1.14)		(−0.73)	
Only outsiders work	−0.199	*	−0.084		0.225	*	−0.130	
	(−1.93)		(−0.97)		(1.78)		(−1.51)	
ExtCEO| 2–3 owners work					0.899			
					(6.04)	***		
ExtChair| 2–3 owners work							0.290	
							(2.05)	**
lnL	0.498	***	0.506	***	0.495	***	0.490	***
	(11.42)		(11.65)		(11.97)		(11.37)	
lnK	0.582	***	0.579	***	0.576	***	0.581	***
	(19.29)		(19.49)		(20.29)		(19.73)	
Sector dummies	yes		yes		yes		yes	
Year dummies	yes		yes		yes		yes	
Adj. R2	0.79		0.79		0.80		0.79	
F-value	149.07	***	151.64	***	168.68	***	144.41	***
Obs.	801		801		801		801	

Notes: The estimation results reported in the table are based on the following regression equation: $\ln(Y_{i,y}) = \omega_0 + \sum_{y=2005}^{2013} \delta_y Year_i^y + \sum_{j=1}^{7} \gamma_j SIC_i^{(j)} + \gamma_j(j \text{ owner involvement variables}) + \alpha \ln(L_{i,y}) + \beta \ln(K_{i,y}) + u_{i,y}$ where $\ln(Y_{i,y})$ = logarithm of net annual sales for firm i in year y, SIC represents industry classification, $\ln(L_{i,y})$ = logarithm of number of employees, and $\ln(K_{i,y})$ = logarithm of total assets. The ownership variables are partly the same as in Table 4 (see Table 4 for variable definitions), and partly new interactive variables as follows: 'ExtCEO| 2–3 owners' ('ExtCEO' × '2–3 owners'); 'ExtChair| 2–3 owners' ('ExtChair' × '2–3 owners'); 'ExtCEO| 2–3 owners work' ('ExtCEO' × '2-3 owners work'); and 'ExtChair| 2–3 owners work' ('ExtChair' × '2–3 owners work'). *t*-values are reported in parentheses and are based on robust standard errors. Data is for 2005–2013. * denotes significant at the 10% level, **significant at the 5% level, and ***significant at the 1% level, double-sided tests.

of 0.278, indicating that an external Chair eliminates the negative effect otherwise present under 2–3 owners. This renders support for our hypothesis 2.

Columns (3) and (4) of Table 5 are also identical to column (1) in Table 4, but now we have included ExtCEO (ExtChair) interactions with family members working in the firm (the 2–3 owners work variable), in columns 3 (4). The results indicate that the significant negative impact from 2–3 owners on firm productivity is significantly reduced when either the CEO or the Chair is an external one. The total effects for 2–3 work under an external CEO/Chair (i.e. the sums of the basic coefficient for 2–3 work plus that variable's interaction term with ExtCEO or ExtChair) are nonnegative here as well.

The results in Table 5 support our hypotheses 2 and 3. The results clearly indicate that a negative effect from the involvement of a few family members can be significantly reduced especially by the presence of an outside Chairman (for the family ownership concentration) or by an outside CEO (for the family working in the firm).

In summary, our approach to modeling firm productivity in SMEs provides results consistent with productivity modeling in a more general context, with significant elasticities for capital and labor, and coefficients

summing to approximately one. The elasticity for capital is larger, slightly above 0.5, while the elasticity for labor slightly above 0.4. When testing for the relationship between multiple family owners, their involvement in the daily business and productivity of SME family firms, the results clearly indicate that there exists a negative effect on productivity if the firm has a few owners (but more than one), and if the firm has two or three owners that are involved in the day-to-day business. When there is more than one owner, but not too many, family ownership and/or involvement in firm operations tend to be significantly negatively related to firm productivity. The category of '2–3 owners' seems the one with the most prominent effect. However, the negative effect of multiple family owners/owners working can be reduced by the presence of an outside Chairman/CEO.

6. Robustness issues

In our paper, we estimate the total factor productivity coefficients in the same model where we also test for additional effects. Although the one-equation approach we use is also earlier used in the Total Factor Productivity (TFP) literature (e.g. Barth, Gulbrandsen, and Schønea 2005), a two-stage model is often argued for, and used, as well (Beveren 2012). In the two-stage approach, one first estimates the TFP model, and then, in the next stage, uses residuals from the first stage and tests for additional factors. We have rerun all our models using this approach as well, using the TFP specification from the third column of Table 2 (i.e. the one with year and sector dummies included) as our first stage model. In the second stage, i.e. when using the residuals from our first stage model as the dependent variable, we exclude the year and firm dummies already accounted for in stage one. The results from our second stage models are highly similar to those reported here in Tables 4 and 5, with coefficients and significance levels for our family characteristics being close to each other in the two approaches.

We must also address other robustness issues. By using industry dummies, we have gone (as we see it) as far towards a fixed effects (FE) model as we can. There are two reasons why a full firm fixed effects model is not suitable in our case. First, a firm fixed-effects model (i.e. a panel data model including firm dummies) swamps the effects of all the time-invariant variables in the single firm-specific dummy variable, which makes the individual testing of separate such firm-specific variables impossible (Baltagi 2008). Since the ownership variables which we are interested in come from a single questionnaire, and are thus constant at the firm level, a full firm FE model is not suitable for our study. Second, in our study we have few years but many firms. With such a low time dimension, estimating the coefficients for a lot of firm dummies would lead to a large loss of degrees of freedom and increase the problems of multicollinearity (i.e. it would bring us closer to the dummy trap situation that exists in a one-period model with firm dummies). However, we have rerun our models using the random effects (RE) specification. The results are generally somewhat weaker, but our main ownership variable (2–3 owners) is significant with a negative coefficient and t-values exceeding 2 in all the models in Table 4 where it is present. The work and board variables in general loose their significance in Table 4, except for 2–3 owners work in column 3 (significant at the 10% level with a negative sign). In Table 5, our results are also robust for the random effects model specification in the sense that the main test variables, i.e. the interaction variables where eiher an external CEO or chair is interacted with either 2–3 owners, or 2–3 owners work, still give the same results. That is, for the ownership variables, interaction with an external chairman brings a significant improvement in productivity, and for the work variables, interaction with an external CEO is significantly positive.

In order to test for whether our models with the interaction terms in Table 5 may suffer from multicollinearity due to the interaction variables, we partition our data and run the models in Table 5 for two alternative partitions each creating 2 subsets of data: a partition based on the **CEO** i.e. a family CEO (627 observations) or an external CEO (174 observations), and a partition based on the **Chair** i.e. a family Chair (706 observations) or an external Chair (95 observations). Our results are consistent with those in Table 5. We find that 2–3 owners contribute in a highly significantly negative way to productivity under all cases but that of an external Chair, in which subsample the coefficient for 2–3 owners is positive but insignificant. We also find that 2–3 owners working in the firm have a significant negative effect at least at the 5% level in 'family' part of the partitions formed on the basis of the CEO or Chair, but the effect is positive and highly significant in the 'external' part of both partitions.

We also run both models (the basic model as well as the RE model) with clustered standard errors. In our case, the clustered standard deviation model is somewhat problematic, as our clusters are small and uneven in terms of sample sizes, as the panel is unbalanced. Clustered standard errors also bring us closer to the problems

with fixed effects with our time-invariant survey data variables. Clustered standard deviations reduce the significance levels compared to the base case, and bring the results closer to those from RE models with conventional standard errors. For the models in Table 4, our main ownership variable (2–3 owners) is still significant when using clustered standard deviations, with t-values exceeding 2, wherever it appears except for in the column 5 specification. This holds both the basic and RE specifications with clustered standard errors. For the models in Table 5, the results are also robust for our test variables here, i.e. the interaction variables. The variables external Chair × 2–3 owners, and external CEO × 2–3 owners work, are both significantly positive in these models. Especially the latter one is highly significant, with t-values exceeding 3 in all specifications with clustered standard deviations.[5]

Our study can also be potentially impacted by selection bias e.g. in the form of firms choosing to answer the questionnaire, or firms later going bankrupt and leaving the sample. The first problem could be addressed by a Heckman model, but unfortunately, we do not have data for the firms that did not participate in the survey. To address the latter problem, we rerun our models, only using a shorter time period after the survey. The survey was conducted early in 2009, when all firms were active, or alive. Sequentially dropping subsequent years from 2013 to 2009, we rerun all the models in Tables 5, with firm-years dropping from 801 down to 388 in the last model. Nevertheless, our results are robust for the key variables despite the smaller degrees of freedom. For models in Table 4, the variable 2–3 owners was significantly negative with *t*-values above 3 in all the models that it is included in, as is 4–5 owners. The variable 2–3 owners work is significantly negative too. In Table 5, dropping the subsequent year sequentially, also keeps the significance of both 2–3 owners as well as both our main interaction variables, ExtChair × 2–3 owners and ExtCEO × 2–3 owners work, with *t*-values ranging from 2.31 to 5.76. We can therefore conclude that it does not look likely that firms going bankrupt and disappearing from our sample during later years biases our results.

Finally, our results may be subject to endogeneity problems such as omitted variables or simultaneity/reverse causality. For example, it may be that an external CEO or chairman is easier to hire into more productive firms. On the other hand, firms in trouble may be more likely to seek and hire external help, i.e. the sign of such potential causality may be ambiguous. Our data being survey data from a unique time point, and quite restricted productivity data for unlisted firms makes it hard to control for endogeneity by, for example, natural experiements. We can neither follow what happens in the governance of these firms later on, as such data is not available. As a small test for reverse causality (from productivity to governance), we turn to the lagged variable approach often used at least as a partial remedy. We hence rerun our models, now successively dropping firm-years from the earlier part of our time period (from 2005 up to 2009). In the last models, with data from either 2009 or 2010 onwards, firm performance is thus strictly related to lagged firm governance variables from the survey early in 2009. As in the survivorship bias tests, this procedure reduces our sample (firm-years) and leads to lower degrees of freedom (as low as 323 in the last tests). However, our main results are still pretty robust, with significant key interaction variables in the models of Table 5. For example, in the last model, from 2010 onwards, ExtChair × 2–3 owners is significant with a t-value of 2.10, ExtCEO × 2–3 owners work with one of 4.27, and, also ExtChair × 2–3 owners work is significant with a *t*-value of 2.82.[6]

7. Conclusions

In the family business literature, the topic of multiple family members engaged in firm operations has received less attention. The theoretical literature as well as empirical studies of multiple large shareholders in listed, typically large firms, does not provide unequivocal support for their governing role. Whereas benefits are found (Maury and Pajuste 2005; Laeven and Levine 2008), some results also point towards more extraction of private benefits unless monitored by large owners of different types (Attig, Guedhami, and Mishra 2008).

We contribute to the literature on multiple owners and family firms by studying governance *within* the family. We focus on cases where there is more than one family member actively involved in the family firm and study its effect on firm productivity. We also study the governing role of an external CEO or Chairman, in mitigating the problems when several family members are involved as owners or working within the firm.

Using a random sample of Finnish SME companies including family firms, we find that firm productivity is negatively related to few but more than one owner, especially when there are 2 to3 owners. We also find a

negative effect if 2–3 owners work in the firm or are engaged as board members. These results are broadly in line with previous studies supporting the positive performance of founder-CEO governed firms (i.e. firms with one dominating family owner). When studying the interactive effects from a family or a non-family CEO or Chairman, we find persistent support for the governing role of an external CEO or Chairman in the cases of multiple family ownership or engagement in the firm. Concerning ownership, firm productivity is negatively related to multiple (that is, 2–3) owners unless the Chairman is an external one, in which case the productivity under 2–3 owners is significantly improved. Concerning owners working in the firm, firm productivity is significantly negatively related to multiple (that is, 2–3) owners from within the family working in the firm. However, under an external CEO, there is a positive and significant incremental effect from 2–3 owners working, producing a nonnegative total effect. Thus, an external CEO could help improving firms with family owners working within it. The results of our study have practical relevance and when it comes to questions concerning optimal governance in small and medium-sized family firms. Our results also have policy implications considering the European Commission's call to engage business, favoring SMEs.

Notes

1. They find pay incentives to family members work (i.e. there is a significant positive relationship between firm performance and pay incentives) when the firm is expected to be sold, or when there is information about the CEO's estate and share transfer plans, but not otherwise. They interpret this as evidence of altruism moderating the pay incentives so that the incentivizing effect is not always present.
2. See Chirico and Bau (2014) also for an extensive survey of family involvement pros and cons. They state that a high percentage of family members in top management teams may favor family-centric conduct manifesting itself in hiring inept family members, withdrawing resources for family purposes, thus avoiding business risk.
3. Available upon request.
4. As Table 1 shows, family CEOs and family Chairs are most common in our data set, present in 78% and 88% of the sample firms, respectively.
5. Our results are also quite robust to winsorizing the dependent variable. We tested this by running all models in Tables 4 and 5 in the TFP residual version, with the dependent variable winsorized at the 1% level. The coefficients and their significance levels only exhibited quite marginal changes.
6. Results are available upon request from the authors.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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