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ORIGINAL PAPER

Foundation ownership and firm growth

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Abstract

Prior research has analyzed how different ownership types affect firm growth. Yet, so far, we know little about the effect of foundation ownership on firm growth. This is an important research gap as some of the largest firms in Western and Northern Europe are either fully or partly owned by foundations. Our study addresses this gap and analyzes the effects of foundation ownership on sales and employee growth. Based on a matched sample of foundation- and non-foundation-owned firms from the DACH (Germany, Austria, Switzerland) region, our analyses show that foundation-owned firms grow significantly less than non-foundation-owned firms in terms of sales but not with regard to employees. In addition, we find that the negative effect is stronger for the upper than for the middle or lower quantiles of the growth distribution. Our results can be explained through the characteristics of foundations as owners, particularly their long-term orientation and their goal of preserving the assets of the foundation. It seems that foundations as firm owners avoid the risks associated with extreme sales growth and aim for a risk-averse and conservative growth strategy.

Keywords Foundation ownership · Foundation-owned firms · Corporate governance · Sales growth · Employee growth · Ownership structure

JEL Classification C12 · C51 · C52

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1 Introduction

Prior research has investigated the effects of firm ownership on different firm-level outcomes. The identity of large owners, such as families (Miller et al. 2010; Caprio et al. 2011), management (Alessandri and Seth 2013; Denis et al. 1997), institutional investors (Brooks et al. 2017; Wright et al. 1996), foundations (Draheim and Franke 2018; Thomsen et al. 2018) or governments (Nogueira and Kabbach de Castro 2020), has been shown to have significant implications for firm strategy. In this literature stream, some studies focus on firm growth, which is an important determinant of the long-term success of a firm. Growth can lead to economies of scale and scope as well as learning curve effects and thus to greater profitability. Especially in digital markets characterized by strong network externalities, the speed at which companies grow is of crucial importance as the "winner-takes-all" effect prevails.

Whereas prior studies on the relationship between firm ownership and growth focused on family (Miroshnychenko et al. 2020), managerial (Lappalainen and Niskanen 2009), and financial investor ownership (Thomsen and Pedersen 2000), our study investigates foundation ownership, which has been overlooked so far. Foundations differ from other types of firm owners as they lack a residual claimant (Draheim and Franke 2018) and follow a strict charter defining their goals and profit allocation (Herrmann and Franke 2002). These unique characteristics of foundations as firm owners have been shown to spill over to foundation-owned firms (FoFs). Due to their primary goal of preserving the assets of the foundation (Herrmann and Franke 2002), FoFs are often risk-averse following a conservative and low risk firm strategy (Thomsen et al. 2018). We argue that the unique characteristics of foundations as firm owners cause FoFs to differ from other firms regarding firm growth. Hence, our study analyzes the effects of foundation ownership on firm growth, distinguishing between sales and employee growth.

To investigate the effect of foundation ownership on firm growth, we apply OLS panel and quantile regressions using a manually collected matched panel data set of more than FoFs and nFoFs from the DACH region (Germany, Austria, Switzerland). Our results indicate that FoFs grow on average 2.33% less per year in terms of sales than nFoFs. However, no difference exists with regard to employee growth. We further find that the negative effect of FoFs on sales growth is stronger for the upper than for the middle or lower quantiles of the growth distribution.

An investigation of how foundations as owners affect firm growth is not only important for research but also matters for practice as some of the largest public and private companies in Western and Northern Europe are FoFs, including Aldi, Bosch, Carlsberg, Carl Zeiss, Ikea and Trelleborg. Through transferring their ownership into a foundation, business families can avoid family conflicts and ensure the continuity of the firm. Our analysis shows that this transfer of ownership is associated with a lower subsequent sales growth, though.

Our study contributes to the literature on how firm ownership affects firm behavior (e.g., Claessens et al. 2002; Wellalage and Locke 2015) and firm growth (e.g., Miroshnychenko et al. 2020; Navaretti et al. 2014). Moreover, we contribute to the small but

growing literature on FoFs (e.g., Achleitner et al. 2018; Block et al. 2020; Børsting and Thomsen 2017; Draheim and Franke 2018).

2 Theoretical background of FoFs and firm growth

2.1 Definition and characteristics of FoFs

FoFs can be defined as firms that are fully or partly owned by a foundation (Achleitner et al. 2018). A foundation is a legal entity without owners or shareholders (Thomsen and Rose 2004). It is often created by the founder of a firm or a founding family transferring their assets into a foundation (Achleitner et al. 2018). The assets of the foundation may be real estates, funds, or the shares of a firm (as in our study) (Hansmann and Thomsen 2021; Thomsen and Kavadis 2022).

The foundation charter defines the allocation of profits and the goals with which the foundation must comply. Essentially, the FoF allocates its dividends to the foundation, which will then be allocated to the beneficiaries. According to German law, it is extremely difficult to change the charter after the death of the founder of the foundation. State authorities, who act as supervisory institutions, make sure that the foundation complies with its charter and the will of the founder of the foundation (Herrmann and Franke 2002). The board of directors is mostly self-elective, restricted only by the respective law and the foundation charter. In some (but not all) cases, the family of the founder continues to have a management or representative role in the foundation and/or the firm.

Two types of foundations can be distinguished, namely family and charitable foundations. Family foundations are established to secure the wealth of the family and ensure the long-term survival of the firm (Herrmann and Franke 2002). Here, the beneficiaries are typically members of the owner family. Charitable foundations, in turn, pursue charitable goals through projects in education, science, art and health (Herrmann and Franke 2002). In this foundation type, the beneficiaries are typically charitable projects.[1] Family and charitable foundations can also be combined into so-called dual foundations, where the family foundation holds the majority of the shares of the firm and the charitable foundation receives the dividends. Figure 1 visualizes the FoF-construct.

From a founder's perspective, there are several reasons to create a FoF. Under particular circumstances, tax savings can apply and disclosure and co-determination obligations can be circumvented. Tax savings are particularly relevant for charitable foundations and apply less to family foundations. This is because the state aims to promote charitable donations through tax advantages, which seems be an effective instrument (Boenke et al. 2010). Charity in terms of the Fiscal Code (Abgabenordnung) is defined as aims that benefit the public, benevolent aims, or religious aims. It comprises the advancement of science, religion, art

[1] Note that charitable foundations do not need to distribute 100% of their dividends to charitable projects and are allowed to make (very) small financial payments to private persons (often family members).

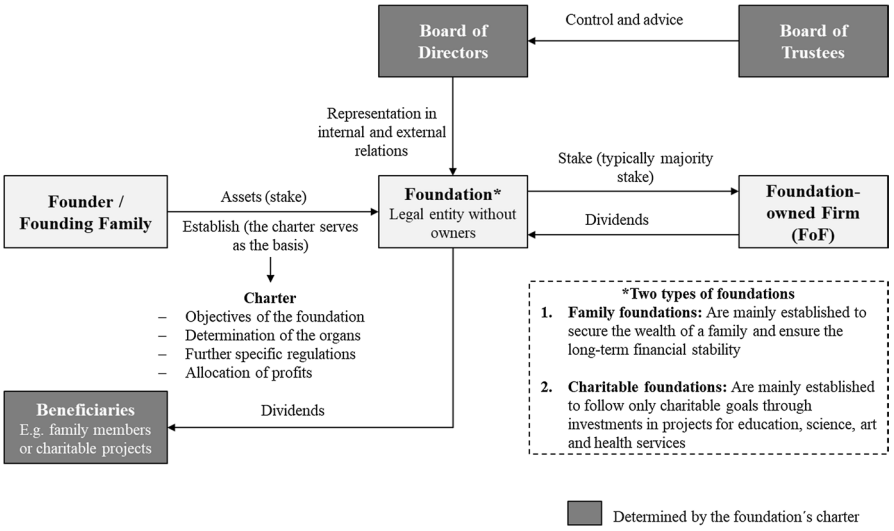

Fig. 1 Typical structure of a FoF

and culture, education, protection of the environment, public welfare, support for persons persecuted for political, racial, or religious reasons, and sports (Richter and Gollan 2016). When assets are transferred into a *charitable* foundation either before or immediately after the death of the founder of the foundation, as defined in his or her last will, no inheritance or gift tax has to be paid (Richter and Gollan 2016). This can be a benefit for FoF compared to other firm types as it does not reduce the firm's capital or asset base. Such (inheritance) tax benefits for charitable foundations exist also in other countries (e.g., Henrekson et al. 2020; von Hippel 2014). For family foundations, the situation with regard to the inheritance tax is different. For them, a so-called "Erbersatzsteuer" (pseudo inheritance tax) applies that assumes and taxes an asset transfer every 30 years. The associated tax, however, can be paid on a yearly basis, making the tax consequences of firm succession somewhat more plannable (as compared to firm succession in "regular" family firms). Moreover, depending on the exact design of the firm succession and asset transfer event, family foundations may also benefit from monetary tax advantages (Kussmaul and Schuman 2020).

Next to these tax benefits, setting up a FoF may help to ensure the continuity of the firm. Especially in family firms, power struggles within the owner family can arise and create succession problems. By transferring the ownership stakes into a foundation, the negative influence of family conflicts on the firm is reduced, increasing the firm's prospects for long-term survival. In this regard, Thomsen et al. (2018) mention two main differences between FoFs and family firms. First, FoFs are bound and restricted by their foundation charters, which is not the case for family firms. This creates inflexibility. Second, it is not possible for owners of the business family to cash in by selling their shares. The personal profit motive and the incentive to

maximize short-run profits is consequently absent, or at least reduced. This leads to a strong long-term orientation.

FoFs are mostly located in Northern and Western Europe (Thomsen and Rose 2004). In Germany, Switzerland, Austria, the Netherlands and Scandinavian countries, some of the largest companies are foundation-owned. FoFs can also be listed on stock exchanges. For example, the FoFs Beiersdorf, Carl Zeiss, Fielmann, Henkel, Thyssenkrupp and the Software AG are listed on the German stock market.

2.2 Prior research about foundation-owned firms

The majority of the previous research on FoFs focused on the (accounting) performance of FoFs. Analyzing the 300 largest Danish companies between 1982 and 1992, Thomsen (1996) shows that FoFs in Denmark have a slightly better accounting performance than companies with private or public ownership. For Germany, the evidence is mixed. While Herrmann and Franke (2002) show that the accounting performance of FoFs is slightly better compared to listed firms, Draheim and Franke (2018) find the opposite. Block et al. (2020) go a step further and analyze the performance *within* the group of FoFs. Based on a sample of 142 German FoFs between 2006 and 2016, they show that FoFs owned by family foundations have a higher accounting performance than firms owned by charitable foundations. Furthermore, they find a performance-enhancing effect of family involvement in the management or supervisory board of the firm. In addition, Hansmann and Thomsen (2021) present evidence that the profitability of FoFs depends on the governance structure of the foundation, in particular on the relationship between the board of the foundation and the management of the FoF.

Adopting a market performance perspective, Achleitner et al. (2018) find that the share price of FoFs increases following the announcement by a foundation to decrease its ownership share, as opposed to no reaction after the announcement to increase its ownership share. They argue that equity markets are skeptical about foundations as shareholders. This skepticism might be rooted in the monitoring problems of foundations as owners, goal divergences between the foundations and FoFs, or legal restrictions that come with this particular form of ownership. Thomsen and Rose (2004) find that FoFs listed on the Copenhagen Stock Exchange are at least as efficient as other listed firms in terms of risk-adjusted stock returns, accounting returns and Tobin's Q.

With regard to non-financial firm outcomes, Børsting and Thomsen (2017) indicate that foundation ownership is associated with a better firm reputation and more employee stability, higher pay for employees, and more long-term employment. Overall, these firms are characterized as firms with more responsible business behavior towards employees. The sample of this study consists of large Danish FoFs in the 2001–2011 period. Moreover, Thomsen et al. (2018) elaborate that foundation ownership is associated with stability as FoFs replace managers less frequently and follow a conservative and long-term oriented

financing, investment and employment strategy. Their sample consists of Danish FoFs between 2003 and 2012. Draheim and Franke (2018) show similar results for German FoFs. In addition, Hansmann and Thomsen (2013), Børsting and Thomsen (2017), and Thomsen et al. (2018) find that FoFs have a lower debt ratio due to their strong risk aversion.

2.3 Sales and employee growth as two measures of firm growth

We measure firm growth through sales and employee growth, which are the two most common indicators of firm growth in the literature (Delmar 1997). Surprisingly, the correlation between these two growth measures is often low (Delmar et al. 2003; Davidsson et al. 2010; Weinzimmer et al. 1998; Shepherd and Wiklund 2009; Achtenhagen et al. 2010; Erhardt 2021), which can be explained by some fundamental differences that exist between the two measures.

First, the reaction of sales and employment to changes in demand is different. An increase in product/service demand will lead quickly to higher sales, whereas it takes more time to have an effect on employment (Delmar 1997). Second, the two measures differ in their manipulability. To manage higher demand and sales volumes, firms may decide not to hire new employees but to outsource the production or improve productivity (Davidsson et al. 2010; Delmar 1997; Chandler et al. 2009). In such cases, sales may increase without a growth in employees. Particularly in traditional, low-tech or stagnant industries, these growth patterns exist (Delmar et al. 2003). Third, sales and employee growth generally relate to different priorities and firm goals. When firms pursue sales growth, they prioritize the market in their development process and aim for a large market share. With employment growth, they enlarge their human resources by hiring new staff to increase labor productivity and prepare for long-term growth (Chen et al. 2020). Finally, sales is a better measure to compare growth across industries because it is not influenced by differences in employee intensity across industries (Weinzimmer et al. 1998). Table 1 summarizes the main differences between sales and employee growth:

It should be noted that the literature also differentiates between inorganic and organic growth (Delmar 1997; Delmar et al. 2003). While inorganic growth may be achieved through acquisitions, the latter results from growth in the operating business of a firm. In our study, we focus on total growth, defined as the sum of inorganic and organic growth.

3 Hypotheses about foundation ownership and firm growth

3.1 Foundation ownership and sales growth

Based on the unique characteristics of FoFs, we assume that foundation ownership has a significant impact on sales growth. Since foundations are legally constrained to preserve the value of their assets (Draheim and Franke 2018; Børsting

Table 1 Sales growth versus employee growth

Dimension	Sales growth	Employee growth	References
Reaction to demand changes	Short-term response to demand changes, therefore higher volatility	Long-term response to demand changes, therefore lower volatility	Delmar (1997) and Shepherd and Wiklund (2009)
Manipulability	Possible, because sales growth may be boosted by price changes	Difficult, because employee growth may only be boosted by hiring new employees	Weinzimmer et al. (1998), Delmar (1997) and Chandler et al. (2009)
Underlying perspective	Market-based-view (output)	Resource-based-view (input)	Chen et al. (2020)
Comparability of firms from different industries	Good comparability	Bad comparability because industries differ in their employment intensity	Weinzimmer et al. (1998)

and Thomsen 2017; Herrmann and Franke 2002), their most important goal is to ensure the long-term survival of the firm (Thomsen and Hansmann 2014; Børsting and Thomsen 2017). This implies a long-term, risk-averse, and conservative business strategy (Thomsen et al. 2018; Draheim and Franke 2018). This risk aversion is further increased as they typically have not diversified their investments but have concentrated their investment in a single firm (Børsting and Thomsen 2017). Since sales growth is generally associated with higher market risks (Markman and Gartner 2002), we expect foundation ownership to have a negative effect on sales growth. We formulate the following hypothesis:

H1a Foundation ownership is negatively associated with sales growth.

Moreover, we expect that the negative effect of foundation ownership on sales growth might be stronger for the upper than for the middle or lower quantiles of the growth distribution. It is the extreme and not the low or middle growth rates that jeopardize the long-term survival of a firm (Markman and Gartner 2002; Puig et al. 2018; Hambrick and Crozier 1985). In this regard, Hambrick and Crozier (1985) identified four fundamental challenges for extreme high-growth firms, namely instant size,[2] a sense of infallibility,[3] internal turmoil and frenzy,[4] and extraordinary resource needs. The additional resources are needed to finance additional equipment, plant, and working capital to keep up with the dynamics of the industry. Such a situation can lead to short-term cash flow and liquidity problems threatening the survival of the firm, which is a situation that foundations as owners seek to avoid. The following hypothesis should apply:

H1b The negative effect of foundation ownership on sales growth is stronger for the upper than for the middle or lower quantiles of the growth distribution.

3.2 Foundation ownership and employee growth

Due to the absence of strong owners in foundations, the residual claimants of FoFs are weak (Draheim and Franke 2018). Other stakeholders fill this power void. Prior research shows that managers and employees of FoFs are very powerful stakeholders that promote their interests very effectively (Draheim and Franke 2018; Børsting and Thomsen 2017). Moreover, empirical evidence demonstrates that FoFs are indeed more stable employers, who pay their employees better and keep them for

[2] The problem of instant size arises when the firm becomes bigger without having the necessary attitude for being big. The required managerial skills in a 5000-person firm are different from those in a 500-person firm.

[3] The problem is that the strategies of high-growth firms may have worked so well in past so that they may become inflexible and unwilling to adapt to market developments.

[4] High growth is typically associated with a stream of new faces and unknown people who are not award of the company culture. The amount of information to be processed and the number of decisions to be taken accelerates, which can create internal turmoil and frenzy leading to problems in product quality and production.

longer (Børsting and Thomsen 2017). In addition, Børsting and Thomsen (2017) suggest that FoFs have better firm reputations than other firms have and are regarded as more socially responsible in corporate image ratings. We posit that based on their strong employee and reputation orientation, FoFs tend to avoid hiring too many employees because higher employee growth may lead to an increased risk of future layoffs. Flanagan and O'Shaughnessy (2005) show that layoffs harm firm reputation and have long-lasting negative effects on the remaining employees. Accordingly, we expect that foundation ownership has a negative impact on employee growth and posit the following hypothesis:

H2 Foundation ownership is negatively associated with employee growth.

4 Data and methods

4.1 Sample construction

To begin with, we manually collected a comprehensive list of the FoFs in the DACH region from various sources, such as associations of foundations or former research papers. A firm is classified as a FoF if the foundation holds an equity stake of at least 25% of the firm. We then obtained accounting and ownership data for the 229 FoFs from the Amadeus database for the years between 2010 and 2019. Due to missing financials, we had to exclude 25 firms leaving us with a sample size of 204 FoFs. To identify comparable nFoFs, we follow a one-to-one matching approach (the nearest neighbor) based on industry and firm size (Børsting and Thomsen 2017). For the matching process, we used the four-digit NAICS 2017 codes for industry classification and the total revenues in 2010 (or total assets if total revenue was not available) for firm size. Hence, every FoF was matched with a firm not only from the same industry but also with the most similar total revenue or assets, respectively.

Our final sample comprises a panel dataset of 204 FoFs and 204 matched nFoFs, which is representative of the DACH region and comparable with previous research (Block et al. 2020; Draheim and Franke 2018).

Table 2 outlines the variables we use in this study.

Since our dataset does not include M&A data, we are not able to distinguish between organic and inorganic growth and accordingly only consider total growth.

4.2 Empirical models

We apply linear OLS panel and quantile regressions with robust standard errors to test our hypotheses. The quantile regressions are needed to test hypothesis 1b, which postulates that the negative effect of FoF on sales growth becomes stronger for the upper than for the middle or lower quantiles of the growth distribution. Standard OLS regressions cannot be used to test this hypothesis as they estimate the effect of

Table 2 Variable definitions

Variables	Definition
Dependent variables	
Sales growth	Yearly percentage increase/decrease of net sales between t and t − 1
Employee growth	Yearly percentage increase/decrease of employee number between t and t − 1
Independent variable	
Foundation-owned firm (FoF)	Dummy for whether the firm is a foundation-owned firm (1) or not (0)
Control variables	
Firm size	Natural logarithm of the year-end number of employees
Listed	Dummy for whether the firm is listed (1) or not (1)
Return on assets (ROA) (%)	Annual net income/book value of total assets at the end of the year
Firm age	Firm age in years
Debt ratio	1 − (book value of equity/total assets)
Year (2010–2019)	Year dummies for each year
Industry	Four industry dummies for retail, manufacturing, services and other

This table describes the construction of the relevant variables used in this study. Note that we previously matched our sample based on industry and firm size. There, firm size is defined as total sales or total assets. This should not be confused with firm size in this table

the independent and control variables on the mean of the dependent variable. We estimate the following regression equations:

$$\gamma_{i,t} = \beta_0 + \beta_1 FoF_{i,t} + \beta_2 X_{i,t} + Industry\ \&\ Year\ Fixed\ Effects + \varepsilon_{i,t} \quad (1)$$

where i indexes firms and t indexes time.

The dependent variable γ represents the sales growth or employee growth of a firm. Growth is calculated as the yearly percentage increase/decrease of net sales (or number of employees) for firm i between time t and $t-1$. If the net sales are not available for an observation, we use total assets instead.

The independent variable $FoF_{i,t}$ is a dummy variable that indicates whether a firm is an FoF (1) or not (0). This is crucial because our main interest in this study is to determine how the heterogeneous group of FoFs differs in terms of growth from firms that are not owned by foundations. We identify a firm as an FoF if the foundation holds an equity stake of at least 25% in the firm.

Furthermore, several control variables $X_{i,t}$ are included, such as *firm size* (as natural log of the year-end employee number) and *firm age* (in years) to control for effects related to the size or the life cycle of the firm. In addition, we include *listed* as a dummy variable that indicates whether the firm is listed on a stock exchange or not. To control for profitability and capital structure we include *ROA* and *debt ratio* as further control variables. *Debt ratio* is calculated as 1 − (book value of equity/total assets). Finally, we include *industry* and *year dummies* to control for industry and recession/boom periods. With regard to industry effects, we distinguish between the four categories *retail*, *manufacturing*, *services* and *other*.

As noted already above to test hypothesis 1b, we also estimate quantile regressions. These regressions estimate conditional quantile functions, that is, models in which quantiles of the conditional distribution of the dependent variable are expressed as functions of several independent variables (Block 2010; Koenker and Bassett 1978; Koenker and Hallock 2001). By using these regressions, we can estimate the effects of FoF on different quantiles of the growth distribution and test whether the effects are stronger for the upper than the middle or lower quantiles of the growth distribution. Such a test would not be possible with an OLS regression, which estimates the effects of FoF on the mean of the dependent variable.

5 Results

5.1 Descriptive statistics, univariate analysis and correlation matrix

Almost half of the firms in the sample (47%) come from the manufacturing sector, followed by services (24%), retail (17%) and other (12%). The other category primarily includes investment companies and excludes financial institutions (NAICS 2017 codes: 521110-525990). About 9% of the firms in our dataset are listed on the stock market. We find that most non-listed firms have either a large or a medium blockholder. Listed firms usually do not have large blockholders, which is in line with prior research (Claessens and Tzioumis 2006). 82% of the firms in our sample are from Germany, followed by Austria (15%) and Switzerland (3%).

Table 3 provides some summary statistics and a univariate analysis of our key variables, including parametric (T-Test) and nonparametric tests (Mann–Whitney-U-Tests) comparing FoFs with nFoFs. Panel A (Panel B) shows the FoFs (nFoFs).

Both *sales growth* (−3.3%, $p<0.01$) and *employee growth* (−2.5, insignificant) are on average smaller for FoFs in relation to nFoFs. In addition, *debt ratio* (−11.3%, $p<0.001$) is also lower for FoFs, which is in line with prior research (Thomsen et al. 2018; Draheim and Franke 2018). In contrast to Børsting and Thomsen (2017), we could not identify differences with regard to profitability. *Firm size*, *firm age* and *net sales* are also nearly on the same level for both panels, indicating a good matching quality. To summarize, the univariate analysis shows that FoFs grow less in terms of sales than nFoFs, which is in line with hypothesis H1a.

Table 4 shows the correlation matrix (Pearson correlation coefficients) and variance inflation factors (VIFs).

The VIFs show that multicollinearity is unlikely to be a concern for our study. The average VIF is 1.10, the maximum VIF is 1.24. We find that *sales growth* is positively correlated with *employee growth* ($p<0.001$), *firm age* ($p<0.05$) and *debt ratio* ($p<0.001$). *Employee growth* is positively correlated with *firm age* ($p<0.01$) and *firm size* ($p<0.01$). In addition, we find that *FoF* is negatively correlated with *sales growth* ($p<0.001$) but not with *employee growth*.

Table 3 Univariate analysis

Variables	Number of observations		Means		Differences in means (FoF–nFoF)
	FoFs	nFoFs	FoFs	nFoFs	
1. Parametric test (T-test)					
Sales growth (%)	881	1160	3.9	7.2	−3.3**
Employee growth (%)	881	1162	2.9	5.4	−2.5
ROA (%)	778	896	4.2	4.8	−0.6
Debt ratio (%)	869	1158	52.9	64.2	−11.3***
Firm size	881	1162	6.9	6.6	−0.3***
Firm age	881	1160	57.0	54.0	3.0
Listed	881	1160	0.1	0.1	0.0
Net sales (mill €)	781	1096	2129.5	1958.7	−170.81
Variables	Number of observations		Z	Rank-sum		Differences in rank-sum (FoF–nFoF)
	FoFs	nFoFs		FoFs	nFoFs	
2. Non-parametric test (Mann–Whitney-U-test)						
Sales growth (%)	881	1160	2.6	865,345	1,218,516	−353,171**
Employee growth (%)	881	1160	0.8	888,683	1,195,178	−306,495
ROA (%)	778	896	−1.5	666,737	735,238	−68,501
Debt ratio (%)	869	1158	11.7	728,694	1,326,684	−597,990***
Firm size	881	1162	−4.9	864,525	1,123,421	−258,896***
Firm age	881	1160	2.86	861,803	1,222,058	−360,255*
Listed	881	1160	1.27	890,494	1,193,368	−302,874
Net sales (mill €)	781	1096	0.87	731,456	1,031,048	−299,592

This table provides some descriptive statistics and the results of the univariate analysis. This analysis consists of two steps: 1. Parametric test (T-Test) and 2. Non-parametric Test (Mann–Whitney-U-Test). All variables are normally distributed. Note that we matched our sample based on industry and firm size (as measured by total sales or total assets). This should not be confused with firm size (=number of employees) in this table

*$p<0.05$; **$p<0.01$; ***$p<0.001$

5.2 Regression results

5.2.1 Sales growth regressions

The regression results for the effect of foundation ownership on sales growth are depicted in Table 5. In Model 1, we run an OLS panel regression with *sales growth* as the dependent variable. *Sales growth* is calculated as the yearly percentage increase/decrease of net sales for a firm i between time t and t − 1. *Foundation-owned firm (FoF)* is the independent variable, which indicates whether the firm is an FoF (1) or not (0). The control variables are *firm age, firm size,* the *listed* dummy variable, *ROA and debt ratio*. Industry and year dummies are included but not

Table 4 Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	VIF
(1) Sales growth									
(2) Employee growth	0.15***								1.01
(3) FoF	−0.08***	−0.03							1.08
(4) Firm age	0.06*	0.07**	−0.02						1.03
(5) Firm size	−0.04	0.07**	0.08**	−0.14***					1.24
(6) Debt ratio	0.10***	0.01	−0.25***	0.02	−0.08***				1.11
(7) ROA	0.05	0.01	−0.04	0.02	0.01	−0.15***			1.03
(8) Listed	0.00	0.03	−0.05*	−0.11***	0.40***	0.06*	0.01		1.22

This table shows a matrix of Pearson correlation coefficients for all key variables. VIF refers to the variance inflation factor

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

reported. In Models 2 to 6 we estimate quantile regressions for the 10th, 25th, 50th, 75th and 90th quantiles with the same variables.

The coefficient in the OLS panel regression is − 2.33. It is significant at the 5% level, and it indicates that FoFs grow on average 2.33% less per year in terms of sales than matched control firms.

The coefficients of the quantile regressions show that the effect is stronger for the upper than for the middle or lower quantiles of the growth distribution. It seems that foundation ownership only has a negative effect from the 50th quantile onwards. The coefficient of the 50th quantile is − 1.00 ($p < 0.05$), which becomes stronger for the 75th quantile with a coefficient of − 1.70 ($p < 0.05$) and for the 90th quantile with a coefficient of − 3.97 ($p < 0.05$). Thus, the results are not only statistically but also economically significant. Our results support hypotheses 1a and 1b. Foundation ownership is negatively associated with sales growth and the effect is stronger for the upper than for the middle or lower quantiles of the growth distribution.

5.2.2 Employee growth regressions

The regression results on the effect of foundation ownership on employee growth are presented in Table 6. All parameters remain as in sales growth regressions except for the dependent, which is employee growth. Employee growth is calculated as the yearly percentage increase/decrease in number of employees between time t and t − 1.

The coefficient of the linear OLS panel regression is negative (− 1.98) but statistically not significant. The results of the quantile regressions also show non-significant results. Our results do not support hypothesis 2. Foundation ownership seems not to have an effect on employee growth.

Table 5 Regression results: effect of foundation ownership on sales growth

Variables	Model 1 OLS panel regression	Model 2, 10th quantile regression	Model 3, 25th quantile regression	Model 4, 50th quantile regression	Model 5, 75th quantile regression	Model 6, 90th quantile regression
	Sales growth	Sales growth	Sales growth	Sales growth	Sales growth	Sales growth
FoF	−2.33*	1.06	0.47	−1.00*	−1.70*	−3.97*
	(0.93)	(1.09)	(0.50)	(0.50)	(0.72)	(1.63)
Firm age	0.03***	0.00	0.01	0.01**	0.03***	0.05**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Firm size	−0.26	1.19***	0.63***	0.11	−0.24	−0.89*
	(0.50)	(0.29)	(0.13)	(0.13)	(0.19)	(0.44)
Listed	0.75	0.15	0.04	0.40	−0.52	2.62
	(1.93)	(1.72)	(0.78)	(0.80)	(1.14)	(2.58)
ROA	0.15	0.25***	0.24***	0.27***	0.20***	0.18
	(0.09)	(0.07)	(0.03)	(0.03)	(0.04)	(0.10)
Debt ratio	0.10*	0.03	0.03*	0.02*	0.05**	0.07
	(0.04)	(0.03)	(0.01)	(0.01)	(0.02)	(0.04)
N	1672	1672	1672	1672	1672	1672
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

This table shows the results of quantile regressions. Foundation-owned Firm (FoF) is the independent dummy variable in all models, which indicates whether the firm is an FoF or not. Sales growth is the dependent variable in all models and it is calculated as the yearly percentage increase/decrease of net sales for firm i between time t and t − 1. Industry and year dummies are not reported but included in the regressions

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 6 Regression results: effect of foundation ownership on employee growth

Variables	Model 1 OLS panel regression	Model 2, 10th quantile regression	Model 3, 25th quantile regression	Model 4, 50th quantile regression	Model 5 75th quantile regression	Model 6, 90th quantile regression
	Employee growth	Employee growth	Employee growth	Employee growth	Employee growth	Employee growth
FoF	− 1.98	− 0.20	− 0.57	0.02	− 0.37	0.15
	(1.49)	(0.94)	(0.39)	(0.31)	(0.65)	(1.43)
Firm age	0.04***	0.03**	0.01**	0.01*	0.02**	0.03*
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.02)
Firm size	1.35*	0.85***	0.43***	0.30***	0.11	0.05
	(0.53)	(0.25)	(0.11)	(0.08)	(0.17)	(0.38)
Listed	0.58	2.21	0.51	0.02	− 0.32	6.14**
	(2.78)	(1.48)	(0.62)	(0.50)	(1.02)	(2.26)
ROA	0.03	0.16**	0.09***	0.14***	0.15***	0.19*
	(0.06)	(0.06)	(0.02)	(0.02)	(0.04)	(0.09)
Debt ratio	0.02	0.00	− 0.00	0.01	0.02	0.03
	(0.03)	(0.02)	(0.01)	(0.01)	(0.02)	(0.03
N	1674	1674	1674	1674	1674	1674
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

This table shows the results of quantile regressions. Foundation-owned Firm (FoF) is the independent dummy variable in all models, which indicates whether the firm is an FoF or not. Employee growth is the dependent variable in all models and it is calculated as the yearly percentage increase/decrease of the number of employees for firm i between time t and t − 1. Industry and year dummies are not reported but included in the regressions

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 7 Robustness checks

Variables	1-year growth rate	2-year growth rate	3-year growth rate	1-year growth rate	2-year growth rate	3-year growth rate
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Sales growth	Sales growth	Sales growth	Employee growth	Employee growth	Employee growth
A. Different growth rate calculation groups						
FoF	−2.33*	−5.92*	−8.33*	−1.98	−4.21	−5.52
	(0.93)	(−2.44)	(−2.15)	(1.49)	(−1.50)	(3.87)
Firm age	0.03***	0.9***	0.12***	0.04***	0.08**	0.10***
	(0.01)	(3.60)	(4.04)	(0.01)	(3.11)	(0.03)
Firm size	−0.26	−0.03	0.08	1.35*	2.00**	4.44***
	(0.50)	(−0.03)	(0.05)	(0.53)	(2.80)	(1.32)
Listed	0.75	4.01	−0.03	0.58	7.13	−3.05
	(1.93)	(0.62)	(−0.00)	(2.78)	(0.88)	(6.06)
ROA	0.15	0.54*	0.91**	0.03	−0.11	−0.08
	(0.09)	(2.11)	(3.01)	(0.06)	(−0.47)	(0.12)
Debt ratio	0.10*	0.12	0.24	0.02	−0.03	0.03
	(0.04)	(1.40)	(1.62)	(0.03)	(−0.36)	(0.09)
N	1672	1721	1454	1674	1647	1356
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 7 (continued)

Variables	Foundation ownership in FoF between 25 and 100%	Foundation ownership in FoF between > 50 and 100%	Foundation ownership in FoF between 25 and 100%	Foundation ownership in FoF between > 50 and 100%
	Model 7 Sales growth	Model 8 Sales growth	Model 9 Employee growth	Model 10 Employee growth
B. Different ownership stake groups				
FoF	−2.33*	−2.69*	−1.98	−2.37
	(0.93)	(1.11)	(1.49)	(1.77)
Firm age	0.03***	0.03***	0.04***	0.04***
	(0.01)	(0.01)	(0.01)	(0.01)
Firm size	−0.26	−0.34	1.35*	1.52*
	(0.50)	(0.62)	(0.53)	(0.68)
Listed	0.75	0.75	0.58	0.43
	(1.93)	(2.40)	(2.78)	(3.53)
ROA	0.15	0.11	0.03	0.01
	(0.09)	(0.10)	(0.06)	(0.07)
Debt ratio	0.10*	0.09	0.02	−0.00
	(0.04)	(0.05)	(0.03)	(0.04)
N	1672	1353	1674	1353
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

This table shows the result of the robustness checks. In (A) we check for different growth rate calculation for both sales and employee growth. Here, we use the 1-year (between time t and t − 1), 2-year (between time t and t − 2) and 3-year (between time t and t − 3) growth rate. In (B) we check for different ownership stake for both sales and employee growth. Here, we consider cases where the foundation holds between 25 and 100% of the FoF (Model 7 and 9) and cases where the foundation holds between more than 50% of the FoF (Model 8 and 10). In all models, Foundation-owned Firm (FoF) is the independent variable. Industry and year dummies are not reported but included in the regressions

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

5.3 Robustness checks

The robustness checks are shown in Table 7.

The first robustness check concerns an alternative method to calculate growth. In our main analyses, we used the one-year firm growth rate. In this robustness check, we use a two-year growth rate (yearly increase/decrease between time t and t − 2) and a three-year growth rate (yearly increase/decrease between t and t − 3) for both sales and employee growth. The coefficients of − 5.92 ($p < 0.05$) and − 8.33 ($p < 0.05$) show that foundation ownership still has a negative effect on sales growth and that these coefficients become even stronger than for the regressions using the one-year growth rate. As with our main analyses, we could not find an effect of foundation ownership on employee growth.

The second robustness check focuses on the definition of FoFs. In our main analysis, FoFs are defined as firms where the foundation holds more than 25% of the equity. Now, we apply a stricter and narrower definition and define FoFs as firms where the foundation holds more than 50% of the equity. We also excluded the respective control firms. Since a higher equity stake is generally associated with a higher influence on the firm, we expect a higher effect for FoFs when using this stricter definition. The coefficient of − 2.69 ($p < 0.05$) supports our expectation. FoFs grow 2.69% (versus 2.33% when using the wider definition) less per year in relation to the control group. Again, we did not find an effect with regard to employee growth.

As another robustness check, we ran our models without industry controls, which may not be necessary as industry effects are already accounted for through the matching process. Excluding industry variables from our regressions leaves the results almost unchanged pointing towards their robustness.

6 Discussion

How does foundation ownership influence firm growth? Our analysis shows that foundation ownership has a negative effect on sales growth but no effect on employee growth. We also find that the negative effect on sales growth becomes stronger for the upper than for the middle or lower quantiles of the growth distribution. We explain our results with the characteristics of foundations as owners. As an important goal, foundations strive to preserve their assets. Thus, they avoid unnecessary risks such as extreme sales growth, which can endanger firm survival. The non-significant effect of foundation ownership on employee growth can be explained by the strong employee orientation of FoFs leading them to invest more than other firms into their own capabilities and human resources, particularly when growth opportunities arise. This strong employee orientation should have a positive effect of foundation ownership on employee growth, which counteracts the negative effect resulting from the strong risk aversion of the foundation. In sum, we argue that building up staff is a double-edged sword. For FoFs, there exist two effects or rationales that go in different directions and seem to cancel out each other explaining the non-significant result. On the one hand, building up personnel and staff can

be risky and costly, which FoFs may not like due to their strong risk aversion. On the other hand, FoFs and foundations as owners also value being independent from other firms and suppliers, which is why they invest more than other firms into their core competences, key personnel and key resources with the goal of building up a strong resource base.

By showing that FoFs seem to avoid extreme risks, our study contributes to the literature on FoFs and performance. So far, prior research has investigated the performance implications of FoFs (Herrmann and Franke 2002; Thomsen and Rose 2004; Block et al. 2020) without considering that FoFs may also differ with regard to their risk (behavior). Yet, risk and return are two sides of the same coin and only looking at performance without considering risk provides an incomplete picture. The results of our study are also in line with prior research as they demonstrate that FoFs have a strong stakeholder and employee orientation (Børsting and Thomsen 2017; Draheim and Franke 2018). The strong employee orientation helps to explain why the negative effect of foundation ownership on firm growth seems to exist only for sales growth but not for employee growth. Beyond the research on FoF, our paper also contributes to the broader literature on how firm ownership affects firm growth. So far, this literature has focused on family (Miroshnychenko et al. 2020), managerial (Lappalainen and Niskanen 2009), and financial investor ownership (Thomsen and Pedersen 2000). Our study shows that foundation ownership matters as well.

Our results also have practical implications. It appears that transferring ownership into a foundation may come with a growth penalty for the firm, which is an important information for founders and business families who consider setting up a foundation for succession purposes as well as for investors seeking to invest in FoFs. FoFs may have problems to compete against other firms in dynamic and high-growth industries.

However, our study is not without limitations, which open up avenues for further research. First, as there is hardly any data available on foundations, we may miss important information and variables, which could help us to dig deeper into the reasons behind the high risk aversion of foundations as owners. For example, it would be highly instructive to investigate the charters of foundations charters, particularly the description of the purposes of foundations. Qualitative, interview-based research may also help to understand better the motives of foundations that lead FoFs to avoid high growth. Second, one needs to be careful to generalize the results of our study to FoFs beyond the DACH region. Although the phenomenon of FoFs also exists in Northern Europe, the legal and institutional context in Northern Europe is different from the DACH region and it is unclear whether similar results would be obtained. Moreover, there are also special cases such as the US where private foundations and trusts are not allowed to own more than 20% of the equity of a firm (Fleishman 2003). Thus, it is necessary that future research focuses on firm growth in FoFs using samples from a variety of legal, cultural and institutional contexts. Third, we cannot differentiate between the treatment and selection effects of foundation ownership. Do owners of firms with low growth (ambitions) choose foundations as a succession vehicle or does foundation ownership lead to lower firm growth? To explore this question in detail, longer time series data allowing a before-after

comparison is needed. Next, our study only considers total growth and does not distinguish between different growth modes such as organic or inorganic growth. We would expect that due to their risk aversion, FoFs are less likely than other firms to grow through mergers and acquisitions (M&A). Future research could therefore investigate the effects of foundation ownership on M&A behavior and performance. Finally, as our non-significant results for employee growth demonstrate, there may also be situations where FoFs are less risk averse than other firms. Future research could follow family firm research on innovation (Block et al. 2022) and explore under which conditions and circumstances FoFs make (risky) investments in R&D and how this turns into innovation.

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